Does the sport-related food environment support children’s right to health?

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A thesis submitted for the degree of
Doctor of Philosophy
at the University of Otago
Dunedin, New Zealand
April 2016
Abstract

Under the UN Convention of the Rights of the Child (UNCRC), children have the right to health and live in conditions that support that right, including a healthy food environment. However, a substantial proportion of the child population in New Zealand bear the burden of diet-related chronic conditions, especially overweight and obesity, type 2 diabetes and dental caries, suggesting that not all New Zealand children’s rights are being realised.

Children’s dietary patterns are shaped by physical, socio-cultural, economic and political elements of their food environments. Food is strongly associated with sport. Consequently, sport and sport settings constitute an important part of children’s food environments. However, little is known about how children and parents view the New Zealand sport-related food environment, and how well it supports children’s right to health. This study aimed to understand the nature of the sport-related food environment from children’s and parents’ point-of-view and their opinions on it, and to determine its compliance with, and reasons for any breaches of, UNCRC.

Children (n=82) and parents (n=32) were purposively selected from football, netball and rugby clubs in Wellington, New Zealand, and given cameras to record the food related items they associated with sport. The photographs were used in focus groups to determine children’s and parents’ views on the sport-related food environment. The data were analysed using thematic analysis, guided by the Analysis Grid for Environments Linked to Obesity framework, and contextualized using a child right’s approach.

On balance, children and parents report the sport-related food environment in New Zealand is obesogenic. It would appear that the nature of the New Zealand’s sport-related food environment is such that children’s rights to healthy food and to the availability of nutrition information are not realised, children are not adequately protected from exploitation and harm as they entitled to, and that it does not support parents in meeting their responsibilities in providing a healthy food environment for their children. Such breaches of children’s rights indicate that the decisions made within the sport-related food environment prioritise economic factors and food industry self-interest over children’s best interests. As such, the New Zealand sport-related food environment does not support children’s right to health.
Improving children’s sport-related food environment requires a comprehensive approach involving a range of interventions, and underpinned by UNCRC so that the decisions made within it are weighted in favour of children’s health and well-being. As signatories to UNCRC, governments have international legal obligations to implement all necessary measures to respect, protect and fulfil children’s rights. Accompanied by global guidance, such leadership would support parents, sports coaches, clubs and organisations, and health professionals and other civil society members who also have responsibilities to children in this arena.

Sport is a global phenomenon and it would appear that the New Zealand sport-related food environment, and children’s and parents’ views on it, are similar to other countries. Thus, the findings of this study may be relevant to other governments, and to sports clubs and sporting organisations internationally.
Acknowledgements

This thesis embodies the efforts and support of many people and organisations, to whom I owe a huge ‘thank you’.

To my supervisors, Louise Signal, Richard Edwards and Janet Hoek, for having the confidence in my ability to undertake a PhD thesis. Your expert guidance, advice and knowledge sharing throughout the process, and in my transition from clinician to researcher, have been invaluable. I have learnt so much from you.

To the staff and my fellow students in the Department of Public Health for your collegiality and support while I developed a range of new knowledge and skills.

To the many people who have cheered me on from the sidelines and helped me to keep my head above water. Special thanks to Virginia Signal for your companionship and assistance during data collection – we made a great team! To Amanda D’Souza for sharing your enthusiasm, knowledge and insights on the Convention with me; Carolyn Hooper and Tess Clarke for your friendship and lending an ear, and the occasional shoulder, when I most needed it; and to Murray Thomson for supporting my ‘recovery’.

To the Health Research Council for funding this research and giving me the opportunity to realise life beyond clinical dentistry.

To the children and parents, the sports clubs, coaches and managers, and schools who participated in this research. Thank you for letting me into your lives briefly so that I could learn more about your world. I enjoyed meeting and working with you all.

Finally, to my family.

To my wonderful husband Julian for willingly and unconditionally taking the journey with me and making changes in your life. This tome is as much yours as it is mine. I am so very grateful for your patience, constant encouragement and support during the (many) challenging moments. Your unwavering faith in my ability to see it through to the end has been my strength. I promise you that 2016 will be my last year of university enrolment…ever!

And to my lovely study buddies Bruce and Stevie – your loyal companionship and loving spirit have been a great comfort to me over the last six years.
Publications arising from this thesis

Peer-reviewed journal articles

Published conference proceeding

Conference presentations


Conference posters


Popular press


Prizes

Timeframe for thesis
Data for this thesis was collected from June to October 2010. Between 2012 and 2016, I took two breaks of substantial periods of time from my thesis to pursue opportunities to develop my research career and undertake other work related to my thesis topic. My involvement in these projects delayed the write-up of the research. Key studies I was involved in were the Ministry of Health-commissioned Study of Older People’s Oral Health Issues, which included a national oral health survey of 2,218 dependent older people (2012-2013; named investigator) and the HRC-funded Kids’Cam Project (2013-2016; named investigator). Both studies are significant, being some of the first of their type internationally.
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## Abbreviations

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<tr>
<td>ASA</td>
<td>Advertising Standards Authority</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<td>CATI</td>
<td>Computer-assisted telephone interviewing</td>
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<td>CI</td>
<td>Confidence Interval</td>
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<td>CSR</td>
<td>Corporate social responsibility</td>
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<tr>
<td>DMFT</td>
<td>Decayed, Missing and Filled Teeth</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FCTC</td>
<td>Framework Convention on Tobacco Control</td>
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<td>FSANZ</td>
<td>Food Standards Australia New Zealand</td>
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<td>GST</td>
<td>Goods and services tax</td>
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<td>MS</td>
<td>Moira Smith, researcher</td>
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<td>NCD(s)</td>
<td>Non-communicable disease(s)</td>
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<td>NZ</td>
<td>New Zealand</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>OHCHR</td>
<td>Office of the High Commissioner for Human Rights</td>
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<td>OR</td>
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<td>Random digit dialling</td>
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<td>RR</td>
<td>Rate ratio</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNCRC</td>
<td>United Nations Convention on the Rights of the Child</td>
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<td>UNICEF</td>
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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Food is a key determinant of health (WHO, 2016a). It provides the essential nutrients for optimal human development and ongoing physiological and mental functioning (Mann & Truswell, 2012; WHO, 2003a), and influences health and well-being throughout the life course. Depending on the quality and quantity consumed, food can be instrumental in establishing and maintaining good health, or be a key risk factor for a myriad of adverse health outcomes (WHO, 2003a). Children have a right to food, and to live and develop in surroundings that support healthy dietary behaviours, which in turn allows them to realise their right to the highest attainable standard of health (OHCHR, 1989). Yet, these rights are not realised for a significant proportion of children worldwide, including New Zealand children, who are substantially impacted by the immediate and long-term burden of diet-related chronic conditions, particularly overweight and obesity, type 2 diabetes mellitus and dental caries.

Many chronic conditions are in part attributable to poor dietary or unhealthy food preferences and behaviours, that is, food choices, purchasing and consumption (Cairns, Angus, & Hastings, 2009; Worsley, 2002). Accordingly, it is thought that a key facet of disease prevention lies in improving people’s nutrition and dietary knowledge. Yet, according to experts, education alone is ineffective in making substantive long-term dietary changes as people’s dietary behaviours are not context-free (Egger & Swinburn, 1997; Story, Kaphingst, Robinson-O’Brien, & Glanz, 2008; Swinburn, 2008). Rather, the dietary behaviours of individuals and populations are influenced by the surroundings in which they live, and are shaped by various underlying social, cultural, political and economic factors. Numerous international and national organisations and agencies take this socio-ecological perspective to understanding diet-related disease aetiology, considering it to be the most effective basis for interventions to support healthy food choices, and reduce and prevent poor population health outcomes.

This thesis adopts a socio-ecological approach to food behaviours (Egger & Swinburn, 1997; Story et al., 2008) to explore an aspect of the food environment common to the majority of children – that associated with sport – and considers it in the context of children’s rights. Sport is an integral part of many children’s lives and an ideal setting for
promoting healthy dietary behaviours (Kelly, King, et al., 2014; Sport for Development and Peace International Working Group, 2008), and there are known associations between food and sport (Carter, Signal, Edwards, Hoek, & Maher, 2013; Kelly, Baur, Bauman, King, et al., 2010a; Kelly, Chapman, King, Hardy, & Farrell, 2008). As such, it constitutes an important part of children’s food environments. Yet emerging evidence demonstrates that the sport-related food environment is largely unsupportive of healthy dietary behaviours (Carter et al., 2013; Kelly et al., 2008). Furthermore, little is known about how the sport-related food environment is viewed by those people who interact with it and who are impacted by it, in this case – children, and their parents or caregivers.

The central research question addressed in this thesis is:

– Does the sport-related food environment in New Zealand support children’s right to health?

In doing so, this thesis also addresses the following sub-questions:

– What does the sport-related food environment look like from children’s and parents’ perspectives?

– What are children’s and parents’ opinions on the sport-related food environment?

In this thesis, unhealthy food is defined as foods and beverages that are energy-dense and low in naturally occurring nutrients...contribute little fibre and few essential nutrients and phytochemicals but contain added fats, sweeteners, sodium and other ingredients...displace the consumption of foods recommended in national dietary guidelines and may lead to the development of obesity and diet-related chronic diseases (Glickman, Parker, Sim, Del Valle Cook, & Miller, 2012, p. 162).

1.2 The influence on the approach adopted in this thesis

My arrival (or as a colleague calls it, my ‘recovery’) into public health has come late in my career. I spent the first 22 years of my working life in primary health care as a general dentist treating and preventing oral disease on an individual – and individualistic – level. A large part of my daily practice was spent at the ‘bottom of the cliff’, addressing the impacts of oral disease – relieving people’s pain, restoring function, and (hopefully) ‘making a difference’ by improving their quality of life. I also provided preventative advice, including nutrition education, but this aspect of my work was dissatisfying. I did not
believe people really acted on my advice or that it made much of an impact. The might of the large wealthy multinational companies were too powerful to counter. For example, one has the prime objective to ensure that their sugary drink products are “within an arm’s reach of desire” (The Coca-Cola Company, 2012) – which in my case was no more than 100m from my surgery door. Realistically, what sort of ‘difference’ was I going to make? My advice-giving felt more and more as if I was ‘going through the motions’ and seemed, to me at least, to be a futile exercise. Towards the end of my practicing career I became increasingly frustrated at this scenario and started to look elsewhere for answers.

At the same time – about fifteen years ago – I became involved in competitive Masters swimming. I was very fit and physically active...and also overweight. My trainer suggested that it might be what I was eating. After some ‘research’, I cleared out the kitchen cupboards of ‘manufactured’ food, stopped drinking sports drinks, and lost 20kg (and improved my race times!). This made me realise that energy intake was more influential on weight gain, or loss, than energy expenditure and, most significantly, I became acutely aware of how one’s surroundings encourage poor choices and impact consumption. I also started to question why food and drink products that are harmful to our health are permitted to be so ubiquitously available and prominently marketed, especially in light of the government’s advice to avoid or limit their consumption (Ministry of Health, 2012a). I found (and still do) shopping for recommended foods difficult. How are people meant to make appropriate choices in such surroundings? And...why wasn’t this issue being addressed?

I became increasingly interested in the politics of the food environment, and enrolled for post-graduate study. First, I honed my nutrition knowledge with a diploma in community nutrition. I found the health promotion aspects of the course really interesting, but it did not focus far enough upstream for my liking. Attracted by an aptly-timed course titled ‘Political and Social Influences on Food and Nutrition’, I enrolled to do some public health papers and I felt as though I had hit home! I started spending more time studying and less time at the surgery. An opportunity to do a PhD presented itself. By this stage the limitations of clinical dentistry had started to wear on me; I wanted to find out if I was capable of doing something else and make a difference in another way.

I work in a public health department in a medical school, rather than a dental faculty. Our research unit focuses on the environmental dietary drivers of child obesity and the
implications for public health nutrition policy. This seems somewhat unrelated to oral health. However, oral health has a substantial impact on people’s overall health and well-being – to which many of my former patients will attest. Diet is a common risk factor for some oral diseases and poor general health outcomes, including obesity. The most widely recognised shared factor is sugar consumption, and cross-sectional research demonstrates a significant association between dental caries and obesity in children in industrialised countries (Hayden et al., 2013). Dentists are not really trained to think about or respond to the causes of oral disease beyond those they can address within the four walls of their surgery. A few work at the community level, but oral public health discourse is largely dominated by water fluoridation; there is very little commentary on issues of public health nutrition in the oral health literature, or within the profession. Also, oral health, in New Zealand and internationally, is ‘silied’, being viewed as a stand-alone area of health rather than just being part of health.

Two major themes in this thesis are exploring ‘upstream’ determinants of children’s health, such as policy and social security, and analysing those upstream determinants from a child rights perspective. An early influence on my thinking in my shift from clinical practice to public health was the work of Aubrey Sheiham and Richard Watt on the role of oral health professionals in the general health promotion arena (Sheiham & Watt, 2000; Watt & Sheiham, 2012). Sheiham and Watt are oral health scholars who are strong proponents of the common risk factor approach to oral health promotion and reducing oral health inequalities. Their belief is that current oral health behaviour change interventions, primarily oral health education, are too individually focused, unsupported and therefore ineffective, and do not address the underlying social determinants of oral disease causation. To effect real change, they recommend that oral health policy address the upstream determinants of oral health and engage with existing general health promotion and chronic disease prevention programmes that address the social determinants of health. Doing so, they argue, would result in effective, efficient and consistent health promotion actions, avoid duplication, and reduce the “isolation and compartmentalization of oral health” (Watt & Sheiham, 2012, p. 289). Thus, Sheiham and Watt assert that oral health practitioners’ task and challenge is to go beyond the confines of the dental surgery and “convince policy makers and society to undertake the specific social measures which are required to solve general and oral health problems, and to participate in the
implementation of these policies” (Sheiham & Watt, 2000, p. 400). This thesis represents the initial stage in my ongoing response to their challenge.

A document that resonated with me in my early reading for this thesis was the UN Convention on the Rights of the Child (UNCRC or the Convention) (OHCHR, 1989). In 2012, I had the privilege of attending a workshop on health and human rights given by Professor Paul Hunt, the former UN Special Rapporteur on the Right to Health. His teaching firmed up my view that a human rights approach provided an ideal means of addressing the questions I was asking about the food environment, including who was responsible for its composition. However, I could find very little literature that uses UNCRC to critically examine our current food environment. I was keen to explore its application in more depth, a task I also set myself in this thesis.

1.3 Thesis structure

This chapter has described the purpose of, and the influences on and context to, my approach to this thesis. Chapter Two provides the background for this thesis by outlining the central public health issue this research addresses, that is, the high prevalence and consequences of overweight and obesity, type 2 diabetes and dental caries in children. Causal factors in the diet-related chronic conditions of most concern for children, including children’s dietary patterns, the role of food environments on food behaviours and the social determinants of health, are then discussed. The model used to conceptualise food environments is also presented in Chapter Two.

In industrialised countries there has been little consideration given to diet-related chronic conditions of most concern for children in the context of children’s rights. Chapter Three starts with a brief outline of human rights and UNCRC in particular, followed by an in-depth exploration of the food environment from the perspective of children’s rights. The final part of the chapter describes how a child rights-based approach provides the theoretical foundation for this thesis.

Sport is a key aspect of many children’s lives, and food is associated with sport in a number of ways. Chapter Four outlines the role and importance of sport in children’s lives and discusses the emerging evidence about the nature of the sport-related food environment and how it may impact children’s food behaviour. Chapter Five presents the results of a systematic review that identified and critically appraised the current literature reporting on
children’s and parents’ opinions of the sport-related food environment. The review also identified gaps in the literature and provided an indication of areas for future research. The review findings were used to inform the study design.

Chapter Six describes the methodology and the methods used in this study. The methods included an analysis of photographs of the sport-related food environment taken by children and parents, and use of the photographs in focus groups to generate discussion, to gain direct insight into how children and parents see and understand the sport-related food environment. Chapters Seven and Eight present the findings from the content analysis of the children’s and parents’ photographs, and thematic analysis of the focus group discussions, respectively.

Chapter Nine discusses the findings of the research in the context of both the current literature and children’s rights, and the study’s strengths and limitations. The chapter closes by outlining the public health implications of the study findings, recommendations for further research and the conclusions resulting from this thesis.
CHAPTER TWO: CHILD HEALTH, DIET AND FOOD ENVIRONMENTS

The cheapest, most convenient and tastiest foods are also the most unhealthy - high in energy and sodium, and low in nutrients. Their market penetration over a very short time is astonishing. Junk food is becoming the new staple global diet. This should be our concern (Chan, 2013).

The fact that NCDs have overtaken infectious diseases as the world’s leading cause of morbidity and mortality has profound consequences. This is a seismic shift that calls for sweeping changes in the very mindset of public health (Chan, 2014).

2.1 Introduction

This chapter presents an overview of the public health issue central to this thesis – the high prevalence of several diet-related chronic conditions that are of most concern for children - overweight and obesity, type 2 diabetes and dental caries (Proimos & Klein, 2012; The NCD Alliance, 2011). That children are affected by those conditions is especially significant. Acquiring them at an early age subjects individuals to poor health and disability for longer, and increases their risk of other diseases in childhood and throughout their life. It also places substantial economic burdens on society through costs of treatment and lost productivity.

The chapter commences by describing the prevalence and patterns of overweight and obesity, type 2 diabetes and dental caries in the global population, and in New Zealand children. Their consequences for children and society are then outlined. The foods people consume frequently and regularly – their dietary patterns – are a causal factor in the diet-related chronic conditions of most concern for children. The main diet-related risk factors and their contribution to chronic disease and New Zealand children’s dietary patterns are then described. The food environment in which people live and interact with is a key driver of people’s dietary preferences and behaviours, and thus dietary patterns. Therefore, the chapter concludes by outlining the environmental factors that influence children’s food preferences and behaviours.
2.2 Prevalence of diet-related chronic conditions of most concern for children

2.2.1 Overweight and obesity
Overweight and obesity, the “abnormal or excessive fat accumulation in adipose tissue, to the extent that health may be impaired” (WHO, 2000, p. 6), results when a person’s energy intake exceeds energy expenditure, and the subsequent excess energy is stored as fat. Overweight and obesity is defined as having a Body Mass Index (BMI) (weight in kilograms divided by the square of height in meters (kg/m$^2$)) equal to or more than 25 kg/m$^2$ or over 30 kg/m$^2$, respectively (WHO, 2006). To account for the continuously changing height and body compositions throughout childhood, overweight and obesity in children is determined by adjusting the children’s BMI to adult cut-off points according to the child’s age and gender (Cole, Bellizzi, Flegal, & Dietz, 2000; Cole & Lobstein, 2012).

Globally, 2.1 billion people are overweight or obese (Ng et al., 2014). The prevalence of overweight and obesity has increased substantially worldwide, rising in adults from 29.3% in 1980 to 37.4% in 2013 (Ng et al., 2014). Projections indicate that if current trends continue, by 2030 over 3 billion people will be overweight or obese (Kelly, Yang, Chen, Reynolds, & He, 2008). Child overweight and obesity has increased similarly. From 1980 to 2013, the proportion of overweight or obese children increased from one in fifteen (6.7%) to one in four (23.2%) in developed countries, and in developing countries from one in twelve (8.2%) to one in eight (13.1%) (Ng et al., 2014). Furthermore, many children in the latter countries continue to experience communicable diseases and nutritional deficiencies, thus facing a double burden of disease (WHO, 2003a). Reflecting the concern about the prevalence of obesity in the global child population, the World Health Organization (WHO) described it as “one of the most serious public health challenges of the 21st century” (WHO, 2015a).

New Zealand is particularly impacted by overweight and obesity (Ng et al., 2014). New Zealand adults are the third most obese in the OECD (OECD, 2014). Two-thirds of the New Zealand adult population (15+y) are overweight (34.9%) or obese (30.7%); the population mean BMI is 28.1kg.m$^2$ (Ministry of Health, 2015a). A greater proportion of men (70.1%) than women (61.5%) are overweight or obese. Māori and Pacific peoples are significantly more likely to be obese than non-Māori (RR, 1.74) or non-Pacific peoples (RR, 2.41), and the mean BMIs of Māori and Pacific peoples are 30.4kg/m$^2$ and
33.9kg/m², respectively. Moreover, a greater proportion of Māori and Pacific peoples are obese (46.5% and 66.2%, respectively) than they are overweight (30.2% and 23.1%, respectively). People living in the most deprived neighbourhoods are almost twice as likely to be obese than those living in the least deprived neighbourhoods (RR, 1.72); 42.6% of people from areas of high deprivation are obese in contrast to 24.0% from areas of low deprivation (Ministry of Health, 2015a). The prevalence of overweight and obesity increases with increasing age, from 48% in people aged 18-24y to 76.5% in people aged 55-64y in 2013/14 (Ministry of Health, 2015a).

Among New Zealand children, the prevalence of overweight and obesity (32.5%) (Ministry of Health, 2015a) is well above the global average (23.2%) (Ng et al., 2014) and third highest in the OECD (OECD, 2014). In 2014/15, just over one in five New Zealand children aged 2-14y were overweight (21.7%) and one in ten obese (10.8%) (Figure 1), and of those aged 15-17y, two in five (36.7%) were either overweight (20.3%) or obese (16.4%) (Ministry of Health, 2015a). Statistically significant ethnic and socio-economic differences in the distribution of overweight and obesity in the New Zealand child population are also evident (Ministry of Health, 2015a). Just over two in five of all Māori children (aged 2-14y) are either overweight (26.6%) or obese (14.8%) (Figure 1) and Māori children are one and a half times as likely as non-Māori children to be obese (RR, 1.58). Similarly, almost two-thirds of Pacific 2-14y olds are either overweight (32.5%) or obese (29.7%) (Figure 1), and they are three and a half times as likely as their non-Pacific peers to be obese (RR, 3.59) (Ministry of Health, 2015a). Just over one in five children (2-14y) from the most deprived neighbourhoods in New Zealand are obese (21.1%), in contrast to one in fifty (2.1%) among children living in the least deprived neighbourhoods (Figure 2), and they are five times as likely as their least deprived contemporaries to be obese (RR, 5.04) (Ministry of Health, 2015a). Obesity prevalence in children also differs by gender, with a greater proportion of girls obese than boys, except among Asians (Ministry of Health, 2015a).
Figure 1: Overweight and obesity prevalence New Zealand children (2-14y) by ethnicity (2014/15)

Figure 2: Overweight and obesity prevalence New Zealand children (2-14y) by deprivation (2014/15) (NZDep2013 (Atkinson, Salmond, & Crampton (2014)))
The prevalence of overweight or obesity in the total child population in New Zealand, in particular Māori children and children aged 10-14y, increased significantly between 2006/07 and 2013/14 (Ministry of Health, 2015a) (Figure 3). The rise in child overweight and obesity in New Zealand is in contrast to some developed countries, such as the United States, Australia and the United Kingdom where they appear to have at least stabilised in the last ten to fifteen years (Jaarsveld & Gulliford, 2015; OECD, 2012; Ogden, Carroll, Kit, & Flegal, 2012; Olds, Tomkinson, Ferrar, & Maher, 2009).

In particular, significant increases in obesity prevalence in New Zealand children (2-14y) from 2006/07 to 2014/15 were reported for the total child population, and in all ethnic groups except Asian children (Ministry of Health, 2015a). Trends during the period also differed by deprivation (Figure 4), with an apparent increase in prevalence in children living in the most deprived neighbourhoods and a decrease in children living in the least deprived neighbourhoods. Furthermore, the disparity between the two population sub-
groups doubled during the time period, ranging from a difference of 9.6% in 2006/07 to 19% in 2014/15 (Figure 4) (Ministry of Health, 2015a). These findings suggest that interventions implemented to date to reduce obesity prevalence may have been effective for the most well-off children in New Zealand but not the most vulnerable.

![Figure 4: Trends in obesity prevalence New Zealand children (2-14y) by deprivation, 2006/07 – 2014/15](image)

^NZDep06 (Salmond et al., 2007); #NZDep13 (Atkinson, Salmond, & Crampton, 2014)
Source: Ministry of Health, 2015a.

2.2.2 Type 2 diabetes mellitus
Type 2 diabetes, is a progressive, metabolic disorder that results in increased blood glucose (hyperglycaemia) due to insulin resistance (American Diabetes Association, 2014). It is most commonly associated with weight gain, lack of exercise and poor diet. In 2013, 382 million people, or 8.3% of the world population, had diabetes, predominantly type 2 diabetes (Guariguata et al., 2014). The number of people with diabetes has more than doubled since 1980, with low and middle income countries most impacted (Danaei et al.,
2011; Guariguata et al., 2014). By 2035, 591.1 million people are expected to have type 2 diabetes (Guariguata et al., 2014).

In New Zealand, analysis of data from the most recent national adult nutrition survey (using self-report, doctor-diagnosed and blood marker levels) showed that the prevalence of diabetes and prediabetes\(^1\) in New Zealand adults (15+y) in 2008/09 was 7.0% and 25.5% respectively (Coppell et al., 2013). Diabetes prevalence was higher among people who were obese, and highest among Pacific people. Pacific people also had the highest prevalence of undiagnosed diabetes (Coppell et al., 2013). The most recent New Zealand Health Survey found that Māori, Pacific peoples and people from areas of high deprivation are significantly more likely than non-Māori (RR, 1.73), non-Pacific peoples (RR, 3.63) and people from areas of least deprivation (RR, 2.94), respectively, to have type 2 diabetes (based on self-report) (Ministry of Health, 2015a).

Type 2 diabetes is typically diagnosed in adulthood (unlike type 1 diabetes, which is an auto-immune disorder diagnosed in childhood). However, since the 1990s type 2 diabetes has emerged in the child population, paralleling the increased prevalence of child overweight and obesity (Centers for Disease Control and Prevention, 2014; D’Adamo & Caprio, 2011). In the United States, type 2 diabetes now accounts for up to half of diabetes (diagnosed and undiagnosed) prevalence in children aged 12-17y (Demmer, Zuk, Rosenbaum, & Desvarieux, 2013); during 2008-09, 5,089 new cases of type 2 diabetes were diagnosed in people under the age of 20y (Centers for Disease Control and Prevention, 2014). Furthermore, a quarter to a third of populations, including adolescents, may have undiagnosed type 2 diabetes (Centers for Disease Control and Prevention, 2014; Coppell et al., 2013; Demmer et al., 2013). As in adults, indigenous population groups and the most deprived children bear the greatest burden.

The prevalence of type 2 diabetes in the New Zealand child population is currently undetermined. However, regional surveys demonstrate its recent emergence in New Zealand children, with a higher prevalence among Māori, Pacific and the most deprived children (Campbell-Stokes & Taylor, 2005; Hotu, Carter, Watson, Cutfield, & Cundy, 2004; Jefferies et al., 2012). Jefferies et al. (2012) conducted a retrospective analysis of the changes in the incidence of type 2 diabetes in children aged under 15y presenting to the

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\(^1\) Includes forms of glucose intolerance with similar aetiological risk factors as type 2 diabetes and which are often precursors to it.
country’s largest children’s hospital on referral from 1995 to 2007. Incidence was assessed as the rate of type 2 diabetes diagnosed/100,000 matched by age and region in a given year based on national census data. The authors found that type 2 diabetes accounted for 8% of all new cases of diabetes in children, and in 2007, the incidence of type 2 diabetes was 2.5 per 100,000, five times greater than in 1995 (0.5/100,000). The average age at presentation was 12.9y, with the youngest being 7y. A substantial proportion (73%) of children was from neighbourhoods of highest deprivation; by contrast, there were no presentations in children from the least deprived neighbourhoods. Furthermore, the majority of type 2 diabetes cases diagnosed were in Māori or Pacific children, and the incidence rates for these two population groups had more than doubled since 2000.

2.2.3 Dental caries
Dental caries is “an oral infectious disease of the teeth in which organic acid metabolites produced by oral microorganisms lead to demineralization and destruction of the tooth structures” (Touger-Decker & Van Loveren, 2003, p. 882S). Fermentable carbohydrate sourced from the diet is a prerequisite for the development and progression of dental caries (Touger-Decker & Van Loveren, 2003). The DMFT (Decayed-Missing-Filled Teeth) Index is the most widely accepted indicator for assessing an individual’s life-time dental caries experience (Kirch, 2008). Expressed numerically, it is the sum of a person’s teeth that have untreated decay, or have been extracted or filled due to dental caries.

Oral health conditions, including dental caries, are significant public health issues, affecting almost four billion people – over half the world’s population. A recent analysis of global data found that dental caries was the most common disease among 291 conditions, and that for all age groups (0-80+y) combined, the prevalence of untreated dental caries was 35% (Marcenes et al., 2013). Dental caries is the most common chronic childhood disease, experienced by the majority of school-aged children worldwide (Bagramian, Garcia-Godoy, & Volpe, 2009).

Despite New Zealand children’s oral health having improved substantially in recent decades, poor oral health is still a major individual and public health issue for a substantial proportion of New Zealand children. Only half (49.3%) aged 2-17y are caries-free, and one in six (15.9%) have untreated dental caries (Ministry of Health, 2010). Although the mean DMFT for 12-year-old New Zealanders (1.14) (Ministry of Health, 2013a) is lower
than the global average (1.86) (Gavriilidou, n.d.), it is higher than many other countries with which New Zealand compares itself (OECD, 2009). Furthermore, as with other chronic conditions, Māori and Pacific children, and children from areas of high deprivation experience poorer oral health and well-being than non-Māori and non-Pacific children, and those from less deprived neighbourhoods. For example, Māori and Pacific children are significantly less likely to be caries-free than their non-Māori or non-Pacific peers (RR 0.7 for both groups), and Māori children are twice as likely as non-Māori children to have untreated dental caries (RR, 1.9) (Ministry of Health, 2010).

Of greatest concern is the number of children admitted to hospital for treatment for dental caries, including (often multiple) extractions under general anaesthesia. Treatment for dental caries is the leading cause of avoidable hospital admissions for New Zealand children aged 0-14y (Craig et al., 2013); with one in five (20.7%) children on hospital waiting lists needing such care. Children under 8y are most impacted, with significantly more three and four year-olds requiring hospital admission for dental caries than any other age group (Craig et al., 2013; Whyman, Mahoney, Stanley, & Morrison, 2012). During 2004-08, 20.7% 3-4 year olds and 12.7% children aged 5 to 8y were hospitalised for dental treatment, up 8% and 3.8%, respectively, from 2000-04 (Whyman et al., 2012). Māori and Pacific children are disproportionately affected, with Māori 0-4 year olds being 2.6 times and Pacific 0-4 year olds 2.9 times as likely as non-Māori and non-Pacific children, respectively, to be admitted to hospital for dental care (Craig et al., 2013). Similar trends are seen in children aged 5-14y. In addition, children under 14y from neighbourhoods of high deprivation are 3.5 times as likely as their more well-off peers to require hospital-based dental treatment (Craig et al., 2013).

2.3 Consequences of diet-related chronic conditions of most concern for children

The impacts of diet-related chronic conditions, including those of most concern for children, are numerous. They are wide-ranging, immediate and long-term, and place a considerable burden on individuals, the health system and society.

2.3.1 Physical consequences

Overweight and obesity are leading risk factors for disease burden due to morbidity and death worldwide, and in New Zealand (Lim et al., 2012; Ministry of Health, 2013b).
Overweight and obesity are associated with increased risk of a number of non-communicable diseases including (but not limited to) cardiovascular disease, stroke, several cancers, type 2 diabetes and osteoarthritis (Guh et al., 2009; WHO, 2003a).

Childhood overweight and obesity adversely affects most body systems, as it does in adults (Daniels, 2009; Must & Anderson, 2002). Several large population-based surveys indicate that obesity increases the risk of children developing a number of cardiovascular disease risk factors (Freedman, Dietz, Srinivasan, & Berenson, 2009; D. Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007; May, Kuklina, & Yoon, 2012). In a cross-sectional, nationally representative survey of 3383 children aged 12-19y from the United States, a dose-related response was observed between BMI and the prevalence of each of the cardiovascular risk factors measured in the survey, including prehypertension/hypertension, abnormal blood cholesterol markers, prediabetes/diabetes, and having two or more risk factors. Relative to their healthy weight peers, a significantly greater proportion of overweight and obese children had two or more risk factors, and a significantly greater proportion of obese children had three or more risk factors (May et al., 2012).

Overweight and obesity are key risk factors for type 2 diabetes (Abdullah, Peeters, de Courten, & Stoelwinder, 2010; Kumanyika et al., 2008). A recent meta-analysis of twelve high quality prospective cohort studies found that obese adults are over seven times (RR, 7.28 (CI, 6.47-8.28)), and overweight adults almost three times (RR, 2.92 (CI, 2.57-3.32)), as likely as healthy weight people to develop type 2 diabetes, respectively (Abdullah et al., 2010). In addition, the majority of adults and children who present with type 2 diabetes are overweight or obese (Coppell et al., 2013; D’Adamo & Caprio, 2011; Jefferies et al., 2012) and more than a quarter of obese adolescents have signs of diabetes by the age of 15y (Goran, Ball, & Cruz, 2003).

Children with type 2 diabetes are also at greater risk of cardiovascular disease and other related comorbidities in childhood, including retinal, neural and renal pathologies (Prendergast & Gidding, 2014). In New Zealand, Jefferies et al. (2012) found that the mean BMI of children under 15y presenting with type 2 diabetes at hospital from 1995-2007 was 33.8kg/m² and many already had diabetes-related comorbidities including kidney disease (35%), liver disease (33%) and high blood pressure (52%). Type 2 diabetes also develops more rapidly and is more difficult to treat in children than in adults, and
glycaemic control is often poor in this age group as children are less likely to adhere to treatment regimes (Jefferies et al., 2012; Levitt Katz et al., 2011).

Over half of obese children suffer from obstructive sleep apnoea (Narang & Mathew, 2012), a risk factor for myocardial infarction and stroke in adults. Obstructive sleep apnoea also has significant effects on learning and memory in children, and is associated with further weight-gain (Daniels, 2009). Other complications of childhood obesity include early menarche in girls and irregularities in menstruation; neurological disorders; orthopaedic abnormalities and complications, including increased risk of fractures and Blount’s disease; increased risk of gallstones and other gastro-intestinal complications; increased prevalence of asthma; cirrhosis of the liver and hepatitis; and renal and neurological complications (Daniels, 2009).

Childhood overweight and obesity also has longer term health implications. Up to half of children who are overweight or obese become overweight or obese adults, the probability increasing with a child’s increasing age and BMI (Freedman et al., 2005, 2009; Guo et al., 2000). Furthermore, overweight and obesity in childhood increases the chance of developing obesity-related comorbidities in adulthood, and can double the overall risk of mortality (Biro & Wien, 2010; Dietz, 1998a; Freedman et al., 2009). In an analysis of four large prospective cohort studies with a mean length of follow-up of 23 years, Juonula et al. (2011) found that overweight/obese children who remained obese in adulthood were five and a half times as likely as normal weight children/adults to develop type 2 diabetes (RR,5.4 (CI,3.4-8.5)). Cardiovascular disease risk factors developed in childhood, including hypertension, hyperlipidaemia, and diabetes, also often persist into adulthood (Dietz, 1998b).

Dental caries is rarely fatal. However, it is associated with considerable morbidity (Ministry of Health, 2010; Petersen, Bennett, Ogawa, Estuinan-Day, & Ndiaye, 2005). Pain, infection, anxiety and tooth loss from dental caries can result in reduced function, notably speech and chewing; poor nutrition status; and loss of self-esteem (Slade, 1997). In turn, those consequences can negatively impact cognitive ability, education, behaviour, social functioning, children’s growth and development, and ultimately, quality-of-life (Ministry of Health, 2010; Sheiham, 2001; Slade, 1997). Children and adults surveyed in the 2009 New Zealand Oral Health Survey reported their lives and well-being being substantially impacted by oral conditions (15.6% and 6.1%, respectively) (Ministry of...
Health, 2010). In addition, one in ten (10.2%) adults had taken, on average, 2.1 days off work in the year prior to the survey due to dental problems, and one in eight children (13%) aged 2-17y had taken, on average, 2.5 days off school or other normal activities over the same period as a consequence of dental problems. One in nine parents (11.6%) reported taking just over two days off work, on average, to attend to their children’s dental problems (Ministry of Health, 2010).

Dental caries has longer term implications. Dental caries prevalence in primary teeth is predictive of its prevalence in permanent teeth (Broadbent, Thomson, & Williams, 2005; Lo, Zheng, & King, 2003; Skeie, Raadal, Strand, & Espelid, 2006). Fear and anxiety resulting from dental caries treatment in childhood negatively impacts on seeking treatment later in life (Locker, Liddell, Dempster, & Shapiro, 1999; Thomson, Broadbent, Locker, & Poulton, 2009).

2.3.2 Psychosocial consequences
Child overweight and obesity, and type 2 diabetes, also have substantial psychosocial impacts (De Niet & Naiman, 2011; Levitt Katz et al., 2005; Naughton et al., 2008). Obese children are frequent victims of teasing and aggression by their peers (Gray, Kahhan, & Janicke, 2009), resulting in psychological distress (Strauss & Pollack, 2003). They are often stereotyped as lazy, unhealthy, academically unsuccessful and socially inept; and are often identified by their peers as those children they would least likely to have as friends (Daniels, 2009). Obese children are more likely to engage in high-risk behaviours such as smoking and alcohol abuse (Strauss & Pollack, 2003), and have reduced levels of physical activity and poorer school performance (Taras & Potts-Datema, 2005). Children with type 2 diabetes report having a lower quality-of-life than their peers with type 1 diabetes (Naughton et al., 2008), and research shows that one in five (19.4%) children with type 2 diabetes have mental health and behaviour problems (Levitt Katz et al., 2005).

Research also shows that obesity’s psychosocial impact early in life results in reduced psychological functioning in later life. Social stigma continues into adulthood, particularly in women. Obesity tracked through from childhood contributes to poverty and low socio-economic status in adulthood, and negatively influences educational attainment (Daniels, 2009; Kumanyika et al., 2008; Lobstein, Baur, & Uauy, 2004; Pudrovska, Reither, Logan, & Sherman-Wilkins, 2014).
2.3.3 Economic consequences

Diet-related chronic conditions also impose a significant financial burden on individuals, communities and health care systems, including the direct expenditure for medical care, and indirect costs resulting from lost productivity and other social costs due to associated morbidity and premature mortality. In the United States, obesity-related illness is thought to be responsible for between 9% and 20.6% of total medical costs (Cawley & Meyerhoefer, 2012; Finkelstein, Trogdon, Cohen, & Dietz, 2009) with the medical care cost per capita of an obese person being almost one and half times more than that of a normal weight person (Finkelstein et al., 2009). In New Zealand, the annual combined cost of health care and lost productivity attributable to overweight/obesity in 2006 was estimated to be between NZ$622 and NZ$849 million (Lal, Moodie, Ashton, Siahpush, & Swinburn, 2012), a figure that will have increased in the last decade.

Diabetes-related costs are equally substantial. In the United States in 2012, the combined cost of medical expenditure and lost productivity from diabetes (diagnosed) was US$245 billion, a 41% increase from 2007 estimates (American Diabetes Association, 2013). Similarly in the United Kingdom in 2010/11, total costs for type 2 diabetes specifically were estimated at GBP21.8 billion, accounting for approximately 10% of healthcare expenditure; costs are expected to rise to 17% by 2035/36 (Hex, Bartlett, Wright, Taylor, & Varley, 2012). In New Zealand, the direct costs alone of diabetes in 2008 were estimated at NZ$600 million (Ministry of Health, 2009). On average, medical expenses for people with diabetes are approximately 2.3 times greater than for those who do not have the disease (American Diabetes Association, 2013).

In developed countries such as New Zealand, oral disease is the fourth most expensive disease to treat, accounting for approximately 5-10% of public health expenditure (Petersen et al., 2005). In Australia, expenditure on treatment for oral disease (10% of total health expenditure) is second only to that for cardiovascular disease (Australian Institute of Health and Welfare, 2012). In New Zealand in 2008, oral health care expenditure was estimated to be just over NZ$1 billion, of which NZ$178 million was funded publically (Ministry of Health, 2010). Indirect and intangible financial costs associated with poor oral health, including time off work or school and loss of productivity, are difficult to quantify and have not been done. While the impact of these costs may be small at an individual level, when considered collectively, they are likely to have substantial societal costs and consequences (Gift, Reisine, & Larach, 1992).
Future oral health care expenditure is also concerning. More and more people are retaining their natural teeth (Marcenes et al., 2013; Ministry of Health, 2010). In 1988, 61.6% of New Zealanders aged 65-74y had lost all their natural teeth and of those in that age group with teeth, fewer than half (43.8%) had retained twenty-one or more teeth. By 2009, the prevalences were 29.6% and 54.9%, respectively (Ministry of Health, 2010). While retaining one’s own natural teeth is advantageous for health, increased tooth retention is expected to generate greater oral health care needs, and burden on individuals and society.

2.4 Causes of diet-related chronic conditions of most concern for children

The dietary patterns people follow – foods that people frequently and usually consume over a period of time – impact their health. However, dietary patterns are determined by numerous influencing factors of environmental origin that operate interactively at several levels. This section discusses children’s dietary patterns, their impact on the chronic conditions of most concern for children and the various environmental drivers of their dietary patterns.

2.4.1 Dietary patterns
Diet is a key modifiable risk factor in the chronic conditions described above. A substantial proportion of health loss – the “healthy life lost due to early death, illness or disability” (Ministry of Health, 2013b, p. ix) – worldwide, including in New Zealand, is attributable to dietary factors (Lim et al., 2012; Ministry of Health, 2013b; WHO, 2003a). Diet-related risk factors have also become increasingly influential (Lim et al., 2012). Prior to 1990, child underweight was the leading cause of health loss globally. However, it is now ranked eighth, having been surpassed by several non-communicable disease risk factors, of which many are related to diet (Lim et al., 2012). By contrast, although low physical activity is also a key risk factor for some chronic diseases including overweight and obesity, and type 2 diabetes, its contribution to health loss is not as substantial as diet-related risk factors (2.8% in 2010) (Lim et al., 2012). Furthermore, research shows that altering energy intake has a greater impact on weight gain or loss than energy expenditure (Luke & Cooper, 2013).
The New Zealand Burden of Diseases, Injuries and Risk Factors Study 2006-2016 provides the most recent information on health loss and risk factors in New Zealand (Ministry of Health, 2013b). Findings are based on data from numerous sources including population-based surveys, national datasets, disease registers and the Global Burden of Disease Study. In New Zealand in 2006, high BMI accounted for 7.9% of health loss, second only to tobacco smoking. In 2016, high BMI is expected to overtake tobacco as New Zealand’s leading health risk factor. Collectively, dietary risks (high saturated fat and sodium intake, and low fruit and vegetable consumption) and high BMI, account for 11.4% of health loss in New Zealand (Ministry of Health, 2013b). Moreover, hypertension, high blood glucose, low bone mineral density and high blood cholesterol together (13.7%) account for the same amount of health loss as tobacco, alcohol and illicit drug use combined. By contrast, low physical activity accounted for 4.2% of health loss in New Zealand in 2006. Table 1 presents the relative ranking of individual diet-related risk factors in 1990 and 2010, the proportion of health loss attributable to those factors, globally and their relative ranking and contribution to health loss in New Zealand.
Table 1: Relative ranking of and contribution to health loss (% DALYS) from diet-related risk factors for men and women, globally (1990 and 2010) and in New Zealand (NZ) (2006)

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<tbody>
<tr>
<td></td>
<td>2010</td>
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<tr>
<td>High blood pressure</td>
<td>1</td>
<td>7.0</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Low fruit consumption</td>
<td>4</td>
<td>4.2</td>
<td>12</td>
<td>1.0^</td>
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<tr>
<td>High body mass index</td>
<td>6</td>
<td>3.8</td>
<td>2</td>
<td>7.9</td>
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<tr>
<td>High fasting plasma glucose</td>
<td>7</td>
<td>3.6</td>
<td>4</td>
<td>4.6</td>
</tr>
<tr>
<td>High sodium intake</td>
<td>11</td>
<td>2.5</td>
<td>9</td>
<td>1.7</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>12</td>
<td>1.6</td>
<td>7</td>
<td>3.2</td>
</tr>
<tr>
<td>Low nuts and seed consumption</td>
<td>15</td>
<td>2.1</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Low whole grains</td>
<td>16</td>
<td>1.6</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Low vegetable consumption</td>
<td>17</td>
<td>1.5</td>
<td>12^</td>
<td>1.0^</td>
</tr>
<tr>
<td>Omega-3</td>
<td>18</td>
<td>1.1</td>
<td>+</td>
<td>+</td>
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</table>

^ fruit and vegetable consumption combined
+ data not provided

Source: Lim et al., 2012; Ministry of Health, 2013b

To achieve and maintain a healthy body weight, and promote health and prevent disease, people are recommended to consume a diet that is high in fruits, vegetables, whole grains, nuts, legumes, unsaturated oils, low-fat dairy, poultry and fish; and low in red and processed meat, high-fat dairy, and sugar-sweetened foods and drinks (Ministry of Health, 2012a; USDA, 2014; WHO, 2003a). However, in most developed countries, people’s diets are typically characterised by being high in fat (particularly saturated fat), salt, sugar and other refined carbohydrates; low in polyunsaturated fats, fruit, vegetables, fibre and wholegrains; energy; and featuring a substantial proportion of highly processed foods. Furthermore, many foods are consumed in excess of energy requirements. Away-from-
home food, which includes pre-prepared meals, fast food and takeaway food, has increased. Such food increases energy intake and decreases dietary quality as it is typically energy-dense, nutrient-poor, high in sodium, and often served in larger-than-recommended portion sizes (Lin & Guthrie, 2012; Mancino, Todd, Guthrie, & Lin, 2010). By contrast, the preparation and consumption of fresh foods in the home has diminished (Smith, Ng, & Popkin, 2013). Good quality evidence consistently demonstrates that such a diet, known as a Western diet, is associated with poor health outcomes, including those chronic conditions of most concern to children (Cordain et al., 2005; Drewnowski & Popkin, 1997; Popkin, 2006; WHO, 2003a).

**New Zealand children’s dietary patterns**

New Zealanders’ dietary patterns, including those of children, align with a contemporary Western diet (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). For example, a fifth of children’s energy intake is sourced from foods high in fat, salt and sugar, such as sugary drinks, biscuits, sugars and sweets, and cakes and muffins (Ministry of Health, 2003). The proportion of New Zealand children’s energy intake from carbohydrates (48%-54%) is within the recommended range (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). However, almost half of New Zealand children’s total carbohydrate intake is derived from sugars, with key sources being non-alcoholic drinks, fruit, and sugars and sweets (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). Recent systematic reviews have demonstrated an association between increased sugars consumption and an increase in weight (Te Morenga, Mallard, & Mann, 2012); raised blood pressure and blood lipids, independent of body weight (Te Morenga, Howatson, Jones, & Mann, 2014); and increased development of dental caries (Moynihan & Kelly, 2014). As such, WHO recommends that free sugars contribute less than 10% of a person’s total energy intake, and for additional health benefits, sugars should constitute less than 5%.

The consumption of sugar-sweetened beverages is particularly concerning. They are a significant contributor to children’s energy intake with very little or no nutrient benefit. As they are also less satiating than solid food, the excess energy they provide is not compensated for by an equivalent reduction in food intake (Almiron-Roig, Chen, & Drewnowski, 2003; Wolf, Bray, & Popkin, 2008). Research demonstrates associations between sugar-sweetened beverage consumption and obesity, increased risk of type 2 diabetes, metabolic syndrome, and other metabolic disorders; hypertension, and adverse
lipid profiles and coronary heart disease; and dental caries (Basu, McKee, Galea, & Stuckler, 2013; Hu & Malik, 2010; Imamura et al., 2015; Vasanti S. Malik et al., 2010; V.S. Malik, Schulze, & Hu, 2006; Moynihan & Kelly, 2014; Te Morenga et al., 2014, 2012; Vartanian, Schwartz, & Brownell, 2007). Sugar-sweetened beverages alone contribute 6-8% of New Zealand children’s total energy intake, accounting for about a quarter of the total sugars consumed by them (24% children aged 5-14y; 28.2% children aged 15-18y) (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). It is also greater than the 5% limit on sugars intake recommended for additional health benefits by WHO (WHO, 2015b). New Zealand children are recommended to consume less than one serving of sugar-sweetened beverages a week (Ministry of Health, 2012a). However, one-fifth (21.4%) of 2-16 year olds consume them 1-2 days per week, and approximately another one-fifth (18.6%) consume them three or more times a week, and almost a tenth (8.2%) consume them daily (Kruse, 2013). Ethnic and socio-economic differences are also evident, with Māori, Pacific and the most deprived children significantly more likely to consume sugar-sweetened beverages more frequently than recommended (Kruse, 2013; Ministry of Health, 2015a).

Other dietary recommendations are not being met by New Zealand children. Although the proportion of total fat in New Zealand children’s diets is within recommended limits, the type of fats consumed is not (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). The main source of dietary fats for New Zealand children is foods high in saturated fat, including biscuits, dairy products, pies and pastries (Ministry of Health, 2003). The latter items alone comprise 14-15% of the fat intake of children aged 14+y (University of Otago & Ministry of Health, 2011).

Excess dietary sodium is a key risk factor for hypertension in adults and children (He & MacGregor, 2006; WHO, 2003a), and problematic universally (Grimes, Campbell, Riddell, & Nowson, 2013; He, Marrero, & MacGregor, 2008; Mozaffarian et al., 2014). Data from the New Zealand Total Diet Survey shows that children’s and adults’ dietary sodium intake was significantly above acceptable levels. For example, the dietary sodium intake for men aged 25+y was 2901mg/day (upper limit for age group = 2300mg), and for girls and boys aged 11-14y it was 2318mg/day and 2862mg/day, respectively (upper limit for age group = 2000mg). Approximately 80-90% of New Zealand children’s dietary sodium is derived from added salt in processed foods, including bread (24%), fast foods
(17%), processed meats (10%), cereals and pasta (9%), biscuits and cakes (8%) and snacks (4%) (Thomson, Vannoort, & Haslemore, 2008).

In New Zealand, two-thirds (68.7%) of children aged 2-14y report eating fast food at least weekly and 6% eating it three or more times a week (Ministry of Health, 2015a). Almost one in six (15.8%) children aged 15-17y report consuming fast food three or more times a week (Ministry of Health, 2014b). Snacking is another contributory factor to children’s less-than-ideal dietary patterns, being associated with poorer diet quality, and excess energy intake and weight gain, particularly in obese children (Bellisle, 2014), and dental caries (Alm et al., 2008; Moynihan & Petersen, 2004). The foods New Zealand children most commonly snack significantly contribute to daily energy, fat and carbohydrate intake, often with minimal nutrient benefit. Such snacks include potato chips, muesli bars, biscuits, crackers, dried fruit and fruit roll-ups (straps/leather) (Regan, Parnell, Gray, & Wilson, 2008).

New Zealand children’s consumption of recommended, health-protective foods – fruit, vegetables, whole grains and milk—is also less than ideal. Only two in five (43%) New Zealand children aged 2-14y and two in three children aged 15-18y (63.1%) eat the recommended two servings of fruit per day, and half (57%, 5-14y; 56.2%, 15-18y) eat the recommended three servings of vegetables per day (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). Consequently, New Zealand children, particularly those aged 11-18y, also do not meet dietary fibre intake recommendations (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011).

New Zealand children’s milk consumption does not meet dietary recommendations (especially reduced or low-fat), and the prevalence of inadequate intake of dietary calcium in New Zealand children, especially among Māori and Pacific children, and girls, is very high (Ministry of Health, 2012a). Over a quarter (27%) of New Zealand children consume milk only monthly, less than monthly or never, a situation which worsens as children get older and as they consume increasing amounts of sugary drinks (Clinical Trials Research Unit and Synovate, 2010; National Research Bureau Ltd., 2008; Vartanian et al., 2007).

In summary, diet-related risk factors are a significant contributor to health loss, globally and in New Zealand. A high BMI is predicted to soon be the leading cause of health loss in New Zealand. People’s risk of developing chronic conditions is strongly influenced by their dietary patterns, which in New Zealand are typically not health protective. Overall,
New Zealand children’s diets are aligned with a Western-type diet that is high in fat, salt and sugar, and low in foods that have a protective effect. This places them at high risk of developing the diet-related chronic conditions of most concern for children, discussed earlier in this chapter.

2.4.2 The food environment
People’s dietary patterns reflect the food and beverage choices they make. However, their choices are not context-free, being influenced by the availability and promotion of food in the surroundings in which they live. People’s food preferences and behaviours are influenced by factors that operate at many levels (Birch & Fisher, 1998; Kim & Kawachi, 2010; Larson & Story, 2009; Story et al., 2008). This section discusses the influence of the food environment on dietary patterns, outlines a framework conceptualising food environments and describes the key environmental factors that influence children’s food preferences and behaviours.

Theories of food behaviour
Many theories and frameworks seek to explain how people’s food preferences and behaviours are generated. Such theories provide a foundation for identifying interventions to improve food-related health and well-being (Glanz, Rimer, & Viswanath, 2008; Kim & Kawachi, 2010; Worsley, 2002). Some theories focus on the influence of people’s biological and demographic attributes, and knowledge and skill levels, for instance, food and nutrition literacy, and cooking ability. Interventions based on this approach are typically individually-focused and aim to improve diet and reduce chronic conditions through education and other techniques that develop people’s knowledge, skills, self-efficacy, motivations and capabilities (Glanz et al., 2008; Worsley, 2002). Theoretically, once armed with appropriate knowledge and skills, individuals will make informed, rational decisions regarding their food choices.

However, focusing solely on people’s personal characteristics to change eating patterns that lower risk factors for disease is unlikely to bring about changes at a population level. Shifts in genetic or demographic factors over recent time, including age, gender and ethnicity, have not been significant enough to fully account for the rapid increase in the prevalence of chronic conditions in the population (Kim & Kawachi, 2010; Wilding, 2012). Such factors are also generally not amenable to intervention. Individually-based interventions such as education to improve knowledge and skills are also likely to widen
disparities in health as the more affluent are better resourced to act on their newly acquired knowledge (McGill et al., 2015; White, Adams, & Heywood, 2009). 

Population changes in the prevalence of diet-related chronic conditions are more likely explained by socio-ecological theories, as noted in Chapter 1, those that “focus on the nature of people’s transactions with their physical and sociocultural surroundings, that is, environments” (Sallis, Owen, & Fisher, 2008, p. 466). Socio-ecological theories are fundamental to public health. They propose that food preferences and behaviours are shaped by multiple factors that operate at varying levels of influence, often synergistically (Sallis et al., 2008). Socio-ecological theories are ideally suited for unpacking and comprehending the multifactorial aetiologies of diet-related chronic conditions, including those of most concern for children. Rather than focusing only on individuals’ characteristics, socio-ecological theories also consider the impact and interconnectedness of the broader social, community, structural and public policy determinants of food preferences and behaviours (Sallis et al., 2008).

Interventions underpinned by a socio-ecological approach aim to comprehensively intervene at the varying levels of influence and across a number of sectors, many of which are outside the health arena. Given their wide reach and multi-level influence, they may be able to generate population-level improvements and reduction in inequalities in diet-related health outcomes, and a greater and more sustained impact on food preferences and behaviours (Swinburn et al., 2011). Furthermore, creating an environment that is conducive to healthy food preferences and behaviours means individuals can act more easily on individually-targeted educational interventions as people are supported in making effective food choices. Strategies aimed at educating individuals to make healthy food choices are likely to be less effective, especially when the environment does not support people’s behaviour (Chopra, 2010; Egger & Swinburn, 1997; Gendall et al., 2015; Ni Mhurchu, Blakely, Jiang, Eyles, & Rodgers, 2010; Story et al., 2008; Swinburn, 2008).

**Socio-ecological models of food environments**

The relationships between the multiple environmental drivers of the diet-related chronic conditions of most concern for children are complex, dynamic and interactive (Kim & Kawachi, 2010; Vandenbroeck, Goosens, & Clemens, 2007). Models based on socio-ecological theory have been developed to illustrate the various influencing factors, explain the complexity of and influences on obesity, and to identify potential intervention points.
(Kim & Kawachi, 2010; Story et al., 2008). All models consider the elements that influence food behaviours at family, community, national and global levels. Some models, such as the International Obesity Task Force Working Group Conceptual Framework (Kumanyika et al., 2002), clearly illustrate the interconnectedness between the various elements and levels, and the pathways between them, that lead to obesity, in individuals and populations. It is also possible to see how intervening at ‘upstream’ levels, impacts the levels that operate closer to the individual, such as schools and other community organisations. Other models, such as that by Story et al. (2008) or the ANalysis Grid for Environments Linked to Obesity (ANGELO) Framework by Swinburn et al. (1999), are descriptive in their approach. They identify the different levels of influence and the various influencing factors at those levels. The former also demonstrates the relationship between the levels and an individual’s characteristics. The ANGELO framework has been chosen as the conceptual model in this thesis, and is described in more detail in the following section. Although the frameworks have been specifically designed to explain environmental drivers of obesity, they are equally applicable to understanding the environmental origins of other chronic conditions that share common dietary risk factors with obesity, including those of most concern for children.

**The ANGELO framework**

In addition to providing a means of understanding the nature of food environments and the factors that influence people’s food preferences and behaviours, the ANGELO framework has also been designed to prioritise potential interventions, and research questions (Swinburn et al., 1999).² The ANGELO framework categorises the multiple elements of the food environment in a grid formation (Figure 5). The four environment types are laid out on one axis being: (i) physical – “what is available in a variety of food outlets including restaurants, supermarkets, vending machines, schools, worksites and community, sports and arts venues. Point-of-purchase opportunities such as nutrition labels….The availability of training opportunities…and access to technology and expertise” (ii) socio-cultural – “the social and cultural norms…the “culture”, “ethos”, or “climate” of a school, home, workplace or neighbourhood….role models….the mass media”; (iii) economic – “the costs related to food…of food production, manufacturing, distribution, and retailing”.

Other factors the authors cite include “taxes, pricing policies, and subsidies…financial

² The ANGELO framework also examines the physical activity environment, which is beyond the scope of this thesis.
support for health promotion programs and “purchasing” healthy food policies and practices through sponsorship” (iv) political – “the rules related to food and physical activity and include laws, regulations, policies (formal or informal), and institutional rules” (Swinburn et al., 1999, pp. 566–567).

In keeping with the principles of socio-ecological theory, the authors acknowledge that the environment operates at varying levels (Swinburn et al., 1999). Thus, the environment size forms the other axis, being: (i) micro-environments (settings) – “where groups of people gather for specific purposes which typically involve food….usually geographically distinct, are relatively small, and are potentially influenced by individuals” and (ii) macro-environments (sectors) – “a group of industries, services, or supporting infrastructure, which influence the food eaten…within various settings….common to the wider population, often operating at regional, national and international levels, and tend to be geographically diffuse” (Swinburn et al., 1999, pp. 565–566).

<table>
<thead>
<tr>
<th>Environment type and definition</th>
<th>Environment size</th>
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<tr>
<td></td>
<td>Micro (settings)</td>
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<tr>
<td>Physical</td>
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<tr>
<td><em>what is available</em></td>
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<tr>
<td>Socio-cultural</td>
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<td><em>the social and cultural norms</em></td>
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<td>Economic</td>
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<td><em>the cost</em></td>
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<td>Political</td>
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<td><em>the rules</em></td>
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Source: Swinburn et al., 1999

**Figure 5:** Analysis Grid for Environments Linked to Obesity (ANGELO) Framework

Food environments can be described by the nature of the factors identified within them and the associated risk for weight gain or loss. Swinburn et al. (1999) describes a food environment that promotes and enables healthy food choices as leptogenic. By contrast, the ‘obesogenicity’ of an environment is defined as “the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations” (Swinburn et al., 1999, p. 564). Therefore, an obesogenic environment is one that acts as a barrier to or encourages unhealthy food choices.
The simplicity of the ANGELO framework makes it an attractive and manageable option for scrutinising and describing the nature of food environments. Its selection is also based on its previous application in research in a range of settings. For example, in New Zealand, it has been used as a basis to investigate the food environments in primary schools (Carter & Swinburn, 2004), to understand the environmental factors that influence food security for vulnerable population groups (Bowers et al., 2009), and most recently to dissect the food environment associated with sport (Carter, 2013).

Using the ANGELO framework, the following section outlines the evidence on the key influencing environmental factors on children’s food preferences and behaviours, especially those for New Zealand children. Given the complex and interrelated nature of food environments, aspects of the micro and macro environments overlap, and some environmental elements span more than one or more environment type. For example, according to Swinburn et al.’s (1999) criteria, food marketing is an element of the socio-cultural environment; however, it also features in the other environment types, through signage (physical environment), regulation (political) and financial support from sponsorship and endorsements (economic). To reduce repetition, the evidence has been presented according to the ‘best fit’ environment type based on significance to the research questions.

**Physical food environment**

**Food availability**

Children’s food preferences and behaviours are influenced by the food made available in settings where they live and go, such as at home or in school; or the location of food outlets and the proximity to children’s homes and schools, and the food available in those outlets (Larson & Story, 2009; Story, Neumark-Sztainer, & French, 2002; Thornton & Kavanagh, 2010). Research consistently demonstrates that parents and caregivers, and the home food environment are strong influences on children’s food behaviours and dietary patterns, and diet quality. Parents and caregivers are children’s main food providers, especially early in life, and the types of food available, and dietary patterns practised, in the home determine lifetime food habits (Birch & Fisher, 1998; Hearn et al., 1998; Patrick & Nicklas, 2005; Pearson, Biddle, & Gorely, 2009a, 2009b; Savage, Fisher, & Birch, 2007; Ventura & Birch, 2008). For example, research shows that there is a positive correlation between the availability of fruits and vegetables, and sugary drinks, in the home and the consumption of those items (Denney-Wilson, Crawford, Dobbins, Hardy,
Okely, 2009; Hearn et al., 1998; Hebden & Hector, 2013; Pearson et al., 2009a). In New Zealand, the majority (70-80%) of parents and caregivers (n=1133) in the 2007 New Zealand Food and Drink Survey reported that fruit and vegetables were available in their homes and that their children ate those foods daily. Similarly, the majority of parents (76-93%) reported that energy-dense, nutrient-poor foods, such as salty snacks, confectionery, and pies and pastries were available in the home, and that their children frequently consumed them up to four days a week. (National Research Bureau Ltd., 2008).

School is another important feature in children’s food environments. Children spend a considerable amount of their day, and consume a substantial proportion of their daily energy intake, while they are at school (Regan et al., 2008; Story et al., 2002). Hence, the food made available to children at school, and school food policies, also have the potential to influence consumption (Chriqui, Pickel, & Story, 2014). As part of the National Administration Guidelines, New Zealand schools are required to promote healthy food and nutrition (Ministry of Education, 2015). Prior to 2009, schools that sold food were also mandated to make only healthy options available. However, this requirement was rescinded by the National government in 2009 (New Zealand Government, 2009). Current state-led nutrition initiatives in New Zealand schools include the ‘Fruit in Schools Programme’ in which children who attend schools in the most deprived neighbourhoods receive fresh fruit daily (Ministry of Health, 2006). Approximately three-quarters of New Zealand schools have also adopted the WHO’s ‘Health Promoting Schools’ initiative (established in New Zealand in 1997), which includes a healthy eating module (Ministry of Health, 2012b).

The private sector is also active in the food environment in New Zealand schools. The ‘Fonterra Milk For Schools’ programme, administered by Fonterra, a multinational New Zealand dairy company, distributes milk daily to 70% of primary schools (170,000 children) (Fonterra, 2015). Fonterra also partners with a large Australasian food company to provide free milk and breakfast cereal to school breakfast clubs through their ‘KickStart Breakfast’ initiative (KickStart Breakfast, 2015). KidsCan, a charitable trust, distributes food provided by several food companies to schools with socio-economically disadvantaged students (KidsCan, n.d.). The Fonterra and KidsCan initiatives are part-funded by the New Zealand Government. Nutrition education is provided to schools as part of a broad-ranging health education programme delivered by the Life Education Trust, a charitable organisation (Life Education Trust, 2010).
Research demonstrates an increase in food outlet density in areas where children typically go. A recent spatial survey of food outlets in a large New Zealand city found a clustering of fast food outlets within walking distance (800m) of schools, with the greatest density found around socially-deprived schools (Day, Pearce, & Pearson, 2013). These findings support those of a study conducted in another New Zealand city that found that over half (56.3%) of the outlets in a 1km radius around secondary schools sold mostly unhealthy food items (Maher, Wilson, & Signal, 2005). Furthermore, in contrast to less deprived neighbourhoods, a greater proportion of unhealthy options were being sold in outlets in the more deprived neighbourhoods (Maher et al., 2005). However, the impact of children’s proximity to food outlets on food behaviours is equivocal. A recent systematic review found that, although there was some association with obesity, the proximity of food outlets to schools had little impact on purchasing and consumption (Williams et al., 2014). However, as the authors warn, most of the studies in the review were cross-sectional and subject to a number of biases, and thus the findings should be interpreted with caution (Williams et al., 2014).

**Availability of nutrition expertise and information**

There are several sources of nutrition expertise and information available to children. Information provided through the home and at school has been previously discussed. Food labels are another source of nutrition information, guiding people’s dietary choices, and potentially influencing consumers’ purchasing decisions and food consumption (Campos, Doxey, & Hammond, 2011; Chandon, 2013; Nestle & Ludwig, 2010; Roberto, Wong, Musicus, & Hammond, 2016). In New Zealand, as in many other countries, there is a requirement for Nutrition Information Panels listing the energy content, average quantities of key nutrients in a food product and other product-related information to be provided on food product labels (FSANZ, n.d.). Food manufacturers are also able to make claims about their products that refer to the nutritional features of a product (nutrition content claim) or the positive impact of a nutrient on health function (health claim) on food product labels (FSANZ, n.d.). Health and nutrient claims, and Nutrition Information Panels are regulated and monitored in New Zealand by Food Standards Australia New Zealand (FSANZ), a government agency. Labelling standards are developed in consultation with other relevant government agencies and key stakeholders, including public health and industry representatives, based on a rigorous scientific assessment of risk to public health and safety.
Evidence shows that consumers, and in particular Māori, Pacific and low income people in New Zealand, have difficulty using and understanding Nutrition Information Panels (Gorton, Ni Mhurchu, Chen, & Dixon, 2009; Ni Mhurchu & Gorton, 2007; Signal et al., 2008). Consumers report that they are better able to distinguish between healthy and unhealthy foods using front-of-pack interpretive labels (Gorton et al., 2009; Grunert & Wills, 2007). Such a system has been recently implemented in New Zealand. The Health Star Rating scheme is a voluntary front-of-pack nutrition labelling system designed to assist consumers in making healthy food choices (Ministry for Primary Industries, n.d.). The Health Star Rating is an illustrative interpretation of the saturated fat, total sugars, sodium and energy content of packaged foods using a 0.5 to 5 star scale, with a rating of 5 being the most healthy.

To guide healthy dietary choices, governments in many countries, including New Zealand, produce population-level food and nutrition guidelines based on current evidence (Health Canada, 2011; Ministry of Health, 2012a; National Health and Medical Research Council, 2003; National Health Service, 2013; US Department of Agriculture & US Department of Health and Human Services, 2010). The New Zealand Food and Nutrition Guidelines for Healthy Children and Young People (aged 2-18 years)³ (food and nutrition guidelines) claim to prevent non-communicable diseases and promote health by providing “the information to educate and encourage children, young people and their families or whānau to follow healthy lifestyles” (Ministry of Health, 2012a, p. iii). They are also intended to inform nutrition educational resources for children. The food and nutrition guidelines recommend children aged 2-18y consume a variety of foods from the major food groups of sufficient energy content to maintain a healthy weight; avoid foods and beverages high in fat, salt and sugar; not consume caffeine or alcohol; drink plenty of water and milk; be more active and less sedentary; and play an active part in shopping for and preparing meals (Ministry of Health, 2012a).

Food marketing is often another source of nutrition information for children and is discussed in the following text.

³ Separate guidelines are available on the specific nutritional needs of younger children (Ministry of Health, 2012b).
Socio-cultural food environment

Children also acquire their food preferences and behaviours, and attitudes and beliefs through observation and parental role-modelling (McClain, Chappuis, Nguyen-Rodriguez, Yaroch, & Spruijt-Metz, 2009; Patrick & Nicklas, 2005; Savage et al., 2007). Parents have been identified as having a role in educating their children about food through activities such as food preparation and shopping (Ministry of Health, 2012a; van der Horst, Ferrage, & Rytz, 2014). Almost all (90%) the parents surveyed in the New Zealand Food and Drink survey reported that they always or fairly often tried to model healthy food behaviours in the home for the benefit of their children, and that they often or sometimes had discussions with their children about healthy food behaviours (92%) (National Research Bureau Ltd., 2008).

Supported by a substantial body of evidence, the marketing of food and beverages also influences children’s nutrition knowledge, and food preferences and behaviours; and is a probable causative factor in diet-related chronic conditions, especially overweight/obesity (Cairns et al., 2009; Cairns, Angus, Hastings, & Caraher, 2013; Hastings et al., 2003; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006). WHO defines this as:

any form of commercial communication or message that is designed to, or has the effect of, increasing the recognition, appeal and/or consumption of particular products and services. It comprises anything that acts to advertise or otherwise promote a product or service (WHO, 2012a, p. 9).

In a recent update of a previous systematic review of the international literature on food marketing to children, Cairns et al. (2013) concluded that “there is a convergence of evidence employing a mix of research methods from experimental studies to naturalistic surveys, indicating marketing is a modifiable risk factor for children’s health” (Cairns et al., 2013, p. 214). The authors continued, stating that “food promotion can act as a significant independent determinant of children’s food behaviours and health status” (Cairns et al., 2013, p. 214).

A plethora of strategies are used to promote food globally, and in New Zealand. Although television remains the most frequently used communication medium, its popularity has waned recently in favour of digital modes of communication that are increasingly accessed by children (Cairns et al., 2013; NZ On Air, Broadcasting Standards Authority, & Colmar Brunton, 2015). Other popular forms of media include magazines, comics and newspapers;
posters and billboards; packaging; and in-store promotions (Cairns et al., 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006; Story & French, 2004; WHO, 2012a). Commonly used marketing techniques to entice children and cue requests for purchasing food products include: the use of bright colours, and cartoon and licensed movie and television characters; premium offers, free giveaways and discounting; health and nutrition claims; celebrities such as movie and sports personalities; and the incorporation of ‘fun’ including competitions, games and other activities, and the promise of appealing taste sensations (Cairns et al., 2013; Jenkin, Madhvani, Signal, & Bowers, 2014; Story & French, 2004; WHO, 2012a). A number of marketing techniques and media are also used in tandem in integrated marketing campaigns to reinforce their influence and provide consistent messaging about a brand or product (Cairns et al., 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006).

Worldwide, expenditure on food marketing is considerable, with substantially more money spent on the promotion of energy-dense and nutrient-poor foods than on health-protective and recommended foods. Advertising expenditure data are often difficult to accurately obtain due to commercial sensitivity. However, the United States Federal Trade Commission compulsorily obtained data from 48 major food and beverage manufacturers and found that in 2009, US$1.79 billion was spent on food marketing to children and adolescents in the United States (Federal Trade Commission, 2012). Research also demonstrates that the majority of foods and beverages marketed to children are energy-dense and nutrient-poor, with relatively little spent on promoting healthy food items (Cairns et al., 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006). For example, in the United States, fast food restaurants spent US$4.6 billion on advertising, with one large multinational franchise alone spending almost three times more than the total amount spent on promoting fruit and vegetable, bottled water and milk (Harris et al., 2013). Similarly, in New Zealand in 2007, television advertising expenditure included NZ$55M spent on fast food promotion, NZ$20M on chocolate in all forms and almost $18M on carbonated drinks. Per capita, $12.94 was spent on TV advertising for fast food whereas only $1.44 per person was for fruit and vegetables (Sturgiss, 2008).
Economic food environment

Cost of food
The cost of food is a major determinant of food choice (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998; Lennernäs et al., 1997; Ni Mhurchu et al., 2010). New Zealanders spend almost one-fifth (17.3%) of their total household expenditure on food (Statistics New Zealand, 2013), of which a quarter (23%) is on foods eaten away from home, 14% is on fruit and vegetables, and 10% is on non-alcoholic beverages (Statistics New Zealand, 2014). Internationally, including in New Zealand, food prices continue to increase (Statistics New Zealand, 2015; The World Bank Group, 2014). Moreover, research demonstrates that recommended food items are more expensive than less healthy food options (Jones, Conklin, Suhrcke, & Monsivais, 2014; Rao, Afshin, Singh, & Mozaffarian, 2013). The relatively higher cost of healthy food potentially reduces the likelihood of people following dietary recommendations, particularly low-income families.

In New Zealand, food price is particularly relevant for low-income, and Māori and Pacific families (Bowers et al., 2009). Furthermore, while low income families, which include many Māori and Pacific families, spend less on food, the proportion of household income they spend is greater than that of high-income households (Robinson, 2010). Most food cost studies are conducted with adults. However, food costs will impact children’s food preferences and behaviours through household spending. Furthermore, research indicates that children’s autonomous food purchasing is also price sensitive (Cash, Adamowicz, Allen, & McAlister, 2013).

Food pricing policies
Policies that alter food prices, including taxing unhealthy food and ingredients, and subsidising healthy food options, are likely to influence food behaviours and improve health outcomes (Eyles, Ni Mhurchu, Nghiem, & Blakely, 2012; Mytton, Clarke, & Rayner, 2012; Ni Mhurchu et al., 2015; Ni Mhurchu, Eyles, Genc, & Blakely, 2014). A recent systematic review of simulation studies revealed that taxation of sugar-sweetened beverages and saturated fat, and subsiding fresh fruit and vegetables, would change consumption of those items and bring health benefits (Eyles et al., 2012). Modelling studies suggest that in the United States a 20% tax on sugary drinks would reduce obesity by 3.5% (Mytton et al., 2012). In New Zealand, it is thought that the strategy would save sixty-seven lives annually and generate NZ$40 million to fund prevention strategies (Ni Mhurchu et al., 2014). Several countries have taxed sugar-sweetened beverages, including
France, Hungary, and some states and urban centres in the United States (Mytton et al., 2012), and on January 1 2014, Mexico introduced a 10% tax on sugar-sweetened beverages. Research evaluating the efficacy of taxation in Mexico found that by the end of 2014 there had been a 12% overall reduction in sugar-sweetened beverage purchase, rising to 17% in low income households (Colchero, Popkin, Rivera, & Ng, 2016).

Critics of taxation cite the negative consequences of the strategy, particularly increased financial burden on low income households and industry job losses (Mytton et al., 2012). However, Ni Mhurchu et al. (2014) and others (Cabrera Escobar, Lennert Veerman, Tollman, Bertram, & Hofman, 2013; Sharma, Hauck, Hollingsworth, & Siciliani, 2014) have theoretically demonstrated that these populations would ultimately benefit from absolute and (probably) relative reductions in health inequalities. The significant health improvements that have resulted from tobacco taxation provide further supporting evidence for taxation of unhealthy food products (Chaloupka, Yurekli, & Fong, 2012). Health impacts would occur directly from reduced consumption, and also indirectly through the implementation of other preventive strategies funded by tax revenue. Some authors have also demonstrated that price increases would most likely result in people shifting to healthier beverage alternatives (Cabrera Escobar et al., 2013; Sharma et al., 2014). In the Mexican evaluation described previously, the authors found a 4% increase in untaxed drink purchases, predominantly water, over the first year of implementation of taxation (Colchero et al., 2016). Despite recommendations from New Zealand and international public health experts to institute taxation on unhealthy food items (NZBGP, 2014; Signal et al., 2011; Swinburn, Dominick, & Vandevijvere, 2014; WHO, 2016b), successive New Zealand health ministers have stated that the intervention is not a government priority and there are no plans to introduce such a scheme.

**Political food environment**

**Local government**

Local government has been identified as having a key role in determining population health and well-being, as it manages many of the social structures that impact people’s day-to-day lives (Harris & Graff, 2011; Hunter, 2010; Sacks, Swinburn, & Lawrence, 2008; WHO & Commission on Social Determinants of Health, 2008). Levers that local government can use to influence food preferences and behaviours include the provision and management of services and facilities; its regulatory power, in particular by-laws; partnerships and collaborations; and its leadership potential (Hunter, 2010). Local
government can have an impact on the food environment through implementing food policies at council facilities, events and services, and city planning and development regulations (for location of businesses), street and shop signage, and advertising (Harris & Graff, 2011; Sacks et al., 2008).

In New Zealand, local councils’ actions are authorised by central government through the Local Government Act 2002 Amendment Act 2012 (New Zealand Government, 2012). From 2002 to 2012, local councils were mandated to focus on their community’s social, economic, environmental and cultural well-being. However, an amendment to the Act in 2012 has meant that councils’ ability to support people’s health and well-being has been reduced or become less well-defined. Local governments are now required to focus on cost-effective delivery of local infrastructure, public services and regulatory functions. Nevertheless, some local councils have managed to adopt and action health-related policies. For example, a few have recently agreed to remove sugar-sweetened beverages from their venues and events (Marlboro District Council, 2015; Nelson City Council, n.d.).

**National food policy**

Ensuring New Zealanders are healthier and more independent by providing support to protect, manage and improve people’s own health and independence are listed as outcomes in New Zealand Ministry of Health’s Statement of Intent (Ministry of Health, 2015b). Addressing childhood obesity is a strategic priority for the current Health Minister, who recently launched a national childhood obesity plan that includes targeted initiatives, increased support and broad population approaches (Ministry of Health, 2016). The plan is based on the recommendations made by the WHO Commission on Ending Childhood Obesity (WHO, 2016b), which is discussed in the following text. The previously described Health Star Rating and Health Promoting Schools are included in the plan. Another initiative is Healthy Families NZ (Ministry of Health, 2014a). Modelled on an Australian programme, Healthy Together Victoria (State Government Victoria, n.d.), Healthy Families NZ aims to assist people and their families to make healthier choices, including food choices. The initiative is currently being implemented in ten communities in New Zealand that have been specifically chosen for their high rates of chronic disease, prevalence of risk factors or socio-economic deprivation. It is projected to reach between 500,000 to one million New Zealanders. Rather than “top-down regulation” (The Treasury, 2014, p. 2), the programme is led through voluntary action and takes a settings
approach to health promotion, implementing activities and creating supportive everyday environments for people, including schools and sports clubs (Ministry of Health, 2014a).

New Zealand does not have an overarching food and nutrition policy. In 2014, the INFORMAS network (World Obesity Federation, 2015), in conjunction with public health experts, and non-governmental and medical association representatives, rated the New Zealand Government’s progress on implementing food policies, other food-based structural systems, and the prioritisation of actions to address unhealthy food environments relative to international best practice standards (Swinburn et al., 2014). While the assessment showed that New Zealand has progressed in some areas, the lack of a comprehensive national policy to address unhealthy food environments and reduce obesity and non-communicable disease prevalence was identified as a major gap. Key strategies identified as having not been actioned included stricter food marketing regulatory systems, fiscal policy options such as taxation of sugary beverages, local planning regulations to restrict food outlets around schools, and ensuring international trade policies are not health-limiting (Swinburn et al., 2014). In response to recommendations made by the panel, the then Health Minister stated that such restrictive measures were not an option for government. Rather, Government’s role was to provide information and support for healthy eating and that "we see our new $40 million anti-obesity initiative, Healthy Families NZ, as a more sophisticated and evidence-based way of addressing obesity and other underlying causes of poor health" (Ryall cited in Dougan, 2014).

**Food marketing regulations**

Given children’s exposure to food marketing and its subsequent impact on food preferences and behaviours, its restriction is considered a means of improving and supporting diet-related health. Internationally, several regulatory systems are in operation to guide the development, monitoring and enforcement of food marketing. The majority of countries, including New Zealand (ASA, n.d.), operate a self-regulatory system (Hawkes, 2007) with varying degrees of input from government. Mandatory regulations have been instituted in a number of countries including the United Kingdom, Chile, Iran, Norway, Mexico, South Korea, Peru and Ireland (World Cancer Research Fund International, 2016).

In New Zealand, the Advertising Standards Authority (ASA) oversees the Children’s Code for Advertising Food (the Code) (ASA, 2014). The Code provides “appropriate guidelines” (ASA, 2014, p. 21) for the advertising of food to a child audience aged under
14y, in line with the wording of article 17(e) in the Convention that protects children from harmful information. Children aged over 14 years are subsumed within the Code for Advertising Food. The supplementary document, ‘Getting It Right for Children’, outlines the voluntary rules for television advertising and children’s television programming (ThinkTV, 2011). The Code has a broad reach encompassing almost all the major forms of media and marketing strategies discussed previously, “all advertisements for food and beverages that influence children whether contained in children’s media or not” (ASA, 2014, p. 21) and “foods high in sugar, fat and/or salt, especially those marketed to and/or favoured by children should not be portrayed in a way that suggests they are beneficial to health” (ASA, 2014, p. 23).

The Code explicitly “recognises the need to extend a duty of care to protect children pursuant to the United Nation’s Convention on the Rights of the Child” (ASA, 2014, p. 21) and emphasises that the Convention (articles 3, 13 and 17(e)) forms the basis of the principles and guidelines of the Code. Advertisers must also act within the implicit “spirit and intention” (ASA, 2014, p. 21) of the Code and are expected to “exercise a particular duty of care” (ASA, 2014, p. 35) with regard to children aged 15+y children.

Three key principles govern the Code, that:

(i) all advertisements should be prepared with and observe a high standard of responsibility to consumers and society;

(ii) advertisements should not by implication, omission, ambiguity or exaggerated claim mislead or deceive or be likely to mislead or deceive children, abuse their trust or exploit their lack of knowledge or without reason play on fear;

(iii) Persons or characters well-known to children shall not be used in advertisements to promote food in such a way so as to undermine a healthy diet as defined by the Food and Nutrition Guidelines for Healthy Children (ASA, 2014, pp. 22–24).

The Code also supports global and national actions to protect children from obesity and other diet-related harms, and as such states that “food advertisements should not undermine the food and nutrition policies of Government, the Ministry of Health Food and Nutrition Guidelines nor the health and well-being of children” (ASA, 2014, p. 21). Advertisements for healthy, nutritious foods are encouraged. All food advertisements must meet specific nutrition criteria and be approved before broadcasting.
As part of advertising monitoring, the ASA also administers a consumer complaints process for breaches of the Code. Anecdotally, the food industry reports that the ASA receives very few, if any, nutrition-related food advertising complaints (Mouat, 2014), and consequently claims that the low complaint rate reflects a lack of public concern about food advertising to children (Mouat, 2014). However, recent investigations with Australian children and parents into issues relating to the promotion of unhealthy food to children, Pettigrew et al. (2011) found that rather than complain, parents “exhibited a begrudging acceptance” of the current extent and nature of food promotion. They, and other researchers, have identified a number of barriers preventing parents complaining about food advertising to children, including an appreciation and acceptance that product marketing is an essential element of business; an assumption that parents should be able to adequately overcome the impact of advertising; a belief that children appreciate receiving prizes and free promotional materials; an acknowledgement that healthy options are available; and lack of knowledge of the complaints process and perceived futility in it given its low success rate (Ip, Mehta, & Coveney, 2007; Morley et al., 2008; Pettigrew et al., 2011). Furthermore, research shows that, even for a well-informed complainant, the complaints system in New Zealand is difficult to use and is weighted in favour of the food industry (Hoek & King, 2008).

Despite industry assertions of social responsibility and claims of success (Galbraith-Emami & Lobstein, 2013), public health experts agree that self-regulation is mostly ineffective in protecting children from exposure to unhealthy food advertising, finding that the mechanism works more in the food industry’s favour, and that self-regulation is used as a means to avert the threat of statutory regulation (Galbraith-Emami & Lobstein, 2013; Hawkes, 2005; Thornley, Signal, & Thomson, 2010). In a recent systematic review of the effects of varying types of regulation globally, Galbraith-Emami & Lobstein (2013) found that, with the exception of those regions where statutory regulations have been introduced, children are still exposed to high levels of unhealthy food promotion. According to Hawkes (2005), self-regulation’s approach is limited, stating that it is “framed around the acute effects of deceptive and offensive advertisements, not the chronic effects of larger numbers of a panoply of types of promotions for less than healthy foods….In other words self-regulation cannot prevent marketing that works” (Hawkes, 2005, p. 380). Self-regulation only addresses the immediate impact of advertising by possibly constraining the
most egregious practices and content of advertisements, rather than issues such as the quantity and emotional intent of advertising (Hawkes, 2005).

An analysis of the New Zealand food advertising codes in the context of UNCRC supports the findings of global research. Thornley, Signal and Thomson (2010), in an earlier iteration of the Codes, found the New Zealand self-regulatory system wanting on several key issues. In particular, the authors found that while the ASA claims to abide by their responsibility with regard to UNCRC, it has been interpreted and applied by the ASA in such a way as to work for the interests of the food industry rather than in children’s best interests. Furthermore, the ASA’s definition of a child as being under 14y is inconsistent with that of UNCRC’s being anyone under the age of 18y. With regard to implementation and monitoring of the codes, the authors concluded that the system is “reactive, has limited sanctions and lacks pre-vetting of advertisements and independent monitoring...[and]...provides little incentive for restraint by advertisers” (Thornley et al., 2010, p. 30). The current New Zealand government has rejected introducing further advertising restrictions (Watkins, 2015). A review of the current Code is underway.

Global food policy
Changes in the global food supply, associated with the recent nutrition transition, have had substantial influence on population diet-related health outcomes. Increased industrialisation and mechanisation in the agricultural and food sectors, urbanisation, globalisation, and economic development and prosperity, mediated by policies and political decisions, have had a significant impact on the way food is produced, distributed and marketed, and ultimately consumed (Drewnowski & Popkin, 1997; Hoek & McLean, 2010; Popkin, 2006). As such, a greater variety and amount of food has been able to be produced. However, much of it is highly processed, energy-dense and nutrient-poor; relatively cheap to produce and purchase; and extensively promoted (Drewnowski & Popkin, 1997; Hoek & McLean, 2010; Popkin, 2006).

There is currently no formal international policy or regulatory system for food or diets. To guide national policy development to improve children’s diets and health outcomes, WHO has published a number of documents and frameworks (WHO, 2000, 2012a, 2015a, 2016b). Underpinned by a socio-ecological approach, the documents consistently emphasise the need to comprehensively address the factors in children’s food environments that drive poor dietary patterns. The most recent recommendations have
come for the WHO Commission on Ending Childhood Obesity (WHO, 2016b). The recommendations take a comprehensive approach, tackling the obesogenic environment while at the same time focusing on the life-course. Actions include education, fiscal strategies, ensuring child-focused settings are healthy, labelling, implementing the WHO *Set of Recommendations of Food Marketing to Children* (WHO, 2010), and including strong monitoring and accountability measures.

Action in the field of tobacco control has set a precedent for legislative action on the control of food or diets, and improving children’s food environments. The Framework Convention on Tobacco Control (FCTC) is a legally-binding, regulatory document adopted in 2003 and ratified by almost all nations (WHO, 2003b). The FCTC establishes broad commitments and a general system of governance and policy development for signatory States with the aim "to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke" (WHO, 2003b, p. 5). The FCTC primarily addresses the reduction in supply of and demand for tobacco, for example, the marketing of tobacco; taxation; and the composition, packaging and labelling of tobacco products. Although the FCTC prescribes the minimum requirements only, Member States are encouraged to apply more stringent measures.

In 2014, the World Obesity Federation and Consumers International released the ‘*Global Convention for the Protection and Promotion of Healthy Diets*’ (Consumers International & World Obesity Federation, 2014). Based on the structure of the FCTC, the Global Convention for Healthy Diets calls on governments to introduce similar binding policy measures as in the FCTC – to create supportive and healthy food environments through broad-based public health approaches including legislation and regulation. The Global Convention on Healthy Diets has yet to be adopted or ratified. Doing so would provide global stewardship in the prevention of diet-related chronic conditions, including those of most concern for children.

### 2.4.3 Fundamental factors
A person’s health is fundamentally determined by their social and economic position in society – the lower one’s position, the worse their health outcome. The factors that determine a person’s socioeconomic position – the social determinants of health – include income, employment status, housing, level of education, and access to services and other
resources (WHO & Commission on Social Determinants of Health, 2008). Inequalities in health outcomes within and between populations are largely explained by an unequal distribution in the social determinants of health and “a combination of poor social policies and programmes, unfair economic arrangements, and bad politics” (WHO & Commission on Social Determinants of Health, 2008, p. 1). Furthermore, in New Zealand, health outcomes for Māori are almost always worse than for non-Māori, regardless of socioeconomic status. This situation is not only attributed to the unequal distribution of the social determinants of health between Māori and non-Māori, but also to ethnicity-related factors, particularly institutional racism (Harris et al., 2006; Ministry of Health, 2002; Tobias, Blakely, Matheson, Rasanathan, & Atkinson, 2009).

The inequalities in the prevalence of diet-related chronic conditions of most concern for children in the New Zealand child population, described at the beginning of this chapter, may be fundamentally explained by unequal distribution of such determinants as income and education level. Furthermore, the inequitable access to, and choice of, healthy food and good nutrition has been shown to be a key driving factor in poor diet-related health outcomes (Drewnowski, 2009). Addressing the social determinants of health and their distribution within and between populations is fundamental to improving people’s health outcomes and redressing health inequalities, including those that are diet-related. Given the broad range of social determinants of health, reducing inequalities is not only a concern for health, but all sectors involved in health policy.

2.5 Conclusion
This chapter has introduced the public health issues central to this thesis. Several diet-related chronic conditions – overweight/obesity, type 2 diabetes and dental caries – are significant, and in some cases increasing, health problems for children. Not only do they have immediate impacts on children’s health and well-being but these conditions also present substantial longer-term implications for individuals and society. Like the adult population, children’s dietary patterns, including those of young New Zealanders, are often not health-protective, typically including the overconsumption of energy-dense, nutrient-poor foods that have been shown to be implicated in the chronic conditions of interest to this thesis. While young people or parents choose the foods they or their children ultimately consume, their preferences and purchasing decisions are influenced by multiple factors, many of which are beyond their control, including food availability, food
marketing and cost. Most countries, including New Zealand, have committed to upholding children’s right to health and to live in a healthy environment through the ratification of the UN Convention on the Rights of the Child (OHCHR, 1989).

The following chapter describes children’s rights, focusing on the rights that are relevant to the health issues presented in this chapter and children’s food environments. A conceptual framework for examining children’s situations and compliance with children’s rights, and identifying actions to ensure children’s rights are being realised, is then described. This framework forms the basis of the discussion of the study findings in relation to children’s rights in Chapter 9.
CHAPTER THREE: CHILDREN’S RIGHTS AND FOOD ENVIRONMENTS

The social, economic, and political environments in which children live and develop are increasingly being recognized as the most important contemporary determinants of child health. Ensuring children’s rights and the use of the UN Convention on the Rights of the Child are among the most powerful tools available to respond to these contemporary determinants to improve the well-being of children (Goldhagen, 2003, p. 742).

3.1 Introduction

Everyone has the right to health and to live in conditions that support that right (Hunt et al., 2011). Yet, it is clear from the situation described previously that for a substantial proportion of children, globally and in New Zealand, these rights are not being realised, and an urgent response is required. A human rights approach to an issue is one that is “explicitly based on specific human rights and make[s] explicit linkages to the normative framework of international, regional and national human rights norms, principles and standards” (WHO, 2002, p. 17). Furthermore, it “consider[s] the social, political, historical and economic contexts that frame the ways in which health is produced, experienced, and understood” (Beracochea, Evans, & Weinstein, 2011, p. 10). Such an approach transforms human rights provisions from legal instruments into policies and practices for the effective realisation of rights, and has been posited as an ideal means of understanding and responding to health issues within a community or population (Hunt et al., 2011; Tobin, 2006). Further, a human rights approach is well suited to public health; both paradigms share common principles, and enjoy a mutually reinforcing and beneficial relationship that can strengthen responses to public health issues (Hunt et al., 2011; Mann, 1995).

The UN Convention on the Rights of the Child (UNCRC, or the Convention) is the normative framework that specifically defines and clarifies children’s rights and prescribes governments’ obligations to fulfil them (UNICEF, 2015a). The requirements for the realisation of children’s rights to diet-related health and healthy food environments are enshrined within UNCRC. The Convention is also a “helpful tool for evaluating the quality of children’s and young people’s everyday environments” (Smith, Gaffney, & Nairn, 2004, p. 87) and can be used to design, implement, monitor and evaluate strategies
for the realisation of children’s rights, and improvements in their health and well-being (Tobin, 2006).

This chapter explores a child rights approach to health in the context of children’s food environments and the diet-related chronic conditions of concern for children discussed in the previous chapter. The chapter commences by defining human rights, describing the different types of human rights documents, including the Convention, and human rights principles. The commonalities in the relationship between a human rights and a public health approach to health and well-being are then discussed. Next, the articles within UNCRC that prescribe children’s entitlement to a healthy food environment are identified and discussed. An analysis framework used to evaluate situations that impact children, such as diet-related chronic conditions, and to identify effective intervention points for positive change to improve children’s health and well-being is then presented. The final section summarises the chapter.

3.2 Human rights

3.2.1 Definition and key concepts
Human rights are the “freedoms and entitlements concerned with the protection of the inherent dignity and equality of every human being” (Hunt et al., 2011, p. 335). All human rights are regarded as universal – everyone is equally entitled to their human rights, and all members of the UN (Member States) are obligated to promote and protect human rights regardless of political, economic or cultural systems. Human rights are inalienable – they cannot be given up or taken away, and they are indivisible – there is no hierarchy or priority given to one human right over another. Finally, human rights are interdependent – the realisation of one human right is wholly or partially dependent on other human rights being realised (OHCHR, 2015a).

3.2.2 Human rights documents
The origins of the concept of human rights lie in societal moral and ethical values, and codes of conduct (Hunt et al., 2011; Jonsson, 2003), features which continue to underpin current human rights doctrine. These features of human rights have been formally documented and codified in various human rights instruments, be they treaties or other related documents (outlined in the following text). Contemporary institutionalisation of human rights is founded on the UN’s International Bill of Rights, which comprises: the
Universal Declaration of Human Rights (adopted 1948) (OHCHR, 2015b), and the International Covenants on Civil and Political Rights, and Social, Economic and Cultural Rights (both adopted in 1966) (OHCHR, 2015c). All human rights instruments outline universal standards and requirements for the realisation of human rights and provide a framework to guide and inform government action in order to create an environment conducive to the realisation of people’s human rights. Ideally, human rights doctrine should form the basis of national laws and public policy (Hunt et al., 2011). In addition to addressing human rights generally, more than twenty other international human rights instruments have been developed and adopted, including some that are specific to population groups who have disproportionately experienced human rights violations, such as persons with disabilities, women, prisoners, and indigenous peoples.

Human rights treaties, or covenants, are part of international law and considered ‘hard law’ documents. The UN also produces ‘soft law’ documents, which include declarations, resolutions, recommendations, and guidelines, that relate to human rights themes, processes and specific groups of people. Unlike hard law documents, soft law documents are enacted on a voluntary basis. In addition, UN agencies or programmes, such as the Food and Agriculture Organisation (FAO) and United Nations Children’s Fund (UNICEF), produce guidelines and reports on various human rights issues from time to time, for example, UNICEF’s ‘Implementation Handbook for the Convention on the Rights of the Child’ (Hodgkin, Newell, & UNICEF, 2002).

Human Rights Committees of the United Nations (Human Rights Committees), treaty-based bodies comprised of independent experts, oversee Member States’ compliance with human rights obligations, including performance and monitoring. The Human Rights Committees also publish ‘General Comments’, quasi-legal documents that assist governments in interpreting and implementing the actions required to fulfil the provisions set out in each of the human rights treaties, for either a particular group such as people with disabilities, or themes related to a specific treaty provision, or process. Although this thesis focuses primarily on UNCRC, it is informed by other human rights documents, which are discussed later in this chapter where relevant.

3.2.3 Duty-bearers

Individuals’ human rights are legally guaranteed through ratification, “the international act whereby a State indicates its consent to be bound by a treaty that it has previously signed”
Ratification legally binds governments through international law to fulfil the obligations and responsibilities in realising human rights within their jurisdictions, as set out and agreed to in the signed treaty document. Ultimately, ratification establishes a legally recognised relationship between duty-bearers, “those who have a particular obligation or responsibility to respect, promote and realize human rights and to abstain from human rights violations” (UNICEF, 2015b, p. 1) and rights-holders, individuals or groups who can claim rights (Beracochea et al., 2011; Hunt et al., 2011). All individuals are rights-holders, many are duty-bearers, and depending on context, some are both.

The State
As signatory, the State is the prime duty-bearer in all human rights treaties, and has “tripartite obligations” (Hunt et al., 2011, p. 339) to rights-holders. Governments that have ratified human rights treaties are obligated to respect rights by not directly or indirectly interfering with people claiming their human rights; protect rights by preventing third parties from violating, or interfering with the enjoyment of, rights; and fulfil human rights by directly providing assistance or services, and adopting the necessary legislative, administrative, budgetary, judicial, promotional, and other measures, to facilitate the realisation of human rights (Beracochea et al., 2011; Hunt et al., 2011; Jonsson, 2003). Local government is considered part of the State and a prime duty-bearer (Fisher, 2010). Therefore, it is also required to comply with international law and treaties that bind central government, but at a local rather than national level (Fisher, 2010).

Following ratification, Member States must take immediate action to realise political and civil rights. Acknowledging that governments may not have the resources available to enact measures immediately, social, economic and cultural rights are not required to be instantaneously instituted. Instead, they are required to show that steps have been taken towards full realisation of social, economic and cultural rights, by demonstrating the ‘progressive realisation’ of rights (Hunt et al., 2011). To ensure that governments are instituting rights immediately or progressively as required, and that they are not using the latter as a mandate to prolong or postpone actions (which is not permissible), measures are explicitly included within treaty documents to monitor and evaluate governments’ progressive actions and fulfilment of their obligations (Hunt et al., 2011). Governments are required, on a regular basis, to report their progress to the relevant Human Rights Committee. Further monitoring and accountability is undertaken by external parties,
particularly treaty-relevant non-governmental organisations, who present the relevant Human Rights Committee with alternative, independent reports to those required by the State on the progress the government has made towards the realisation of rights to the maximum extent possible within available resources. Subsequently, the relevant Human Rights Committee reviews all the reports presented to them and makes publically available recommendations for further and future actions (OHCHR, 2016).

The UN will also periodically enact Special Procedures, which are mechanisms to investigate specific human rights violations either within a country, or globally with regard to a specific human rights theme, such as health or racism. Special Procedures are undertaken by either an individual (Special Rapporteur) or a working group. Both are independent experts in their field who work on behalf of the UN. They have a specific directive to "examine, monitor, advise and publicly report" (OHCHR, n.d.) to the relevant UN Human Rights Committee and the UN General Assembly, and provide feedback and advice to the government in question, on human rights actions and violations. Ultimately, instituting the various monitoring measures and holding Member States fully accountable to their human rights commitments before the international community is key to the full realisation of rights for all people (Hunt et al., 2011).

Non-State actors
Other members of society may also be duty-bearers, obligated to respect, protect and fulfil human rights (Goldhagen, 2003). Known as non-State actors, their identification and obligations are context-dependent on the nature of the rights-holders and the rights being exercised or addressed. The accountability of non-State actors is not as exacting as it is for government and its agencies, being contingent on their capacity to fully discharge their responsibilities in realising rights. Capacity is defined as “the key factor determining how well rights are claimed and duties are fulfilled” (Jonsson, 2003, p. 16) or the “sum of all factors that enable individuals, communities, institutions, organizations, or governments to adequately perform their respective roles and responsibilities” (UNFPA and Harvard School of Public Health, 2010, p. 101). According to Jonsson (2003), there are several criteria for capacity that must be met before non-State actors can be held accountable: non-State actors must understand and accept their obligations and the notion that rights-holders have legitimate claims (responsibility/motivation); that they have the authority to carry out the required duty (authority); and they have access to and control of the necessary resources, including the knowledge and skills; human, economic and material resources;
and information and communication system, that will allow them to meet their obligations (resources) (Jonsson, 2003). To this end, the State is further obligated to implement measures that facilitate and support the actions of non-State actors in their ability to realise human rights; and ensure that non-State actors do not interfere with rights-holders claiming rights or the State’s ability to meet their obligations in realising rights. Jonsson (2003) summarises the criteria thus, “a person can only be held accountable if that person feels that he/she should act; that he/she may act; and that he/she can act” (p. 16).

The obligations and responsibilities of duty-bearers have been outlined by Kent (1994), in terms of a “responsibility hierarchy” (Kent, 1994, p. 358) whereby children are “surrounded, supported and nurtured by family, community, government and, ultimately, international organizations” (Kent, 1994, p. 359). Kent (1994) suggests it be illustrated as a “nested” (p. 359) configuration with the child in the centre, as shown in Figure 6. When a duty-bearer is unable or fails to meet their obligations to children and support them in their development, the next highest duty-bearer in the hierarchy has an obligation to intervene. Moreover, duty-bearers also have an obligation to empower and improve the capacity of those duty-bearers immediately below them in the hierarchy so they may successfully fulfil their obligations (Kent, 1994).

Figure 6: Nested rings of responsibility (derived from Kent, 1994)
3.3 Human rights approach to health

As defined previously, a human rights approach to an issue is “explicitly based on specific human rights and make[s] explicit linkages to the normative framework of international, regional and national human rights norms, principles and standards” (WHO, 2002, p. 17). A human rights approach, which incorporates children’s rights, has been mainstreamed across all UN agencies, funds and community social development activities and programmes since 1997 (Beracochea et al., 2011; HRBA Portal, n.d.).

More recently, a range of experts have called for health research, policy and practice to take a human rights approach (Greenway, 2008; Gruskin & Dickens, 2006; Hunt, 2009; Hunt et al., 2011; Kumanyika, 2011; Nygren-Krug, 2009; Simpson & Simpson, 2004; Tarantola & Gruskin, 2008; Tobin, 2006). Health and human rights enjoy a “complementary relationship” (Hunt et al., 2011, p. 337) or “an inextricable linkage” (Mann et al., 1999, p. 16); the progress of health and the realisation of human rights are enhanced by, and often rely on, the presence of the other (Hunt et al., 2011; Mann et al., 1999; Tarantola & Gruskin, 2008). Furthermore, for public health, a human rights approach has the potential to support and strengthen current and future public health actions (Hunt et al., 2011; Ingleby, Prosser, & Waters, 2008; Mann, 1995). This section discusses the synergies between public health and human rights that make them ideal partners in addressing community and population health issues, and the unique features of a human rights approach that benefit public health action.

3.3.1 Human rights and public health

A complementary relationship exists between human rights and public health. Both approaches share several fundamental principles, making them ideal partners in understanding and addressing public health concerns, especially within vulnerable groups (Hunt, 2009; Hunt et al., 2011; Ingleby et al., 2008; Mann, 1995). Both are motivated to improve the well-being of individuals and populations (Hunt et al., 2011; Mann et al., 1999). Furthermore, each views health as more than the absence of disease and the provision of healthcare, and acknowledges the most sustainable and efficient way to control and prevent public health concerns is by addressing the underlying social determinants of health ((Hunt et al., 2011; Mann et al., 1999). Moreover, both equally embrace the complexity of issues in terms of causation and solutions, and are universal in their coverage but flexible enough to allow for targeted approaches when required (Hunt et
al., 2011; Nixon & Forman, 2008). As with public health, human rights also address health promotion and prevention, and strive to achieve equity, cultural respect, and empowerment of individuals and communities (Hunt et al., 2011; Ingleby et al., 2008; Mann et al., 1999). To these ends, each acknowledges the key role of the State and its agencies within government in realising the highest standard of health. To meet their objectives effectively and sustainably, they both prescribe a broad-ranging, comprehensive and interconnected approach from all levels within and beyond health to all sectors of society (Hunt et al., 2011).

**Advantages of a human rights approach to health**

The unique features of human rights and a human rights approach “fortifies and reinforces” (Hunt et al., 2011, p. 39) public health and provides greater leverage for public health action (Hunt et al., 2011; Ingleby et al., 2008). In addition to there being a moral and ethical underpinning to duty-bearers’ actions, there is also a legal requirement for them to take such action. According to Hunt, the legal aspect of human rights presents a compelling frame of analysis and heightens political and moral urgency. Crucially, it introduces legal obligations, enabling reformers to say to ministers and officials – not only is a suitable policy a matter of good practice, it is also required by law (Hunt, 2009, p. 39).

Thus, the legal aspects of a human rights approach may enable and require political action on public health issues where public health legal imperatives are absent.

A human rights approach argues that inequalities in the distribution of the social determinants of health are a breach of human rights, and governments and other duty-bearers have a duty to act to reduce or eliminate inequalities (Chapman, 2013). Similarly, a public health approach aims to reduce inequalities. Both inequalities in health, and denial or non-realisation of rights, are the result of differences in the allocation of power and political structures, and economic and social resources (Baum, 2007; Marmot, 2005). Typically, the most vulnerable in society bear the greatest burden of inequalities. According to Tobin, a human rights approach aims to “challenge, dismantle and reconfigure existing power relationships and structures both within States and between States” (Tobin, 2006, p. 296). Reallocating power and resources empowers individuals, communities and nations, which, in turn, gives them greater control over the health-related decisions made and improves health outcomes (Baum, 2007; Marmot, 2005). As Lobstein (2006) observes, “social and political empowerment becomes one of the indicators of
health gain” (p. 75). Thus, a human rights approach can strengthen challenges made against the influence of powerful entities that deny people their rights or impede the realisation of their rights, and their good health and well-being (Greenway, 2008).

The emphasis on the explicit identification of duty-bearers, and their obligations and responsibilities to meet the needs of rights-holders is another significant and distinguishing feature of a human rights approach (Hunt et al., 2011; Jonsson, 2003). Furthermore, by identifying higher-level groups and entities as duty-bearers, the responsibility of, and accountability for, public health concerns shifts away from being solely that of the individual (or group) to those upstream identities, principally government and its agencies, but also non-State actors within their capacity (Cadge, 2011; Ingleby et al., 2008; Priest, Swinburn, & Waters, 2010; Te One, 2011). In doing so, the response to the issue is reframed from being the responsibility of the individual to one that requires societal action, particularly by government, and elevates the issue further up the political agenda (Cadge, 2011; Ingleby et al., 2008; Priest et al., 2010; Te One, 2011). Such features of a human rights approach align well with both public health and socio-ecological approaches to health.

Human rights also provide a language and framework that can bring together disparate groups with a common interest in a health issue and act as a catalyst for discussion, raising awareness and assisting in advocacy (Priest et al., 2010; Simpson & Simpson, 2004). In turn, human rights can provide public health with leverage to lobby and agitate for change so that human rights provisions become part of the legislative and policy-making landscape, and therefore legally enforceable (Hunt et al., 2011; Priest et al., 2010; Simpson & Simpson, 2004).

Overall, the defining cornerstones of a human rights approach are similar to those in public health, that is, their impact on norms, values, structures, policies and practice; empowerment of participants; equity and non-discrimination; and sustainability (Cadge, 2011; Hunt et al., 2011; Mann et al., 1999; Tarantola & Gruskin, 2008).

**Limitations of a human rights approach to health**
A human rights approach also has some limitations. As in the implementation of public health actions, the realisation of human rights is a political issue and hence often contested (Baum, 2007; Kumanyika, 2011). Both are often dependent on the prevailing political ideologies, beliefs, priorities and will of the government of the day, and the power and
influence of interest groups (Baum, 2007; Chan, 2014; Kumanyika, 2011). For instance, neo-liberal governments (such as currently in New Zealand) favour individualist approaches to preventing and improving health outcome. To improve health and reduce health inequalities, such ideologies decrease the duties of government and other institutions. They emphasise education of individuals and individual choice over regulatory measures and other government involvement, which are seen as paternalistic and infringing people’s autonomous decision-making (Baum, 2007).

Influencing policy-makers and decision-makers at all levels to make political decisions can be challenging. The realisation of rights is also dependent on the political acceptance of the normative system of rights (Jonsson, 2003; Simpson & Simpson, 2004). In addition, there is often a powerful and well- resourced sector, for instance the tobacco or food industries, with substantial commercial self-interest in maintaining the status quo, opposing change and lobbying governments accordingly (Kumanyika, 2011; Mann, 1995; Nygren-Krug, 2009). While a human rights approach can assist in shifting the balance of power and resources, as Freedman asserts, “the collaboration between health and human rights begins...with the struggle to decide whose view of health will control the policies and programs to address it” (Freedman, 1995, p. 324).

Although the legal aspect of a human rights approach can strengthen and support public health actions, unless human rights become incorporated into national legislation, they only provide a source of actions to consider for government policy and decision-making. Furthermore, despite the presence of measures to monitor governments’ progress on progressively realising rights and incorporating them into decision-making processes, and holding them to account, the measures often lack “enforcement teeth” (Davidson, 2014, p. 522). Hence, there are limited tangible means of enforcing governments to comply with human rights (Davidson, 2014; Reading et al., 2008; Sen, 2004). Consequently, observations and recommendations made by the relevant UN Committee may not be acted on or delayed, and children’s rights may not be fully realised. Consequently, human rights are often seen as being only aspirational and idealistic.

Debate surrounds the universality of human rights, with critics claiming that human rights are based on a Western worldview, and ignore the cultural, economic, historical and social diversity between societies (Cerna, 1994; Donnelly, 2007). Human rights are also seen as promoting individualism rather than community and societal perspectives (Cerna, 1994;
Donnelly, 2007). Yet variations in cultures, worldviews and resources are accommodated in human rights agreements, through latitude in their interpretation and application. However, a limitation of the universality of human rights and the latitude given in their interpretation is their ambiguity and potential for manipulation by governments and other powerful duty-bearers (such as the food and tobacco industries) (Tobin, 2012). Such ambiguity also provides a potential means for less-willing governments to renege on the progressive realisation of rights.

Similar debate surrounds the universality of children and childhood, and children’s rights (Te One, 2011). Children and childhood are context-dependent (Christensen & Prout, 2005). Consequently, there is a wide range of needs for protection and provision, and abilities in exercising their own judgments and decision-making among children. Thus, applying children’s rights universally can be seen as problematic (Te One, 2011). However, by recognising the evolving capacities of children, the Convention takes in to account the varying degrees of children’s vulnerability and abilities to exercise agency (OHCHR, 1989).

There are other challenges and criticisms specific to UNCRC. A lack of awareness of and familiarity with children’s rights among children, parents, other adults and policy-makers, especially lower-level decision-makers, and lack of acceptance and understanding of children’s rights as part of policy-makers’ mandates limit the application of a child rights approach (Tobin, 2006; Woll, 2000). People, including policy-makers, have varying views about children’s rights, particularly children’s role in decision-making about matters concerning them (Te One, 2011). Te One (2011) describes opinions for and against children’s participation as being “positioned along a continuum” (p. 42), ranging from child rights advocates calling for children’s full participation at one end and those who see child rights as impinging on the rights of parents at the other. This issue, and others, including the prioritisation of children’s interests over those of others, and contradictions between provisions such as the conflict between children’s rights to have access to nutrition information and protection from harmful information, are discussed more fully in the following text.
3.4 The UN Convention on the Rights of the Child

A constituent part of the human rights framework, UNCRC is a hard law document, one that is binding and creates enforceable obligations, that comprehensively enshrines other human rights documents and their principles as they relate to children into one document (Cadge, 2011). Children are defined in UNCRC as all people under the age of 18y. It is the most widely ratified human rights treaty, by all UN Member States other than the US (signed by the US but not ratified and awaiting ratification by Somalia), and the first legally-binding international human rights instrument to incorporate the full range of human rights (UNICEF, 2015a).

Adopted by the UN in 1989, UNCRC was developed over a period of ten years in recognition of the different survival and development needs of children relative to adults, a situation which required special attention and heightened awareness. UNCRC’s intent is to support individual and societal efforts to ensure that the conditions in which children live allow them to develop and reach their full potential, and protect children’s vulnerability. Its greatest significance lies in its recognition and emphasis on children as sentient beings and subjects with human rights equivalent to those that may be claimed by the adult population, as opposed to being considered as objects of charity and the property of parents and family. Thus, children are viewed as competent individuals and members of their family and of society who may claim rights, within the bounds of their evolving capacities based on their maturity. Furthermore, children are considered active participants in the promotion, monitoring and protection of their rights. They are also entitled to have their views on all matters concerning them taken into account and for those views to be given due consideration in accordance with their age and stage of development.

UNCRC consists of 54 articles (arts.) (and two Optional Protocols⁴) of which four are core principles common to other human rights treaties and declarations: (i) non-discrimination (art. 2), that all children are equally entitled to human rights; (ii) best interests of the child (art. 3), that the child must be the primary consideration in all actions concerning children; (iii) the right to life, survival and development (art. 6), that is, the right to basic services and the opportunity for all individuals to achieve full development, and that such actions

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⁴ Optional Protocols provide for procedures with regard to the treaty or address a substantive area related to the treaty. They are treaties in their own right, and are open to signature, accession or ratification by countries who are party to the main treaty. UNCRC’s Optional Protocols address the sale of children, child prostitution and child pornography; and the involvement of children in armed conflict.
reach all children; and (iv) respect for the views of the child (art. 12), that is, recognise that children’s views on the realisation of their rights are important and should be given due consideration. Articles within the Convention can be categorised as provision rights (those which provide the resources required), protection rights (those which guard against rights violations) and participation rights (those which allow for the child to be part of the process of realising their rights (UNICEF, 2014).

The general human rights principles described previously are applicable to UNCRC. In addition, the UN urges governments to use UNCRC to develop “a unifying, comprehensive and rights-based national strategy, rooted in the Convention” (Committee on the Rights of the Child, 2003, p. 8). Such a strategy must include achievable and measurable milestones, a process for how those might be achieved, and a strategy for continuous monitoring and accountability which must be disseminated. There must also be coordinated efforts to realise children’s rights through all levels of government and society. Further, governments are obligated to promote and disseminate information on the rights of the child (art. 42) and institute an independent statutory body to advocate for the best interests of the child and ensure their rights are upheld (Committee on the Rights of the Child, 2003).

As discussed previously, human rights are indivisible, thus all children’s entitlements enshrined in UNCRC have equal priority. As such, the Convention is intended to be considered in its entirety rather than through specifically selected articles. However, some provisions are more pertinent to an issue than others. For instance, in this thesis those articles addressing adoption, punishment, violence and refugee status are not immediately relevant to diet-related health and food environments. The UN itself sets precedence for focussing on specific provisions by emphasising those that underlie the general principles, and highlighting articles within human rights treaties through General Comments, Special Procedures and other soft law documents.

3.4.1 UNCRC in New Zealand
New Zealand ratified UNCRC (and the Optional Protocols) in 1993 (Ministry of Justice, n.d.). Thus New Zealand is bound by the provisions within UNCRC to respect, protect and fulfil the rights of all New Zealand children, and develop a national children’s action plan. On ratification, New Zealand entered three reservations to some provisions within UNCRC: (i) children of parents who are in New Zealand illegally do not have any rights to
social services; (ii) there is no minimum age or agreed conditions of employing children; and (iii) children in custody can be held with adult prisoners in some circumstances (Ministry of Justice, n.d.).

Since ratification, New Zealand has reported to the UN Committee on the Rights of the Child (the Committee) five times. In response to the New Zealand Government’s 2011 periodic report on progressing New Zealand children’s rights, the Committee on the Rights of the Child had a number of criticisms and made several recommendations that are relevant to this thesis. As in their previous reports, the Committee said that while New Zealand children’s rights are protected through a range of national policies and strategies, New Zealand lacked a coordinated national plan for children (Committee on the Rights of the Child, 2011). The Committee also noted that there was inadequate assistance provided to parents in their child-rearing responsibilities, particularly in Māori and Pacific populations. With regard to business or commercial activity by private or corporate entities, the Committee noted that government had yet to institute parameters to ensure compliance with the Respect, Protect and Remedy framework, which is discussed in the following text. The Committee recommended regulations be instituted to ensure the business/corporate sector complied with international standards of corporate social responsibility (Committee on the Rights of the Child, 2011). The repeated observations and recommendations of the UN Committee on the Rights of the Child on enacting a national plan of action for children illustrates the lack of “enforcement teeth” in measures within human rights to hold governments to account, as discussed previously.

The Committee’s views were supported by a submission to the UN Office of the High Commissioner for Human Rights’ study on children’s right to health for the UN Human Rights Council in 2012. In their submission, the New Zealand Human Rights Commission raised the issue of the inequalities in health outcomes and risk factors experienced by Māori and Pacific children in New Zealand, such as obesity. Similar to the UN Committee, the Commission also highlighted the lack of “overarching children’s legislation, leadership or children’s policy across Government” and reiterated the need for “a holistic, comprehensive approach to improving child health, requiring whole-of-government commitment, effective coordination and sustained investment” (Human Rights Commission, 2012, p. 8). More recently, the New Zealand UNCRC Monitoring Group, a

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5 At the time of writing, New Zealand is awaiting the UN Committee’s observations and recommendations on a report submitted in mid-2015.
collaboration of non-government sector representatives monitoring UNCRC’s implementation in New Zealand, reported that although some steps had been taken to improve the coordination of child health policies and services, there was no formal national plan for children, and progress has been minimal and slow (UNCROC Monitoring Group, 2013).

3.5 Children’s right to health

The right to the enjoyment of the highest attainable standard of physical and mental health – or the right to health – is a fundamental human right, enshrined in a number of human rights documents, including UNCRC,

Art. 24(2) States Parties recognize the right of the children to the enjoyment of the highest attainable standard of health.

The right to health not only comprises biomedical aspects of health and provision of health care but it also aligns with an ecological theory of health by embodying the broad WHO definition of health (Hunt et al., 2011), that is, “complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1948). For children, the right to health further includes “a right to grow and develop to their full potential and live in conditions that enable them to attain the highest standard of health” (Committee on the Rights of the Child, 2003, p. 3). UNICEF has identified a healthy environment as a pre-requisite for the realisation of children’s fundamental rights to life and development: “since children have the rights to survival, adequate health care and a standard of living that supports their full development, they need to benefit from environmental conditions that make the fulfilment of these rights possible” (UNICEF, 2012a, p. 14). Thus, the right to health also encompasses the environmental factors and underlying social determinants that allow people to live healthy lives, through a “mutually reinforcing relationship” (Hunt et al., 2011) with other fundamental rights (Cadge, 2011).

A range of individuals and organisations have a role to play in realising children’s rights, including their right to health; “while it is the State which takes on obligations under the Convention, its task of implementation of making reality of the human rights of children needs to engage all sectors of society and, of course, children themselves” (Committee on the Rights of the Child, 2003, p. 2). According to General Comment No.14 on the Right to Health, all sectors of society include “individuals, including health professionals, families,
local communities, intergovernmental and non-governmental organizations, civil society organizations, as well as the private business sector” (Committee on Economic, Social and Cultural Rights, 2000, p. 12).

3.6 Children’s right to diet-related health and healthy food environments

As discussed in the previous chapter, children’s diet-related health is dependent on their food preferences and behaviours, and the underlying drivers of those behaviours, including numerous environmental factors and, more broadly, the social determinants of health. As such, realising children’s right to diet-related health not only includes the provision of food and nutrition but also requires considering the realisation of children’s rights to the broad environmental factors that prescribe a healthy food environment (Doek, 2010). However, General Comment No. 14, which addresses the Right to the Highest Attainable Standard of Health (art. 12) in the International Covenant on Economic, Social and Cultural Rights, states that to ensure desirable diet-related health outcomes, the right to health specifically includes the right to “food and nutrition...and a healthy environment” and the provision of “facilities, goods, services, and conditions necessary for the realization of the highest attainable standard of health” (Committee on Economic, Social and Cultural Rights, 2000, p. 3).

While the Convention explicitly provides for children’s right to food and nutrition, children’s right to a healthy food environment is not specifically addressed. However, a number of provisions within UNCRC collectively provide for the various components of children’s food environments. This section outlines aspects of children’s food environments as they relate to the diet-related chronic conditions of most concern for children that have been considered in the literature. The key provisions within UNCRC that address children’s food environments in relation to diet-related chronic conditions of concern for children are then described and discussed. Their identification is based on the reading of UNCRC and the previously cited work of other scholars. It should be noted that Handsley et al.’s (2014) use of specific provisions within UNCRC to examine food marketing to children was published after the conceptual development of this thesis.
3.6.1 UNCRC and healthy food environments

Historically, commentary on food and nutrition, and the food environment, in the context of children’s rights has focused almost exclusively on issues of hunger and food insecurity, and the subsequent conditions and diseases associated with under-nutrition and malnourishment in marginalised communities (Handsley et al., 2014; Kent, 1993). However, in response to the prevalence of child obesity worldwide and its significant consequences for health and well-being, children’s entitlement to a healthy food environment in the context of diet-related chronic conditions of concern for children have gained greater attention recently. These are increasingly becoming issues of human rights and part of the global agenda (International Food Policy Research Institute, 2014; Jonsson, 1996; Nygren-Krug, 2009; Priest et al., 2010; United Nations General Assembly, 2011).

For instance, acknowledging the recent shift in children’s diet-related health outcome factors and priorities, the UN Committee now takes a generic approach to the interpretation to the right to health in order to “ensure its relevance to a wide range of children’s health problems” (Committee on the Rights of the Child, 2013a, p. 2).

Several scholars have recommended that UNCRC be used to guide policy development to prevent childhood obesity or create a healthy food environment (Greenway, 2008; Ingleby et al., 2008; Jonsson, 1996; Kent, 1993; Priest et al., 2010; Reading et al., 2008; Simpson & Simpson, 2004; Swinburn, 2008; United Nations General Assembly, 2011). Documents from WHO on the prevention of diet-related conditions are generally based on human rights, and focus predominantly on food marketing to children, including the *Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children* (WHO, 2010), and the *Global Strategy on Diet, Physical Activity and Health* (WHO, 2004). Following a WHO Forum and Technical Meeting in 2006 on marketing to children, and global consultation with a range of experts, the International Obesity Task Force used several provisions within UNCRC to develop the Sydney Principles. The seven precepts are founded on the obligation of duty-bearers, principally governments, to protect children from harm and exploitation (Swinburn et al., 2008). They recommend food marketing that targets children:

(i) support the rights of children; (ii) afford substantial protection to children; (iii) be statutory in nature; (iv) take a wide definition of commercial promotions; (v) guarantee commercial-free childhood settings; (vi) include cross-border media; and (vii) be evaluated, monitored and enforced (Swinburn et al., 2008).
Suggestions have also been made to use UNCRC and the provisions within it as a tool to scrutinise children’s health issues such as diet-related chronic conditions (Nygren-Krug, 2009; Smith et al., 2004; Tobin, 2006). However, such use of UNCRC (and relevant soft law documents) to explore the diet-related chronic conditions of concern for children in the academic literature is limited. As with the guiding documents, the academic literature only explores the health impacts of food marketing to children rather than considering other elements of the food environment. For example, Ingleby et al. (2008) used several provisions within UNCRC, and the Government’s obligation to ensure the realisation of children’s rights, to argue for the institution of food advertising regulation to protect children’s health. This premise was recently explored in more depth by Handsley et al. (2014). These authors examined the advertising regulatory practices in six jurisdictions, including New Zealand, within the context of UNCRC. They dissected the roles of the State and parents as duty-bearers, and the various provisions within UNCRC that are relevant to food marketing to children. In the work discussed previously by Thornley, Signal and Thomson (2010), the Code for Advertising of Food was analysed using specific provisions within UNCRC (arts. 3, 6 and 13) to determine if industry self-regulation of food advertising to New Zealand children protects children and enables the realisation of their rights.

3.6.2 The right to food

Development and definition
The right to food was first acknowledged in the Universal Declaration of Human Rights as part of the right to an adequate standard of living. In 1966, it became part of international law in the International Covenant on Economic, Social and Cultural Rights. Subsequent activities and documents have supplemented and supported the realisation of the right to food. In 1999, the Committee on International Covenant on Economic, Social and Cultural Rights adopted General Comment No. 12 ‘The Right to Adequate Food’ (Committee on Economic, Social and Cultural Rights, 1999), which describes the various obligations of the State regarding the right to food, as enshrined in the International Covenant on Economic, Social and Cultural Rights. The role of the Special Rapporteur to the Right to Food was established in 2000 and four years later the FAO adopted the ‘Right to Food Guidelines’ (FAO, 2006), providing States with guidance in the implementation of the Right to Food.
The right to food ensures people “live in dignity, free from hunger, food insecurity and malnutrition” (Ziegler, 2012) and is defined as,

the right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear (OHCHR, 2015d).

a right to all nutritional elements that a person needs to live a healthy and active life and to the means to access them (OHCHR, 2010, p. 2).

General Comment No. 12 states that the right to food is realised “when every man, woman and child, alone or in community with others, has the physical and economic access at all times to adequate food or means for its procurement” (Committee on Economic, Social and Cultural Rights, 1999, p. 3). According to the first Rapporteur to Food, the right to food consists of three dimensions. Food must be *available*, that is, there is a requirement that systems are able to provide food in accordance with demand so that people may feed themselves. Food must be *accessible*, that is, people have guaranteed physical and economic access to food. Food must be *adequate*, that is contain “the nutrients necessary for...physical and mental development” (OHCHR, 2010, p. 3), be safe to consume, and take into account underlying factors including the social determinants of health, and people’s culture and religion.

The right to food as it applies specifically to children is enshrined in UNCRC as an integral part of a child’s right to health (art.24),

2. States Parties recognize the right of the children to the enjoyment of the highest attainable standard of health...and shall pursue full implementation of this right and, in particular shall take appropriate measures:

(c) To combat disease and malnutrition...through the provision of *adequate nutritious foods*\(^6\)...

**The right to food in relation to diet-related chronic conditions of concern for children**

The increased recognition of diet-related chronic conditions as a human rights issue is in part due to a shift in the interpretation of malnutrition. Historically, malnutrition has been

\(^6\) Author’s emphasis
considered as resulting from undernourishment and a lack of food. However, the overconsumption of energy-dense and nutrient-poor foods is now also considered a type of malnourishment, or the consequences of the provision and consumption of inadequate food. Several instances at a global level have signalled this change. When illustrating the meaning of adequate food, the Office of the High Commissioner for Human Rights stated that “food that is energy-dense and low-nutrient, which can contribute to obesity and other illnesses, could be an[other] example of inadequate food” (OHCHR, 2010, p. 3). Most recently, the Rome Declaration on Nutrition, adopted at the Second International Conference on Nutrition acknowledged “malnutrition, in all its forms...including overweight and obesity” (FAO & WHO, 2014, p. 1). In a recent report to the Human Rights Council on nutrition and the right to food, Olivier De Schutter, the former Special Rapporteur on the right to food, specifically signalled overweight and obesity as a dimension of malnourishment that resulted from inadequate food (United Nations General Assembly, 2011). De Schutter also stated that overweight and obesity were human rights issues that had resulted from the creation of obesogenic environments and food systems which do not encourage healthy food choices. De Schutter recently further substantiated this view by endorsing the Global Convention on healthy diets discussed previously (Consumers International & World Obesity Federation, 2014).

3.6.3 The right to nutrition information and education

Children have the right to information in all its forms (art 13 (1)). In the context of food environments, children (and their parents) are specifically entitled to health and nutrition information and education, and the State is obligated to provide it,

Art. 24 (2). States Parties recognize the right of the children to the enjoyment of the highest attainable standard of health...and shall pursue full implementation of this right and, in particular shall take appropriate measures:

(e) To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition7...

General Comment 15 explains that health information needs to be accessible, appropriate to the child’s age and educational level, should enable them to make healthy choices including food, and be disseminated in schools and a wide range of public settings (Committee on the Rights of the Child, 2013a). In addition to addressing children’s right to the availability of positive health information, UNCRC also provides for their protection

7 Author’s emphasis
from material detrimental to their health and well-being, and requires the State to encourage the development of measures and guidelines to ensure children’s protection (art. 17). Furthermore, to protect public health, restrictions are placed on children’s right to information (art. 13).

As discussed previously, nutrition information is conveyed by several means and in a number of settings, for example, in homes and schools, by parents and teachers, and through the mass media via food advertising and product labelling. However, the public health sector considers the nutrition information conveyed in food advertising as often being incomplete or misleading, that it confuses rather than helpfully informs consumers, and encourages the consumption of unhealthy foods (Cairns et al., 2013; Hoek & Gendall, 2006; Mehta et al., 2012). Furthermore, children, especially young children, have difficulty distinguishing between truth and the persuasive intent of the advertising, often interpreting the messages in food advertising as information. Even older children who understand the purpose of advertising often fail to act on that knowledge and view advertising critically (Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006; Wilcox et al., 2004). On this basis, Handsley et al. (2014) and Ingleby et al. (2008), in their assessment of food advertising in the context of UNCRC, argue that children’s rights are being violated under current food advertising practices.

However, Handsley et al. (2014) draw attention to the potential conflicts that exist within UNCRC on the matter of the nature of the information to which children are entitled, in the context of food environments. One apparent contradiction is between the right to freedom of access to information, seemingly regardless of the nature of the health impact (art. 13), versus the right to information beneficial to health (art. 17). Similarly, they suggest tension exists within article 17, between children’s freedom to have access to information from a variety of sources, which they suggest would appear to be a right to food advertising, and the requirement for that information to be positive for health. However, provisos within articles 13(2b) and 17(e) ensure that health is protected and the information provided must be positive and health-promoting, respectively. Despite apparent tensions, Handsley et al. (2014) conclude that both provisions are positive entitlements “concerned with...ensuring children grow up in an environment conducive to their health and well-being” (Handsley et al., 2014, p. 136). This interpretation is supported by several soft law documents (quasi-
legal documents with no binding force), and human rights leaders, especially as they relate

3.6.4 The right to protection from exploitation
The Convention guarantees children the right to protection from exploitation,

32(1) States Parties recognize the right of the child to be protected from
economic exploitation...that is likely to be hazardous or to interfere with the
children’s...health or physical, mental, spiritual, moral or social development.
36. States Parties shall protect the child against all other forms of
exploitation prejudicial to any aspect of the child’s welfare.

Typically, these provisions have been interpreted and applied in the context of child labour
and exploitation in the workplace. However, more recently, commentators have argued
that, conceptually, economic exploitation need not be limited to the workplace, with the
entitlements being equally applicable to the exploitation of children as consumers
(Handsley et al., 2014; Priest et al., 2010; Story & French, 2004). In relation to the food
environment, the argument is premised on the view that children’s vulnerability is
exploited for the financial benefit of the food industry. The means by which children are
potentially exposed to exploitation include: being only partially informed about the nature
of food products they purchase or consume; the food industry using the fact that children
do not necessarily have the capacity to fully comprehend or counter the persuasive intent
and inherently deceptive nature of the marketing; children believing (often falsely) that the
food industry is concerned for their welfare and best interests (Handsley et al., 2014;
Ingleby et al., 2008; Priest et al., 2010). Further, it can be argued that it is exploitative
to profit from encouraging children to consume food that is potentially health-damaging and
detrimental to their development and dietary habits, which can have lifelong consequences.

Handsley et al. (2014) suggest that marketing impacts children’s development in other
ways. The authors cite evidence that marketing results in children’s low self-esteem, over-
reliance on peer acceptance, dissatisfaction and disappointment, pester power resulting in
poor family relations and conflict, and antagonism towards parents. These findings are
supported by findings of qualitative research conducted in Australia and more recently in
New Zealand on children’s perceptions of the impact of food marketing (Mehta et al.,
2010; Signal, Jenkin, Smith, & Barr, 2015). In focus groups with Australian children aged
8-11y (n=37), Mehta et al. (2010) found that the participants felt disappointed and cheated
by some of the marketing strategies such as competitions; annoyed at the profit-driven
nature of companies and the lack of respect they had for the interests of children; and described how family disturbances occurred as a consequence of frequent purchase requests of their parents or ‘pester power’.

Regarding pester power, Handsley et al. (2014) suggest that its encouragement violates article 29 which calls for the education of children to include a development of respect for parents. The same authors also suggest that longer-term, pester power impacts social and mental health, given it likely occurs at the expense of children spending time positively engaging with family members (Handsley et al., 2014, p. footnote 112). Furthermore, they argue that pester power contravenes the intent of the convention such that for the “full and harmonious development” children should live in an “atmosphere of happiness, love and understanding” (OHCHR, 1989, p. 1).

3.6.5 The right to parental support
As discussed previously, parents play a significant role in determining children’s dietary patterns and hence health outcomes. The Convention recognises the crucial role parents, caregivers and family play in the upbringing and development of children, mitigating the negative effects of risk behaviours, and influencing socialisation processes in order to function in the world in which they live. As such, the family is identified in UNCRC’s Preamble as the most favourable environment in which children should live and develop. The Convention also explicitly states that parents first and foremost have primary responsibility in the “upbringing and development” (Committee on the Rights of the Child, 2003, p. 5) of their children (article 18), and that parenting is a role that is to be respected by the State (arts. 2, 3(2) and 5). Given their level of responsibility, parents are significant duty-bearers who, within their capacity, are obligated to respect, protect and fulfil their (and others’) children’s rights. Article 18(1) states, “the best interests of the children will be [parents’] basic concern”. Parents are also obligated to provide the conditions in which children can attain the highest attainable standard of health (art.24), and “have the primary responsibility to secure...the conditions of living necessary for the child’s development” (art.27.2).

In order to support parents in their role, assist them in realising children’s rights and in fulfilling their obligations to children, the Convention guarantees children support for their parents in their role as primary carer. The State is required to ensure parents have the
opportunities to achieve the necessary capacity to meet their obligations to realising children’s rights,

18(2). States Parties shall render appropriate assistance to parents and legal guardians in the performance of their child-rearing responsibilities and ensure the development of institutions, facilities and services for the care of children.

27(3). States Parties...shall take appropriate measures to assist the parents and others responsible for the child to implement this right and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing.

As previously outlined, the State is required to support parents by providing appropriate health and nutrition information (art. 24(2)). Parents’ capacity is further enhanced when they have access to the necessary resources to secure their own health and well-being, such as child care, working conditions, health services, education and parenting support. As rights-bearers themselves, parents are guaranteed these rights and the State is obligated to implement measures for their realisation. Thus, the realisation of children’s rights is also reliant on the realisation of their parent’s rights. With specific reference to children and children’s rights, the Office of the High Commissioner for Human Rights stated:

For children to enjoy their right to food, an enabling environment should be created in which their access to adequate food can be secured. Families and caregivers need to be empowered so that they can fulfil their responsibility to provide adequate and sufficient food to children (OHCHR, 2010, p. 17).

These provisions also protect children from, and support parents efforts in counteracting, the consequences of factors which may be out of a parent’s control, and the subsequent impact on children’s health and well-being, such as business/corporate interests, for instance food marketing to children. Thus, the role of parents in the context of UNCRC is complex; according to Doek, “the implementation of children’s rights takes place in a triangle of the child, the parent, and the State” (2010, p. 142).

A key criticism of UNCRC since its adoption has centred on the potential for the Convention to undermine parental autonomy in children’s upbringing (Handsley et al., 2014; Purcell, 2010; Reynaert, Bouverne-de-Bie, & Vandevelde, 2009). However, as discussed previously, the Convention considers parents as instrumental in children’s upbringing and development. The intent of UNCRC is not to remove parental responsibilities or undermine parents through State involvement, but rather to provide

\[^8\] Author’s emphasis
mechanisms that support parents in the discharge of their responsibilities and obligations to realising their children’s rights.

3.6.6 Children’s right for their best interests to be a primary consideration

Considering children’s best interests are a key principle of UNCRC,

3 (1) In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interest of the child shall be a primary consideration.

The principle guides decision and policy making in all matters that impact children (Logan, 2008). It aims to guarantee the “holistic development of the child” (Committee on the Rights of the Child, 2013b, p. 3) by enacting all provisions within UNCRC, achieved by engaging State and non-State actors, and taking a rights-based approach. Conducting a child impact assessment to evaluate the potential consequences of a decision or policy is a key procedural feature of the principle (Committee on the Rights of the Child, 2013b).

However, what is best for children is not clearly defined in UNCRC and hence debate surrounds the interpretation and application of the principle (Handsley et al., 2014; Logan, 2008). The principle of “first call for children” or paramountcy was initially declared at the World Summit for Children in 1990 (UNICEF, 1990). The Declaration, signed by New Zealand, stated that “the essential needs of children should be given high priority in the allocation of resources, in bad times as well as in good times, at national and international as well as family levels” (p. 24). According to General Comment No.14 (Committee on the Rights of the Child, 2013b) “primary consideration” means “the child’s best interests may not be considered on the same level as all other considerations. This strong position is justified by the special situation of the child: dependency, maturity, legal status and, often, voicelessness” (Committee on the Rights of the Child, 2013b, p. 10). Nevertheless, there is likely to be variation in the degree of consideration dependent on the particular situation, hence the lack of specificity. Some situations call for greater consideration of children’s best interests, whereas others less so (Committee on the Rights of the Child, 2013b; Logan, 2008). For instance, in the case of adoption, children’s interests are the “paramount consideration” (art. 21), and as discussed previously, children’s interests are parents’ “basic concern” (art. 18(1)). To accommodate the broad range of situations and contexts covered by the principle, a “degree of flexibility” (p. 10) is required in its interpretation and application (Committee on the Rights of the Child, 2013b).
The ‘primary consideration’ mandate is also often misconstrued as children’s best interests being the only basis for decision-making, usurping the rights or best interests of others. However, child rights experts state that this is not the principle’s intent (Handsley et al., 2014; Hassell, 1994; Logan, 2008). Rather, they view the principle as a means of “address[ing] an imbalance and ensure[ing] only that children receive what is owed them” (Hassell, 1994, p. 6). Where there are potential conflicts, General Comment No.14 (2013b) recommends that a “suitable compromise” (p.10) be found. Nevertheless, “the child’s interests have high priority and not just one of several consideration…a larger weight must be attached to what serves the child best…especially when an action has an undeniable impact on the children concerned” (p.10). In addition, consideration of children’s best interests is not negotiable for the State. The words “shall be” in art. 3(1) signal that the State is legally obligated to ensure that children’s best interests are given primary consideration at the appropriate level of importance (Committee on the Rights of the Child, 2013b). Tobin (2006) suggests that if an outcome violates any of the provisions within the Convention then the decision that leads to that outcome must be considered as not in the best interests of the child.

According to General Comment No.14 (Committee on the Rights of the Child, 2013b), “the child’s right to health….is central in assessing the child’s best interest” (p. 16). As discussed previously, the State has a key role in ensuring that children have “such protection and care as is necessary for [their] well-being” (Committee on the Rights of the Child, 2013b, p. 15) and their safety, including protection from economic exploitation. In addition to assessing current risk, the best interest principle also requires the possibility of future risk and harm to children’s well-being be assessed.

It is within such broad terms that children’s best interests in the context of the food environment are considered. With regard to food marketing that is likely to place children’s health at risk, it would not be unreasonable to consider that children’s interests would be prioritised over those of the food industry, and even adult television viewers, when implementing regulatory systems. From their examination of regulatory regimes internationally, Handsley et al. (2014) found that there were provisions within all the regulatory regimes they examined that considered children’s interests but questioned whether they were given ‘primary’ consideration. However, most systems, even those with the strictest criteria, only partially complied with the best interest principle and that they “subordinate those [children’s] interests to countervailing considerations” (Handsley...
et al., 2014, p. 130). The latter interests include the commercial interests of the food industry, possibly adult television viewers in terms of the quality of television programming, and commercial treaties with other countries (Handsley et al., 2014). The authors suggested that partial compliance possibly reflects a ‘suitable compromise’ between the various parties. In addition, in Handsley et al.’s (2014) view, it is not only the “rules” (p. 130) that govern food advertising by which an effective regime should be judged for alignment with UNCRC. The efficacy of the compliance aspect of the system functions in terms of lodging complaints, and in the monitoring and enforcement of, and punitive actions with regard to, the “rules”, should also be taken into account (Handsley et al., 2014).

3.6.7 Duty-bearers in children’s food environments
As defined previously, duty-bearers are those individuals, groups or entities responsible for and obligated to ensure children’s rights are realised. The range of children’s duty-bearers for food environments as they relate to diet-related chronic conditions of concern for children is broad. The responsibilities of a key group – parents – and their unique position within UNCRC have been discussed previously. The obligations of others, including the State and its agencies, the business/corporate sector, and other individuals, and community and non-Governmental entities are now discussed.

The State and local government
According to Kent (1997), “nutrition rights require action by government to protect against the occurrence of malnutrition and to remedy it if it does occur” (p.443). Although Kent was referring to the historical view of malnutrition discussed previously, the directive is equally applicable to malnutrition in the context of chronic conditions of most concern for children. The State’s obligations, as defined by Kent, are set out most explicitly in the right to health, including that States are required to “develop, implement, monitor and evaluate policies and budgeted plans for actions that constitute a human rights-based approach to fulfilling children’s right to health” (Committee on the Rights of the Child, 2013a, p. 16). Therefore it could be concluded that, in the context of food environments as they relate to the diet-related chronic conditions of concern for children, the State (which includes local government), as primary duty-bearer, is obligated to ensure children have the means to access a healthy food environment.
Business and corporate sector
The business and corporate sector has been identified as a constituent member of society and duty-bearer of children’s rights (Committee on the Rights of the Child, 2003). From a business and corporate perspective, children are not only rights-holders, but also consumers, stakeholders and “members of communities and environments in which business operates” (Committee on the Rights of the Child, 2013c, p. 3).

In the context of child rights, issues related to business have traditionally centred on child labour and protection from subsequent exploitation. However, more recently the mandate for business has broadened to include,

the impact of overall business operations – such as their products and services and their marketing methods and distribution practices – as well as through their relationships with national and local governments, and investments in local communities (UNICEF, 2012b, p. 3).

The contribution of the food and marketing industries\(^9\) (the businesses and corporates relevant to this thesis) to children’s food environments is substantial, and as previously discussed, their role in driving children’s dietary patterns has been well-documented (Cairns et al., 2009, 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006). Where previously parents and the State were once the primary influences on children’s dietary patterns, the food industry has increasingly become a leading influence and is potentially the most influential non-State actor obligated to realise children’s rights to health and a healthy food environment (Harris & Graff, 2011). As such, it has been suggested that the realisation of children’s rights is reliant not only on the relationship between the State, children and their parents, as described by Doek (2010), but also with the food industry as a duty-bearer of children’s rights in relation to food and food environments (Handsley et al., 2014).

In light of increased presence of business in people’s lives and the resulting outcomes for health and well-being, the UN has developed two documents to guide businesses in the realisation of human rights. The Guiding Principles on Business and Human Rights is based on the UN Respect, Protect and Remedy framework for business and human rights (United Nations, 2011). According to the Guiding Principles, the State must institute measures to protect against rights violations by third parties, including businesses. Businesses have a responsibility to respect people’s enjoyment of human rights, that is, to

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\(^9\) Hereafter collectively referred to as “the food industry” unless otherwise specified.
“avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved” (United Nations, 2011, p. 13) with an appropriate course of remediation (remedy).

In recognition of children’s specific vulnerability with regard to the corporate sector, and children’s lack of visibility as stakeholders in business, a number of documents have been published to guide the State, businesses and other organisations on children’s rights and business. In 2013, the Committee on the Rights of the Child adopted ‘General Comment No. 16 on State obligations regarding the impact of the business sector on children’s rights’ (Committee on the Rights of the Child, 2013c). To assist in the interpretation of the General Comment No. 16, and assist governments on what they can do to ensure and encourage businesses to respect children’s rights, UNICEF and Save the Children subsequently released ‘Children’s Rights and Business Explained’ (UNICEF & Save the Children, 2015). Reflecting recommendations made by the Special Rapporteur to the Right to Food outlined previously, the documents provide a global standard for understanding and addressing the adverse impacts businesses may have on the rights and well-being of children. They also provide a framework to guide businesses in harm reduction, outline how to safeguard children’s best interests, and respect and support children’s rights through their activities and business relationships. It also informs other individuals and organisations about how to act to ensure the realisation of children’s rights when engaging with businesses (Committee on the Rights of the Child, 2013c).

At a minimum, businesses are to respect children’s rights through their actions and relationships with others, and avoid rights violation (Committee on the Rights of the Child, 2013c). Additionally, businesses are encouraged to support children’s rights through their extra-curricular actions such as philanthropy, corporate social responsibility and engagement with public policy. In the context of food environments, food products should not cause harm (physical, mental or moral) when consumed and access to products not suitable for children should be restricted, whereas those which support life and development should have maximum availability. Marketing should have characteristics which would encourage and support healthy nutrition behaviours, and children’s susceptibility to manipulation by food marketing should be taken into account. Food labelling should be readily seen and interpreted (Committee on the Rights of the Child, 2013c).
Despite these guidelines, in the context of obesity specifically, the UN Standing Committee on Nutrition concluded that the corporate sector does not follow these principles; thus rather than supporting children’s right to adequate food, it works against it (Standing Committee on Nutrition, 2006). The Committee further stated that the sector needed to do more to acknowledge their responsibilities and how they contribute to the establishment of unhealthy dietary habits, and work towards eliminating the promotion of unhealthy food and beverages (Standing Committee on Nutrition, 2006).

Government has a key role in respecting, protecting, fulfilling children’s rights in relation to business, and putting in place effective remedies for rights violations, intentional or inadvertent, resulting from business activity. States are required to enact all means necessary to ensure these duties are achieved through measures including legislation, policies, programmes and promotions. According to General Comment No.16, governments “should prevent businesses from making, selling and marketing things that are bad for children” (UNICEF & Save the Children, 2015, p. 19), including “food that has little nutritional value” (UNICEF & Save the Children, 2015, p. 13). They must also set guidelines and rules to ensure the information shared through the media in association with products is accurate, good for children, and conveyed in such a way that it is easily interpretable and supports children and parents in making healthy decisions. When governments relinquish their services to private organisations and companies, they have a responsibility to set standards for those services, set up monitoring systems, and provide solutions and hold businesses accountable for any subsequent rights violations. The issue of children’s rights and business should also be included in the national plan for children. Furthermore, the government’s responsibility includes not only children impacted by local businesses, but also by international business activities (Committee on the Rights of the Child, 2013c).

Other duty-bearers
In addition to the duty-bearers previously discussed, the Special Session of the UN General Assembly on Children identified other non-State actors as people who work directly with children; non-governmental and community-based organisations; religious, spiritual, cultural and indigenous leaders; mass media; and regional and international organisations (United Nations, 2002). To inform their actions, civil society groups are encouraged to also be guided by the Children’s Rights and Business Principles described previously. So that civil society organisations are able to incorporate a child’s rights perspective in their
actions, the State is required to “provide an environment which facilitates the discharge of these responsibilities” (Committee on the Rights of the Child, 2013a, p. 13).

3.7 Frameworks to examine children’s right to a healthy food environment

To examine the degree to which people’s rights are being realised in relation to public health issues, and to develop programmes and interventions to address them, several scholars and agencies have developed guiding or analytic frameworks. Hunt (2011) has proposed an analytic framework to unpack health issues in the context of the right to health. Another framework, commonly used in development programming, is a human rights situation analysis, or when specific to children’s rights, a child rights situation analysis (Action for the Rights of Children, 2009; Beracochea et al., 2011; Cadge, 2011; Jonsson, 2003; Nygren-Krug, 2009; Save the Children, 2007; UNFPA and Harvard School of Public Health, 2010; United Nations Country Team, 2009). A situation analysis is “the process of assessing a complex situation within its wider social, economic, political and cultural context” by gathering and analysing information in relation to a population’s “rights, resources and problems” (UNHCR & Save the Children, n.d., p. 8). By doing so, a situation analysis aims to find solutions to people’s situations so that they live in an environment where their rights are acknowledged and realised (Cadge, 2011; UNICEF, 2003). To achieve this goal, a human rights situation analysis “identifies rights-holders and their entitlements and corresponding duty-bearers and their obligations, and works towards strengthening the capacities of rights-holders to make their claims and of duty-bearers to meet their obligations” (UNICEF, 2003, p. 92).

Use of a human rights situation analysis has typically been confined to addressing communicable disease control and prevention, and harm-reduction programmes such as immunisation, particularly in developing countries. A seminal example of its application is the control and prevention of HIV/AIDS pioneered by Mann and colleagues in the 1990s (Hunt et al., 2011; Tarantola & Gruskin, 2008). By contrast, this approach has been underutilised in understanding, discussing and resolving diet-related chronic conditions in developed countries, including those of most concern for children, despite the acknowledgement of those situations as a human rights issue (Greenway, 2008; Ingleby et
al., 2008; Nygren-Krug, 2009) and suggestions it be used as such (Handsley et al., 2014; Nygren-Krug, 2009; Tobin, 2006).

To understand how the sport-related food environment supports children’s right to health, a child rights situation analysis has been chosen as the conceptual framework for this thesis. Its selection is based on its specific application for children’s rights, and as previously discussed in this chapter, the rights associated with children’s food environments go beyond the right to health. A situation analysis consists of a set of stages, which are outlined in the following text.

3.7.1 Child rights situation analysis
A child rights situation analysis involves gathering information to assess “the situation of children and their rights; the extent to which they have been realized and the obstacles to fulfilling them…[and] identify gaps and key areas for action” (Cadge, 2011, pp. 190–191). The Convention forms the basis of the analysis when examining issues pertaining to children and their rights. A child rights situation analysis can be used to assess health issues at varying levels of magnitude, at the country level or on specific themes in children’s health (Cadge, 2011).

The initial stage of a child rights situation analysis is issue identification, identifying the health situation within the community or population where rights are not being realised and that needs to be addressed – or “what is happening to whom” (United Nations Country Team, 2009, p. 2). This is followed by a causality analysis – an examination of the situation to discover “why is this happening” (United Nations Country Team, 2009, p. 2). In a causality analysis, the causes of the condition, problem or event are identified. These include the immediate causes, or those that generate an immediate effect or outcome; the underlying causes, or those that are the consequences of policies, laws and availability of resources, or the conditions that must be present for the effect or outcome to occur; and the fundamental causes, being the structural features or the context in which the immediate and underlying causes occur. A causality analysis results in a list of the main causes of the health situation in question and the rights that are being violated or at risk of being violated (Jonsson, 2003).

Next, rights-holders, duty-bearers and other key stakeholders central to the issue are identified, and the relationships between them, including the power dynamics, are explored (role or pattern analysis); and the views of the various stakeholders including children are
collected. The reasons as to why rights are being violated or not realised are also examined (capacity gap analysis). This step assumes that rights are not being realised because either rights-holders lack the capacity to realise their rights, or duty-bearers lack the capacity to meet their obligations, or both. In this stage the key criteria to enable for duty-bearers to have sufficient capacity should be explored, that is that they accept responsibility for their role in the realisation of children’s rights, and have authority and access to resources to do so (Jonsson, 2003; UNFPA and Harvard School of Public Health, 2010). The domestic legislation; national policy, plans, and practice; and international laws and rights relevant to the problem are also identified.

Using the information gathered in the previously described stages, intervention strategies and actions that are likely to assist in the reduction or closure of the gaps in the claims-holders’ and duty-bearers’ capacity are identified and developed. It is likely that the interventions will be actioned in multiple levels of society with the decisions being dependent on the level of causality, and include a broad range of duty-bearers. Furthermore, some activities will be aimed at increasing the capacity of rights-holders and others at increasing the capacity of duty-bearers. Some will do both, and also aim to realise more than one human right. Finally, objectives for all activities are set to monitor and evaluate the success of the interventions. A more detailed description of a child rights situation analysis can be found elsewhere (Action for the Rights of Children, 2009; Jonsson, 2003; Save the Children, 2007; UNFPA and Harvard School of Public Health, 2010; United Nations Country Team, 2009). Figure 7 summarises the steps taken in a child rights situation analysis.
Figure 7: Steps in a child rights situation analysis

3.8 Conclusion

Children have a right to health and to live in an environment that supports that right. UNCRC provides an ideal mechanism for the analysis of public health issues in relation to children and the planning of interventions and programmes to address them, including diet-related chronic conditions. Various provisions within UNCRC entitle children to the availability and accessibility of adequate food, and a supportive food environment, so that they may enjoy their right to good health and well-being. All of society, in all settings, is obligated to ensure children’s right to health is realised. One such setting is sport.

The health situation to be addressed in this thesis – the high prevalence of diet-related chronic conditions among children - and its causes – poor dietary patterns (immediate), their environmental drivers (underlying), and inequalities in the social determinants of health and globalisation of the food system (fundamental) – were identified in Chapter Two. This thesis focuses on an underlying cause of diet-related chronic conditions of concern for children – the food environment.

This thesis extends the work of previous scholars in the area of child rights and food environments, in particular, Tobin (2012), Ingelby et al. (2008), Thornley et al. (2010) and Handsley et al. (2014), by considering the whole of the sport-related food environment in the context of child rights. By using a child rights situation analysis to answer its central research question, ‘Does the sport-related food environment in New Zealand support children’s right to health?’ the thesis also addresses calls to use such a tool to analyse the situation of diet-related chronic disease prevalence in developed countries. Further, it uses an internationally recognised framework to conceptualise food environments (the ANGELO framework described in the previous chapter), and evidence sourced from those impacted most – children and parents.

Sport is an integral part of many children’s lives, including New Zealand children. Sport also has close ties with food and is a key aspect of children’s food environments. The next two chapters examine the sport-related food environment, providing an in-depth understanding of the underlying causal factors in that arena. Chapter Four describes children’s participation in sport and its relevance to the food environment. The features of that environment, as described in the current literature, are presented and discussed. Chapter Five presents a systematic review of the literature on the particular focus of this thesis, children’s and parents’ opinions on the sport-related food environment.
CHAPTER FOUR: SPORT AND THE FOOD ENVIRONMENT

4.1 Introduction

Sport is a global phenomenon and a regular feature in many people’s lives, especially children’s. It is a key part of people’s physical activity regime and participation in sport fosters social engagement; it is a source of entertainment and sporting ambition; and has economic benefits for society through related spending and employment (Sport and Recreation Council New Zealand, 2003; Sport for Development and Peace International Working Group, 2008). Sport is also an ideal vehicle for promoting health and disease prevention (Donaldson & Finch, 2012; Kelly, Baur, Bauman, King, et al., 2010b; Kelly, King, et al., 2014; Kokko, Kannas, & Villberg, 2006). Physical, mental and social benefits from sport come “through direct participation in sport itself, and through the use of participatory and spectator sport as a platform for communication, education and social mobilization” (Sport for Development and Peace International Working Group, 2008, p. 27). Furthermore,

sport’s entertainment appeal, amplified by global telecommunications, has made it one of the most powerful communication platforms in the world. By engaging and mobilizing high-profile elite athletes and professional sport clubs and federations, this communication’s power can be harnessed to deliver critical health information and messages, to model healthy lifestyle behaviours, and to marshal resources for health initiatives. At the community level, popular sport events offer local platforms to deliver health information and education, and can serve as a starting point for community mobilization to support health promotion, vaccination, and disease prevention and control efforts (Sport for Development and Peace International Working Group, 2008, p. 29).

Sport also has strong connections with food. Food is a source of nutrition for participants (Mann & Truswell, 2012); it is often purchased and consumed at sports venues (Carter, Edwards, Signal, & Hoek, 2012); and food companies use sport to promote their products (Carter et al., 2013; Kelly, Chapman, et al., 2012). Thus, the sport-related food environment is potentially an integral part of people’s overall food environment. However, emerging research suggests that the nature of the relationship between sport and food is frequently at odds with healthy dietary behaviours, and that the sport-related food
environment is a potential contributor to the poor diet-related health outcomes previously described (Carter, 2013; Kelly, Chapman, et al., 2012).

Research on the dietary patterns of children who play organised sport is limited. Findings from Europe and North America suggest that although such children consume more health-promoting foods than their peers who do not play sport, their overall dietary pattern is still not always consistent with dietary recommendations (Cavadini, Decarli, Grin, Narring, & Michaud, 2000; Ranjit, Evans, Byrd-Williams, Evans, & Hoelscher, 2010; Tomlin, Clarke, Day, McKay, & Naylor, 2013). In Switzerland and the United States, it appears that increased sport drink consumption appears is likely to be associated with participation in organised sport, especially as children get older (Cavadini et al., 2000; Ranjit et al., 2010).

This chapter provides an overview of the nature of the sport-related food environment, focusing on children. The chapter commences by describing the extent to which people engage with sport, especially its popularity with children. Guided by the environmental elements within the ANGELO framework (Swinburn et al., 1999) outlined in Chapter Two, the sport-related food environment is then defined and its nature described, focusing on the New Zealand situation where relevant.

### 4.2 Children’s engagement with sport

A considerable proportion of the world’s population engages with sport, as participants, spectators or both. Limited international participation data indicates that many people worldwide participate in sport, for example, it is estimated that basketball and football are played by 400 million and 242 million people worldwide, respectively (Topend Sports Network, n.d.). In New Zealand, seven in ten adults participate in sport, with about half playing two or more sports (Sport New Zealand, 2013), and just over a quarter (27%) volunteering as referees and umpires, administrators, coaches and parent help (Sport and Recreation Council New Zealand, 2003).

Global sports viewership is also high, and has increased over the last decade due to the increased availability of televised sport (Nielsen, 2014). For instance, it is estimated that 3.5 billion fans watch football, mostly from Europe, Asia, Africa and America; and in Australia, Asia and United Kingdom, cricket is followed by approximately 2.5 billion people (Topend Sports Network, n.d.). In New Zealand, market research reports that nine of the twelve most watched televised events in the last two decades were sporting events,
including various Olympic Games and several Rugby World Cup games (Regan, 2011). The latter event, when held in New Zealand in 2011, received a total of 14,595 hours of TV coverage in New Zealand (Reuters, 2012) and the final between New Zealand and France that year attracted over two million New Zealand television viewers (aged 5y+), just over half the country’s population (Regan, 2011). A further 61,000 spectators attended the event.

Worldwide, a substantial proportion of the child population takes part in organised sport, including just over half (51%) of Canadian children (Clark, 2008), one in five (21%) UK children (Fraser & Ziff, 2009); and two-thirds (63%) of Australian children (Australian Bureau of Statistics, 2009). In New Zealand, children’s engagement with sport is especially high, with most children taking part as players, volunteers, or spectators, or all three. A nationwide survey of 17,018 young New Zealanders (5-18y) to determine their engagement with sport and recreational physical activities, found that approximately half (girls, 48.6%; boys, 60.8%) had belonged to a sports club, and half (girls, 50.5%; boys, 51.1%) had been part of a school sports team in 2011 (Sport New Zealand, 2012). Furthermore, most (80%) had participated in a school-organised sporting or recreational event, and a quarter to one-third (girls, 26.7% and boys, 31.4%) had participated in such events organised independent of school. The majority of children surveyed (59.7-81.8%) regularly participated in two or more sports, and 60-70% of children aged 7-14y and half of 15-18 year olds spent three or more hours/week playing or training in organised sport. Table 2 shows the top five community club and school-based sports in which New Zealand children participated in 2011, by age and sex.
Table 2: Participation rates of the top five sports played by New Zealand children in school teams or at clubs in 2011, by sex and age

<table>
<thead>
<tr>
<th>Rank</th>
<th>School</th>
<th>Boys 10-14y</th>
<th>Boys 15-18y</th>
<th>Girls 10-14y</th>
<th>Girls 15-18y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rugby (38.4%)</td>
<td>Rugby (32.1%)</td>
<td>Netball (48.0%)</td>
<td>Netball (33.0%)</td>
</tr>
<tr>
<td>1</td>
<td>School</td>
<td>Football (35.6%)</td>
<td>Football (31.2%)</td>
<td>Running (30.0%)</td>
<td>Athletics (28.2%)</td>
</tr>
<tr>
<td>2</td>
<td>School</td>
<td>Basketball (34.7%)</td>
<td>Athletics (30.9%)</td>
<td>Swimming (27.0%)</td>
<td>Running (27.4%)</td>
</tr>
<tr>
<td>3</td>
<td>School</td>
<td>Touch rugby (29.2%)</td>
<td>Basketball (29.6%)</td>
<td>Basketball (25.3%)</td>
<td>Swimming (23.2%)</td>
</tr>
<tr>
<td>4</td>
<td>School</td>
<td>Running (28.1%)</td>
<td>Touch rugby (25.1%)</td>
<td>Football (22.6%)</td>
<td>Basketball (21.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rank</th>
<th>Club</th>
<th>Boys 10-14y</th>
<th>Boys 15-18y</th>
<th>Girls 10-14y</th>
<th>Girls 15-18y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Club</td>
<td>Rugby (28.9%)</td>
<td>Football (31.2%)</td>
<td>Netball (26.7%)</td>
<td>Dance (16.7%)</td>
</tr>
<tr>
<td>2</td>
<td>Club</td>
<td>Football (25.1%)</td>
<td>Rugby (15.5%)</td>
<td>Swimming (22.2%)</td>
<td>Netball (16.2%)</td>
</tr>
<tr>
<td>3</td>
<td>Club</td>
<td>Swimming (16.8%)</td>
<td>Touch (10.3%)</td>
<td>Dance (21.8%)</td>
<td>Swimming (12.9%)</td>
</tr>
<tr>
<td>4</td>
<td>Club</td>
<td>Touch rugby (15.5%)</td>
<td>Swimming (9.3%)</td>
<td>Tennis (11.2%)</td>
<td>Walking (11.4%)</td>
</tr>
<tr>
<td>5</td>
<td>Club</td>
<td>Rugby league (15.2%)</td>
<td>Martial arts (9.2%)</td>
<td>Football (10.9%)</td>
<td>Running (9.7%)</td>
</tr>
</tbody>
</table>

Source: Sport New Zealand, 2012

In addition, almost half of New Zealand children aged 10-18y (45.6% girls; 45.5% boys) volunteer in sports leadership or support roles, such as being team captains, coaches, ballboys/girls, scorers and timekeepers. Coaches and instructors also feature strongly in children’s sport, with two-thirds to three-quarters of children (girls, 68.1%; boys, 72.4%) reporting that they had interactions with them during the year (Sport New Zealand, 2012).

Children are also keen sports spectators. In the United States, reports indicate that almost all (94%) children (8-17y) engage with sport through TV, radio, newspapers, books, magazines, video games, the internet, or the movies, and that most children interacted with sports media at least twice weekly, largely through TV (Wilson, 1999). Similarly, a more recent report showed that the majority (88%) of children surveyed watch sport on TV, with
one in eight (13%) watching daily (Nicholson & Hoye, 2009). Most New Zealand children (70-90%; more boys than girls) surveyed in 2011 said they watched sport on TV, and watched their friends and family play sport, ‘sometimes’ or ‘often’; between half to two-thirds reported having attended live professional sport; and up to half reported viewing sport online (Sport New Zealand, 2012).

Given children’s levels of engagement with sport, it follows that the nature and extent of any linkage between sport and food is likely to constitute an important element of children’s overall food environments. The association between sport and food is particularly pertinent in New Zealand, given that improving children’s access to and participation in sport is a key focus area in the national childhood obesity plan (Ministry of Health, 2016). Using the categories identified in the ANGELO Framework (Swinburn et al., 1999), the following section first defines and then describes current literature on the sport-related food environment, internationally and in New Zealand.

**4.3 The sport-related food environment**

**4.3.1 Definition**

The conceptualisation of sport varies, ranging from jogging/running and recreational pastimes (e.g. fishing) to competitive, organised sport. Formal definitions of sport typically mention energy expenditure, and organisational and competitive elements, for example, “an activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment” (Oxford English Dictionary, 2004, p. 1395) or “a human activity capable of achieving a result requiring physical exertion and/or physical skill which, by its nature and organisation, is competitive and is generally accepted as being a sport” (Australian Sports Commission, n.d.). The definition of sport as it relates to this thesis incorporates the essence of these formal explanations, and also acknowledges organised physical activities that have a social, recreational or entertainment element, and amateur or professional organised physical activities in the community or at regional, national or global level. Physical activity undertaken during the normal course of the day is beyond the scope of this thesis and therefore excluded from the definition. Such activity includes incidental activity, physical education as part of the school curriculum, or ‘play’, ‘games’ or ‘mucking around’.
In this research (using the definitions of sport above, and incorporating the ANGELO framework model for conceptualizing obesogenic environments) (Swinburn et al., 1999) the sport-related food environment is defined as: the physical, socio-cultural, economic and political factors in micro-environmental settings and macro-environmental sectors associated with any form of organised physical activity that potentially affects eating habits and patterns (presented in Figure 8). This definition is used to frame the following text.

<table>
<thead>
<tr>
<th>Environment</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td></td>
</tr>
<tr>
<td>Macro-environment sectors</td>
<td>Industries, services or supporting infrastructures that influence the food behaviours in sport settings.</td>
</tr>
<tr>
<td>Micro-environment settings</td>
<td>Locations or venues where people gather to participate in sport or sporting activities.</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>The nature and extent of food availability in locations where sport is played; associated food and nutrition-related training opportunities, expertise, technological innovations and information.</td>
</tr>
<tr>
<td>Socio-cultural</td>
<td>The sport-related social and cultural norms and elements that influence food behaviour, including: parents, coaches, and teachers, and other role models; community and society attitudes; the use of sport to market food and the presence of mass media in marketing food in sports settings.</td>
</tr>
<tr>
<td>Economic</td>
<td>The sale and marketing of food to contribute to the financial support of sport; other sport and food-related fiscal matters including: the cost of food, taxes, subsidies and pricing policies; financial support for food-related health promotion programmes; purchasing food policies and practices through healthy sponsorship.</td>
</tr>
<tr>
<td>Political</td>
<td>The presence and nature of sport-associated food policies (formal and informal), laws, regulations and institutional rules.</td>
</tr>
</tbody>
</table>

*Figure 8: Definition of the sport-related food environment*

*Derived from Australian Sports Commission, n.d.; Oxford English Dictionary, 2004; and Swinburn et al., 1999*
4.3.2 The nature of the sport-related food environment

Carter et al. (2012) conducted a systematic review of the literature published up to 2011 on the availability and promotion of food and beverages in sport settings. The review revealed a lack of empirical evidence and the authors noted that the existing evidence lacked comprehensiveness in its investigations into the sport-related food environment. Furthermore, many of the studies reviewed were methodologically limited, commonly relying on self-reported data or that collected from parents and other adults on behalf of children. The authors had also noted that many of the instruments used to measure the environment were inadequate, inconsistent between studies and non-objective. Moreover, many of the investigations were conducted by the same groups of Australian, New Zealand and Canadian researchers in a limited range of settings. Given this assessment, the authors concluded that the findings should be interpreted with some caution given they lacked validity and have limited generalisability.

Using literature from a number of sources and the ANGELO framework, the following account provides an overview of the nature of the sport-related food environment. As in Chapter Two, the evidence has been presented according to the ‘best fit’ environment type based on significance to the research questions. In addition to the publications reviewed by Carter et al (2012), it includes articles reporting on study findings published since the review, especially recent New Zealand research (Carter, 2013). It also extends the scope of Carter et al.’s (2012) review by including other types of literature, such as grey literature publications. Carter et al.’s (2012) reservations about the quality of some of the evidence and caution regarding its interpretation remain relevant for this review. For example, while there have been a number of studies undertaken in other countries since 2011, especially Scandinavia and Canada, the preponderance of the literature reports on Australian and New Zealand research.

Physical environment

Food and beverages available at sports venues

Worldwide, food is purchased and consumed at sporting events and venues, ranging from community to elite and professional sport. Evidence from Australia, Canada, the United States, the United Kingdom, and New Zealand, and countries in Europe and Scandinavia shows that players, spectators and staff are frequently able to purchase food at sporting locations from mobile food vendors and barbecues, on-site outlets such as canteens, snack bars and cafeterias, and vending machines. The evidence consistently shows that the
majority of the food available for purchase at these locations is energy-dense and nutrient-poor. Common items include soft drinks, sports drinks, confectionery, hot dogs and sausages, deep-fried food, pies and pastries, potato chips and other salty snacks (Andreasen, 2007; Carter, 2013; Chaumette, Morency, Royer, Lemieux, & Tremblay, 2009; Drygas et al., 2011; Kelly, Baur, Bauman, King, et al., 2010b; Kelly et al., 2008; Naylor, Bridgewater, Purcell, Ostry, & Wekken, 2010; Thomas, Nelson, Harwood, & Neumark-Sztainer, 2012). For instance, in Australia, parents reported that the food available at the majority (53%) of community sports venues in New South Wales (n=71) was unhealthy (Kelly et al., 2008). Likewise, virtually all (93% or more) officials from seventy community clubs of four different popular Australian sports reported that they stock regular soft drinks, salty snacks, sports drinks, confectionery, sausage sandwiches, and pies and pastries in their canteens (Young et al., 2012).

To determine the nature and extent of food availability at sports venues in New Zealand, Carter (2013) recently surveyed the food outlets at rugby (n=13) and netball (n=19) clubs across the country. Rugby and netball are two of New Zealand’s main sporting codes for men and women, respectively. A variety of clubs were chosen, including large and small, rural and urban, from both codes. Carter (2013) also interviewed key stakeholders from a range of national and regional sporting organisations (n=18). Organisations were selected to represent a range of sports, including those played in winter and summer, and by both men and women, and varied ethnicities. Informants also included those people working for organisations that supported the delivery of sport in New Zealand and who had extensive knowledge of the New Zealand sport sector. She found that almost all of the netball venues and half of the rugby venues sold food from a variety of the vendor types listed previously. Approximately two-thirds of the food items available were classified as unhealthy (62% netball and 68% rugby). Moreover, more than 70% of the food items at seven (69%) of the rugby venues and nine (47.3%) of the netball venues were classified as unhealthy. Officials from other sporting codes confirmed that similar types of foods were available at locations where their sport was played. Food provision at sports venues in New Zealand is managed by a range of organisational bodies. Carter (2013) found that at events and clubs in New Zealand, food was often provided by volunteers who ultimately decided what food to prepare, typically being easy-to-prepare or pre-packaged items and
‘sausage sizzles’. At larger sport venues, either the sporting organisation itself or contract caterers provided food.

By contrast, healthy food items are either not well promoted or not available for purchase at sports venues worldwide, or if available, there are fewer healthy items to choose from (Carter, 2013; Ireland & Watkins, 2010; Kelly, Baur, Bauman, King, et al., 2010b; Kelly et al., 2008; Naylor, Bridgewater, et al., 2010; Thomas et al., 2012; Young et al., 2012). Australian research shows that only one in five food outlets in the sports clubs in New South Wales and Australian Capital Territory surveyed by Kelly, Baur, Bauman, King, et al. (2010b) actively promoted healthy food. In another study by the same authors, parents surveyed reported that only 2-4% of food outlets at swimming pools and outdoor sports fields in New South Wales sold mostly healthy foods (Kelly et al., 2008). In Canada, facility staff at 101 recreational facilities in British Columbia reported that fewer than 20% of the items on the canteen menu and in vending machines were foods that would be considered healthy (Naylor, Bridgewater, et al., 2010). Similarly in New Zealand, Carter (2013) found that only two of the thirty-two netball and rugby venues she surveyed sold more healthy than unhealthy foods. Foods classified as healthy in that study included soup, fruit, sandwiches and water.

Healthy food provision appears to vary by sporting code. A cross-sectional survey of officials from seventy community clubs of four popular sporting codes in New South Wales, Australia, found that although 41% of all clubs reported providing healthy food options, availability varied from 24% (football) to 75% (Australian Rules Football) (Young et al., 2012). Likewise, in New Zealand, Carter (2013) observed that all 19 netball clubs sold at least one healthy item other than water, whereas in four rugby venues, healthy food was either not sold (n=2) or the only healthy item available for purchase was water (n=2).

Access to water is an exception to the minimal provision of healthy items in sports venues. Studies from several countries report that bottled water is sold at the majority of canteens and in vending machines, and is a top selling item at sports venues (Drygas et al., 2011; Kelly, Baur, Bauman, King, et al., 2010b; Kelly et al., 2008; Young et al., 2012). Australian research has found that tap water is often freely available in sports facilities (Kelly, Baur, Bauman, King, et al., 2010b; Young et al., 2012). In New Zealand, Carter

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10 “A gathering where a barbecued sausage is served on a slice of white bread or on a bread roll, and may be accompanied by tomato sauce, mustard, and sometimes barbecued onions. All ingredients are usually purchased as cheaply (or donated) as possible, so as to maximise fundraising” (Wikipedia, 2016)
(2013) found that water was sold at 53.8% and 78% of the rugby and netball venues surveyed in New Zealand, respectively.

Food is also provided by coaches and sporting organisations. In Australia, Kelly, Baur, Bauman, King, et al. (2010b) found that just over a quarter (28%) of the coaches at sports clubs in New South Wales and Australian Capital Territory provide food for players. Although just over half (53%) provided water and a third (33%) provided fruit, two out of five (40%) coaches also gave players chocolate and confectionery. In New Zealand, many rugby club officials reported providing meals for senior players, which were often of better nutritional quality than those available to non-players (Carter, 2013).

**Availability of sport-related nutrition expertise and information**

Sport-playing children’s dietary choices are informed and guided by several sources, including the sport sector, food product labels and population-level dietary recommendations. Australian and Canadian research demonstrates that coaches, clubs and sporting organisations inform players about food and nutrition (Kelly, Baur, Bauman, King, et al., 2010b; Naylor, Bridgewater, et al., 2010). For example, Kelly, Baur, Bauman, King et al. (2010b) found that forty-three (39%) of the 108 Australian sports clubs they surveyed made recommendations to children about the types of foods to eat for sport, although very few (n=4) provided similar information for coaches. While clubs most frequently recommended players drink water, other suggestions included consuming healthy foods, such as nuts and fruit, as well as foods not in keeping with nutrition guidelines, for example, fast food, sports drinks, flavoured milk and confectionery (Kelly, Baur, Bauman, King, et al., 2010b; Naylor, Bridgewater, et al., 2010). Whether a similar situation occurs in New Zealand is unknown.

As discussed in Chapter Two, food product labels may be a source of nutrition information. However, there is little research on the extent and use of sport-related nutrition information on food product labels, internationally or in New Zealand. Two studies have investigated the use of sport-related information on product labels as a form of marketing (Bragg et al., 2012; Jenkin et al., 2014). These are discussed in the section on the sport-related socio-cultural environment.

The New Zealand Food and Nutrition guidelines, discussed in Chapter Two, also provide dietary guidance for active children, such as those who take part in organised sport (but not
including elite level\textsuperscript{11}). According to the food and nutrition guidelines, moderately to vigorously active children “do not have specific nutrition-related requirements beyond following the nutrition guidelines for their age and ensuring an adequate fluid intake to replace what is lost through physical activity” (Ministry of Health, 2012a, p. 102). Active children are recommended to drink water for rehydration rather than electrolyte (sports) drinks, unless undertaking strenuous physical activity for more than 90 minutes. This guidance is echoed by most other health and nutrition professionals internationally (Committee on Nutrition and the Council on Sports Medicine and Fitness, 2011; National Health and Medical Research Council, 2003).

In summary, as in other many other Western countries, New Zealand’s physical sport-related food environment predominantly contains energy-dense and nutrient-poor foods, and other than water, lacks healthy options. There are a variety of sources of nutrition expertise for sport-playing children and their parents. However, while government advice is robust, there appears to be a lack of consistency and accuracy in the information relayed by the sport sector and the food industry.

\textbf{Socio-cultural environment}

\textit{Why sport is used to promote food}

As discussed in Chapter Two, a substantial body of evidence demonstrates that food marketing is an environmental driver of children’s food preferences, choices, purchasing and consumption (Cairns et al., 2009, 2013). The use of sport to raise awareness, generate loyalty, and increase sales of brands and products contributes to that impact (WHO, 2010). Sport’s popularity and universality, its high profile and media presence, and its wide reach to a broad and often captive audience, provides the food and marketing industries with a sizeable consumer base for targeted marketing. The physical activity aspect of sport presents food manufacturers with the opportunity to align their products with healthy activities, values and attributes (Meenaghan & Shipley, 1999), and creates possibilities for corporate social responsibility activities, through cause marketing and sponsorship (Smith & Westerbeek, 2007). Finally, through sport, food manufacturers have access to a somewhat captive marketing platform that reaches children (Hawkes, 2004), a group of consumers who not only purchase products independently of parents and caregivers, but also influence food purchases in the home and elsewhere (Calvert, 2008). Also, children

\textsuperscript{11} Separate guidelines are available on the specific nutritional needs of children playing elite sport (New Zealand Dietetic Association, 2008).
have a long future ahead of them as consumers; by investing in marketing that reaches children, food companies can potentially generate trust and loyalty in their brands, and influence purchasing preferences, early in people’s lives (Calvert, 2008).

**Television advertising in sport**

Television is a significant sport-related food marketing platform to children (Calvert, 2008). Content analyses of sport-related television advertising demonstrate that televised sport is saturated with promotions for energy-dense and nutrient-poor foods, including fast food, sugary drinks, cereals, confectionery and high fat, salty snacks (Lindsay et al., 2013). A recent analysis of food advertising during televised games of sports popular in Australia, showed that TV viewers were exposed to a greater volume (by time) of unhealthy food advertising during sports broadcasts than during any other programming (VicHealth, 2014). During the study period, sports broadcasting made up almost a third (29%) of total programming, however, the proportion of advertisements broadcast for unhealthy foods during sport was more than double that for all other programming (10.7% and 5.2%, respectively). Also almost half (45.7%) of all junk food advertisements broadcast during the study period were shown during sport.

The amount and timing of TV advertising appears to vary by and within sporting code (Carter, 2013; Lindsay et al., 2013; Sherriff, Griffiths, & Daube, 2010; VicHealth, 2014). Comparison of within-game advertising and in-break advertising in two sports popular with Australians (cricket and Australian Rules Football) showed that there was very little difference between the two sports during breaks, whereas for cricket, viewers were exposed to more advertising within-game than during in-break advertising.

New Zealand’s experience of TV advertising during sport is similar. Carter (2013) noted in-game and in-break advertising for sponsoring and non-sponsoring food companies and brands during televised international netball (n=3) and rugby (n=2) games. In netball, in-game sponsor advertising, which was classified either as ‘healthy’ or ‘unclassified’, was observed the majority of the time (78-80%), with some unhealthy non-sponsors advertised in-break. In-game advertising during rugby consisted of a low calorie soft drink and a fast food company, with no in-break advertisement for food companies/brands. Sponsors’ logos appeared on signage courtside, around the seating and on-court; LED scrolling banner; goal-post protectors and players’ uniforms; spectator clappers; and on-screen moving logos. Although the number of games analysed was small, they were major
televised events. Given the proportion of New Zealand children who report watching televised sport, the findings have potentially significant implications for children’s dietary behaviours.

**Signage at sports venues**

In her audit of regional and national rugby and netball venues in New Zealand for the presence of advertising signage, Carter (2013) found that food company signs were present at both sports’ venues, although they were more prevalent at netball (25%) than rugby (9%). However, signage at netball venues was mostly for supermarkets, in contrast to rugby venues where the signage predominantly promoted unhealthy foods.

**Sports sponsorship**

As discussed previously, sponsorship benefits sport financially in exchange for wide-ranging exposure of sponsors’ products and brands. Sponsorship is a key marketing activity for businesses, and at a global level companies’ investments in sport sponsorship is considerable (Meenaghan, 2001). For example, McDonald’s and Coca-Cola reportedly each spent US$100 million and Cadbury spent US$31 million on global sponsorship arrangements at the 2012 Olympic Games (Rogers, 2012). Sponsors invest in sport to raise brand awareness and visibility, and enhance brands’ images; demonstrate corporate social responsibility, and enhance a company’s image in local communities; cultivate legitimacy in a product; and reinforce consumer demand (Cousens & Slack, 1996; Hoek, 1999). Common sponsorship marketing activities include naming rights on stadia; licensed merchandising; company or brand logos on players’ uniforms; the sale of the sponsors’ product; signage at games; sponsors’ logos in club publicity including mentions in club newsletters and on club and organisation websites; the provision of rewards for players containing a sponsor’s logo, such as free food vouchers, achievement certificates or water bottles (Carter, 2013; Kelly, Baur, Bauman, King, et al., 2010a; Lindsay et al., 2013).

Sponsorship effects may be explained by behaviour modification theory, which posits that consumers’ behaviour is influenced and shaped by environmental stimuli. This may be achieved through respondent conditioning, where a response to a new stimulus builds on previously established relationships between a stimulus and the same response, operant conditioning where the behaviour is strengthened (or weakened) by the stimulus depending on its consequences, or vicarious learning where behaviours are learnt through observation of others’ behaviours (Hoek, Gendall, Jeffcoat, & Orsman, 1997; Nord & Peter, 1980). Through sports sponsorship, the use of stimuli such as logos or watching a sports match,
the pleasurable experiences associated with engaging with sport, and the positive associations between brands and products and successful athletes and teams, transfers the image of the sponsored event or organization to promote brand awareness of and reinforce purchase (Hoek et al., 1997; Nord & Peter, 1980).

**Extent and nature of sports sponsorship**

Australian and New Zealand research investigating the nature of food sponsorship in local sport shows that most food-related sport sponsors are associated with unhealthy products (Carter, 2013; Kelly, Baur, Bauman, King, et al., 2010a; Kelly, Baur, Bauman, Smith, et al., 2011; Maher, Wilson, Signal, & Thomson, 2006). In Australia, a website analysis of national and state sporting organisations of nine sports most popular with children found that almost one in ten (9%) sponsors of the 55 websites accessed were food or beverage companies, of which the majority (63%) were considered unhealthy. Some websites also had links to sponsored coaching and skills programmes, the majority (69%) of which were sponsored by food companies, three-quarters (73%) being classified as unhealthy (Kelly, Baur, Bauman, Smith, et al., 2011). There were also qualitative differences in sponsorship by code and, by extension, gender. None of the food sponsors of rugby league, a male-dominated sport, were healthy, whereas all the food sponsors of netball, a sport played almost exclusively by women, were healthy.

Similarly, the same authors found that almost one in six (17%) of the 347 sponsors identified by club officials (n=108) of the same nine sports were food and beverages companies, of which half (50%) were classified unhealthy. A greater proportion of unhealthy food sponsors supported clubs with mostly younger players and members of mixed age than clubs with predominantly older players (54% and 67% respectively, c.f. 13%). Almost two in five club sponsors were also sponsors of the sports’ governing body (Kelly, Baur, Bauman, King, et al., 2010a). In Australia, many community sports clubs (for children and adults) are affiliated with the respective sports’ overarching governing organisation, providing them with organisational and administrative guidance, and funding, including sponsorship opportunities.

New Zealand’s sponsorship environment is similar (Carter, 2013; Maher et al., 2006). A pilot study exploring the proportion of sport sponsorship in New Zealand by health risk found that significantly more companies associated with unhealthy food sponsored junior sport than any other sponsor type (RR=14.72, p<0.001) (Maher et al., 2006). More
recently, Carter et al. (2013) conducted a website search to investigate the nature and extent of sponsorships and associated marketing by food and beverage companies of national and regional organisations in New Zealand. Using company or product logos as a measure, the authors found that a quarter (24%) of the websites accessed revealed food and beverage sponsorship (companies, n = 36; products, n = 17), of which just over a quarter (27.7%) of companies and 41.1% of product brands were classified as unhealthy. Fifteen brands or companies, including supermarkets, a dairy company, Coca-Cola (and one of its associated products, Powerade) and McDonald’s sponsored multiple sports; half of these 15 sponsors were classified as unhealthy (53.3%).

Consistent with the Australian research (Kelly, Baur, Bauman, Smith, et al., 2011), sponsorship in New Zealand is not evenly distributed across sports. Carter (2013) found that rugby, a male-dominated sport, had more food sponsors than any other sport, a quarter of which were classified as unhealthy. As in Australia, netball had the lowest proportion of unhealthy food sponsors of all sports in New Zealand, most being supermarkets. However, in contrast to Australia, in New Zealand very little of the financial benefit national and regional sporting organisations receive through sponsorship is passed on to their respective community clubs (Carter, 2013).

Impact of sponsorship on children
The majority of studies investigating the impact of sponsorship on children report on children’s and parents’ opinions and, as such, are included in the systematic review presented in the following chapter. However, two experimental studies have explored the implicit associations between various sports and their sponsors’ products and the messages they convey to children (Bestman, Thomas, Randle, & Thomas, 2015; Pettigrew, Rosenberg, Ferguson, Houghton, & Wood, 2013). In both experiments, Australian children aged 5-12y (one a convenience sample, the other purposively selected from sports clubs) were asked to match brand logos of sponsors with logos of companies (of which just over a third (38%) were for food and beverages) and organisations (including health promoting groups) with a range of popular sports or sports teams’ logos. They were also asked to identify the sports and sponsors they liked the most. Three-quarters (76% and 77%) of children correctly assigned at least one sponsor (of any type) with the correct sport. A substantial proportion of children in both studies assigned at least one ‘unhealthy food and beverage’ sponsor, either as a brand or category, to all the sports logos (ranging from 25% to 83%). The children’s most popular sponsors were fast food companies and
sugary drink manufacturers. Additionally, in the study by Pettigrew et al. (2013), at least one health promoting sponsor was matched to most sports and the most popular sports were assigned fewer healthy sponsors than the less popular sports. The findings of both studies suggest that sponsorship is an effective method of reaching young consumers, for food marketing and health promoting messages alike, and that, contrary to industry arguments, children associate both brands and categories of foods as sponsors of sports teams.

**Athlete endorsement**

Celebrity endorsement, the appearance of well-known people with or recommending a product in an advertisement, is an effective marketing strategy used by product manufacturers and retailers to influence people’s purchasing behaviour (Amos, Holmes, & Strutton, 2008; Bush, Martin, & Bush, 2004; Erdogan, 1999; Lear, Runyan, & Whitaker, 2009; Stevens, Lathrop, & Bradish, 2003). Well-known athletes are popular endorsers of products because they are highly identifiable and consumers perceive them to be credible; they increase product and brand awareness; and add value and credibility to and create positive associations with a product or brand (Stevens et al., 2003). The strategy of using well-known athletes has been shown to be particularly influential on young people (Bush et al., 2004; Dix, Phau, & Pougnet, 2008; Lear et al., 2009).

The effect of celebrity endorsement on consumer behaviour can be theoretically explained by behaviour modification theory, which as discussed previously, proposes that consumer behaviour is influenced by external stimuli (Nord & Peter, 1980). Vicarious learning “refers to a process where behaviour change occurs through observing the action of others (i.e. models) and the consequences of those behaviours” (Nord & Peter, 1980, p. 40). Role models are individuals who possess qualities and behaviours that people find admirable and want to imitate, with the level of imitation often dependent on the individual’s perceived similarity with and authority of the role model (Payne, Reynolds, Brown, & Fleming, 2003). In the context of behaviour modification theory, athletes are used by marketers as vicarious role models from whom children learn that purchasing and consuming the endorsed product or brand will result in them having the same desirable and aspirational characteristics as their heroes (Hoek et al., 1997; Nord & Peter, 1980). For children, role models are often others who have a degree of influence, such as parents, peers and teachers; and in sport, include coaches, sporting organisations and well-known athletes (Payne et al., 2003). By directly or indirectly observing or coming into contact
with others, consumers learn about products, how to use them and the consequences of their use, be they negative or positive (Bandura, 1976). Subsequently, observers develop and imitate the behaviour and attitudes of those modelling behaviours.

There is limited evidence demonstrating the extent of athlete endorsement of food and beverages (Bragg et al., 2012; Bragg, Yanamadala, Roberto, Harris, & Brownell, 2013; Harris et al., 2013; Jenkin et al., 2014), and whether their endorsements influence food preferences and consumption (Boyland et al., 2013; Dixon et al., 2011, 2013). The foods promoted by this strategy are predominantly energy-dense and nutrient-poor (Bragg et al., 2013). Using market research data, Bragg and colleagues (2013) analysed the endorsements of 100 United States athletes in 2010 and found that almost a quarter (23.8%) were for food or beverage brands (n=44 different brands), with sports drinks attracting the most endorsements, followed by soft drinks and fast food. Four in five (79%) of the endorsed food products were energy-dense and nutrient-poor, and sugar was the only energy source in almost all of the endorsed beverages (93%). In the year the study was conducted, there were 109 different advertisements for athlete-endorsed products, broadcast on TV, the internet, and radio, and printed in newspapers or magazines. In another study, the same research group investigated the nature of the sports references on the packaging of food products found in United States supermarkets, with similar results (Bragg et al., 2012). Four in ten (42.2%) of the 102 products analysed were endorsed by at least one athlete, team or sports organisation. Almost all (88.7%) of the food products (n=53) analysed were categorised as unhealthy and just over two-thirds of the beverages (69.4%) were 100% sugar-sweetened. Half (n=15) of the top thirty products categorised as unhealthy featured a sports endorsement (Bragg et al., 2012).

Two Australian experimental studies explored the impact of athlete endorsement on dietary behaviour. Children (n=1302) and parents (n=1551) were randomly allocated to view online, and choose, between a child-focused energy-dense and nutrient-poor food product with a picture of a well-known sports person with a statement endorsing the benefits of the product on the front of the pack. A matched unendorsed healthy product was used as the control (Dixon et al., 2011, 2013). The authors found that boys were more likely to choose energy-dense and nutrient-poor foods endorsed by the athlete than the healthy product (OR, 1.65; CI, 1.05-2.60). Similarly, parents were significantly more likely to select the athlete-endorsed energy-dense and nutrient-poor product than the healthy product (OR, 1.61; CI, 1.24-2.08). Furthermore, more parents, on average, rated the athlete-endorsed energy-
dense and nutrient-poor products as healthy and more said they would purchase those products, relative to the healthy products. Parents also perceived that healthy, fit and intelligent people were the most likely consumers of athlete-endorsed foods. Children perceived the endorsed product to be healthier, and thought they would be healthier if they consumed it. Overall, the findings suggest that children and parents alike are influenced by and trust well-known athletes, and think that the products they endorse are healthy.

Athlete endorsement also appears to influence children’s food consumption. Boyland et al. (2013) provided children with a choice of eating athlete-endorsed potato chips and an equivalent plain brand after viewing TV advertisements involving, and programmes hosted by, an athlete endorser. The authors found that consumption of the endorsed product was significantly greater than the non-endorsed product (CI, 10.8-17.0).

**Corporate social responsibility**

Corporate social responsibility (CSR) can be defined as the way a company manages “its total impact on society and the environment commensurate with the core objective of generating stakeholder value” (Brock, 2006, p. 58). It has become an important part of companies’ and other organisations’ business models and marketing activities (Broomhill, 2007; Godfrey, 2009; Peloza & Shang, 2011). Corporate social responsibility helps companies and organisations meet their fiscal responsibilities to their shareholders, and to contribute positively to the community by engaging in activities that address various social and environmental issues. By accepting such ethical obligations to society and making themselves accountable to groups beyond their shareholders, companies and organisations demonstrate that they are good, responsible corporate citizens (Broomhill, 2007). Such actions provide companies with a means of communicating integrity, fostering trust and goodwill, engendering a favourable community profile and demonstrating their willingness to be held accountable for the quality of their product. In turn, corporate social responsibility heightens brand recognition, improves competitiveness, and increases sales (Peloza & Shang, 2011).

Empirical and market research, globally and in New Zealand, demonstrates that corporate social responsibility may impact consumer behaviour, and that positive consumer sentiment towards corporate social responsibility is growing (Hoek & Gendall, 2008; Nielsen, 2004, 2013, n.d.). In 2006, a New Zealand market research survey of approximately 3,700 people over the age of 10y showed that six out of ten (61%) New
Zealanders thought more of companies that demonstrated social responsibility (up from 57% in 2004). Furthermore, half reported that corporate social responsibility made them more loyal to a company (47%, up from 35%), that they would buy a product from such a company (51%, up from 42%), including if it was slightly more expensive than an equivalent product (40%, up from 33%). Research also demonstrates that the ‘fit’ between the brand or company and the recipient of corporate social responsibility does not necessarily determine its efficacy. Academics have questioned the need for cause-brand ‘fit’, that is, an alignment of the supporting brand or product with the underlying nature of the cause being addressed. The weight of evidence suggests that a company’s mere association with a worthy societal cause or issue is often enough to benefit a brand or product (Hoek & Gendall, 2008).

Sport is an ideal and effective means of food companies demonstrating corporate social responsibility, typically through activities such as sponsorship, cause marketing (a form of sponsorship that links products or companies with specific social causes for mutual benefit), providing gifts in-kind and donations, and employee volunteering (Smith & Westerbeek, 2007). To enhance children’s lives, a number of food industry members have developed corporate responsibility policies, or health and wellness philosophies, pledging to support physical activity and sport and be ‘part of the solution’ of reducing and preventing child obesity. For example, McDonald’s NZ state on their website that corporate responsibility

is part of McDonald’s® heritage, and an integral part of our business strategy. For us, responsibility means striving to do what is right in the community, and integrating social and environmental priorities into our restaurants and relationships....As one of the largest sponsors of junior soccer and junior touch rugby in the country, McDonald’s assists in a number of ways, including providing equipment and awards for teams and assisting with resources such as coaching manuals, progress charts and skills certificates. Our franchisees also support their local communities, including hosting local playgroups in their restaurants and supporting local sporting events. We’re proud to support junior sports in our country and enjoy encouraging young New Zealanders to get out and be active (McDonald’s, 2015).

The food industry’s voluntary development of self-regulatory pledges and codes for food and beverage advertising to children (described in political environment section), in the interests of children’s health and child rights, is also illustrative of the food industry’s commitment to corporate social responsibility, or commitment to appearing they practise corporate social responsibility.
Public health advocates are critical of corporate social responsibility, contending that the food industry engages in the strategy as a public relations exercise, using it to demonstrate their innocence in the causation of poor dietary patterns and child obesity (Dorfman, Cheyne, Friedman, Wadud, & Gottlieb, 2012). Critics argue that by achieving “innocence by association”, the food industry deflects attention away from the potential harms their products generate, shore up their (positive) image and reputation, averts the threat of statutory regulation, and protects their prime business responsibilities – returning profit to shareholders (Dorfman et al., 2012). Ludwig and Nestle (2008) argue that the food industry’s engagement in corporate social responsibility through sport, such as the previous example from McDonald’s, is “disingenuous” given that, to compensate for the energy consumed by children from the energy-dense and nutrient-poor foods typically promoted by industry sponsors and financial supporters, they would have to expend far more energy than would be expended in a sporting or physical activity event supported by those sponsors. By focusing on physical activity, rather than addressing the nutritional quality of their product, industry appears to be contributing to improving children’s health, yet all the while shifting the blame and responsibility of health outcomes back on the consumer. Furthermore, critics argue that the food industry ultimately engages in corporate social responsibility to reach young consumers; according to Dorfman, “soda companies use CSR to tout their concern for the health and well-being of youth while simultaneously cultivating brand loyalty” (2012, p. 4).

**Children’s exposure to and awareness of food marketing**

Children’s exposure to sport-related food marketing has yet to be quantified, although estimates have been proposed. According to Kelly, Bauman & Baur (2014), children’s exposure to food sponsorship at community club level “is a function of both the extent of sponsorship arrangements at these organisations as well as children’s participation in organised sport” (p. 395).

An annual cross-sectional survey of parents conducted in the United States from 2009 to 2011 (Harris, Milici, Sarda, & Schwartz, 2012) found that two in five (39.6%) (and almost half (48.4%) of all African-American) parents thought that in the weeks prior to the survey, their children saw or heard marketing for sports drinks at least once a day. A greater proportion of parents of older children than younger children reported daily exposure (44.2% for children aged 12-17). Three in ten (31.5%) parents thought the exposure was less than once a week, with fewer parents of older children than with younger children.
reporting weekly exposure (range: 53.7% for 2-5 year olds to 21.7% for children aged 12-17).

Research on children’s awareness of sport-related food marketing has only been undertaken in Australia. Two surveys of sport-playing Australian children (n=103 and 243) by Kelly and colleagues (Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013) demonstrated that most children who engage in organised sport are aware of sponsorship of elite and club sport. The authors found that of all the sponsors the children recalled, food and beverage companies comprised just over half (51%) of all their own club sponsors, and between 11% and 14% of elite sport sponsors. Further, just over half (53%) of the children in one of the studies recollected food and beverage companies sponsoring at least one recent sporting event. Companies that manufactured sports drink, soft drinks and fast food were the most frequently cited sponsors. As described previously, research demonstrates that sponsors often provide in-kind forms of support, some of which are provided directly to children. When investigating the impact of club sponsorship, the majority of children surveyed by Kelly, Baur, Bauman, King, et al. (2011) reported that they had received rewards such as a voucher for fast food (86%) or sponsor-branded certificates (76%).

**Attitudes of the sport sector to the impact on children of sports sponsorship and athlete endorsement**

According to one study, sports officials’ recognition of the impact of sports sponsorship on children is low. In Australia, Kelly, Baur, et al. (2012) surveyed forty officials from sports clubs (n=20) and regional sporting organisations (n=20) on their opinions on the impact of sports sponsorship on children. Some participants thought that unhealthy food sponsorship could have a detrimental effect on children (30% from sporting organisations and 20% from sports clubs), believing that children’s dietary behaviours were influenced by sponsorship of elite sport (95%) much more than their own club sponsorship (10%).

Only one study has investigated athletes’ attitudes to endorsing unhealthy food products. Grunseit et al. (2012) surveyed 1,990 United States athletes to ascertain their views on the issue and found that a third (66.9%) agreed that they have a role to play in obesity prevention, although more by promoting physical activity than diet. Overall, almost half (45.6%) disagreed with the statement ‘junk food/alcohol advertising in sport is acceptable’ and nearly three-quarters (73.9%) thought it unacceptable for elite athletes to promote such products, although younger, female, elite and individual athletes found the marketing of junk food and alcohol less acceptable than their older, male, amateur and team sport
counterparts. Given that views on food marketing were not analysed separately from those on alcohol advertising, the findings as they relate to food can only be considered as indicative. The study’s findings suggest that athletes think of themselves as role models and consider it inappropriate that sportspeople endorse unhealthy products, including unhealthy food.

In summary, sport is a popular means for promoting food and beverages, typically via TV, signage, sponsorship, athlete endorsements and corporate social responsibility. The food marketed through sport is predominantly unhealthy. Children appear to be very aware of the use of sport, and some studies suggest that sponsorship and athlete endorsements have considerable impact on their food preferences and behaviours. Some members of the sporting community, including parents, club administrators and athletes, believe that sport should support healthy dietary behaviours.

**Economic environment**

**Sport funding**
The relationship between sport and food is often based on fiscal objectives, with benefits for both the sport sector and the food industry (Carter, 2013; Kelly, Baur, et al., 2012; Kelly, Baur, Bauman, King, et al., 2010b). On the one hand, the sport sector (in part) procures income from connections with food, such as through sponsorships, grants, donations, media rights, merchandising, and trading activities (Cordery & Baskerville, 2009; PwC, 2011). On the other hand, the food industry invests financially in sport in order to promote their products, increase sales and return profits to shareholders and the company (discussed previously as part of the socio-cultural environment).

At the community level, New Zealand and Australian sports clubs frequently sell food to spectators and players, or use food as raffle prizes to raise funds, including energy-dense and nutrient-poor foods such as sausages, baked goods, carbonated beverages, confectionery (Carter, 2013; Kelly, Baur, Bauman, King, et al., 2010b). However, healthy items such as water, trays of meat, food hampers, and fruit and vegetable baskets are also used (Carter, 2013; Kelly, Baur, Bauman, King, et al., 2010b; Naylor, Bridgewater, et al., 2010). For example, of the 101 businesses surveyed by Kelly, Baur, Bauman, King, et al. (2010b) that contributed to the fundraising activities of eighty-two Australian sports clubs, almost half (49%) were food-related usually involving confectionery and chocolate companies providing stock for chocolate drives (39% of all food and beverage companies)
and local butchers providing meat for fundraising barbeques (29%). Carter’s (2013) qualitative interviews with New Zealand sporting organisation officials found a similar fundraising environment in New Zealand sports clubs.

Sponsorship is a means of financial support common to all levels of sport. Considered an exchange relationship (McCarville & Copeland, 1994), sponsorship is defined as “a business relationship between a provider of funds, resources or services and an individual, event or organisation which offers in return some rights and associations that may be used for commercial advantage” (Sleight, 1989, p. 4). Implicit in the definition is an exchange of benefits between the two interested parties. In sport, food industry sponsors provide financial resources in exchange for increased exposure of their brands and products (Sleight, 1989). The former is discussed below, while the use of sponsorship as a marketing tool was discussed in the section on the socio-cultural environment, above.

Globally, sports sponsorship is substantial. Market research indicates that sponsorship from all sources, including those associated with food, accounts for 28.8% of sports revenue; for 2015, global sports income from sponsorship is estimated to be US$45,281 million (PwC, 2011). However, the proportion of sport income from sponsorship varies from country to country (PwC, 2011; Wicker, Breuer, & Hennings, 2012), and sport sponsorship spending in New Zealand differs to that of other countries (Wright, 2013). Due to New Zealand’s relatively small local economy, the majority (72%) of all sponsors are global rather than local companies, predominantly from the finance (24.5%) and clothing (24.1%) sectors. Market research indicates that in 2013 companies invested a total of $145 million in sports sponsorship in New Zealand, of which two-thirds (63%) was spent sponsoring the All Blacks (New Zealand’s national rugby team) (Wright, 2013). At a local level, New Zealand and Australian research demonstrates that sport sponsorship provides clubs and sporting organisations with revenue for the improvement of resources and equipment, subsidises club fees and uniforms, pays for away-tournament expenses, and referees and administrative staff (Carter, 2013; Kelly, Baur, Bauman, Smith, et al., 2011; Kelly, Baur, et al., 2012; Kelly, Baur, Bauman, King, et al., 2010a).

However, an analysis by Cordery and Baskerville (2009) of the 2006 and 2007 annual reports of six different New Zealand sporting organisations found that proportionally, income from sponsorship from all sources was low, ranging from 2.4% (hockey) to 14.4% (rugby). While the contribution attributable to food sponsors specifically was not
determined, it is unlikely to be substantial. This assumption is corroborated by Australian and New Zealand studies investigating the nature of the relationship between food and sport funding in those countries. Two-thirds (67%) of officials from Australian sports clubs surveyed by Kelly, Baur, Bauman, King, et al. (2010a) who reported their club having received sponsorship from all sources including food and beverage, and alcohol companies, reported that less than a quarter of their club’s total income came from sponsorship, with funding from food companies being about half of that received from non-food companies (41% and 83%, respectively). In New Zealand, sports organisation officials report that clubs and organisations received little income from sponsorship, with sports that have high media appeal, such as rugby or netball, attracting the most sponsorship (Carter, 2013).

Furthermore, Australian and New Zealand research shows that revenue from food companies is generally not paid directly but more frequently as in-kind payments. In both countries such items include food vouchers to reward players, free food items for fundraiser barbeques, branded water bottles, the use of business premises for fundraisers and merchandise discounts, equipment and tickets to sponsored events (Carter, 2013; Kelly, Baur, Bauman, King, et al., 2010a).

The amount of sponsorship income sporting organisations receive also appears to differ by sporting code. Cordery and Baskerville (2009) noted in their report of New Zealand sports organisations’ incomes described previously that rugby’s income from external sources, which includes sponsorship, was higher than for netball (20% and 4%, respectively), a finding that aligned with that of Carter’s interviews with New Zealand sporting officials (Carter, 2013). Cordery and Baskerville (2009), and Carter (2013), concluded that sponsors are more attracted to rugby due to the sporting code’s standing in New Zealand, and subsequent greater TV and media coverage, and advertising potential. New Zealand informants from other sporting codes reported that sponsorship is somewhat elusive and often limited to those companies that are financially well-off, and to sports that have a high media profile (Carter, 2013).

The contribution of food industry sponsors to sport income is a consideration when proposing restrictions on food marketing to children as a possible intervention to improve the food environment (to be discussed in the political environment section). The potential consequences of such actions are a reduction in revenue and a need to find an alternative
income source. However, when Carter (2013) asked about the financial impact of removing food-related sport sponsorship in New Zealand, she found that most informants thought it would be insignificant given it was not a major source of income, with clubs being the least impacted. Only officials from entities that received major food-related sponsorship funding thought they would be significantly affected; an action they thought would most likely result in an increase in fees (Carter, 2013). Sports officials from Australian community sports clubs and regional sporting organisations were not as positive, with more than half reporting that restrictions would have significant detrimental financial consequences (70% and 50%, respectively). Nevertheless, some (25% and 35%, respectively) also thought that the impact would only be temporary and that alternative funding sources would be found (Kelly, Baur, et al., 2012).

Another potential source of revenue for sports clubs and organisations is food and beverage vending machines, although their presence and contribution appears to vary by sport venue (Naylor, Bridgewater, et al., 2010). Recreation facility administrators from British Columbia, Canada, reported that vending machines were a common source of revenue, with facilities having on average 3.6 and 1.9 beverage and snack food vending machines per facility, respectively (Naylor, Bridgewater, et al., 2010). The same items were cheaper from vending machines than on-site canteens, but only because they were sold in smaller portions. By contrast, in Australia, sports club officials reported that very few (15%) clubs have vending machines (Kelly, Baur, Bauman, King, et al., 2010b; Kelly, King, et al., 2014) and they were not likely to be a significant source of income. The difference in findings is most likely attributable to the variation in venue type; vending machines are more likely to be present at large public facilities than smaller community sports clubs. The availability of vending machines at New Zealand sports venues and the funds raised through their use is currently unknown.

**Cost of food at sport venues**

As discussed in Chapter 2, the cost of food is a key determinant of people’s dietary choices (Glanz et al., 1998; Lennernäs et al., 1997; Ni Mhurchu et al., 2010). Sports clubs and recreational facility officials have cited the higher cost of healthy foods relative to energy-dense, nutrient-poor foods as a barrier to improving the food environment in sports venues (Kelly, King, et al., 2014; Olstad, Raine, & McCargar, 2013). Given that food sales are a source of revenue for clubs, club representatives, including those in New Zealand, often state that the perishability and greater cost of storing fresh, healthy food, and the higher
retail cost of healthy food relative to the typical energy-dense and nutrient-poor food that is sold, makes providing such food less profitable than lower cost, pre-prepared, packaged food (Carter, 2013; Kelly, King, et al., 2014; Naylor, Vander Wekken, Trill, & Kirbyson, 2010; Olstad et al., 2013; Thomas & Irwin, 2010).

In summary, the sale and promotion of mostly unhealthy food is used to financially support sport at all levels. In New Zealand, commercial sponsorship provides income for sports organisations, although it not likely to be substantial and its benefits appear to be limited to those codes that have a high media profile. Furthermore, local clubs appear to receive little food industry funding despite some parent organisations receiving substantial amounts. The high cost of healthy food and its perishability are cited as barriers to local sports venues providing healthy food.

**Political**

**Food policies at sports venues and organisations**

In contrast to policies for other key health areas such as tobacco, alcohol, sporting injuries and sun safety, very few sports clubs and organisations, and sport venues, in New Zealand or elsewhere, have developed or implemented policies to guide the nature of food environment at those locations (Carter, 2013; Crisp & Swerissen, 2003; Dobbinson, Hayman, & Livingston, 2006; Drygas et al., 2011; Kelly, Baur, Bauman, Smith, et al., 2010; Olstad, Downs, Raine, Berry, & McCargar, 2011). In a survey of sports club officials from Victoria, Australia, to determine the effectiveness of government health promotion funding in encouraging sports clubs to develop policies in key health areas, including the provision of health food, Dobbinson et al. (2006) found that three-quarters (75%) of clubs with catering facilities (n=561) had no plans to develop healthy catering policies. In two other Australian states and territories, Kelly, Baur, Bauman, Smith, et al. (2010) found that only three (1.9%) of the 108 sports clubs they surveyed reported having a written policy on healthy eating, although a few (n=11) indicated that they were planning to develop one. Similarly, in Canada, only 6% of recreational facilities in Alberta were found to have implemented healthy food policies despite having the resources and support from local authorities and researchers to do so (Olstad et al., 2011, 2013) and of the 12% of sport facilities surveyed in British Colombia that had food policies most related to aspects of food other than nutritional quality, such as food allergies. Likewise, Drygas et al. (2011) found that of the eighty-eight stadia in ten European countries surveyed, only one-fifth (18.2%) reported having a food policy.
In New Zealand, during qualitative interviews with officials from eighteen national and regional sporting organisations, Carter (2013) found that no informant could identify any club or organisation with a formal policy on food marketing or availability. However, one organisation was reported as having developed guidelines for caterers when providing food for teams and officials at tournaments, and another as introducing a pilot programme to improve the nutritional quality of the foods they typically provided, such as following the healthy chips guidelines and using low fat sausages at sausage sizzles. According to Carter (2013), most organisations relied on contract caterers and therefore had little influence over the food provided at venues, believed that contractors were entitled to sell foods that they thought profitable regardless of nutritional quality and that energy-dense and nutrient-poor foods were typically provided at sport. Furthermore, Carter reported that most informants considered food choice at sports venues to be an issue of personal responsibility rather than the responsibility of the sporting organisation. The few officials whose organisation provided healthy food did so as a result of public pressure.

Evidence of the development of policies or decision-making processes within sports clubs and organisations on the acceptability of food sponsors on the basis of health is mixed. Kelly and colleagues (Kelly, Baur, Bauman, King, et al., 2010a, 2011) surveyed sports club officials (n=108), and the websites of national and state sporting organisations (n=55) in Australia, and found no evidence of written policies regarding sponsorship acceptability. In New Zealand, qualitative interviews with key informants from regional and national sporting organisations found that although they did not have formal policies, some sports administration decision-makers said they considered the health implications of associating themselves with unhealthy food sponsors when accepting sponsorship, and how well those sponsors aligned or their ‘fit’ with their sport’s or organisation’s ethos (Carter, 2013). Many also said that they carefully considered their relationships with companies, ensuring that they did not promote unhealthy foods. Nevertheless, other interviewees indicated that the financial benefits of sponsorship often outweighed the potential health implications and ‘fit’ mismatch of some sponsors and their products. Methodological differences could explain the discrepancy in findings between countries, with Carter’s qualitative interviews able to tease out greater detail than Kelly and colleagues’ (Kelly, Baur, Bauman, King, et al., 2010a, 2011) quantitative survey and website analyses.

The efficacy of developing and implementing food policies is evident from some Australian research. In the study by Dobbinson et al. (2006) described previously, clubs
with written policies on healthy food availability (n=56) were significantly more likely to
include healthy food choices in their catering than those clubs that did not have a written
policy. Similarly, Naylor et al. (2010) found significant improvements in the overall food
environment at publically funded recreation facilities following the implementation of
initiatives to enhance the promotion and availability of healthy foods at those venues.
Policy actions included altering vending contracts, modifying the choices at on-site
cafeterias and canteens, reviewing catering menus, developing policies and providing
education and awareness campaigns.

A number of barriers have been identified by venue operators, club administrators, and
nutrition and health professionals that may explain the low engagement in policy
development in this area. In addition to the financial challenges discussed previously,
other obstacles include the difficulty and uncertainty in defining healthy and unhealthy
foods; lack of venue and sports administrators’ knowledge on how to interpret nutrition
guidelines and develop food policies; lack of educational resources; lack of time and
dependency on volunteer labour; resistance from club members; the potential to jeopardise
current sponsorship arrangements; the lack of control over the food supplied by contract
caterers; and difficulty finding suitable replacement sponsors (Adair-Rohani & Irwin,
2010; Andreassen, 2007; Carter, 2013; Dobbinson et al., 2006; Drygas et al., 2011; Kelly,
King, et al., 2014; Naylor, Bridgewater, et al., 2010; Olstad & Raine, 2013; Young et al.,
2012).

Regulating and replacing food sponsorship
Restricting sports sponsorship by unhealthy food companies through regulation has been
suggested as a possible action to improve the sport-related food environment (Carter, 2013;
WHO, 2016b). The acceptability of such regulation among members of the sporting
community is mixed. Kelly, Baur, et al. (2012) found that half of Australian local club and
regional sporting organisations officials (50%-55%, respectively) supported implementing
regulations or policies to restrict unhealthy food sponsorship in all levels of sport.
Similarly, in New Zealand, slightly more sporting officials opposed regulation than
supported it (Carter, 2013). Carter reported that those officials in favour of regulating food
marketing and availability thought it would encourage the development of a supportive
food environment, whereas those who opposed the idea thought it would be detrimental
financially, and subsequently harm the delivery of sport (Carter, 2013).
Given the largely unsuccessful voluntary implementation of food policies in sports settings and potential financial hardship that clubs and organisations may face if sports sponsorship by food and beverage companies were restricted, several authors, including those in New Zealand, have recommended that governments provide funding and other organisational support structures for sports venues (Carter, 2013; Kelly, King, et al., 2014; Olstad & Raine, 2013). To improve the food environment, and address the financial hardship for loss of sponsorship funding, the Western Australian State government sponsors sports clubs and organisations. The State’s health promotion organisation, Healthway, provides sponsorship in exchange for the sponsorship clubs receive from businesses that produce products contradictory to healthy messaging, including unhealthy food (Healthway, n.d.). Similar action was taken in Australian states and New Zealand in the 1990s with the introduction of the Smokefree Environments Act 1990, which included the prohibition of tobacco sponsorship of sporting and arts events. In response to the legislation, both countries established government health promotion organisations to specifically provide and administer financial support sourced from tobacco taxes (Thomson & Wilson, 1997).

As part of the arrangements for state-funded food sponsorship in Australia, sports clubs and facilities must ensure that the food environment at sport venues supports health dietary behaviours, including the provision of free water and healthy food choices in catering. In a survey of 55 national and state sporting organisations’ websites for sponsor type, Kelly, Baur, Bauman, Smith, et al. (2011) found that food and beverage sponsors in Western Australia were more likely to meet the study’s healthy criteria than other states. The authors partially attributed this finding to the conditions of the funding relationship the organisations had with the State’s health promotion agency. No such arrangement currently exists in New Zealand; however, there have been calls from public health professionals and advocates to introduce a similar scheme (Carter et al., 2013).

**Local, national and global sport-related food policy**

New Zealand currently does not have any national policies or programmes specifically addressing the sport-related food environment. However, some of the communities involved in the Healthy Families NZ initiative (Ministry of Health, 2014a), a constituent of the national childhood obesity plan (Ministry of Health, 2016) (described in Chapter Two) are being administered by regional sports trusts. Many are likely to institute initiatives to address the lack of food policies and predominantly obesogenic food and beverage practices in sports clubs and venues. A few community leaders have taken action
independently to improve the food environment in their sports clubs and venues. As discussed previously, several councils have instituted or are considering instituting policies regarding sugary beverage availability in their sports venues (Marlborough District Council, 2015; Nelson City Council, n.d.). Globally, as discussed in Chapter Two, numerous documents and frameworks have been developed to guide healthy public policy and create supportive food environments for children. While none of the documents are sport-specific, sport and the sport setting are often referred to directly or are implied in the documents’ broad recommendations.

In summary, sports clubs and organisations have few policies to guide food availability and promotion. The sporting community perceives a number of challenges in developing food policies. Regulating food marketing in sport is considered a possible option to improve the sport-related food environment. However, there is a perception that such action would have negative financial consequences for sport and children. Replacement of sports sponsorship by food companies with that from government appears to be effective.

4.4 Conclusion

Sport is an important part of children’s lives, particularly for young New Zealanders. Food availability and promotion is strongly linked to sport, and as such is an integral part of children’s food environments. Sport would seem a logical setting in which to promote healthy dietary behaviours and patterns, however, emerging evidence from New Zealand and internationally consistently demonstrates that the sport-related food and beverage environment is obesogenic. Research shows that the majority of foods promoted in association with sport are energy-dense and nutrient-poor and not in keeping with nutrition guidelines, and that healthy foods are seldom actively promoted through sport. Other than government dietary guidelines, sport nutrition expertise is inconsistent, sparse and at times inaccurate.

The basis of the relationship between food and sport is largely financial. Sports clubs, sporting organisations, national and global sporting teams and events receive financial support from the food industry in exchange for providing opportunities to market predominantly unhealthy food through the use of multiple promotional activities. In New Zealand, as elsewhere, there are few policies within the sport sector and beyond to guide the sport-related food environment. However, there appears to be some acknowledgement
from within the sport sector of the need to lead action on improving the sport-related food environment. Literature on the opinions of two key member groups of the sport sector – children and parents – on the sport-related food environment, are presented in a systematic review in the next chapter.
CHAPTER FIVE: CHILDREN’S AND PARENTS’ OPINIONS ON THE SPORT-RELATED FOOD ENVIRONMENT – A SYSTEMIC REVIEW OF THE LITERATURE

5.1 Introduction
This chapter presents a systematic review of the current literature on children’s and parents’ opinions on the sport-related food environment. The previous chapter presented evidence that predominantly energy-dense and nutrient-poor foods are available and promoted in the sport-related food environment in New Zealand, and in numerous other countries. Furthermore, there are very few policies and regulations instituted at community, local or national government levels in New Zealand, or at a global level, to guide the nature of the sport-related food environment.

The chapter opens with an introductory discussion on systematic literature reviews, focusing on those that include diverse research types and sources of evidence, as this one does. The systematic review is then presented in accordance with the PRISMA Statement 2009 Checklist format (PRISMA, 2009).

5.2 Systematic literature reviews
5.2.1 Definition and purpose
Reviewing the available literature is an important stage in research. Literature reviews provide an overall understanding of the body of knowledge on the research topic, including what is currently known; how that knowledge was acquired and the strengths and limitations of the methods used; where gaps in the knowledge exist; and identifying priorities and possible directions of future research. Literature reviews also provide researchers with a context for their research (Booth, Papaioannou, & Sutton, 2012; Gough, Oliver, & Thomas, 2012; Petticrew & Roberts, 2005). Among the many types of literature reviews that can be undertaken (Petticrew & Roberts, 2005), the recent emphasis on evidence-based practice and policy in the health sector has seen a rise in the use of systematic literature reviews, or those that,
adhere closely to a set of scientific methods that explicitly aim to limit systematic error (bias), mainly attempting to identify, appraise and synthesize all relevant studies (of whatever design) in order to answer a particular question (or set of questions) (Petticrew & Roberts, 2005, p. 9).

In contrast to non-systematic reviews in which the literature on a topic is selectively outlined or discussed, systematic reviews are exhaustive, reproducible and transparent in their conduct. Consequently, systematic reviews are considered the most rigorously conducted and comprehensive of literature reviews (Booth et al., 2012; Gough et al., 2012; Petticrew & Roberts, 2005).

5.2.2 Types of systematic reviews

Quantitative
Systematic reviews are not limited to a particular design type. However, they have typically been associated with reviews of quantitative studies to assess the effectiveness of interventions to inform evidence-based practice and policy decision-making. As such, the conduct and processes of quantitative systematic reviews – extracting data, assessing its quality, pooling the findings of the review publications and applying statistical methods (such as meta-analysis) to arrive at an overall estimate of an effect – are generally well established and accepted (Higgins & Green, 2011).

Qualitative
The utility and value of synthesising qualitative literature has become increasingly realised. Qualitative systematic reviews can provide an understanding of the theoretical developments on a topic and of the social context of health; or complement the findings of quantitative systematic reviews (Booth et al., 2012; Gough et al., 2012; Petticrew & Roberts, 2005; Pope, Mays, & Popay, 2007; Sandelowski & Barroso, 2006). The legitimacy of qualitative reviews is becoming more firmly established within the research community, evidenced by the increased publication of a number of qualitative systematic reviews in academic journals and other forums, such as the Cochrane Database of Systemic Reviews (Gülmezoglu, Chandler, Shepperd, & Pantoja, 2013).

Nevertheless, the concept of qualitative systematic reviews is contested by some qualitative researchers. Some consider the synthesis of qualitative research findings to be incompatible with the approach’s doctrine. For them, combining the findings of individual studies contradicts the fundamental principle of qualitative research, that is, to explore and understand the multiple realities and perspectives a defined group of individuals have in a
particular context. They consequently consider that synthesis destroys the integrity of the primary research and reduces validity. Furthermore, they also assert that combining findings from research founded in the differing epistemologies and methodologies characteristic of qualitative research is fundamentally invalid. However, many qualitative researchers consider it is possible to retain the integrity of the research, and that systematically reviewing qualitative literature reinforces and elevates its credibility and status (Petticrew & Roberts, 2005; Pope et al., 2007; Sandelowski & Barroso, 2006). As such, methods of synthesising qualitative findings, such as meta-ethnography and critical interpretive synthesis, have developed (Dixon-Woods, Fitzpatrick, & Roberts, 2001; Noblit & Hare, 1988; Noyes & Lewin, 2011a; Sandelowski & Barroso, 2006).

Mixed designs
Mixed design reviews, those that incorporate all the available literature relevant to the review question, regardless of design and source, are a more recent development in systematic literature reviews. According to Pope et al. (2007), when designing a review, “rather than thinking in terms of a hierarchy of study designs, it is better to think of a process of matching types of evidence to a particular question on the basis of their relevance and validity” (Pope et al., 2007, p. 27). Proponents of mixed design reviews contend that the review question can be more comprehensively addressed by including all relevant evidence (Petticrew & Roberts, 2005; Pope et al., 2007). However, given the fundamental methodological and ontological differences between the included research approaches, the feasibility and legitimacy of mixed design reviews are even more contested and challenging than qualitative reviews (Harden & Thomas, 2005). Furthermore, guidance on how to proceed is still developing.

Approach taken in this review
Children’s and parents’ opinions on the sport-related food environment – the topic of this review – can be explored by using a range of research approaches and methods (Harden et al., 2004). Hence, this review incorporates the full range of relevant literature on the issue. Guidance and justification for its design and conduct draws on the work of those researchers who have progressed, and provided some direction on, the conduct of mixed design reviews (Dixon-Woods et al., 2006, 2001; Gough et al., 2012; Harden et al., 2004; Oliver et al., 2005; Petticrew & Roberts, 2005; Pope et al., 2007; Thomas et al., 2004).
5.3 Children’s and parents’ opinions on the sport-related food environment – a systematic review

5.3.1 Objectives
This systematic literature review aimed to:

i. identify research and assemble a body of literature that reports on children’s, and parents’ or caregivers’,\(^ {12}\) opinions on the sport-related food environment, where ‘opinions’ is defined as “view or judgement, not necessarily based on fact or knowledge” (Concise Oxford English Dictionary, 2006, p. 1003) or “what someone thinks about something” (Merriam-Webster, n.d.), to answer the following questions:

a. What are children’s and parents’ opinions on the sport-related food environment?

b. What are children’s and parents’ opinions on how the sport-related food environment impacts children’s dietary behaviours?

c. What are parents’ opinions on how the sport-related food environment impacts parents and their ability to provide a healthy food environment for their children?

ii. appraise the studies in (i) to identify strengths and weaknesses;

iii. extract and synthesise the findings of the publications in (i);

iv. identify gaps in the existing evidence;

v. make recommendations for future research.

The review also aimed to inform the data collection phase of the research for this thesis. As such, literature published up to August 2010 was reviewed initially. To further inform this thesis, the review was subsequently updated to include literature published up to December 2013.

5.3.2 Methods

Scoping review
An initial scoping search was undertaken using Medline, CINAHL and Google Scholar for relevant peer-reviewed journal articles\(^ {13}\), and the search engine Google for grey literature reports\(^ {14}\). The search located very few publications that explicitly investigated the sport-related food environment. However, sport-related findings were reported in a number of

\(^{12}\) Hereafter referred to as ‘parents’

\(^{13}\) Hereafter referred to as ‘articles’

\(^{14}\) Hereafter referred to as ‘reports’
publications that explored children’s and parents’ views of the general food environment, including: the marketing of food and beverages to children, the influence of children’s food and beverage environments on obesity, how to prevent overweight and obesity, and the factors which influence children’s healthy eating behaviours. The scoping search also revealed the use of three research approaches to address the review topic – qualitative, quantitative and mixed methods. In addition to academic articles, several potentially relevant grey literature reports were identified. The findings of the scoping search informed the planning and methods development of the main review.

**Search strategy**

**Electronic academic databases**
From April 2010 to August 2010 (being the period from the commencement of this thesis to data collection), and again in December 2013, the following electronic databases were searched for relevant literature: Ovid (MEDLINE, PsychINFO, PsychEXTRA); EBSCO Host (CINAHL, Academic Search Complete, Business Source Complete, SportDISCUS with Full Text, Health Source: Nursing/Academic edition); ProQuest; Scopus (Health Sciences and Social Sciences databases); and Cochrane Database of Systematic Reviews. These databases provided access to specific literature, as well as theses and conference proceedings, in the following fields of inquiry: science, health, public health, nutrition, behaviour, marketing, business, qualitative research, reviews and sport. Limiters included: date (1 January 1995 – 31 December 2013); all texts; peer-reviewed/scholarly journals; human and humans. The names of researchers prominent in the field of inquiry were also searched. The authors of articles that were unavailable electronically were contacted personally.

The key words used to conduct searches (customised to meet the requirements of each database) are listed in Appendix 1. Boolean operators ‘AND’ and ‘OR’ were used to combine keywords during the search.

**Freely available internet search engines and databases**
Grey literature was identified using GreyNet (GreyNet International, n.d.) and OpenGrey (System for Information on Grey Literature in Europe (SIGLE) databases (OpenGrey, n.d.). To locate the websites of relevant organisations, the limiters .org, .ac., edu, .pdf and .gov. were applied to the internet search using the Google search engine (Google, n.d.). Each website was hand-searched for potential publications. Links to other relevant websites were followed and subsequently hand-searched. Names of researchers prominent
in the field of enquiry were also searched for. Websites searched included New Zealand and international universities (departmental websites as well as individual experts’ research bibliography pages where available), non-governmental organisations, consumer groups, government ministries and departments, and advocacy groups. If a report could not be located, organisations were contacted for copies of relevant reports.

**Measures**
The measures used in this review are based on the typology provided in the ANGELO framework as outlined in Chapter Two (Swinburn et al., 1999). As a reminder, the framework divides the food environment into two sizes, the microenvironment or settings, and the macroenvironment or sectors. Each environment size is further divided into four types: physical, economic, political and sociocultural.

The measures used in this review (and corresponding ANGELO framework category) were:

i. local sports settings; or regional, national and international sporting sectors (the microenvironmental settings and macroenvironmental sectors);

ii. children’s and parents’ opinions on the availability and promotion of food and beverages at locations where sport is played (the physical environment);

iii. children’s and parents’ opinions on the economics of food and beverage availability and promotion relating to sport including the financial support of sport; and taxation, pricing and subsidies (the economic environment);

iv. children’s and parents’ opinions on the policies and regulations relating to food and beverage availability and promotion (the political environment).

v. children’s and parents’ opinions on food and beverage marketing; and other sport-related food and beverage social and cultural norms (the sociocultural environment).

**Inclusion and exclusion criteria**
To be included for review, publications needed to report original research on children’s and parents’ opinions on issues relating to (i) the sport-related food environment (referred to as ‘sport-specific’ publications); (ii) the availability and promotion of food and beverages to children; (iii) the factors that influence children’s eating behaviours, or obesity causation or prevention. Publications included papers which presented sport-related data (referred to as ‘general’ publications). Grey literature, the “information
produced on all levels of government, academics, business and industry in electronic and print formats not controlled by commercial publishing i.e., where publishing is not the primary activity of the producing body” (GreyNet International, n.d.) is often excluded from systematic reviews given its general lower quality, poorer accessibility and lack of peer-review. Nonetheless, it can also report findings of well-conducted research, and therefore be reliable and valid evidence. Furthermore, research demonstrates that omitting grey literature from a literature review may result in a body of research that is unbalanced, thus exposing the review to publication bias (Hopewell, McDonald, Clarke, & Egger, 2007; McAuley, Pham, Tugwell, & Moher, 2000). Reducing the chance of bias is one reason for conducting systematic reviews (Booth et al., 2012; Petticrew & Roberts, 2005). Consequently, many systematic review experts argue that the search strategy should include the means to identify grey literature (Balshem et al., 2008). Such an approach has been taken in this review.

In keeping with UNCRC, studies were included if the participants were children under 18 years; and parents or caregivers of such children. Publications which described the participants as adults were also eligible for inclusion if the data was analysed and reported by parental status. For this review, sport was considered to be any amateur or professional competitive organised physical activity undertaken at the community, regional, national or international level; it could also have a social, recreational or entertainment element. It did not include physical activity undertaken during the normal course of the day, such as incidental activity; physical education activities as part of the school curriculum; or ‘play’, ‘games’ or ‘mucking around’.

Publications were eligible for inclusion if they reported findings on sports settings and locations where sport is played; sporting events; and organised physical activity. Publications that reported findings on community events that included, and specifically analysed, sporting events as part of community events were also eligible for inclusion. Publications that used any established and appropriate method of enquiry (qualitative, quantitative and mixed methods), set in all countries, and published in any language but where the abstract was in English, between 1 January 1995 and 31 December 2013, were included for review.
All publications were initially assessed for inclusion eligibility by the researcher and then cross-checked by supervisors. Where eligibility was questionable, the publications were discussed with supervisors until a consensus decision was reached.

Publications were excluded if they reported findings on: alcoholic beverages exclusively, if no information was provided on the method, or if the variables analysed were not exclusively about ‘sport’, for example, celebrities (which may include sports, but also movie or music celebrities) rather than sport celebrities or athletes specifically; or community events (which may include fetes), rather than sporting events (such as triathlons or sporting competitions). As this review takes an evaluative approach to the sport-related food environment, descriptive findings or publications were excluded. The sport-related food environment was described in Chapter Four.

**Quality assessment**

Appraising the quality of review publications is a key stage in a systematic review (Booth et al., 2012; Gough et al., 2012; Hannes, 2011). Quality assessment seeks to evaluate the credibility and soundness of the study design and conduct, that is, whether it measured what it intended to measure and that the findings validly reflect the phenomenon being studied. It also assesses the usefulness and relevance of the study findings to populations beyond the study participants. Quality assessment may be used to determine a study’s inclusion or exclusion in the review or weighting (Booth et al., 2012; Gough et al., 2012; Hannes, 2011; Pope et al., 2007).

For quantitative studies, a formal hierarchy of the quality of evidence in relation to the strength of study design exists (CEBM, 2009) and for the most part, well-established, structured approaches to quality assessment (general and study design specific) have been developed (CEBM, 2014; Higgins, Altman, & Sterne, 2011). Conversely, quality assessment of qualitative research is less definitive and more contested (Denzin, 2009; Gough et al., 2012; Petticrew & Roberts, 2005; Pope et al., 2007). There is both a lack of agreement among qualitative researchers about the relevance of assessing qualitative research, and among the proponents of quality assessment on how best to proceed.

Nevertheless, the qualitative research community generally acknowledges the need to assure rigour in qualitative research, and checklists at the very least ensure that the essential elements of quality are assessed. Given the variations in qualitative methodologies, numerous qualitative assessment tools have been developed, although none
are considered ‘best practice’ (Hannes, 2011). Researchers are advised to choose or adapt an existing framework that is in keeping with the review purpose, and where more than one study design is included in the review, to use frameworks that are specific to each design type (Gough et al., 2012; Pope et al., 2007).

There is also little certainty and guidance on how to usefully apply the outcome of quality assessment in data synthesis. Several methods have been suggested. Studies that do not meet a pre-determined quality threshold may be excluded from the review (‘best evidence synthesis’). However, researchers often advise against this method, especially with qualitative research, as even those studies of lower quality may provide valuable insight into the phenomenon under study. Instead, a ‘weight-of-evidence’ approach tends to be favoured, in which all studies are included, but greater emphasis is placed on the findings of those studies of higher quality and relevance to the study topic during data synthesis (Gough et al., 2012; Hannes, 2011; Pope et al., 2007). The latter approach was taken in this review.

**Method of quality assessment**

All publications that met the inclusion criteria were appraised for quality. The appraisal tool developed by Heller et al. (2008) was used as the basis for assessing the quality of the quantitative publications, as it was developed specifically for use in public health and was familiar to the researchers and supervisors. In collaboration with supervisors, the tool was adapted to specifically assess cross-sectional surveys, the design used in all of the review’s quantitative publications. The final assessment tool (Figure 9) was further informed by the Center for Evidence Based Medicine’s summary checklist for assessing surveys (CEBMa: Center for Evidence-Based Management, n.d.), given its focus on sampling and measurement. Qualitative publications were assessed using the Critical Appraisal Skills Programme’s (CASP) appraisal tool for qualitative research (Critical Appraisal Skills Programme, 2013) (Figure 10). The CASP tool is widely used, and clearly describes each criterion and is therefore recommended for less experienced assessors. The qualitative and quantitative arms of the sole mixed methods paper were assessed using the design-appropriate tool.

To further assess the likelihood of bias, each study’s authors’ declaration of conflicts of interest and funding source were also noted. This is especially pertinent when appraising research in areas of public health in which industry has an interest. Industries such as the
food and beverage, and tobacco also fund research and researchers (Bero, 2005; Bes-Rastrollo, Schulze, Ruiz-Canela, & Martinez-Gonzalez, 2013; Kearns, Glantz, & Schmidt, 2015; Nestle & Pollan, 2013). Not only are the findings of such research potentially biased in favour of industry, but evidence also demonstrates that such studies are often of low quality (Barnes & Bero, 1996; Bero, 2005; Scollo, Lal, Hyland, & Glantz, 2003). As grey literature was included in the review, whether publications were subjected to peer-review was also recorded.

For each study, one of three rankings was applied to each tool’s key assessment criterion: 2 = met all or most of the criteria for research type, 1 = met some of the criteria for research type; 0 = did not meet the criteria or could not tell. Scores were tallied to arrive at an overall score; for quantitative studies the highest possible score was twenty-two and for the qualitative studies it was twenty. The initial quality assessment of each publication was undertaken by the researcher; they were then cross-checked by a supervisor. Where there were discrepancies in scores, the researcher and supervisor assessed the publication together until consensus was achieved.

As a weight of evidence approach was used in this review (Gough et al., 2012; Hannes, 2011; Pope et al., 2007) no publications were excluded on the basis of quality. During data synthesis, greater emphasis was placed on the findings of the sport-specific studies (due to their relevance) and the higher quality publications (defined as >16 for quantitative and >14 for qualitative studies). Given the limited number of publications that specifically reported on the sport-related food environment, excluding some publications on the basis of quality would have substantially depleted the pool of evidence for review. Also, the findings of lower quality publications provided some insight into the research area and potential direction for further research.
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<td>• Was the study type / methodology appropriate for the research questions? [0,1,2]</td>
</tr>
<tr>
<td>Sampling</td>
<td>• Were the target population, recruitment strategy and sample adequately described? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>• Was the target study population (inclusion/exclusion criteria appropriate?) [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Were the sampling frame and sampling method appropriate? [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Was the response rate adequate? [0,1,2]</td>
</tr>
<tr>
<td>Data collection</td>
<td>• Are the measures and data collection methods adequately described? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>• Were the appropriate data collected? [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Were the data collection methods and instruments/questions appropriate? [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Were the data collection instruments piloted &amp;/or validated? [0,1,2]</td>
</tr>
<tr>
<td>Analysis</td>
<td>• Have the methods of data analysis been adequately described? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>• Were sample size / power calculated and appropriate? [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Are the methods of analysis appropriate? [0,1,2]</td>
</tr>
<tr>
<td></td>
<td>• Were confidence intervals calculated? [0,1,2]</td>
</tr>
<tr>
<td>Ethics</td>
<td>• Have ethical aspects (including ethical approval and consent) of the study been described? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>• Were there any major ethical problems with the study? [0,1,2]</td>
</tr>
<tr>
<td>Conflict of interest</td>
<td>• Were conflicts of interest disclosed? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>• Were funding sources disclosed? (Y/N)</td>
</tr>
<tr>
<td>Peer-reviewed</td>
<td>Was the publication peer-reviewed? (Y/N)</td>
</tr>
</tbody>
</table>

**Scoring criteria**
- Response rate: score 0 = <39%; 1 = 40 – 59; 2 >60%
- Piloted/validated: score 0 = if not stated; score 1 = if validated; score 2 = if piloted and validated/source of questions provided
- Categories provided in analysis: score 0 = if not reported; score 1 = provided only proportion who agree; score 2 = provided proportion of ‘disagree’ and ‘don’t knows/unsure’
- Sample size: score 0 = <200; score 1 = 200-1000; score 2 = >2000
- Ethics: score 0 = no ethics or consent; score 1 = ethics only; score 2 = ethics and consent both gained

**Figure 9:** Quality assessment tool – quantitative (adapted from CEBM (2014) and Heller et al (2008))

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122
Was there a clear statement of the aims of the research? [0,1,2]
- What was the goal of the research?
- Why was it thought important?
- Its relevance?

Is a qualitative methodology appropriate? [0,1,2]
- Did the research seek to interpret or illuminate the actions and/or subjective experiences of research participants?
- Was qualitative research the right methodology for addressing the research goals?

Was the research design appropriate to address the aims of the research? [0,1,2]
- Did the researcher justify the research design (have they discussed how they decided which method to use)?

Was the recruitment strategy appropriate to the aims of the research? [0,1,2]
- Did the researcher explain how the participants were selected?
- Did they explain why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study?
- Were there a discussion around recruitment (e.g. why some people chose not to take part?)

Was the data collected in a way that addressed the research issue? [0,1,2]
- Was the setting for data collection justified?
- Was it clear how data were collected (e.g. focus group, semi-structured interview, etc.)?
- Did the research justify the methods chosen?
- Did the researcher make the methods explicit (e.g. for interviews, is there an indication of how interview were conducted or did they use a topic guide)?
- Were methods modified during the study? Is there an explanation of how and why?
- Was the form of data clear (e.g. tape recordings, video material, notes, etc.)?
- Did the researcher discuss saturation of data?

Has the relationship between researcher and participants been adequately considered? [0,1,2]
- Did the researcher critically examine their own role, potential bias and influence during formulation of the research questions; data collection, including sample recruitment and choice of location?
- How did the researcher respond to events during the study and did they consider the implications of any changes in the research design?

Have the ethical issues been taken into consideration? [0,1,2]
- Were there sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained?
- Did the researcher discuss issues raised by the study around informed consent or confidentiality or how they handled the effects of the study on the participants during and after the study?
- Was approval sought from the ethics committee?
Was the data analysis sufficiently rigorous? [0,1,2]

- Was there an in-depth description of the analysis process?
- Was thematic analysis used? Was it clear how the themes were derived from the data?
- Did the researcher explain how the data presented were selected from the original sample to demonstrate the analysis process?
- Was sufficient data presented to support the findings?
- To what extent were contradictory data taken into account?
- Did the researcher critically examine their own role, potential bias and influence during analysis and selection of data for presentation?

Is there a clear statement of findings? [0,1,2]

- Were the findings explicit?
- Was there an adequate discussion of the evidence both for and against the researcher’s argument?
- Did the research discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)?
- Were the findings discussed in relation to the original research questions?

How valuable is the research? [0,1,2]

- Did the researcher discuss the contribution of the study to existing knowledge or understanding?
- Did they identify new areas where research is necessary?
- Did the researcher discuss where or how the findings can be transferred to the other populations or consider other ways the research may be used?

Conflict of interest

- Were conflicts of interest disclosed? Y/N
- Were funding sources disclosed? Y/N

Peer-reviewed

- Was the publication peer-reviewed? Y/N

Figure 10: Quality assessment tool – qualitative (Critical Appraisal Skills Programme, 2013)
Data extraction and synthesis
The findings of the publications included in the review were extracted and synthesised using a combination of framework and thematic syntheses, two methods that are particularly useful when a range of research approaches are included for review (A. Booth et al., 2012; Gough et al., 2012; Pope et al., 2007). In the former method, the review findings are identified and organised in a very structured way (often) according to a pre-existing framework and a priori categories (Booth et al., 2012; Gough et al., 2012; Noyes & Lewin, 2011b). Thematic synthesis “seeks to identify a range of factors that is significant for understanding of a particular phenomenon [and] to organise these factors into the main or most common themes” (Booth et al., 2012, p. 148). Thematic synthesis may be inductive or deductive, or a combination of both, in its approach (Booth et al., 2012; Gough et al., 2012; Pope et al., 2007).

Eligible review publications were initially grouped by participant type (child or parent). The key characteristics of each publication – publication type, research location, objective, sample characteristics, and data collection method – and quality score were tabulated in an Excel spreadsheet. In keeping with the measures used in this review, data extraction and synthesis was guided by the ANGELO framework typology (Swinburn et al., 1999). Using the parameters provided by the framework’s authors, study findings were first tabulated in an Excel spreadsheet according to the four environment types – physical, socio-cultural, economic and political. Where there was overlap between environment types, findings were categorised according to ‘best fit’ based on significance to the review questions. The findings within each category were then collated thematically based on similarities of subject matter, and further examined for commonalities and contradictions in the data. Given the diversity in study design and subject, and sometimes paucity of studies, within each theme, it was not possible to conduct further statistical or interpretive analysis of the quantitative or qualitative findings, respectively. Findings were therefore synthesised conceptually. The results of the data synthesis are presented in narrative form below.

Search results
The publication search and identification is illustrated in the flowchart in Figure 11.

Articles
A total of 14,755 articles were retrieved from the electronic database search (Appendix 2). Within each database, duplicates were removed and titles hand-searched to identify potentially relevant articles (n=276). A total of 101 potentially relevant articles were
identified and a further 14 articles were identified from a search of the reference lists of those articles (“citation pearl growing” (Hartley, 1990)). Two potentially relevant doctoral theses the researcher was aware of were also included. There were no relevant foreign language publications identified. The abstracts of a total of 117 publications (115 articles and two theses) were read to determine relevance, and inclusion and exclusion criteria applied. If sport did not feature in the title or abstract of an article (n=80), the whole document was searched with the ‘FIND’ function of the internal PDF reader using the terms ‘sport’, ‘athlete’, ‘sponsor’ and ‘club’ to further ascertain its relevance.

Twenty-four peer-reviewed articles (journal articles, n=21; conference proceedings, n=2; doctoral thesis, n=1) were selected for inclusion in the review (children n=10; parents n=11; both n=3). Articles were excluded (n=93) for the following reasons: did not involve sport, contain sport in the findings or analyse data exclusively for sport (n=69); data not collected from the participants’ perspectives (n=9); participants not parents or children, or data not analysed by parental status (n=8); reported on the impact of sport on nutrition (n=5); and one could not be located. One doctoral thesis (Kelly, 2012) was excluded as it was a thesis in the form of a collection of papers and the relevant publications within it were identified in the search.

**Reports**

The grey literature search (including reference lists and bibliographies) located twenty-six potentially relevant reports. All reports were screened using the same procedure as for articles, and inclusion and exclusion criteria were applied. Eight reports were selected for inclusion in the review (children, n=1; parents, n=6; both, n=1). Eighteen reports were excluded for the following reasons: did not include parent or child data or not analysed by parental status (n=5); did not involve sport, contain sport in the findings, or analyse data by sport (n=5); did not provide information on method (n=3); and one request was not answered. Findings of seven studies were published in both the academic and grey literature. Of those studies, the reports of four were excluded in preference to the journal article, as the latter were peer-reviewed; a doctoral thesis was included in preference to a report published from it as more data was presented in the thesis and it had been examined by the author’s academic peers; and the reports of two studies were included in preference to their corresponding journal articles as the latter did not report the studies’ sport-related findings.
In total, thirty-two publications were included for review (children n=11, parents n=17; both n=4), of which eighteen were qualitative, thirteen were quantitative, and one used a mixed methods approach.
14,755 peer-reviewed articles identified through database search

Titles screened → n = 276

Duplicates removed → n = 101
14 additional peer-reviewed articles and 2 doctoral theses identified through reference lists and other sources

117 full-text articles screened for ‘sport’, and inclusion and exclusion criteria applied

93 full-text articles / thesis excluded
Did not involve sport, contain sport in the findings or analyse data by sport = 69
Data not collected from participants’ perspective = 9
Participants not parents or children or data not analysed by parental status = 8
Reported on the impact of sport on nutrition = 5
Unable to locate = 1
Thesis in a form of papers included in the review = 1

24 articles/theses included in review:
Children = 10 (qualitative = 8; quantitative = 1; mixed methods = 1)
Parents = 11 (qualitative = 5; quantitative = 6)
Both = 3 (qualitative = 2; quantitative = 1)

26 grey literature reports identified through internet search and other sources
Screened for ‘sport’, and inclusion and exclusion criteria applied

8 reports included in review:
Children = 1 (qualitative)
Parents = 6 (qualitative = 1; quantitative = 5)
Both = 1 (qualitative)

8 reports included in review:
Children = 1 (qualitative)
Parents = 6 (qualitative = 1; quantitative = 5)
Both = 1 (qualitative)

18 full-text reports excluded
Participants not parents or children or data not analysed by parental status = 5
Did not involve sport, contain sport in the findings or analyse data by sport = 5
Did not provide information on method = 3
No response to request = 1
Findings published in peer-reviewed journals or thesis and included in review = 4

32 publications included in review:
Children = 11 (qualitative = 9; quantitative = 1; mixed methods = 1)
Parents = 17 (qualitative = 6; quantitative = 11)
Both = 4 (qualitative = 3; quantitative = 1)
Qualitative = 18; Quantitative = 13; Mixed methods = 1

Figure 11: PRISMA Flowchart


5.3.3 Characteristics of the included publications

Quality assessment results

Mixed methods
The single publication that used a mixed methods approach was a report from the United Kingdom involving children who took part in a cross-sectional survey and in-depth interviews. The quantitative and qualitative parts of this study have been assessed according to the criteria appropriate to the study design, the findings of which have been incorporated in the following text.

Qualitative publications
Eighteen publications included in the review used a qualitative approach. Twelve publications were peer-reviewed journal articles, three were grey literature reports, two were conference proceedings and one was a doctoral thesis. The participants in nine publications were children, six publications involved parents, and three included both children and parents. The majority of qualitative studies were from Australia (n=6) and the United Kingdom (n=6), with the remainder from the United States (n=3), New Zealand (n=1), Honk Kong (n=1) and Africa (n=1). Most (n=12) used focus groups as a data collection method, with the remaining studies using a combination of focus groups, and individual or paired interviews.

The results of the quality assessment of the qualitative publications included in the review are presented in Appendix 3. The quality of the qualitative publications varied according to publication type. While the academic articles and thesis scored highly overall (mean, 17.7; range, 15-20 from a possible 20), the grey literature reports and conference proceeding scores were much lower (mean, 8.2; range, 3-12 from a possible 20). Of the three sport-specific qualitative publications, the two articles on parents’ perspectives rated 17 and 19 ((Ireland & Watkins, 2010; Thomas et al., 2012), respectively) and the paper on children’s perspectives (Phillipson & Jones, 2008), a conference proceeding, scored 8.

All qualitative publications clearly stated the aims of the research, used an approach appropriate to achieve those aims and had a clear statement of findings. However, only the peer-review articles clearly described and met most or all of the criteria for appropriate sampling, recruitment, data collection and analysis procedures. By contrast, some or all of these criteria were either not met or not able to be assessed in all the grey literature reports. Although the data collection procedures were well described and appropriate in all but one
article (which partially met the criteria), only half reported having piloted the data collection instruments. Furthermore, of those publications that reported conducting a pilot, not all tested their data collection methods with participants from the target population; expert advisors were also used.

Only seven publications met all or most, or some, of the criteria for the examination of the role and influence of the researcher in the research process (reflexivity). The majority of articles reported gaining ethical approval, and addressing ethical considerations and issues of consent. Three articles did not meet any (n=1) or only met some (n=2) of the criteria for ethical considerations. For example, participant consent was granted, but gaining ethical approval was not reported. The two conference proceedings and all the grey literature reports did not meet any of the criteria for ethical consideration. While the majority of articles indicated directions for future research, none of the grey literature reports indicated the value of the research.

**Quantitative publications**

Thirteen quantitative publications were included in the review, of which eight were peer-reviewed journal articles and five were grey literature reports. The participants in almost all (n=11) publications were parents; one publication involved children and another included both children and parents. The majority of quantitative studies were conducted in Australia (n=9), two were from New Zealand, and one each from Denmark and Ireland. All the quantitative publications used a cross-sectional survey design.

The results of the quality assessment of the quantitative publications included in the review are presented in Appendix 4. The quality scores ranged from 10 to 18, out of a possible 22 (mean, 13.2). The quality of the quantitative publications did not vary substantially by publication type.

All publications had a clearly stated research question or objective, and used a design appropriate to addressing the aims of the research. The data collection methods were generally well described, suitably designed and the studies collected relevant data, although not all publications reported having piloted the study’s survey instrument. All studies used appropriate sampling frames and most randomly selecting their participants. However, the strategies used to recruit participants were not always clearly described. The most commonly reported recruitment method was random digit dialling. Such a method can be problematic as participants who have listed telephone numbers, telephones in their
homes, or agree to be included on telephone lists for the purposes of research may have characteristics that are different to non-participants, and it also excludes people who do not have a phone or use only a mobile phone (Bryman, 2008). Furthermore, the quality of data collected by administering a survey by telephone interviews is potentially poorer than by conducting the interview face-to-face (Bryman, 2008). On occasions, questionnaires were distributed by third parties, such as teachers and sports club officials, which may introduce uncertainty about how many questionnaires were given out. Similar to postal surveys, the method also relies on participants returning the questionnaire, which typically have a poorer response rate than other methods (Bryman, 2008). Thus, these strategies do not always guarantee a study sample that reliably reflects the target population, and therefore potentially introduces selection bias.

Twelve publications reported survey response rates. Six studies reported a response rate of 60% or more, three reported a response rate of 40%-59%, and three had a response rate equal to or lower than 39%. Frequently, little information was provided on the number of questionnaires distributed; or how the response rate was calculated, for example, when random digit dialling was used, it was not reported whether the response rate represented the proportion of numbers dialled and answered, or the proportion of the latter who were eligible. Several studies had small sample sizes (n<200), with most studies having fewer than 400 parents or children. Furthermore, in almost all studies about parents’ perspectives, the participants were predominantly well-educated women.

All publications adequately described the data analysis methods, which were largely descriptive. However, they did not meet the remaining quality criteria for data analysis, that is, whether calculations for sample size and confidence intervals were conducted. While these calculations may have been undertaken, their non-reporting makes it difficult to estimate the precision of the findings, and the likelihood they are a result of chance. Thus, the findings of the quantitative studies in the review should be interpreted with some caution.

All studies published in journal articles, but none of the grey literature reports, reported gaining ethical approval. The declaration of funding sources and conflicts of interest was variable among the peer-reviewed articles and conference proceedings, and not reported in any grey literature report. However, almost all of the latter were conducted for, or by, large consumer or non-governmental organisations, and various government agencies.
Industry-related conflicts of interest were not declared or reported in any publication included in the review.

On balance, the qualitative publications were of higher quality than the quantitative articles and reports, having met their respective quality criteria more fully.

5.3.4 Children’s perspectives on the sport-related food environment

Key characteristics of children’s publications
The characteristics of the publications on children’s perspectives are presented in Tables 3, 4 and 5. Fifteen publications reported children’s perspectives on the sport-related food environment: ten were peer-reviewed journal articles, three grey literature reports, one conference proceeding and one doctoral thesis. Six publications were from Australia, including all three sport-specific publications; five from the United Kingdom; and one each from New Zealand, Africa, the USA, and China (Hong Kong). The majority of publications were qualitative studies (n=12) that used focus groups (n=8), with the remainder being paired in-depth interviews with a friend (n=1) or parent (n=1), or a mix of qualitative methods (n=2). The two quantitative studies were cross-sectional surveys (one online and one face-to-face). One study used mixed methods (a cross-sectional survey and in-depth interviews). The children ranged in age from 5-17y, with most aged over eight years. Boys and girls were distributed equally in the ten studies that reported participants’ sex. Children’s ethnicity was only reported in four studies; and where socio-economic status (SES) was reported (n=8), the children’s parents were mostly of low-mid SES, and educated to vocational level or higher.
Table 3: Characteristics of publications on children’s perspectives of the sport-related food environment – quantitative studies

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelly, Baur, Bauman, King, et al. (2011)</td>
<td>Article (sport-specific)</td>
<td>Australia (NSW and ACT)</td>
<td>To assess children's awareness of sport sponsors and their brand-related attitudes and purchasing intentions in response to this marketing.</td>
<td>Participants: 10-14y who played sport (n=103) (mean age=12y; 41% female) Ethnicity/SES: From areas - 33% low SES, 18% high SES Sampling: Random (clubs); convenience (children) Response rate: 95% (clubs); children NS</td>
</tr>
<tr>
<td>Kelly et al. (2013)*</td>
<td>Article (sport-specific)</td>
<td>Australia (NSW)</td>
<td>To determine parents’ and children’s attitudes towards food, beverage and alcohol sponsorship of elite and children’s sports and the acceptability of policies and alternative funding models to limit this sponsorship.</td>
<td>Participants: 10-16y who played sport (n=243) (mean age 13y; equal numbers boys and girls) Ethnicity/SES: 48% parents lived in area of greatest disadvantage; 69% parents tertiary educated Sampling: Random; phone book Response rate: 53%</td>
</tr>
</tbody>
</table>

^ pre-data collection, 2010
* Joint child / parent publication
NS number not supplied
SES socioeconomic status
Table 4: Characteristics of publications on children’s perspectives of the sport-related food environment – qualitative studies

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booth, Wilkenfeld, Pagnini, Booth, &amp; King (2008)^</td>
<td>Article General</td>
<td>Australia (NSW)</td>
<td>To examine children's views on weight and how to make it easier for young people to eat healthy foods and to participate in adequate amounts of physical activity</td>
<td>Participants: 12-17y (n=58) (53% female)</td>
<td>Focus groups (NS)</td>
<td>16</td>
</tr>
<tr>
<td>Chan, Prendergast, Grønhøj, &amp; Bech-Larsen (2009)^</td>
<td>Article General</td>
<td>China (Hong Kong)</td>
<td>To explore Chinese adolescents’ perceptions of healthy eating, their perceptions of various socialising agents shaping their eating habits and their opinions about various regulatory measures which might be imposed to encourage health eating</td>
<td>Participants: 13-15y (n=22) (41% female)</td>
<td>Focus groups (4)</td>
<td>16</td>
</tr>
<tr>
<td>Cullen, Baranowski, Rittenberry, &amp; Olvera (2000)^*</td>
<td>Article General</td>
<td>USA</td>
<td>To assess socio-environmental influences on children’s fruit, juice and vegetable and low-fat choices</td>
<td>Participants: 9-12y (n=180)</td>
<td>Focus groups (16)</td>
<td>18</td>
</tr>
<tr>
<td>Dorey &amp; McCool (2009)^</td>
<td>Article General</td>
<td>New Zealand</td>
<td>To explore how children’s appraisals of various forms of media inform their health-</td>
<td>Participants: 10-12y (n=90) (48% female; mean age=12y)</td>
<td>Focus groups (12)</td>
<td>17</td>
</tr>
<tr>
<td>Author (year)</td>
<td>Publication type</td>
<td>Country</td>
<td>Objective</td>
<td>Sample</td>
<td>Method</td>
<td>Quality rating (score/20)</td>
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</table>
| Gbadamosi, Hinson, Tukamushaba, & Ingunjiri (2012) | Article General | Africa (Ghana, Nigeria, Kenya and Uganda) | To explore African children’s attitudinal reactions to TV advertisements | Ethnicity/SES: Māori 19%, Pacific 16%, Other 65%; mixed SES  
Sampling: stratified random; schools | Focus groups (12) | 18 |
| Gosling, Stanistreet, & Swami (2008)^ | Article General | England | To explore the perceptions of physical activity and healthy eating among children | Participants: 9-10y (n=32) (50% female)  
Ethnicity/SES: NS  
Sampling: convenience and random; schools | Focus groups (4) | 16 |
| Jones, Mannino, & Green (2010)^ | Article General | Australia (NSW) | To examine children's responses to relationship-building marketing communications found in popular children's magazines | Participants: 6-13y (n=10) (40% female)  
Ethnicity/SES: NS  
Sampling: convenience; university after-school programme  
Paired interviews (with a friend) using show cards for comment (5) | | 15 |
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McKinley et al. (2005)^</td>
<td>Article</td>
<td>General</td>
<td>To gain an insight into children’s views about food and nutrition</td>
<td>Participants: 11-12y (n=106) (51% female)</td>
<td>Focus groups (11)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. Ireland and England</td>
<td></td>
<td>Ethnicity/SES: 76.4% European, 17.9% Asian, 5.7% Afro-Caribbean; mixed SES</td>
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<td></td>
<td></td>
<td>Sampling: purposive; schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mehta (2013)*</td>
<td>Doctoral thesis</td>
<td>Australia</td>
<td>To examine children’s and parents’ general understandings and perceptions of marketing and its effects on children; awareness of marketing on non-broadcast media; opinions and concerns about marketing; consumer identity; and, perceptions of responsibility, regulation and governance in relation to marketing</td>
<td>Participants: 8-12y (n=12) (58.3% female)</td>
<td>Interviews (two rounds with a parent) (13 child/parent pairs)</td>
<td>20</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>Ethnicity/SES: range of SES groups; rural and urban; 75% parents tertiary educated</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Sampling: convenience; combination of recruitment company and nutrition programme</td>
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<tr>
<td>Ofcom (2004)^*</td>
<td>Report</td>
<td>General</td>
<td>To probe the role of TV advertising on food choices, consumption and attitudes which operate in homes and at school</td>
<td>Participants: 4-15y</td>
<td>In-depth interviews, focus groups and paired interviews (NS)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author (year)</td>
<td>Publication type</td>
<td>Country</td>
<td>Objective</td>
<td>Sample</td>
<td>Method</td>
<td>Quality rating (score/20)</td>
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</tbody>
</table>
| Phillipson & Jones (2008)^ | Conference proceeding | Australia (NSW) | To explore the use of sport and sporting celebrities to promote food products to children and adolescents, and the influence of these promotions on the food attitudes and preferences of these young people | *Participants*: 5-9y (n=24) and 12-14y (n=30) (50% female)  
*Ethnicity/SES*: mixed SES  
*Sampling*: random; recruitment company | Focus groups (4 each age group) | 8 |
| Which? (2006)^        | Report General    | United Kingdom   | To examine the effects of marketing messages and the way they influence food choice                                                        | *Participants*: 5-9y (n=26) and 14-15y (n=24)                        | Focus groups and paired in-depth interviews (NS) | 6 |

^ pre-data collection, 2010  
* Joint child / parent publication  
NS number not supplied  
SES socioeconomic status
Table 5: Characteristics of publications on children’s perspectives of the sport-related food environment – mixed methods study

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis (2006)^</td>
<td>Report General</td>
<td>England</td>
<td>To explore children’s views in relation to factors that influence their choices about food and drink, awareness of the role of NBM on their choices, awareness of the link between food and drink choices and their health, what should be done to promote positive food and drink choices.</td>
<td>Participants: 5-7y and 7-11y (n=75); and 12-16y (n=25) 132 children</td>
<td>Cross-sectional survey (online) and in-depth interviews (NS)</td>
<td>Qualitative/206  Quantityative/223</td>
</tr>
</tbody>
</table>

^ pre-data collection, 2010
* Joint child / parent publication
NS number not supplied
The sociocultural sport-related food environment
Thirteen publications reported children’s perspectives on various aspects of the sociocultural sport-related food environment, that is the societal, cultural or customary norms of sport settings, including the underlying values and philosophies about food availability, role modelling, and traditions within the setting; and the actions of the mass media, especially food marketing. Almost all (n=11) presented findings relating to food and beverage marketing, specifically children’s perspectives of the endorsement of foods and beverages by sports teams or athletes (Cullen et al., 2000; Dorey & McCool, 2009; Gbadamosi et al., 2012; Gosling et al., 2008; Jones et al., 2010; Lewis, 2006; McKinley et al., 2005; Mehta, 2013; Ofcom, 2004; Which?, 2006). Only a low quality conference proceeding was sports-specific (Phillipson & Jones, 2008). Children’s perspectives on food sponsorship of sport were reported in three articles, two from Australia designed specifically to investigate the issue (Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013) and one general food environment article from New Zealand (Dorey & McCool, 2009).

Food and beverage marketing
Athlete or team endorsement
All studies that presented findings on sport celebrity endorsement of food and beverages were qualitative. The review revealed that, according to children, specific athletes or sports teams are associated with particular brands and categories of foods, many of which are energy-dense and nutrient-poor (Phillipson & Jones, 2008). Children reported that product endorsement by sports personalities increases the awareness and the appeal of the endorsed product (Gbadamosi et al., 2012; Jones et al., 2010; Mehta, 2013; Ofcom, 2004; Which?, 2006); influences their food preferences (Gosling et al., 2008; Lewis, 2006; Mehta, 2013; Ofcom, 2004; Phillipson & Jones, 2008; Which?, 2006), purchases (Cullen et al., 2000), and consumption (Mehta, 2013); and is a source of sport-related nutrition knowledge (Lewis, 2006; McKinley et al., 2005; Phillipson & Jones, 2008).

Children suggested that athlete endorsement legitimises the consumption of food and beverages regardless of nutrient profile; and implies the products are healthy and advantageous for sport (even when they are not) by promoting them as being ‘energy boosting’ and thereby improving sports performance, or aiding recovery. Furthermore, athlete endorsement encourages children to adopt the behaviours demonstrated in the marketing because children often want to emulate the athletes’ behaviour and success in
sport (Gbadamosi et al., 2012; Gosling et al., 2008; Jones et al., 2010; Lewis, 2006; Mehta, 2013; Phillipson & Jones, 2008). Participant comments illustrating these findings included: “they have a picture of them eating it [endorsed product] and then them [the athlete] swimming really fast” (Dorey & McCool, 2009), “I eat Milo (chocolate drink powder associated with cricketers) before I play soccer....to make me run faster” (Phillipson & Jones, 2008), and “you think sports stars are cool and want to be like them so you buy the product” (Which?, 2006). From their study of children’s attitudes to well-known sports people promoting food products, Phillipson and Jones (2008) concluded that athlete endorsement potentially hinders children’s ability to accurately assess the nutritional quality of endorsed foods.

Two publications reported children’s beliefs about what foods and beverages well-known sports people consumed. In both studies, children said they thought athletes ate high-energy foods (Dorey & McCool, 2009; Phillipson & Jones, 2008). However, while a few thought athletes consumed the products they promoted (Dorey & McCool, 2009), others believed that athletes would only eat healthy food and would only eat the foods they endorsed because they were paid to do so (Phillipson & Jones, 2008). In addition, a few children were of the view that athletes did not need to restrict their food intake because of their high energy levels (Phillipson & Jones, 2008).

Some children were cynical about the appropriateness of sports people promoting unhealthy food. For example, Dorey and McCool (2009) reported that, when shown an image of an athlete endorsing an unhealthy food product, the majority of the older participants thought the association was incongruous and hypocritical. Some children also questioned the integrity of sports people and companies for promoting unhealthy food, considering it to be dishonest to use “bribery” and “trick[s]” to promote products that harmed people’s health (Lewis, 2006).

Food and beverage sponsorship of sport

Children’s attitudes and views towards food sponsorship of sport, presented in the three relevant publications, were mixed. Two quantitative studies that surveyed Australian children aged 10-16 (n=346, total) on the issue (Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013), found that overall most children think favourably of the companies that sponsor their own club and favourite professional sport, citing as reasons the enjoyment of the sponsors’ products or appreciation for the sponsors’ support of sport. For example,
two-thirds (69%) of the children surveyed by Kelly, Baur, Bauman, King, et al. (2011) agreed with the statement: ‘I think food and drink companies that sponsor sport are cool’; and almost all (85%) thought that: ‘food and drink companies sponsor sport to help out sports clubs’. These findings are supported by the authors’ other study. Most children (86%; boys and girls combined) also reported enjoying receiving sponsors’ rewards (vouchers for free food or achievement certificates bearing company logos), with about a third (30-38%, respectively; boys and girls combined) thinking more positively of the company as a result (Kelly, Baur, Bauman, King, et al., 2011).

Findings from these studies also indicated that sports sponsorship by food companies influenced some children’s food preferences and purchasing decisions. Kelly and colleagues found that approximately two-thirds of children reported that they (59%) or other children (66%) would buy a sponsor’s product in appreciation for that company’s support of their favourite sport (Kelly, Baur, Bauman, King, et al., 2011). Slightly lower support was reported in the other study by the same authors (26% for local event sponsors and 41% for elite sport) (Kelly et al., 2013).

In addition, most children surveyed by Kelly and colleagues acknowledged that the main reason companies sponsor sport is to advertise their products (Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013) (72% and 79%, respectively). Similar views were found in a qualitative study using focus groups in which New Zealand children (n=90) discussed an advertisement for a fast food restaurant supporting a large international sporting event. The participants thought that the association was used as a means of advertising the company, and the consensus view was that the association was incompatible and contradictory (Dorey & McCool, 2009) stating, “they’re [fast food company] trying to get people to like be active and stuff. It’s kind of weird”.

Physical, economic and political environments
Two quantitative publications reported children’s views on the economic sport-related food environment, or the “costs” associated with the environment. As noted earlier, Kelly and colleagues (Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013) found that the majority of children believed that sport sponsorship funded sport. Children’s perspectives on the rules or policies governing the sport-related food environment (political sport-related food environment) were reported in two qualitative publications, neither of which was sport-specific (Booth et al., 2008; Chan et al., 2009). Children in those studies thought
that in order to improve health, healthy options should be provided at sporting events or sport settings, and that the sale of unhealthy products such as carbonated beverages at sports venues, should be banned. Children’s views on the physical sport-related food environment, that is, ‘what is available’, were not specifically reported in any publication, however, most of the food items children spoke of were energy-dense and nutrient-poor.

Table 6 summarises the publications reporting children’s opinions on the sport-related food environment by environment type, presented according to the ANGELO framework.
Table 6: Summary of publications by environment type - children

<table>
<thead>
<tr>
<th>Publication</th>
<th>Environment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
</tr>
<tr>
<td></td>
<td>Sponsorship</td>
</tr>
<tr>
<td><strong>Sport-specific food environment</strong></td>
<td></td>
</tr>
<tr>
<td>Kelly, Baur, Bauman, King, et al. (2011)#</td>
<td>X</td>
</tr>
<tr>
<td>Kelly et al. (2013)#*</td>
<td>X</td>
</tr>
<tr>
<td>Phillipson &amp; Jones (2008)^#</td>
<td></td>
</tr>
<tr>
<td><strong>General food environment</strong></td>
<td></td>
</tr>
<tr>
<td>Booth et al. (2008)^</td>
<td></td>
</tr>
<tr>
<td>Chan et al. (2009)^</td>
<td></td>
</tr>
<tr>
<td>Cullen et al. (2000)^*</td>
<td></td>
</tr>
<tr>
<td>Dorey &amp; McCool (2009)^</td>
<td>X</td>
</tr>
<tr>
<td>Gbadamosi et al. (2012)</td>
<td></td>
</tr>
<tr>
<td>Gosling et al. (2008)^</td>
<td></td>
</tr>
<tr>
<td>Jones et al. (2010)^*</td>
<td></td>
</tr>
<tr>
<td>Lewis (2006)^</td>
<td></td>
</tr>
<tr>
<td>McKinley et al. (2005)^</td>
<td></td>
</tr>
<tr>
<td>Mehta (2013)*</td>
<td></td>
</tr>
</tbody>
</table>

^pre-data collection, 2010; #Sport-specific publication; *Joint child / parent publication
5.3.5 Parents’ perspectives of the sport-related food environment

Key characteristics of parents’ publications
Parents’ opinions on the sport-related food environment from twenty-one publications were included for review, including twelve peer-reviewed journal articles, seven grey literature reports, one conference proceeding and one doctoral thesis. The characteristics of the publications are presented in Tables 7 and 8 present the characteristics of the parents’ publications. Six publications were specifically about the sport-related food environment. Eleven publications were from Australia (three sports-specific), with the remainder from the USA (n=3; one sports-specific), the United Kingdom (n=3; one sports-specific), New Zealand (n=2), and one from Denmark (sport-specific). The majority of publications (n=12) were quantitative, with all being cross-sectional surveys. The nine qualitative studies used focus groups (n=5), in-depth interviews (n=1), and a mix of in-depth interviews, paired interviews with their children, and focus groups (n=3). Where reported, the majority of participants were female, whose children ranged in age from 0-17y, of whom most were 12y or younger; were of low-mid socio-economic status; and had vocational training or higher education. Participant ethnicity was only reported in four studies.
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andreassen (2007)</td>
<td>Report Sports-specific</td>
<td>Denmark</td>
<td>To describe and discuss the process of creating a healthier food culture in Danish sports clubs; and to examine the effect of an intervention on the food and meal culture in sports clubs, including changes in food knowledge, attitude and behaviour; to explore the sport-related attitudes, behaviours, and knowledge to food and drink of significant adults in selected sports clubs</td>
<td><em>Participants</em>: adults; parents of children 1-16y (n=412) (69% female)</td>
<td>Cross-sectional survey (online and postal)</td>
<td>10</td>
</tr>
<tr>
<td>Crawford et al. (2008)^</td>
<td>Article General</td>
<td>Australia (VIC)</td>
<td>To examine the kinds of changes parents would like to see in those settings where children spend time in policies and practices that impact on children's risk of obesity and to establish whether parents might be willing to advocate for changes in these settings</td>
<td><em>Participants</em>: parents of children 2-12y (n=175) (79% female)</td>
<td>Cross-sectional survey (postal)</td>
<td>14</td>
</tr>
<tr>
<td>National Research Bureau</td>
<td>Report General</td>
<td>New Zealand</td>
<td>To understand the diet and eating practises of New Zealand children</td>
<td><em>Participants</em>: caregivers of children 5-16y (n=1133)</td>
<td>Cross-sectional survey (face-to-face)</td>
<td>18</td>
</tr>
<tr>
<td>Author (year)</td>
<td>Publication type</td>
<td>Country (state/region)</td>
<td>Objective</td>
<td>Sample</td>
<td>Method</td>
<td>Quality rating (score/22)</td>
</tr>
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<tr>
<td>(2008)^</td>
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<td></td>
</tr>
<tr>
<td>Kelly et al. (2008)^</td>
<td>Article General</td>
<td>Australia (NSW)</td>
<td>To determine parents' perceptions of the healthfulness of sports canteens and the role government should play in regulating the types of food and beverages sold in canteens</td>
<td>29% Pacific, 45% other&lt;br&gt;&lt;i&gt;Sampling: random; oversampled; weighted&lt;/i&gt;&lt;br&gt;&lt;i&gt;Response rate: 75%&lt;/i&gt;</td>
<td>Telephone survey</td>
<td>11</td>
</tr>
<tr>
<td>Kelly, Chapman, Hardy, King, &amp; Farrell (2009)^</td>
<td>Article General</td>
<td>Australia (NSW)</td>
<td>To determine parents' attitudes and awareness of food marketing to children</td>
<td>Participants: parents of children 5-17y (n=401) (78% female)&lt;br&gt;&lt;i&gt;Ethnicity/SES: 77% tertiary educated&lt;/i&gt;&lt;br&gt;Sampling: random; CATI, RDD; market research company&lt;br&gt;Response rate: 26%</td>
<td>Cross-sectional survey (telephone)</td>
<td>12</td>
</tr>
<tr>
<td>Author (year)</td>
<td>Publication type</td>
<td>Country</td>
<td>Objective</td>
<td>Sample</td>
<td>Method</td>
<td>Quality rating (score/22)</td>
</tr>
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</tr>
</tbody>
</table>
| Kelly et al. (2013)*| Article          | Australia (NSW)  | To determine parents’ and children’s attitudes towards food, beverage and alcohol sponsorship of elite and children’s sports and the acceptability of policies and alternative funding models to limit this sponsorship                                                                                                                                                                                                 | Participants: parents of children who played sport 5-16y (n=825) (68% female)  
Ethnicity/SES: 48% lived in area of greatest disadvantage; 69% tertiary educated  
Sampling: random; phone directory  
Response rate: 36%                                                                 | Cross-sectional survey (telephone)                                                                                                             | 14                                                     |
| Kelly, Baur, et al. (2012) | Article          | Australia (NSW and ACT) | To determine the junior sporting community's support for policy interventions to restrict unhealthy food sponsorship                                                                                                                                                                                                                                        | Participants: parents of children who played sport 5-14y (n=200) (60% female)  
Ethnicity/SES: 32% low SES, 19% high SES; 64% tertiary education  
Sampling: convenience from randomly sampled clubs; list of sports clubs  
Response rate: 95% (sports clubs)                                                                 | Cross-sectional survey (face-to-face)                                                                                                            | 16                                                     |
| Morley (2007)^     | Report           | Australia        | To determine community perceptions of television food advertising to children and the range of methods used by advertisers to market these                                                                                                                                                                                                 | Participants: primary caregivers of children 0-13y (n=400)  
Ethnicity/SES: NS  
Sampling: random by research                                                                 | Cross-sectional survey (telephone)                                                                                                             | 10                                                     |
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/22)</th>
</tr>
</thead>
</table>
| Morley, Martin, Niven, & Wakefield (2012) | Article General | Australia | To determine public acceptability of various forms of regulation to support a healthy eating environment | company; CATI, RDD  
Weighted to state proportions, but not age or sex  
*Response rate: 47.8%* | Cross-sectional survey (telephone) | 14 |
| O’Sullivan & Kelly (2005)^ | Report General   | Ireland | To examine parents’ views on TV food advertising directed at children |  
*Participants: parents of children 7-8y (n=292)  
Ethnicity/SES: NS  
Sampling: stratified convenience; schools  
Response rate: 79%* | Cross-sectional survey (postal) | 11 |
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Group (2007)^</td>
<td>Report General</td>
<td>New Zealand</td>
<td>To measure public opinions about advertising food to children</td>
<td>Participants: parents and grandparents of children 0-13y; (n=236)</td>
<td>Cross-sectional survey (telephone)</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ethnicity/SES: 7% Māori, 5% Pacific, 92% other; 56% tertiary educated</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sampling: random; CATI, RDD</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Response rate: 62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pettigrew, Pescúd, Rosenberg, Ferguson, &amp; Houghton (2012)</td>
<td>Article General</td>
<td>Australia (WA)</td>
<td>To investigate community attitudes to fast food companies' sponsorship of community events</td>
<td>Participants: adults (aged 16y+); parents of children &lt; 15y (n=575) (52.5% female)</td>
<td>Cross-sectional survey (telephone)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ethnicity/SES/ethnicity: 30.8% university degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sampling: random by recruitment company; phone directory; weighted according to age and location of population</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Response rate: 60%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

^ pre-data collection, 2010

* Joint child / parent publication

CATI computer-assisted telephone interviewing

NS number not supplied

SES socioeconomic status

RDD random digit dialling
Table 8: Characteristics of publications on parents’ perspectives of the sport-related food environment – qualitative studies

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/20)</th>
</tr>
</thead>
</table>
| Baskin et al. (2013) | Article General   | USA       | To assess caregivers' perceptions of the extent to which the food marketing environment influences food consumption among African-American children in order to generate potential strategies to make the marketing environment more favourable to healthier eating | Participants: caregivers of children 3-11 y (n=25) (92% female)  
Ethnicity/SES: 67% income < $30K, *5 > $50K; all children African-American  
Sampling: purposive; churches | Semi-structured interviews | 20 |
| Cullen, Baranowski, Rittenberry & Olevera (2000)* | Article General   | USA       | To assess socio-environmental influences on children fruit, juice and vegetable and low-fat choices                                                                                                     | Participants: parents of children 9-12 y (n=40) (95% mothers)  
Ethnicity/SES: mix of African, Euro and Mexican Americans; low income  
Sampling: purposive based on ethnicity; convenience (schools) | Focus groups (8) | 18 |
| Ip et al. (2007)* | Article General   | Australia | Increase understanding of parents' perceptions of the influence of television food advertising on children’s food choices                                                                                 | Participants: parents of primary school children (n=32) (75% female)  
Ethnicity/SES: NS  
Sampling: random and purposive sampling; market research company and local | Focus groups (5) | 20 |
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/20)</th>
</tr>
</thead>
</table>
| Ireland & Watkins     | Article          | England     | Explore football supporters’ perception of the food provided at a large football stadium | Participants: adults (n=24) (54% female)  
Ethnicity/SES: NS | Focus groups (5)                                         | 17                                                                     |
| Mehta (2013)*         | Doctoral thesis  | Australia   | To examine children’s and parents’ general understandings and perceptions of marketing and its effects on children; awareness of marketing on non-broadcast media; opinions and concerns about marketing; consumer identity; and, perceptions of responsibility, regulation and governance in relation to marketing | Participants: parents of children 8-12y (n=12) (83% female)  
Ethnicity/SES: range of SES groups; rural and urban; 75% tertiary educated  
Sampling: convenience; combination of recruitment company and nutrition programme | Interviews (two rounds with a parent) (13 child/parent pairs) and one focus group | 20                                                                     |
| Ofcom (2004)^*        | Report           | United Kingdom | To probe the role of TV advertising on food choices, consumption and attitudes which operate in homes and at school | Participants: parents of children 4-15y  
Ethnicity/SES: NS  
Sampling: NS | In-depth interviews, focus groups and paired interviews | 4                                                                      |
<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Publication type</th>
<th>Country</th>
<th>Objective</th>
<th>Sample</th>
<th>Method</th>
<th>Quality rating (score/20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pettigrew &amp; Roberts (2007)^</td>
<td>Conference proceeding General</td>
<td>Australia</td>
<td>Explore the factors that mothers feel diminish their control over their children's diets</td>
<td>Participants: mothers of children 1-12y (n=20)</td>
<td>Focus groups (2) and in-depth interviews (12)</td>
<td>12</td>
</tr>
<tr>
<td>Thomas et al. (2012)</td>
<td>Article General</td>
<td>USA</td>
<td>Examine parent perceptions of the food environment in youth sport</td>
<td>Participants: parents of boys who play basketball 6-13y (n=60) (majority mothers)</td>
<td>Focus groups (8)</td>
<td>19</td>
</tr>
<tr>
<td>Which? (2005)^</td>
<td>Report General</td>
<td>United Kingdom</td>
<td>To investigate parents’ views on food marketing to children</td>
<td>Participants: parents (mix of fathers and mothers) of pre-school to secondary school children</td>
<td>Focus groups (5)</td>
<td>3</td>
</tr>
</tbody>
</table>

^ pre-data collection, 2010
* Joint child / parent publication
NS/ns number not supplied
Physical environment
Parents’ views on “what is available” in the sport-related food environment, that is the physical environment, were reported in four studies. Findings from both qualitative and quantitative studies indicated that the majority of parents were concerned about the lack of healthy food available at sports venues and felt that the type and choice of food provided needed to be improved (Andreassen, 2007; Crawford et al., 2008; Ireland & Watkins, 2010; Thomas et al., 2012). For example, most Australian parents (n=175) surveyed on the changes they thought were required in their children’s nutrition environments agreed that it was quite, or very, important to reduce the number of vending machines (65%) and sell less “junk food” (83%) in community sporting venues (Crawford et al., 2008). Furthermore, virtually all supported the promotion of healthy foods in these settings (97%), whereas only 6% thought those actions either did not require change or were not important (Crawford et al., 2008). Similarly, the majority of Danish parents (n=412) surveyed prior to an intervention to improve the nutrient profile of the food provided at sports clubs agreed or completely agreed with the statement “there should be a much wider selection of healthy food and beverages for children and young people in the club” (87%) and “fresh fruit, vegetables and cold water should always be available for children and young people in the club” (91%) (Andreassen, 2007). In contrast, one in six (16%) agreed with their club continuing to provide the energy-dense, nutrient-poor foods typically available.

Sandwiches, nuts and milk were also suggested by parents of young male basketballers in the United States when discussing in focus groups the healthy alternative foods and beverages they thought that could be provided at sports venues (Thomas et al., 2012). However, they also said that given children’s preference for the typical energy-dense, nutrient-poor foods available in such settings, it was unlikely the healthier alternatives would be popular, adding that the latter would have to be displayed in a more enticing way if the usual products were also being sold.

Sociocultural environment
Food and beverage marketing
Athlete or team endorsement of foods and beverage
Parents’ perspectives on well-known sports people promoting food and beverages were reported in seven publications (five qualitative and two quantitative) (Baskin et al., 2013; Ip et al., 2007; Morley et al., 2012; Ofcom, 2004; O’Sullivan & Kelly, 2005; Which?, 2005); only one was sports-specific (Thomas et al., 2012). The publications revealed that,
overall, parents thought that the use of well-known sports people to promote food influenced their children’s food and beverage behaviours (Baskin et al., 2013; Morley et al., 2012; O’Sullivan & Kelly, 2005; Thomas et al., 2012). Furthermore, given that endorsed foods are typically energy-dense and nutrient-poor, most parents also thought that such an association sent erroneous messages to children about nutrition, brand loyalty and product endorsement (Ip et al., 2007; Ofcom, 2004; Which?, 2005). Some parents also questioned the athletes’ moral integrity for promoting such products. One parent commented that it would be more useful for well-known sports people to promote healthy food (Which?, 2005).

**Sports sponsorship by food and beverage companies**
Six publications reported parents’ views on sport sponsorship by food and beverage companies (Baskin et al., 2013; Kelly, Baur, et al., 2012; Kelly et al., 2009; Mehta, 2013; Morley, 2007; Pettigrew et al., 2012). However, only one investigated the topic specifically (Kelly, Baur, et al., 2012). In the latter publication, a quantitative study designed to garner parents’ opinions on the suitability of children’s sports sponsorship, the majority of the Australian parents of sports-playing children (n=200) surveyed thought companies selling unhealthy food and drink, including fast food, snack food, confectionery, and soft drink, were not suitable sponsors of sport. Rather, appropriate sponsors included (in order of preference) sporting goods stores, fruit and vegetable suppliers, grocery stores and building suppliers (Kelly, Baur, et al., 2012). The majority (77%) also considered sports drink companies to be suitable sponsors. The visibility of sponsors’ advertising also impacted parents’ opinions on the suitability of unhealthy food sponsorship. Approximately two in five (44%) reported that they would more readily accept unhealthy sponsorship if the advertising was less obviously displayed.

The review revealed that parents believed the food sponsorship their children were exposed to influenced food behaviours, although the impact varied according to the level of sporting competition. While almost all (86%) of the Australian parents (n=200) surveyed by Kelly, Baur, et al. (2012) thought that such sponsorship of elite sport influenced children, only half (48%) thought that local club sponsorship by the same type of sponsors had an impact.

Three general studies, a mix of qualitative and quantitative, indicated that the majority of parents have concerns about such sponsorship, viewing it as being incongruous with the
positive health messages sport conveys and sending conflicting nutrition messages to children (Kelly et al., 2009; Mehta, 2013; Morley, 2007). However, most of the parents surveyed by Kelly, Baur, et al. (2012) did not share these concerns. While they generally agreed that their children’s food behaviours are influenced by unhealthy food sponsorship, the majority (63%) also did not perceive sponsorship to have adverse consequences for children. The authors suggested that parents’ lack of awareness of the risks associated with such marketing might explain these findings, although it is also possible that parents of sport-playing children believe that any potential harm from such foods is counterbalanced by the energy their children expend playing sport.

**Influence of key figures**

**Parents**

The role of parents and the home on children’s sport-related food behaviours was reported in two publications (Andreassen, 2007; Thomas et al., 2012). Parents of young male basketballers in the United States taking part in a qualitative study said their children’s sport-related eating patterns were influenced by the availability of food and food behaviours practised in the home (Thomas et al., 2012). However, most also commented on their own low level of sports nutrition knowledge and uncertainty about which foods were most suitable for their children for sport. Consequently, they felt there was a need for greater sports-specific nutrition instruction for parents and children. This finding was supported by the findings of a quantitative study conducted by Andreassen (2007) who garnered Danish parents’ sports nutrition knowledge in a pre-intervention survey. Of the 412 parents questioned, the majority thought that young people needed to consume extra carbohydrates in the form of sugary drinks (71%), chocolate milk to replace lost protein and muscle mass (68%) and vitamin supplements to improve their sports performance (72%), beliefs that do not align with nutrition guidelines (Committee on Nutrition and the Council on Sports Medicine and Fitness, 2011; Ministry of Health, 2012a).

Parents’ views were also mixed on the suitability of children consuming unhealthy food for sport, such as rewarding or treating children with energy-dense, nutrient-poor foods after a game. Thomas and colleagues (2012) found that during focus group discussions, some parents expressed concern about the adverse consequences of consuming energy-dense, nutrient-poor foods, whereas others were more relaxed given their children’s level of activity and the infrequency of consumption of those foods. Opinions were divided about the health benefits of and the necessity for children to have sports drinks. Some thought
they were needed for rehydration and improved performance, whereas others were concerned about the high sugar content.

**Impact of the sport-related food environment on parents**

Only two publications, both qualitative, reported parents’ views on how they were impacted by the sport-related food environment. In one, some expressed difficulty in retaining control of what their children ate given the ubiquitous availability of energy-dense, nutrient-poor foods and beverages at sports venues (Thomas et al., 2012). In the other study, which investigated parents’ perceived control over their children’s food environment, parents commented on the family disharmony generated when they would not allow their children to redeem fast food vouchers given to them as rewards in sport (Pettigrew & Roberts, 2007).

**Sporting organisations**

According to most parents in one study, sports organisations had a place in promoting healthy eating. In a nationwide survey to understand New Zealand children’s diet and eating behaviour, almost two-thirds (58%) of caregivers agreed that sports clubs and organisations played a “big” role in children’s nutrition knowledge and behaviour (National Research Bureau Ltd., 2008).

**Coaches**

Overall, the findings of qualitative and quantitative studies indicate that parents thought that coaches have an important, positive role to play in children’s sport-related food environments (National Research Bureau Ltd., 2008; Pettigrew & Roberts, 2007; Thomas et al., 2012). Parents appear to consider sports coaches to be respected, “important allies” (Thomas et al., 2012) in promoting healthy eating and ideally placed to teach children about sports nutrition (National Research Bureau Ltd., 2008; Pettigrew & Roberts, 2007). Nevertheless, some parents thought that coaches did not always live up to this role, describing the distribution of fast food voucher rewards by coaches to children as “incomprehensible”, and stating that they thought the action sent poor nutrition messages to children (Pettigrew & Roberts, 2007).

**Political**

Parents’ perspectives on the political sport-related food environment were reported in five quantitative publications (Kelly, Baur, et al., 2012; Kelly et al., 2013; Morley et al., 2012; Peak Group, 2007). The political sport-related environment includes “the laws,
regulations, policies (formal and informal), and institutional rules”. Parent surveys consistently reported that the majority of parents agreed with actions to restrict unhealthy food and beverage sponsorship of club sport (range 64-76%) (Kelly, Baur, et al., 2012; Kelly et al., 2013; Morley et al., 2012; Peak Group, 2007) and elite sport (range 63% - 71%) (Kelly, Baur, et al., 2012; Kelly et al., 2013). Kelly and colleagues (Kelly, Baur, et al., 2012; Kelly et al., 2013) in their two Australian surveys designed to specifically investigate parents’ opinions on this issue, found that although most parents were positive about the implementation of such policies, there were variations in the support for specific actions including limiting company logos on children’s sports gear (64%), restricting vouchers (49%) and reducing the size of advertising hoarding and billboards (48%). Similarly, in New Zealand, a national survey of parents (n=236) revealed that almost two-thirds of caregivers (64%) supported stopping or reducing the sponsorship of children’s sport by unhealthy foods and beverages and a further 7% wanted all food and beverage sponsorship discontinued (Peak Group, 2007).

Responsibility for implementing food policies
Responsibility for implementing actions to restrict or control the sport-related food environment was reported in three quantitative publications; views were mixed. Almost all (95%) Danish parents thought that they had ‘some’ to ‘very great’ responsibility for what their children ate at sports clubs (Andreassen, 2007). Two-thirds also thought that coaches (64%), the food outlet (61%) and the venue management (65%) had some to a very great part to play in determining sporting children’s food choices. Kelly and colleagues asked Australian parents their views on the role of local or central government in implementing strategies to restrict the types of food sold at community sporting venues (Kelly et al., 2008) and the sponsorship of sport by unhealthy food and beverage companies (Kelly, Baur, et al., 2012). The authors found that overall, about two in three parents (63-67%) agreed with government taking responsibility.

Economic
Six publications reported on aspects of the economic sport-related food environment, that is, the “costs” including pricing, taxation, subsidies, and financial support (Andreassen, 2007; Baskin et al., 2013; Kelly, Baur, et al., 2012; Kelly et al., 2013; Mehta, 2013; Thomas et al., 2012).
Two publications reported on the costs associated with sports clubs. In a qualitative study, loss in club revenue was raised by some parents from the United States as a barrier to providing fresh healthy food at sports venues. Although they agreed with having healthy alternatives available, the consequence of children’s preference for typical energy-dense, nutrient-poor products combined with the perishability of fresh produce meant that profits would be adversely impacted (Thomas et al., 2012). Andreassen (2007) explored parents’ views on price differentiation at sports clubs as a method of improving sporting children’s food behaviour. Almost two-thirds (61%) of Danish parents surveyed agreed with reducing the price of healthy foods and raising the cost of unhealthy food at sports clubs to encourage healthy food behaviours.

Parents’ views on the financial support of junior sports clubs from food and beverage sponsorship, reported in four publications, were mixed. Findings from both qualitative and quantitative studies revealed that most parents thought that food and beverage sponsorship of sport benefitted their children and the community through the provision of financial support such as uniforms, awards and equipment (Baskin et al., 2013; Kelly, Baur, et al., 2012; Mehta, 2013). As such, the majority of parents (57%) surveyed by Kelly, Baur, et al. (2012) expressed concern about the loss in revenue for sports clubs if restrictions on sponsorship were implemented. Nevertheless, about one in five (21%) thought the action would have few financial implications for sports clubs and a few (8%) believed that restrictions were worthwhile given the longer term benefits for children’s health. Furthermore, almost all (91%) parents surveyed by Kelly et al. (2013) who supported restrictions said they would continue to support those actions even if it meant an increase in fees. Regardless of parents’ stance on restrictions, there was majority support (71-81%) for the implementation of alternative funding sources or models, including government or health agencies, or non-visible food and beverage sponsorship (Kelly, Baur, et al., 2012).

Table 9 summarises the publications reporting parents’ opinions on the sport-related food environment by environment type, according to the ANGELO framework.
Table 9: Summary of publications by environment type – parents

<table>
<thead>
<tr>
<th>Publication</th>
<th>Environment Type</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
</tr>
<tr>
<td><strong>Sport-specific food environment</strong></td>
<td></td>
</tr>
<tr>
<td>Andreassen (2007)^#</td>
<td>X</td>
</tr>
<tr>
<td>Ireland &amp; Watkins (2010)#</td>
<td>X</td>
</tr>
<tr>
<td>Kelly et al. (2008)^#</td>
<td>X</td>
</tr>
<tr>
<td>Kelly, Baur et al., (2012)#</td>
<td>X</td>
</tr>
<tr>
<td>Kelly et al. (2013)#*</td>
<td>X</td>
</tr>
<tr>
<td>Thomas et al. (2012)#</td>
<td>X</td>
</tr>
<tr>
<td><strong>General food environment</strong></td>
<td></td>
</tr>
<tr>
<td>Baskin et al. (2013)</td>
<td>X</td>
</tr>
<tr>
<td>Crawford et al. (2008)^</td>
<td>X</td>
</tr>
<tr>
<td>Cullen et al. (2000)^*</td>
<td>X</td>
</tr>
<tr>
<td>Publication</td>
<td>Environment Type</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Physical</td>
</tr>
<tr>
<td>Ip et al. (2007)^</td>
<td>X</td>
</tr>
<tr>
<td>Kelly et al. (2009)^</td>
<td>X</td>
</tr>
<tr>
<td>Mehta (2013)*</td>
<td>X</td>
</tr>
<tr>
<td>Morley (2007)^</td>
<td>X</td>
</tr>
<tr>
<td>Morley et al. (2012)</td>
<td>X</td>
</tr>
<tr>
<td>O’Sullivan &amp; Kelly (2005)^</td>
<td>X</td>
</tr>
<tr>
<td>Peak Group (2007)^</td>
<td>X</td>
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<tr>
<td>Pettigrew et al. (2012)#</td>
<td>X</td>
</tr>
<tr>
<td>Pettigrew &amp; Roberts (2007)^</td>
<td>X</td>
</tr>
<tr>
<td>Which? (2005)^</td>
<td>X</td>
</tr>
</tbody>
</table>

^pre-data collection, 2010; # Sport-specific publication; *Joint child / parent publication
5.3.6 Discussion

Summary of evidence
This systematic review of the current literature is the first to review studies collecting parents’ and children’s opinions on the sport-related food environments, a significant aspect of children’s food environments. Most frequently reported were children’s and parents’ opinions on the sociocultural sport-related food environment, particularly their views on sports celebrity endorsement of food and beverages, and food and beverage sponsorship of sport. There were no publications exploring children’s opinions on other influential figures or role models, such as their parents, coaches or sporting organisations. While parents’ views of the physical, economic and political sport-related food environments featured in the literature, children’s perspectives on these areas were largely unreported.

Overall, parents view the sport-related food environment as being largely unhealthy and contradictory to the healthy nature of sport. They are concerned about the type of food and beverages available at sporting venues, and would welcome changes that would improve children’s food choices at these locations. Although most parents believe that they are primarily responsible for the foods children consume for sport, they also consider that coaches, sporting organisations and venues have a role to play. However, parents have also indicated that they are not equipped with sufficient understanding of nutrition to make appropriate choices for their children.

According to children and parents, the use of sport to promote unhealthy food and beverages sends incorrect and conflicting nutrition messages to children; sanctions and glorifies unhealthy food; is inappropriate; and influences children’s food behaviours, including preferences, purchases and consumption. Marketing strategies that use sport appear to cloud children’s ability to make healthy food choices. There is a suggestion that some children have a cynical view of the relationship, especially celebrity endorsement, considering it to be incompatible and hypocritical; some are unhappy about the deceptive nature of the association. The majority of parents appear to support actions to control the marketing of unhealthy food through sport. However, some also had reservations about restricting the sponsorship of club sport by food and beverage companies, as they perceive such sponsorship as benefiting sport and sports clubs, and hence their children. Nevertheless, the literature also suggests that some parents find sport-related food
marketing frustrating as it hinders their ability to provide a healthy food environment for their children.

Where the opinions of both children and parents on the same aspects of the sport-related environment were reported, their views aligned. This was most evident when comparing comments on the impact of celebrity endorsement of food products, and sports sponsorship, on children’s food behaviours, with the findings from the children’s publications confirming parents’ views and beliefs. Most children and parents also considered that sports clubs benefited financially from food and beverage companies sponsoring sport. Although children’s views on the rules and policies of the sport-related food environment were only briefly reported, their comments suggest that they are united with parents in wanting to implement ways to improve the environment.

**Strengths and limitations of the review**
The paucity of research specifically investigating the review topic is a major limitation of this review. The lack of sufficient evidence limits the data available for synthesis and therefore the overall understanding of the review topic, and potentially biases the conclusions that can be drawn from it. Only nine of the thirty-three review publications were sports-specific, of which the majority (n=6) were from one country, and often by the same authors. Furthermore, over half (n=5) of the sport-specific publications investigated children’s or parents’ perspectives on only two aspects of the sport-related food environment – unhealthy food sponsorship of sport or endorsement of unhealthy foods by sports personalities. Of the remaining publications (n=24), the data extracted for synthesis were either replies to a single sport-related survey question or a participant’s comment from explorations of the general food environment.

While every effort was made to locate all relevant literature within the scope of the review, it is possible the search strategy and methods did not capture it all. In addition, the evidence base may have been reduced by excluding publications that included sport-related factors but presented findings using generic categories, for example ‘celebrities’ and ‘well-known people’ rather than ‘sports celebrities’ or ‘well-known sports people’; ‘community activities’ rather than ‘community sporting events’; and ‘sponsorship’ rather than ‘sport sponsorship’ or ‘celebrity endorsement’. However, including those publications on the assumption that the generic categories included sport-related factors when they did not may have also biased the review findings.
The inclusion of grey literature publications is a strength of this review. It broadened and increased the evidence base, and at the very least provided some insights into the review topic and potential areas worth pursuing in future investigations. Including reports also presented findings relevant to the review that may not been included if the search was limited to peer-reviewed academic publications. During the search, it was noted that several of the studies had been published in academic journals and as reports for the study’s funding organisation, however, the sports-related findings were only reported (or fully reported) in one of the publications. These incidents affirm the inclusion of grey literature in the review. The choice of which study findings to include in a publication is that of the authors, although the decision is often influenced by factors such as publishers’ word limits, or the nature and quality of the findings. However, the non-reporting of research outcomes limits the data available for synthesis and potentially biases the review findings (“outcome reporting bias” (Higgins & Green, 2011)). Including all publication types in this review has potentially reduced the risk of outcome reporting bias and resulted in a more comprehensive understanding of the review topic.

The use of the ANGELO framework to guide data extraction and synthesis in this review is both a strength and a limitation. The framework provides a practical means of interpreting a complex and highly interconnected phenomenon in a structured and straightforward way. However, its simplicity is a drawback in that there is no capacity to demonstrate the relationships across the environment types and sizes. Many of the environmental features reported on in the publications included in the review spanned more than one environment type. For example, findings on the sponsorship of sport and sports clubs were included in the sociocultural, political and economic environments. Furthermore, the environment types are only broadly defined, and hence allocation of environmental features is subject to user interpretation. This is particularly evident when considering the physical environment. Defined as “what is available”, there is no provision for the physical manifestations of food marketing, for example, advertising hoardings at sports venues or sponsors’ logos on uniforms. Additional documented criticisms of the model (and often of other models) include its cross-sectional and context-free nature (Kim & Kawachi, 2010). The latter issue is particularly relevant for health promotion, given the framework’s lack of consideration of the underlying social determinants of the people operating within the described environment and the inequalities they experience.
In addition to the limitations of individual studies, heterogeneity in quality and methodological differences between the studies limits their comparison and the conclusions that can be drawn from the review data. The topics and objectives of the review studies were inconsistent. Not only did the review include a mix of publications that specifically investigated the sport-related food environment and the general food environment, but the purpose of the latter studies also varied. Data for the review was extracted from studies that specifically included parents as well as those studies that collected data for adults and analysed it by parental status. Also, because study objectives differed, participants across studies were selected from varying sources, including sports clubs, schools, and the general population. Detail on the socioeconomic status and ethnicity distribution within most samples was either limited or not provided. Additionally, participants’ knowledge of and engagement with the sport-related food environment was based on recall and not routinely or objectively measured in any study.

**Implications for future research**

This systematic review identified a number of gaps in the current research, the most evident being the lack of original research on children’s and parents’ perspectives on almost all aspects of the sport-related food environment, globally and in New Zealand. Thus, there is scope for further investigation into this important part of children’s food environments.

Children’s comments in the literature about the incongruous relationship between sport and some modes of unhealthy food marketing offer a glimpse into how they view the sport-related food environment. However, this was only one specific area of investigation. Children’s opinions on other aspects of the sport-related food environment warrant further investigation including children’s opinions on what is available (physical); the rules and policies that govern the sport-related food environment (political); the costs associated with the environment, particularly the price of sport-related food (economic); and other sociocultural norms associated with sport including sport-related food rituals and practices, and other influential figures such as parents, coaches and sporting organisations. As discussed in Chapter Three, understanding children’s environments and discovering the impact they have on young people’s lives are research directions which have gained momentum in recent decades. Comprehensively investigating the relationship between two significant parts of children’s lives – the food environment and sport – and their views
on that association would contribute to the larger body of knowledge on children’s food environments.

For parents, understanding how the sport-related food environment contributes to their ability to provide a healthy food environment for their children has yet to be comprehensively addressed. There is capacity for further investigation of parents’ views on the economic and political aspects of the sport-related food environment, particularly ‘teasing out’ the conflict that appears to exist between the perceived harms and benefits of sports sponsorship. Other areas requiring further exploration are determining parents’ opinions on where responsibility lies with regard to controlling and countering the adverse impacts of the sport-related food environment; and their knowledge of, and views on, how to initiate change with regard to inappropriate marketing of food and beverages, and their perception of success in such action.

Overall, consideration should also be given to using other methods of data collection and analysis. To date researchers, rather than participants, have determined the areas of the sport-related food environment for commentary. Employing data collection and analysis methods in which participants lead or play a more active role would provide them with the opportunity to identify aspects of the sport-related food environment that are important to them. In turn, this would result in a research process that is more empowering, engaging and meaningful for the participants. The use of such methods would also provide insights into the sport-related food environment that may not otherwise be captured, and result in findings that more authentically and reliably represent participants’ views (Harden et al., 2004).

5.4 Conclusion

There is a paucity of literature reporting children’s and parents’ opinions of the sport-related food environment. The limited literature available indicates that many children and parents consider that the sport-related food environment is not conducive to or supports children’s health and well-being, and they would likely support actions to change and improve it. More studies are required to comprehensively investigate the sport-related food environment from children’s and parents’ points of view and their opinions on it, including the nature of the foods and beverages available and promoted in sports settings; the opportunities for health promotion in sports settings including the provision of nutrition
information; the marketing of foods and beverages using sports associations; the influence of key sport-related figures such as coaches and well-known athletes; the socio-cultural food norms associated with sport; the cost of food and food provision in the sport setting; and the policies guiding the nature of the sport-related food environment.

Based on the findings of this systematic review, this thesis explores what the sport-related food environment looks like from the children’s and parents’ perspectives, their opinions on it and how it impacts them. This will be achieved by:

- Providing children, and parents of children, who play organised sport with cameras to photograph the sport-related food environment they encounter in their daily lives.
- Analysing the participants’ photographs for their content.
- Using the photographs in focus groups with the children and parents to further describe the sport-related food environment and identify their opinions on it.

Chapter Six outlines the methodology and method used in this visual research methods study.
CHAPTER SIX: METHODOLOGY

It is the task of the social researcher to provide the methods to enable [listening to children’s views] to become a worthwhile reality and the ongoing methodological analysis and critique that ensures that we can listen to children in ways that faithfully represent their views and their experiences of life (Greene & Hill, 2005, p. 18).

6.1 Introduction

This study investigates children’s and parents’ views on an integral part of many children’s lives – the sport-related food environment – using a participatory visual method of research. Children, and parents of children, who play football, netball and rugby were asked to photograph and write a comment on their sport-related food environment. The participants’ photographs were then used in focus groups to initiate discussion and ascertain their views on the environment they had visually recorded.

This chapter outlines the methodology used. The chapter opens with a restatement of the research questions, followed by a discussion on the rationale for the research design. Next, the theoretical principles and fundamental aspects of conducting research with children, and the key features of the data collection methods used in this study are discussed. The final section describes the sampling strategy, and the data collection and analysis procedures used in this research.

6.2 Research questions

The design of this research was guided by the following central research question and sub-questions:

- Does the sport-related food environment in New Zealand support children’s right to health?
  - What does the sport-related food environment look like from children’s and parents’ perspectives?
  - What are children’s and parents’ opinions on the sport-related food environment?
6.3 Research approach

The selection of a research approach – quantitative, qualitative or a combination of both – is primarily dependent on the purpose of the enquiry (Bryman, 2008; Creswell, 2008; Hansen, 2006). When measuring the magnitude or describing the distribution of a phenomenon, or determining cause and effect, a quantitative strategy is the most appropriate. If the research aims to gain insight into and a deeper understanding of people’s experiences, the world they live in, the issues they face, and the underlying social context of their experiences, that is, “the ‘what’, ‘how’ and ‘why’ of a phenomenon...rather than the ‘how many’ or ‘how much’” (Green & Thorogood, 2009, p. 5) then a qualitative design is more suitable. Qualitative research has particular utility when exploring and explaining the economic, political, cultural and social factors that influence and impact health-related behaviours (Baum, 2007; Green & Thorogood, 2009; Hansen, 2006). Given the purpose of this research was to discover and understand an aspect of children’s and parents’ worlds – the sport-related food environment – the meaning they attribute to that environment, and how the various components of it might impact children’s health, a qualitative approach was considered appropriate.

Indicators for rigour in qualitative research are now well established (Lincoln & Guba, 1985) and, as Creswell (2006) states, “today qualitative research is legitimate in its own right and does not need to be compared [to quantitative research] to achieve respectability” (p. 16). The qualitative paradigm is underpinned by some common philosophical assumptions, which are now discussed.

6.3.1 Qualitative research approach

Qualitative research is a broad categorisation applied to a number of research strategies used to address research objectives of a qualitative nature. Qualitative research approaches and design, including the choice of sampling strategy, methods of data collection and analysis and, on occasion, the dissemination of findings, are informed by the researcher’s philosophical standpoint on the nature of reality or social phenomenon (ontology). They are also underpinned by how we come to know what we know about that social reality, or our ‘worldview’ (epistemology) (Bryman, 2008; Creswell, 2006; Hansen, 2006).

The selection of methods is defined and justified by the research questions and the researcher’s underlying theoretical perspective, or research methodology (Bryman, 2008; Creswell, 2006; Hansen, 2006). Qualitative data typically takes the form of words or
pictures, but also actions and talk, and is collected using methods that generally involve interaction between the researcher and the participants, such as individual or group interviews. Qualitative methods are underpinned by the assumption that people are experts in their own lives and have knowledge that is worthy of documentation and examination (Bryman, 2008; Creswell, 2006; Hansen, 2006).

This research uses a participatory research methodology. As its name suggests, participatory research typically involves the inclusion of the participants as active collaborators in the design, data collection, analysis or dissemination phases of the research; research is undertaken with participants rather than on them. Participatory research may also include an advocacy component, which according to Creswell (2008) “provides a voice for [vulnerable or marginalised] participants, raising their consciousness or advancing an agenda for change to improve their lives” (p. 9).

Empowerment is a key feature of participatory research (Creswell, 2008; Green & Thorogood, 2009). Children’s participation in the decision-making process and in decisions on issues impacting them is a fundamental right and guiding principle in UNCRC,

12 (1) States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.

Furthermore, as discussed previously, children’s empowerment and increased agency in matters that impact them is a central tenant of UNCRC. Thus, the use of a participatory methodology is particularly appropriate for this research.

The following section discusses the theoretical principles of children’s research and the main factors that need to be considered when working with children in a research situation.

6.4 Children’s research

6.4.1 Theoretical principles of children and childhood
The concepts of childhood, children’s place in the world and children’s contribution to society have changed over time (Christensen & Prout, 2005; Debski, Buckley, & Russell, 2009; Freeman & Mathison, 2008; Hendrik, 2008). Prior to the 1980s, childhood was generally viewed as a biological and objectively measureable phenomenon, and
underpinned by developmental theories that viewed children as ‘becomings’ developing into adults or as unfinished or incomplete adults with a clear path of learning, and as passive objects with no inherent societal value. Contemporary perspectives founded within the ‘new sociology of childhood’ see childhood as a social construction and children as ‘beings’ in their own right with cultures and lives unique to them, who can make a valuable contribution to their own lives as well as impact the lives of other children, and adults (Christensen & Prout, 2005; Debski et al., 2009; Freeman & Mathison, 2008; Hendrik, 2008). As Christensen and Prout (2005) state, rather than

passive subjects....[children] are active in the construction and determination of their social lives, active in the lives that other people lead around them and in the societies in which they live. Rather than looking only at how children are formed by social life, children are seen as social actors whose actions can both shape and change social life (p. 50).

A strong influence on the recent paradigm shift has been the adoption of UNCRC and duty-bearers’ obligations to ensuring the equal agency of children with that of adults, and assisting children to explore and reflect on their lives and the factors which determine and influence their experiences of their childhood (Freeman & Mathison, 2008; Greene & Hill, 2005; Hogan, 2005).

Recognising children’s reciprocity, self-determinism and agency also acknowledges that children have valuable knowledge which is worth accessing and acting on, to create practices and policies which truly benefit children. As a consequence of the shift in perspectives, research with children to explore the complex factors that influence their lives has increased over recent decades.

Both quantitative and qualitative research approaches have value in children’s research (Greene & Hill, 2005; Woodhead & Faulkner, 2008). The former is particularly appropriate for measuring the extent and distribution of children’s experiences, and qualitative methods are the most useful when wanting to understand children, and their lives and experiences (Greene & Hill, 2005). Qualitative research provides a means of accessing the complex nature of childhood, and the individual, subjective and divergent experiences of children, aligning with “the goal of arriving at an understanding of how children themselves construe and negotiate their worlds” (Greene & Hill, 2005, p. 15).
6.4.2 Considerations in method selection in children’s research
Gaining an understanding of children’s attitudes, opinions and perspectives, “demands the use of methods that can capture the nature of children’s lives as lived rather than those that rely on taking children out of their everyday lives” (Greene & Hill, 2005, pp. 3–4). Choosing an appropriate data collection method in any research, regardless of the participants’ age, is dictated by the research purpose, questions and underlying methodology and establishes credibility and rigour in the research (Bryman, 2008; Green & Thorogood, 2009; Hansen, 2006). As children’s lives and experiences are complex and multi-faceted, there are multiple facets of information about their lives to collect. Using more than one data collection method ensures that the researcher gains greater insight, and a deeper and more comprehensive account of children’s lives and experiences (Darbyshire, MacDougall, & Schiller, 2005).

The necessity to employ research methods for children that differ to those used with adults, and the appropriateness of making that distinction, is raised in children’s research literature (Christensen & James, 2008a; Greene & Hill, 2005). Researchers who subscribe to the contemporary view of children and childhood believe a distinction should not be made when considering method choice; many of the same methods used with adult participants are equally applicable for children (Greene & Hill, 2005). However, the same researchers also acknowledge that developmental differences in terms of levels of comprehension and ability to participate (rather than age) should be taken into account, and aspects of the research process adjusted to align with children’s requirements (discussed in a following section) (Christensen & James, 2008a; Greene & Hill, 2005). As Greene and Hill (2005) suggest, “the researcher must be open to the use of methods that are suited to children’s level of understanding, knowledge, interests and particular location in the social world” (p. 8). Doing so demonstrates a level of respect, is more likely to successfully engage children in the research process, and enhances the ability of the research to satisfactorily address the research objectives and meet ethical principles. Furthermore, the use of methods that are appropriate to the child’s “age and level of maturity” align with the principles of UNCRC (art. 12).

A key consideration when researching with children is power (Christensen & James, 2008a; Greene & Hill, 2005; O’Kane, 2008). In most research situations (including with adults) the power balance favours the researcher. Such power imbalance may be more likely to occur and may be greater in degree between ‘authoritative’ adult researchers and
‘naive, vulnerable’ child participants. Greene and Hill (2005) advise researchers “to think about ways of giving up some of their power in the research situation” (p. 11) and engage methods that act to reduce the power differential.

An effective means of redistributing power in research is to actively engage the participants in the research process (Arnstein, 1969). The concept of participation varies, ranging from ‘being a participant’ to collaborative involvement in research design, from the development of the research questions through to analysis and dissemination of findings (Arnstein, 1969; Hart, 1992). Engaging children in research provides a means by which their voices are heard directly; gives children greater agency in the research process and potentially in the wider community, and in matters that are of interest to them; and is fun, interesting and appealing to children (O’Kane, 2008). However, Greene and Hill (2005) warn that broader power imbalances exist that potentially limit the impact of children’s full participation in the research process: “ultimately...it is adults who control the world of publishing, policy making, the universities, the social services and so on, so children’s independence and autonomy as researchers are fundamentally and intrinsically constrained” (p. 12).

Regardless of age or other demographic characteristics, gaining participants’ trust and building rapport with participants is important in all research (Green & Thorogood, 2009), but is particularly crucial when working with children (Greene & Hill, 2005; O’Kane, 2008). Doing so improves the chances of collecting useful and meaningful information, and helps reduce the power differences in the research situation. Recognising that practical constraints often exist in research, such as time pressures and other burdens, experts in children’s research recommend that researchers spend time getting to know the children, and also ensure that children get to know the researcher, are fully informed about the research process, and that there is transparency of process (Greene & Hill, 2005). Further, they suggest researchers familiarise themselves with children’s routines and method of communications as part of the relationship building.

The data collection methods chosen for this research – visual research methods and focus groups – have features that align well with the research purpose, and the principles and factors that should be taken into consideration when researching with children, and with children’s participatory rights. Both methods, and the rationale for their selection, are now discussed.
6.5 Visual research

Visual methods prompt ‘a more direct understanding of people, their life experiences, and their perceptions’ than is possible with data ‘collected and controlled solely by the researcher’.... Using participatory visual methods is one way to generate understanding of the wider context and develop a shared body of knowledge that, ideally, integrates the knowledge of social scientists and the daily life knowledge of research participants about their health and communities (Lorenz & Kolb, 2009, p. 364).

Visual research is a relatively recent methodological development in social research, “grounded in the idea that valid scientific insight in society can be acquired by observing, analyzing, and theorizing its visual manifestations: behaviour of people and material products of culture” (Margolis & Pauwels, 2011, p. 3). Visual manifestations used in visual research include drawings, paintings, advertisements, diagrams, maps, advertising, websites, cartoons, newsreels, film and still photography. The use of visual research methods aligns well with the aims of social research to explore and understand people’s experiences (Ball & Smith, 1992; Knowles & Sweetman, 2004) as images can “provide insight beyond that which is possible with mere words alone” (Banks, 2008, p. 31). This section briefly summarises the development of visual research in social inquiry, outlines the application of visual research methods in qualitative research, and describes the visual research methods relevant to this research.

6.5.1 Development of visual research in social inquiry

Aligned with the advent of photography in the nineteenth century, the origins of visual research lie most strongly in the discipline of anthropology (Ball & Smith, 1992; Banks, 2008; Knowles & Sweetman, 2004) with the studies of colonial British subjects and Western societies of the time. Its adoption as a research methodology in sociology in the 1960s paralleled the shift in epistemological paradigms from positivism to interpretivism, and the subsequent increase in the application of qualitative research in social inquiry (Banks, 2008; Harper, 1998; Rose, 2006). Prior to this time, visual research was primarily founded in the tradition of realism, which attempts to discover and describe reality; images reflected reality or ‘the truth’ of the situation captured on film. Practically, the increased accessibility and ubiquity of photographic equipment, and technological advances during recent decades have also contributed to the rise in the use of visual research. Many other disciplines have now embraced the use of visual research methods, including human geography, education, tourism and public health.
6.5.2 Visual research methods

Visual research methodologies are diverse with an array of methods from which to choose depending on the purpose of the inquiry, the research questions, and a method’s limitations and benefits (Pauwels, 2011). Visual researchers describe two general categories of visual research methodologies: “on the one hand, the use of images to study society and, on the other, the sociological study of images” (Banks, 2008, p. 7). Choices also have to be made as to whether the images being used are pre-existing or created for a specific piece of research; and also who creates the images – the researcher or the participant.

This research uses images to study a part of society (Banks, 2008). Specifically, it utilises participatory visual research methods that involve giving participants cameras to generate images in the form of photographs for the purpose of studying children’s sport-related food environments. The use of such methods has increased in recent decades, most likely reflecting the heightened acknowledgment of engaging participants in the research process, and a greater application of research grounded in a paradigm that accepts the plurality of worldviews. There are several key advantages of providing participants with a camera to take photographs, rather than the researcher generating the images. It provides the researcher a unique opportunity to capture insiders’ perspectives of the social world under scrutiny and see the participants’ worlds through their eyes (Chalfen, 2011), provides a means for “people [to] show how they are seeing themselves and their lives or what they are seeing” (Chalfen, 2011, p. 39) and enables participation and co-creation of data.

The utility of photographs can be enhanced by combining their use with other data collection methods, particularly interviews (individual or group) (Collier & Collier, 1986; Harper, 2002). Used this way, images become more than a form of data, but also a data collection tool, that is, “ways of doing research that generate and employ visual material as an integral part of the research process, whether as a form of data, a means of generating further data or a means of representing ‘results’” (Knowles & Sweetman, 2004, p. 5).

Photo-elicitation and Photovoice

Photo-elicitation and photovoice are participatory visual research methods that combine images with interviews. Photo-elicitation involves introducing photographs into an individual or group interview situation to use for discussion “with the express aim of exploring participants’ values, beliefs, attitudes, and meanings, and in order to trigger memories, or to explore group dynamics or systems” (Prosser & Schwartz, 2005, p. 124).
The method is based on the premise that using photographs, particularly those taken by the participants, will elicit deeper understandings of an issue, or reveal aspects of an issue which were previously unknown or difficult to access when using only participant interviews (Collier & Collier, 1986; Harper, 2002; Rose, 2006). Moreover, the breadth and depth of the data collected is increased as the images are interpreted within the meaning and context ascribed to them by the participant. Collier and Collier (1986), in their seminal research to determine the effectiveness of the method by interviewing families with and without photographs found that using photographs produced a much richer and deeper understanding of the subject matter than through either interviewing or the study of photographs. The authors concluded that, “when native eyes interpret and enlarge upon the photographic content, through interviewing with photographs, the potential range of data enlarges beyond that contained in the photographs themselves” (Collier & Collier, 1986, p. 99) and “photographs by themselves do not necessarily provide information or insight...It was when the photographs were used in interviews that their value and significance was discovered” (Collier & Collier, 1986, p. 126).

Photovoice is defined as “a process by which people can identify, represent, and enhance their community through a specific photographic technique...based in the production of knowledge” (Wang & Burris, 1997, p. 369). It is similar to photo-elicitation in that it “asks interviewees to take photographs that they feel portray their daily routines, common events or community life. They subsequently talk about the significance and meaning of these images with other members of the community, and the researcher” (Lapenta, 2011, p. 207). However, there are some key differences between the two methods. While both methods use photographs as data and data collection tools, a unique feature of photovoice is the collaborative stage of analysing data collected earlier in the process where groups collectively “codify issues...themes and patterns, or develop theories” (Wang & Burris, 1997, p. 381).

Photovoice also goes beyond photo-elicitation by having an activist component. It is conducted with community groups, rather than individuals, and provides them with the opportunity to discuss the meaning and significance of issues that are of concern to the community, and voice a single collective interpretation to policy makers for beneficial change (Lapenta, 2011; Wang & Burris, 1997). The collective visual images produced during the research process are often utilised by photovoice participants as a tool for communication to outsiders. Photovoice also concentrates more on the visual
representation as an outcome of the research rather than the interview data and resulting text common to photo-elicitation. Given its social justice element, photovoice has particular utility when working with marginalised communities, for examples immigrants, children, disabled, elderly, or people with chronic illnesses such as AIDS/HIV.

A systematic review of the literature on the use of photovoice in public health (Catalani & Minkler, 2010) found that the degree of participation by study participants and their collaboration with researchers varied widely. Furthermore, the review revealed that the photovoice methodology was altered by the majority of researchers to align with projects’ specific needs and constraints. For instance, rather than using only the photographs as data, as is usual in photovoice, most studies analysed interview transcripts, and triangulated, or cross-checked (Bryman, 2008), the text data with the photographs to confirm findings. Overall, the authors concluded that photovoice is a useful method to use in public health to strengthen and enrich research and engage with hard-to-reach groups; and its flexibility allows for its use to be applied to a variety of settings and situations (Catalani & Minkler, 2010). Also, they recommended that for the best possible outcome, researchers aim to achieve the highest level of participation and collaboration their project will practically withstand.

6.5.3 Benefits and limitations of participatory visual research methods
Involving participants, and using cameras and photographs, in the research process imparts additional benefits that improve the quality and quantity of data collected, and that are particularly relevant to this research. Photographs carry or “evoke...information, affect or reflection” (Rose, 2006, p. 238) that encourage and generate discussion that would most likely not have occurred in a regular interview situation (Harper, 2002). Photographs also trigger memories of events and situations that might not otherwise have been recalled by participants during an interview. They can also act as an ice-breaker in interview situations (individual or group), encouraging talk and improving participant engagement, especially with participants who may not normally be willing to share their views. Collier (1957) describes this benefit as “shatter[ing] the composure of a guarded reply” (p. 854). Photographs also take on a ‘third party’ role in the interview process, providing a common interest and neutral common ground, or a “communication bridge” (Collier & Collier, 1986, p. 99) between participants and researchers. As an alternative point of attention or distraction, photographs act as a diversion such that the focus is taken off the participant and directed towards the photograph (Lapenta, 2011). They also act as an anchoring point
in interviews to keep the interview on track and the discussion to flow (Byrne & Doyle, 2004).

Collaboration between the researcher and the participant is inherent in participatory visual research methods (Banks, 2008), not only in the data collection phase but also during analysis and interpretation; as Harper (2002) states, “when two or more people discuss the meaning of photographs they try to figure something out” (p. 23). Furthermore, this dual learning or interpretations often mitigates any misunderstanding created when researchers interpret or find meaning in a photograph which differs from that of the participant. Jenkings, Woodward & Winter (2008) suggests that “part of the role of the photo elicitation interview is a resolution of interpretations, a partial coming together of understandings” (p. 7). Furthermore, the choice of what to photograph, which photographs to discuss, the direction of the conversation, the interpretation of the photographs and possibly even the analysis and research outcome, are predominantly driven by the participant rather than the researcher in participatory visual research methods (Lapenta, 2011; Rose, 2006). Consequently, greater involvement of participants and reduced researcher involvement throughout the research process is likely to produce more accurate and reliable research outcomes, and reduce the possibility of bias.

Participatory visual research methods can also improve research participants’ self-awareness and critical consciousness (Banks, 2008; Catalani & Minkler, 2010). By choosing what they photograph and subsequently discuss, participants are able to see, consider and reflect on, familiar aspects of their environment from a different perspective (Banks, 2008). Thus, not only is the process a learning experience for the researcher but also for the participants. Giving cameras to participants to collect data also inherently suggests that they have expert knowledge of their own lives which is worthy of documentation (Lapenta, 2011). This underlying assumption empowers participants in the research process, improves trust in the research relationship, and gives participants greater agency in the research process (Lorenz & Kolb, 2009). Furthermore, participatory visual research methods are often conducted with people and communities who, traditionally, are marginalised in society and not considered in the policy-making process. Giving cameras to people who are not normally engaged in the research process increases their “voice and authority in interpreting their own lives, social contexts, and a ‘perspective of action’ that helps make their life-views and social systems meaningful to outsiders” (Lapenta, 2011, p. 206). For this reason, photo-elicitation and photovoice are frequently employed in health
care research. The use of images as a data collection method is also beneficial for participants with weaker literary or language skills.

As previously discussed, power imbalances created by differences in age, but also gender, culture and authority status, between participants and the researcher are potential barriers to obtaining useful data. Many of the benefits of participatory visual research methods discussed in this section act to reduce power differentials (Lorenz & Kolb, 2009). Consequently, participants are more likely to share their knowledge, opinions and perspectives, and generate richer, better quality and more reliable data. Moreover, the methods described act to strengthen the credibility and reliability of qualitative research outcomes.

There is little discussion in the literature on the limitations of visual research. Catalani and Minkler (2010) found in their systematic review discussed previously that study authors typically do not indicate how they evaluated the photovoice process within their study or the project outcomes, nor do they discuss methods of analysis. A discussion about how rigour was achieved is also lacking in most studies. According to Banks (2008), giving participants free-reign with cameras, with no researcher input, is problematic. He contends that by losing control of the data collection process, it cannot be systematically documented according to good research practice. Also, he suggests that the stepping-back of the researcher from the research process diminishes the collaborative nature of the research, particularly if the process does not involve participant input beyond the taking of photographs.

6.5.4 Visual research methods in children’s research
The visual research methods discussed previously are ideally suited to children’s research (Christensen & James, 2008b; Freeman & Mathison, 2008; Prosser & Schwartz, 2005). Their capacity to engender trust and reduce power differentials makes their use particularly applicable when researching with children. In addition, children can tire easily, lose concentration and may struggle with communicating. However as Cappello (2005) found, cameras “become tools for engagement, sustain interest, and promote genuine curiosity about the research agenda” (p. 171). The collection and use of child-generated images in research also overcomes the limitations of using information collected from caregivers and other adults on behalf of children. Including proxy data has the potential to introduce biases into research findings as it may not be accurate, or truly reflect or capture children’s
experiences (Eiser & Morse, 2001). The benefits and suitability of participatory visual research methods for children’s research also align well with the principles of UNCRC and provide an appropriate means for researchers to meet their obligations to UNCRC’s overarching principle of children’s participation and their right to be heard (art.12).

6.5.5 Visual research methods in food and nutrition research
Martin, Garcia & Leipert (2010) conducted a review of the literature regarding the use, utility and efficacy of photovoice, with the view to using it in nutrition and dietetics research. The authors reported that although photovoice had not been used for nutrition and dietetic research, they concluded that the method was ideal for such investigations because of its flexibility in research settings and participant selection. They saw its use in policy making, health promotion and education, nutrition practice and also knowledge acquisition – for both researcher and participants.

6.5.6 Ethical considerations in visual research
Visual research can raise ethical concerns and bestows subsequent responsibilities on the researcher to ensure confidentiality and protect the privacy of participants and people who inadvertently appear in images (Banks, 2008; Rose, 2006). In New Zealand, it is lawful to take a photograph in public places, but not in situations where there is an expectation of privacy, such as a doctor’s office, or if requested not to do so. Researchers are advised to take all necessary steps to meet their ethical responsibilities such as masking people’s identifying features and gaining permission to take photographs when relevant. Participant-generated images are the property of the participant. As such, ownership of image data must be transferred if they are to be kept by the researcher and permission sought if to be used for dissemination purposes.

6.6 Focus groups
The visual research methods previously discussed can be combined with either individual or group interviews. The latter method – focus groups – was chosen for this research, as the theoretical principles and nature of focus groups are more suitably aligned with the purpose of, and participants selected for, this research. The features of focus groups that underpin the rationale for their selection are now discussed.
6.6.1 Benefits of focus groups

Focus groups are facilitated “group discussions organised to explore a specific set of issues” (Kitzinger, 1994, p. 103). They are a widely used and accepted method of data collection in qualitative research (Barbour, 2007; Bryman, 2008; Hansen, 2006) and in children’s research (Freeman & Mathison, 2008; Hennessy & Heary, 2005). Focus groups consist of people who have been selected on the basis that they have first-hand knowledge about the issue(s) being investigated. Focus groups are based on the premise that people have expert knowledge of their own lives which is valuable and worthy of documenting (Barbour, 2007; Green & Thorogood, 2009; Hansen, 2006). The method allows the researcher to see the world from participants’ viewpoint, and gain insights into “the meanings, beliefs and cultures that influence the feelings, attitudes and behaviours of individuals” (Rabiee, 2004, p. 655).

Although individual interviews share many of the same features as focus groups, the latter has a number of advantages that are useful in certain research situations. A fundamental feature and strength of focus groups is the group formation. It provides the researcher with the opportunity to identify group norms and values, and understand how people construct beliefs, meanings and behaviours within a collective and social context (Barbour, 2007). The presence of a facilitator is also key as they not only keep the discussion focused on the chosen issue, but also encourage group interaction (Barbour, 2007). The group dynamic also assists participants in identifying and clarifying their opinions and attitudes; allows them to share experiences and expose shared meanings; and present consensus, contradictory and opposing views. Data generated within focus groups not only includes individual responses to questions posed by the facilitator but also from fellow group members’ comments and discussion around those responses. The interplay and interaction which occurs within focus groups provides another point of difference and justification for selecting focus groups over interviews in this research.

Additional benefits of using focus groups over interviews are particularly applicable to this research. The group nature of focus groups alleviates some of the power differences generated in individual interviews. As discussed previously, this is an especially important consideration with young participants, as “children’s views and the experiences on which they are based are crucially affected by their social position” (Hill, 2006). Sharing the research experience in a familiar grouping and social context with peers can be comforting, supportive and protective for children, and the group situation becomes
relatively non-threatening. Focus groups are also a flexible method of collecting data and may be easily combined with other data collection methods, such as drawings, maps and photographs (Heary & Hennessy, 2002; Morgan, Gibbs, Maxwell, & Britten, 2002). Finally, according to Raibee (2004), focus groups are particularly suited for research in nutrition, “because of the complexity surrounding food choice and dietary and other lifestyle behaviours within the context of lived experience” (p. 655).

**Composition and number of focus groups**
To ensure successful data gathering from focus groups, especially with children, the literature advises giving consideration to several issues regarding their composition. The size and number of focus groups are not prescribed but defined by the research question(s) and purpose. Each group should be large enough to allow a range of perspectives and good quality data to be captured, yet of a size which is manageable and allows for the “equal voice” (Barbour, 2007, p. 60) of participants – each person should have enough time to respond to questions and contribute to the ensuing discussion. Generally, between four and ten people are recommended (Barbour, 2007), however with children, groups of four to six are more manageable, likely to be more focused, allow participants to be heard and are less likely to be disruptive (Heary & Hennessy, 2002).

The demographic and other background characteristics of focus group participants are determined by the research purpose. In some cases, homogeneity may be more appropriate, whereas in other situations, diversity may be more fitting. For children, homogeneity is especially pertinent (Hennessy & Heary, 2005). It is recommended that children of the same age (within two years) are recruited so that the group consists of participants with similar levels of developmental and cognitive ability. Generally, forming groups of children of the same gender is also recommended, although when group members know each other well, gender differences are often not an issue. The benefits and limitations of group familiarity are also debated in the literature. The use of “pre-existing” or “pre-acquainted” (Barbour, 2007, pp. 66–67) groups is not so crucial for adults, but is strongly recommended when working with children (Hennessy & Heary, 2005; Lewis, 1992).

The number of focus groups is also a consideration. While there are no recommendations as how many focus groups to conduct, they should be of a sufficient quantity that patterns and differences within and across groups can be identified. Experienced researchers
suggest a minimum of three to four groups, or recommend recruiting groups until the point of saturation, when no new data has been detected in subsequent groups (Barbour, 2007).

**Limitations**

The potential for focus groups to encourage ‘group think’, rather than voicing their own opinion, is a criticism of focus groups. This is especially applicable with children who may not be confident of speaking or contributing and who may come under the influence of stronger more vocal children in the group and follow the consensus (Hennessy & Heary, 2005; Lewis, 1992). Focus groups with children have also been criticised for introducing social desirability bias, “the impulse to present oneself in a way that is socially acceptable to others” (Greene & Hill, 2005, p. 7). These criticisms are premised on the notions of children’s suggestibility and their desire to please adults by responding to questions in a favourable way. For these reasons, children have been perceived as being unreliable participants when sharing their views and experiences, which possibly explains the lack of children’s research until recently.

However, ‘group think’ and social desirability bias are not limited to research with children and it has been argued that they are no less reliable as informants than adults (Hennessy & Heary, 2005). In fact, ‘group think’ may not be problematic as it may mirror how children’s attitudes and beliefs about an issue are formed and propagated within groups and cultures, “experience is socially-mediated and therefore, in some essentials, shared” (Greene & Hill, 2005, p. 5). Heary and Hennessy (2002) contend that social desirability bias is more of a concern with adults than children, finding from their own research that children present “more spontaneous and fewer socially desirable responses than some adults” (p. 51).

Although the main aim of focus groups is to capture attitudes and norms of people in a real world setting, several authors caution that focus groups do not represent a natural setting, and therefore the findings are limited in their application to the real world. In addition, while focus groups are not good at measuring individual attitudes, they have particular utility for understanding the mechanisms from which attitudes are derived (Barbour, 2007).

Finally, the quality of data collected in focus groups is highly dependent on the ability of the facilitator to keep the group focused on the issue and their skill at teasing out and developing discussion on relevant points raised, though not always overtly, by the
participants (Barbour, 2007; Hennessy & Heary, 2005). With children, the facilitator must also ensure that the balance of power is maintained between the researcher and the group participants, and within the group. As Patton (2002) states: “the power of focus groups resides in their being focused” (p. 388) – in time, subject matter, participant composition and interaction between group members.

6.7 Method

This section describes the study design, including sampling, participant recruitment, and the data collection and analyses processes. As mentioned previously, the data collection methods selected were participatory visual methods, using a combination of features from photo-elicitation and photovoice, and focus groups. Children who played football, netball or rugby, and parents of such children, from two areas of Wellington were invited to participate in the study. Each participant was given a camera to visually record their sport-related food environment and a notebook to record their reason for photographing an item. As in photo-elicitation, their images were used in focus groups to generate discussion, which was recorded and transcribed. At the end of each focus group, the participants created a banner with an accompanying caption using photographs selected from all their photographs. The latter exercise, which is borrowed from photovoice, aimed to visually determine each group’s collective view of, and opinions on, the sport-related food environment. The resultant text data – notebook comments, transcripts and banner captions – were analysed thematically to identify consistent and discordant patterns within and between groups. Images were also examined and their content analysed for features relevant to the sport-related food environment. Thus, the data sources for this study included: the participants’ photographs and notebook comments, focus group transcripts, and group banners and accompanying captions.

6.7.1 Sampling

Research participants were selected using purposive sampling, a non-probability sampling strategy commonly used in qualitative research. Purposive sampling aims to “sample cases/participants in a strategic way, so that those sampled are relevant to the research questions that are being posed” (Bryman, 2008, p. 145). For example, selecting participants who are particularly knowledgeable about, or have a unique perspective of, the research topic allows the researcher to gain an in-depth understanding of the issue under investigation. Individual participants, processes, sites or organisations, or a combination
of levels may be included for sampling (Creswell, 2006). Several types of purposive sampling methods are available to qualitative researchers, the choice being determined by the purpose and methodological basis of the particular study (Creswell, 2006; Hansen, 2006).

To address the specific requirements of the research questions in this research, stratified purposive sampling was used. Children, and parents of children, who participated in organised sport in the Greater Wellington region comprised the sampling frames, from which two homogeneous sub-groups were selected—children, and parents of children, aged 10-12 years. To address the research question which sought to identify differences in perspective by socioeconomic status and sporting code, the sub-groups were further stratified according to relative levels of deprivation – high and low; then by sporting code – netball, football and rugby.

6.7.2 Inclusion criteria
Participants in this study had to be children, or parents of children from the Greater Wellington region who: (i) played football, netball or rugby in the winter of 2010; (ii) were enrolled in either a club-registered ‘under-11’ or ‘under-12’ team in an organised junior sport league, or were in Years 7 or 8 (typically aged 10-12y) at school and registered in a school team; (iii) identified that they wished to participate; (iv) and consented to participate, and for children, also had parental consent.

The age of children (10-12y) was chosen for several reasons. In contrast to older children who have greater autonomy in their food choices and purchasing, children of the chosen age range are still (mostly) reliant on their parents to meet their nutritional requirements. Also, children of the selected age are developmentally capable of undertaking the task of data collection without adult input. This was important as the aim of the study was to capture children’s points-of-view. Younger children would likely have to be accompanied by an adult, a situation which has the potential to introduce bias into the children’s data. Relative to their younger peers, children in the chosen age range are also well acquainted with group discussion, think more critically about their lives, and can generally articulate their ideas and opinions well (Kennedy, Kools, & Krueger, 2001), all features required for optimal participation in focus group discussions. Finally, younger children may not have had the capacity to meet some of the ethical requirements of the study, such as asking
permission to take photographs, or coping if challenged about taking photographs. Burdening younger children with such responsibilities was considered unethical.

Football, netball, and rugby were purposively chosen for this study as those sporting codes have some of the highest participation rates among New Zealand children (Sport New Zealand, 2012). As such, the strategy provided access to a large group of potential information-rich cases. Of the three codes, netball is predominantly played by girls and rugby is mostly played by boys, and in the selected age range, girls and boys equally play football. Thus, recruiting from the chosen codes also provided the best opportunity to achieve a relatively equal distribution of children by gender. Finally, as discussed previously, research demonstrates known promotional associations exist between the chosen sporting codes and food (Bestman et al., 2015; Carter, 2013; Kelly, Baur, Bauman, King, et al., 2011; Pettigrew et al., 2013). In addition, the strategy of recruiting by team conveniently provided pre-existing sub-groups of children who were familiar with each other, which, as discussed previously is a desirable feature when convening focus groups with children.

The Greater Wellington Region15 was pragmatically chosen as the location for participant recruitment, primarily due to limitations in time and financial resources, and location of the researcher. To address the research question which seeks to identify differences in perspectives by socio-economic status, two cities within the region, Wellington and Porirua, were specifically chosen for recruitment, due to their relative levels of deprivation. The intention was for participants to be recruited from two netball, two football and two rugby clubs in each city, with the view to establishing a minimum of six groups of children and three groups of parents from each city.

6.7.3 Ethical approval and consultation with Māori

Ethical approval was granted by the University of Otago Human Ethics Committee for Ethical Approval of a Research or Teaching Proposal Involving Human Participants (Category A) in January 2010. The Committee asked that participants be reminded of their obligations to maintain other participants’ confidentiality and be respectful of other people when taking photographs. It was also agreed that people’s faces were to be blocked out in

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15 The Greater Wellington Region comprises nine territorial authorities: four cities, and five districts which encompass towns and rural areas. Approximately 11% of the New Zealand population live in the Wellington region; it is the third most populous region in New Zealand.

any images used in published or disseminated material. Consultation with the Ngai Tahu Research Consultation Committee, mandated by the Memorandum of Understanding between Te Runanga o Ngai Tahu and the University of Otago, was also undertaken. The Committee requested that the findings be disseminated to Māori.

6.7.4 Scoping and pilot studies

Scoping Study
To gain insight into the organisation of junior teams within each code, and inform the final recruitment and data collection process, a scoping study was conducted from late April 2010 to late May 2010. Issues explored included: learning about how clubs select teams; determining the optimal times and locations to conduct each step of the data collection process; the general working environment, such as ambient light and weather conditions; assessing the responsiveness of coaches, managers, children and parents to the project; and ascertaining resources (cameras and photo processing) and administration processes for data collection. Utilising existing community contacts, the coach, manager or administrator of one team per sporting code in Wellington was contacted, and a request made to attend and observe a practice session and a Saturday game. Other coaches and administrators, and parents known to the researcher or supervisors were also consulted about relevant issues.

Findings from the scoping study that influenced the design of the methods for the main study included: not all children attended sport practice or their game; parents did not usually attend practice; most parents attended a Saturday game, but were often heavily invested in, and distracted by, watching and supporting their children; children, and sometimes parents, were emotionally charged after games, regardless of the result; practices and games were dictated by weather conditions; practices were often conducted under artificial lighting and on cold winter’s evenings; and suitable meeting spaces were not always available at or close to practice sites.

The choice and sourcing of cameras and photo processing, the development of ‘Researcher Packs’ (described in a later section), and systems to record their distribution and return were also explored during the scoping study. The choice of cameras was based on a reading of the literature, consultation with researchers experienced in visual methods, and a trial of the available options – disposable or digital. Other researchers consulted advised against the former as the resulting photographs were of poorer quality than from digital
cameras. However, cost was a consideration with digital cameras. An appeal for the
donation of unwanted digital cameras through university and hospital staff yielded only
three cameras. As promised at the time of the appeal, these cameras were re-donated to
the low-decile schools which participated in the study. Cheaper digital cameras were
sourced for a trial. However, when both options were trialled, there were virtually no
differences in photo quality, with both being fit for purpose. Furthermore, the digital
cameras were more technically challenging to use than disposable cameras and the
retention of photographs (data) on the internal memory card was reliant on the batteries
remaining in the camera. To avoid the temptation for children to ‘explore’ the cameras
while in their possession and inadvertently lose data, it was decided that disposable
cameras were the best option on the budget available. A verbal agreement was established
with a local photo processor to supply the cameras, process and print the film (in
duplicate), and record the photographs to CD.

**Pilot study**

To test the logistics and implementation of each step of the data collection process, and the
data collection instruments, two pilot studies were conducted. Feedback was also sought
from the participants on the information sheets, consent forms and the overall experience.
Four girls and two boys aged 11y from a school in Wellington who played a mix of the
sporting codes chosen were recruited in late June 2010 for the children’s pilot study. For
the parents’ pilot study, three mothers were recruited from an under-12 netball team from a
different Wellington school in July/August 2010.

**Data collection instruments**

In addition to the cameras, the other data collection instruments included a brief
questionnaire to determine participants’ ethnicity and socio-economic status. Participants’
ethnicity was determined by using the ethnicity question from the 2006 New Zealand
Census. Participants’ socio-economic status was approximated using their level of
neighbourhood socio-economic deprivation. The latter was derived from the New Zealand
Deprivation Index 2006 (NZDep06)\(^\text{16}\) using participants’ residential addresses (Salmond et
al., 2007). A structured interview schedule was not developed for this study. Rather,
questions were asked of the groups based on the content of their photographs and ensuing
discussion. Key topics were also identified from the review of the literature. To prompt

\(^{16}\) Up to 2014, the NZDep06 was commonly used in New Zealand research to describe the level of socio-
-economic deprivation experienced by groups of New Zealand people contained within the smallest
geographical units as defined by Statistics New Zealand. Now NZDep13 is used (Atkinson et al., 2014)
discussion in the absence of photographs of key topics and ensure consistency in data
collection between groups, a list of themes was developed for reference during focus group
interview (Figure 12).
Themes for all participants
Nutrition knowledge
- Healthy and unhealthy foods – name some
- Foods important when playing sport
- What is the significance of the various foods
- Sources of nutrition information – general and for sport

Food at sports venues – community and Stadium
- What is available (at canteens/clubrooms/game time)
- Opinions on the food available
- Alternatives
- Presence of food policies

Food marketing
- Using sport to advertise food
  - Why use sport
  - How much do they see
  - Who are the ads aimed at
  - What do they think about it
- Sports people promoting food
  - Opinions
- Food sponsorship in sport
  - Opinions
  - What would happen if no sponsorship
- Player of the Day vouchers
  - Who gets them
  - Opinions
  - Purpose
- Impact on children and parents

Fundraising
- Sausage sizzles
- Chocolate fundraisers
- Opinions

Additional themes for parents
Food marketing
- Sponsorship – restricting or replacing as with tobacco
- Regulating food marketing

Complaints process
- What organisation
- Making a complaint – confidence in system and making a complaint

Responsibility for children’s food environments

Figure 12: Themes for focus group discussion
To initiate conversation, an opening question in both focus group interviews sought children’s nutrition knowledge. Further conversations were often initiated and directed by participant photographs, which resulted in the flow of discussion differing between groups. Nevertheless, the general themes listed were always raised, if not by the photographs, then by prompting with questions at the relevant point in the discussion. Any new questions that arose during a group’s discussion were added to the list and raised in subsequent groups.

Feedback from the parent group on the overall recruitment and data collection procedures indicated that no changes were required. The children suggested extending the time with the cameras from one to two weeks to allow for unforeseen circumstances that may cause games and practices to be postponed or cancelled, such as the poor weather they had experienced. This amendment, along with some other minimal changes, were noted and subsequently included in the main study.

6.7.5 Recruitment
Recruitment occurred sequentially at several levels (Figure 13). Initially, football, netball and rugby clubs from both cities were chosen and recruited, from which specific age-group teams were selected. Individual children and parents were then recruited from the selected teams. Given the number of children (and thus parents) per team in each sport, it was considered one focus group per team could be established. The following section presents details of the recruitment process.

Figure 13: Levels of recruitment in Wellington and Porirua cities

Club and team level
Sports clubs that had junior divisions or teams in the relevant age-range were identified using three lines of inquiry. The Wellington region’s sports trust, a not-for-profit organisation that supports local sporting organisations and clubs, was approached for contact details of clubs’ junior team administrators and coaches, website addresses of each
sport’s association from which contacts could be established, or to suggest key people in other organisations who could assist. A list of potential clubs from which to recruit was then developed. In addition, two low decile schools in Porirua were ‘cold-called’ to enquire about their netball and football teams, and in Wellington, one school (for netball) and one football club were identified as potential participants through supervisors’ community contacts.

The team coach or manager of the under-11 or under-12 teams from relevant clubs was each sent an introductory email (Appendix 5), along with a participant information sheet (Appendix 6), inviting them to participate in the project. If they agreed to participate, coaches were asked to make contact by return email or telephone; a follow-up call was made if a response was not received. Two teams per sporting code were initially contacted. If contact was not established or participation was declined, another club or under-11 or under-12 team in the same club (if available), was selected until two teams in each sporting code per city were recruited.

Team recruitment occurred from mid-June to mid-August 2010. In total, eleven teams were contacted in Wellington and nine teams in Porirua. Table 10 presents the details of the total number of potential schools or clubs available for recruitment, and the number of teams approached and eventually recruited, by city and sporting code.

Once agreement was established, a meeting was held with the coach to discuss the project in more detail. This included explaining the researcher’s position within the university and the research, the purpose of the research and involvement of participants, how the findings from the research would be used, and any other questions about the project. At the close of the meeting, a time was arranged to attend the team’s practice or game to commence individual participant recruitment. Coaches were asked to notify their team of the visit in advance.

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17 A school’s decile rating reflects the average family backgrounds of students at the school. Schools range from Decile 1 (lowest SES) to Decile 10 (highest).

18 Hereafter referred to as ‘coach’
Table 10: Potential clubs and schools, and teams approached and recruited, per city and sporting code

<table>
<thead>
<tr>
<th></th>
<th>Total clubs or schools*</th>
<th>Teams approached</th>
<th>Teams recruited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellington</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netball</td>
<td>35</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Football</td>
<td>9</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Rugby</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Porirua</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netball</td>
<td>11</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Football</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Rugby</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

* with junior divisions or teams in the study age-group

Overall, the clubs which responded and coaches who participated were willing to be involved, with several expressing a genuine interest in the subject matter, recognising its importance to their club members. Once recruited, coaches were advised their club or school would receive a cash donation in recognition of their contribution and cooperation (outlined below).

**Individual level recruitment within clubs and school teams**

Recruitment of children and parents was typically conducted at the conclusion of a Saturday game when attendance was highest, or alternatively, at a practice session. Following introductions, the parents and children attending the game were told that the purpose of the study was to learn more about what the sport-related food environment looked like from a child’s and a parent’s point-of-view, and to learn about their thoughts on what they saw. Rather than data being collected by a researcher, it was preferable for children and parents to assist in gathering information – as parent and junior researchers. The method of data collection, the required time commitment, and the intended use of the findings were then described. Groups were advised participation was voluntary, and subject to receiving written consent from all participants (and for children, parental consent).

Next, the following were distributed to all attendees: study information sheets; consent forms; release forms giving permission for participant photographs to be used in research dissemination; and a participant questionnaire to collect children and parents’ demographic
information (Appendix 6). Spare forms were left with coaches to distribute to members who had not attended. At the close of each introductory session, each group was advised of the date of the next visit, at which time the signed consent forms would be collected from those who were interested in participating, cameras would be distributed and the members would be given detailed instructions for data collection. Following the introductory session, an email with information sheets and consent forms attached were sent to all team members via their coach.

Due to time constraints, introductory sessions were presented to a team only once. Since almost all children attended Saturday games, the majority of children in each team received an invitation. As parents’ attendance at games was less consistent, some missed the opportunity to participate. To overcome this issue and optimise the number of parent participants, parents were also recruited opportunistically, being approached individually at subsequent games or weekly practice sessions.

6.7.6 Participant characteristics
To get a range of children’s and parents’ view of and opinions on the sport-related food environment, it was initially planned to recruit sufficient participants (4-6) to form two children’s focus groups from teams representing each of the sporting codes in Wellington (six in total) and Porirua (six in total), and a parent focus group from each of the sporting codes in each city – three from Porirua and three from Wellington.

Eighty-nine (Porirua, n=50 and Wellington, n=39) consenting children were recruited into the study, equally distributed by gender and sporting code. For the most part, the majority of children from Porirua lived in areas of higher deprivation than Wellington children. Thirty-four consenting parents were recruited from Porirua (n=14) and Wellington (n=20). While an equal proportion of mothers and fathers were recruited from Wellington, the majority of Porirua parents were mothers. There were also twice as many parents of rugby players than in the two other sport codes. As with the children, Porirua parents tended to live in households of higher deprivation relative to their Wellington counterparts.

Participants completed the study if they returned their cameras and/or attended a focus group. Seven children and two parents did not complete the study. Every effort was made to retrieve their cameras and notebooks, including phone calls, and attending practices or games to collect them.
Eighty-two children returned their cameras. Seven children did not complete the study. Seventy-five children participated in a total of thirteen focus groups. Three Wellingtonians and four children from Porirua did not attend a focus group due to illness, previous commitments and holidays; one child from Wellington indicated they no longer wanted to participate. One child who did not return his camera took part in a focus group. The children who participated in the focus groups were equally distributed across the two cities, and by gender and sporting code. The Porirua groups of children were generally from areas of higher deprivation than their Wellington peers. The children’s focus groups ranged in size from 3-10 participants.

Children’s focus groups were convened at a time when the majority could participate. A decision was made to not allocate those children who were unable to attend their own group to another group, as the literature clearly indicates that introducing children into groups of unfamiliar children changes the social dynamic of the group, and possibly impacts data quality (Barbour, 2007; Hennessy & Heary, 2005). Also, it could have been stressful or awkward for a child to join a group of others who were already well acquainted with each other.

Thirty-one parents returned their cameras; two did not complete the study. Twenty-eight parents participated in eight focus groups. Despite best efforts, two parents were unable to be contacted, one did not attend on the day and could not be contacted subsequently; and one cancelled immediately prior to commencement of her focus group and could not be rescheduled. One child’s parents shared a camera and both attended a focus group. There was a greater proportion of parents from Wellington than Porirua, and an equal distribution of mothers and fathers in Wellington, and more mothers than fathers in Porirua. The parents from Porirua generally lived in areas of higher deprivation than the Wellington parents. The size of the parent focus groups ranged from two to six.

In contrast to the children, not all parent groups were comprised of parents from the same club. For some parents, the time of their original group meeting was not convenient and to give these parents the best opportunity to complete the project and to avoid losing data, they were offered the chance to join another group. Also, an extra group was formed to accommodate four such parents in Wellington, and one Porirua rugby mother joined the Porirua netball mother’s group. Unfamiliarity is common when convening adult focus groups; even parents from the same team did not always know each other.
Table 11 summarises the number of children and parents recruited, and who completed the study. Tables 12 and 13 present the characteristics of the children’s and parents’ focus groups, respectively.

**Table 11: Summary of participants recruited and those who completed the study**

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruited</td>
<td>89</td>
<td>34</td>
</tr>
<tr>
<td>Did not complete study</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Cameras returned</td>
<td>82</td>
<td>31^</td>
</tr>
<tr>
<td>Attended a focus group</td>
<td>75*</td>
<td>28</td>
</tr>
<tr>
<td>Did not attend a focus group</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

^ a child’s parents shared a camera
* one child did not return a camera but attended a focus group
## Table 12: Children’s focus group characteristics, by city and sporting code

<table>
<thead>
<tr>
<th>City and team</th>
<th>Children in each focus group (n)</th>
<th>Gender</th>
<th>NZDep06 of participants (median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellington</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Girls</strong></td>
<td><strong>Boys</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wellington Netball</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn NB1</strong></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn NB2</strong></td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Football</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn SR1</strong></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn SR2</strong></td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Rugby</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn RB1</strong></td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Wgtn RB2</strong></td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>36</strong></td>
<td><strong>21</strong></td>
</tr>
<tr>
<td></td>
<td>Porirua Netball</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Porirua NB1</strong></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Porirua NB2</strong></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Porirua NB3</strong></td>
<td>6</td>
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<tr>
<td></td>
<td>Football</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Porirua SR1</strong></td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Porirua SR2</strong></td>
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<tr>
<td></td>
<td>Rugby</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Porirua RB1</strong></td>
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<td>0</td>
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<tr>
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<td><strong>Porirua RB2</strong></td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>39</strong></td>
<td><strong>17</strong></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>75</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>
Table 13: Parents’ focus group characteristics, by city and sporting code

<table>
<thead>
<tr>
<th>City and team</th>
<th>Parents (n)</th>
<th>Gender</th>
<th>NZDep06 of participants (median)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mothers</td>
<td>Fathers</td>
</tr>
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<td>Wellington</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Netball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Wgtn NB1</em></td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><em>Wgtn SR1</em></td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Football</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Wgtn RB1</em></td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><em>Wgtn RB2</em></td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rugby</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Wgtn RB1</em></td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><em>Wgtn RB2</em></td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Assorted</td>
<td></td>
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<tr>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>9</td>
<td>8</td>
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<tr>
<td>Porirua</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Netball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Porirua NB1</em></td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Football</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Porirua SR1</em></td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Rugby</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Porirua RB1</em></td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>28</td>
<td>18</td>
<td>10</td>
</tr>
</tbody>
</table>

6.7.7 Data collection procedure

Data collection was undertaken in two stages: (i) children’s and parents’ visual recording of their sport-related food environment and (ii) focus groups to discuss the photographs and questions from the interview schedule. Data collection commenced when the first group received their cameras in late June 2010 and was completed when the final focus group was held in late October 2010. The details of the data collection process are outlined below.

Briefing session

A briefing session was held with each group. To engage with the children and establish their role as ‘Junior Researchers’, they were initially asked at this session about what they thought research was, what researchers did and the role of field work in research. The purpose of the research project was then repeated, the method described in more detail and their participation as ‘Junior Researchers’ outlined. The children were instructed to take
photographs of any food and drink-related items they saw or thought were important for sport, or that they associated with sport, during the two weeks following the briefing session. They were also asked to make a note of what they had photographed and describe the reasons why they photographed that particular item. To confirm that they understood their task and to initiate their thinking, a brief brain-storming session was conducted with each group, facilitated by the researcher. The children in each group were asked to recall items or situations they had seen which they thought would be relevant. Parents were similarly instructed and also asked to photograph items they thought beneficial, they disliked or would like to see changed.

All groups were assured there were no restrictions on what they could photograph and that there were no ‘right or wrong’ items to record. So as to not unduly influence the participants, instructions were deliberately kept broad and non-specific, and they were not given explicit examples of what to record.

At this session, each participant was given a ‘Researcher Pack’ (Figure 14) which contained a 24-exposure disposable camera, a notebook with pen attached to record their notes; and a Researcher Task sheet with instructions and contact details (Appendix 7).

![Researcher Pack](image)

**Figure 14: ‘Researcher Pack’**

Using a permanent marker pen, each participant’s camera and notebook were marked with a unique code-number, used to track each camera, identify and catalogue photographs for use in focus groups, and ensure participant anonymity at the time of photo processing. To ensure all participants (especially the children) were familiar with the use of disposable cameras and that the cameras were functioning correctly, all participants were asked to use
the camera once at the briefing session. Finally, the ethics of photography were explained, particularly the need to be mindful and respectful of other people when using the cameras in locations where people frequented.

Each briefing session took approximately 30-45 minutes with children’s groups taking slightly longer than parent groups. Arrangements were made at the close of the session for the collection of the ‘Researcher Packs’.

**Location and timing of briefing sessions**

The location and timing of each briefing session varied. Typically, they occurred after mid-week team practice when participants were more relaxed and had spare time, located at either the playing field or if available, on-site club rooms. Alternatively, they were held after a Saturday game. For one rugby team, briefing occurred following their club’s annual team photo session. School-based teams were briefed during school hours, in agreement with teaching staff.

Figures 15 and 16 show children’s and parents’ briefing sessions, respectively.

![Children's briefing session (26 August, 2010)](image-url)

**Figure 15:** Children’s briefing session (26 August, 2010)
Collection of Researcher Packs

‘Researcher Packs’ were collected at a team practice or game two weeks after each group’s briefing session. Two or three visits were usually required to gather all researcher packs; on occasion, team coaches or managers would collect packs on the researcher’s behalf. To improve the return rate, those participants who were unable to personally return their packs were asked to leave them in their home letterbox for collection or deposit them at the University reception desk. On return, each pack was receipted and cameras taken for processing and printing (two copies of each photograph).

Once processed, the photographs were reviewed. One set was labelled with the participant’s three-digit code number on the front of the photograph and placed in an envelope for use in the focus group; the other set was placed back in the original envelope, with the negatives, for return to the participant.

In the period between briefing and camera collection, the researcher usually attended a team’s Saturday game. The purpose of this visit was to check on progress, resolve any problems, and remind participants to return their ‘Researcher Packs’ or make alternative arrangements for collection.
Focus group procedure
A second researcher (a supervisor initially and later a colleague) accompanied the researcher to each focus group to take observational notes and assist with the practical aspects of each session, such as setting-up and organising refreshments. The participants and the researcher usually sat around a table, with the second researcher located off to one side. To mitigate the risk of a recorder malfunction, and ensure all participants’ comments were clearly recorded, two digital recorders were used, one placed at each end of the table.

Each focus group began with introductions and an expression of appreciation of participants’ time and effort in the data collection process, a reiteration of the purpose of the focus group and an outline of the session. Before discussions commenced, participants were advised they were free to leave the group at any time without penalty, and did not have to answer questions if they did not want to. They were also reminded the session was to be audio-recorded, and verbal consent for recording was obtained, to which no one objected. All groups were advised of the requirement to keep comments made within the group confidential and to not discuss the conversations outside the group. In addition, children’s groups were reminded that everyone in the group had a right to have their opinions heard and respected, and an opportunity to participate. Each junior researcher group was given the opportunity to agree on how their focus group was to be conducted; most decided that raising a hand indicated someone wanted to contribute to the discussion.

All participants were given their set of photographs at the beginning of each focus group, however, the sequencing of questions and tasks differed slightly between children’s and parents’ groups.

Children
To engage the children and initiate their thoughts on the topic being discussed, children in each group were asked to create a group banner using their photographs before the discussion commenced. Groups were asked to collate their photographs into categories on which they agreed and write captions relating to the theme of those categories. Once completed, the group discussion commenced based on the photographs taken by the participants and the list of themes described previously. To mitigate any unintended health impacts from their viewing and discussing the marketing of energy-dense and nutrient-poor foods and beverages, a discussion on good nutrition practices was held at the end of the session. Figure 17 shows a children’s group constructing their photo banner.
Parents
At the beginning of each parent focus group, participants were asked to select six to eight photographs that were the most important to them and, in turn, describe and briefly explain the significance of their selected photographs. This exercise initiated discussion among the participants. To address any gaps in the discussion, the previously described theme list was referred to or the researcher selected photographs from the participants’ discarded pile to discuss. All parents were given the opportunity to discuss any other issues arising from photographs they had not presented, or had not been discussed. Each parent group’s discussion concluded with questions about the regulation of food and beverage marketing and the advertising complaints procedure. Before the close of each parent focus group, and without assistance, parents spent ten minutes collating their photographs to create a banner which reflected their perspectives on the topic.

Following all focus groups, refreshments were provided, and before departing each child and parent was given a ‘Thank you Pack’ containing: their photographs and negatives, a Certificate of Participation, a copy of the ‘Food and Beverage Guidelines for Teenagers’ pamphlet, and in recognition of their participation, a $50.00 supermarket or petrol voucher for the parents, or $10.00 sport or book voucher for the children (Figure 18). So as not to coerce the participants, up to this point they unaware they were to receive a gift for taking
part. In addition, a koha\(^9\) of $200.00 was made to each participating club, although one club declined the donation, stating they were pleased just to have assisted in the research. At the request of schools, school-based teams received the equivalent value in book vouchers, which were often used by the children to buy books for their school library.

After the participants had left the venue, the researcher conferred with their colleague about the focus group, noting any immediate conclusions regarding the points raised and discussed, and the group dynamics. The researcher also recorded their observations in the form of field notes at this time.

![Figure 18: 'Thank you Pack'](image)

**Location and time of focus groups**

To reduce disruption to participants’ daily routine, focus groups were generally held at locations close to participants’ neighbourhoods. Sites varied, largely dictated by the choice and availability of suitable facilities, including a scout hall, a church hall, a participant’s house, rooms at council-administered community centres, a University meeting room and sport club rooms. Focus groups for school teams were held during school time in either the school library or a meeting room, in agreement with teaching staff.

Parents indicated that evenings were the most convenient time for them. Most children’s focus groups were held in the interim period between the ending of winter sports and

\(^9\) Māori custom of reciprocity the meaning a gift, present, offering, donation or contribution.
beginning of summer activities, at the time they would normally have had practice. One children’s group discussion was held on a Saturday morning. School teams’ focus groups were held during school hours, and one rugby team had their focus group on a Saturday morning.

Data security

All focus group interviews were digitally recorded using two recorders, immediately downloaded onto a password protected computer and then erased from the recorders. All photographs, and transcribed notebook comments and focus group discussions were stored on a password protected computer, and USB memory sticks and CDs kept in a secure location. Hard copies of data were kept in a secure location, accessible only to the researchers.

6.8 Analysis

Two types of data were generated in this study, text and images. There are varied methods of analysing both these forms of data, the choice being dependent on the purpose of the research and the underlying methodology, and in visual research, the source of the image.

6.8.1 Analysis of text data

Data generated when using photo-elicitation typically involves the “analysis of verbal reactions to visual stimuli” (Pauwels, 2011, p. 12), which in this study were converted to text. The text data were analysed using thematic analysis, an interpretivist method of analysis commonly used in qualitative research. Thematic analysis involves “identifying, analysing, and reporting patterns (themes) within data” (Braun & Clarke, 2006, p. 79). Braun and Clarke (2006) define a theme as “something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set” (p.82). Themes may be identified a priori according to a pre-existing theoretical framework or specific area of research interest; or inductively, that is, the themes emerge from patterns identified in the data. It is possible to use both methods when developing coding frameworks to analyse text data, as in the case of this research (Barbour, 2007; Braun & Clarke, 2006). Furthermore, themes can be identified at two levels, either by the “semantic or…explicit or surface meanings” (Braun & Clarke, 2006, 20)

Braun and Clarke’s emphasis.
p. 83) of what the participant said or wrote, as they were in this research, or by the “latent” (Braun & Clarke, 2006, p. 83) meanings, in which the data is interpreted to arrive at a theory or underlying meaning of what the participant said or wrote (Braun & Clarke, 2006). Braun and Clarke’s (2006) outline of the various stages in thematic analysis guided the analysis of the text data in this research. The steps in thematic analysis include: (i) familiarisation with the data; (ii) transcription of verbal data; (iii) searching for themes; (iv) reviewing themes; (v) defining and naming themes and (vi) producing the report.

All focus group discussions were transcribed by the researcher using the recordings from both recorders. All text data were initially read and reviewed several times to identify the passages of text that aligned with the main themes, which were the four environment types identified in the ANGELO framework: physical (what is available), economic (the cost), socio-cultural (societies views) and political (the rules) (Swinburn et al., 1999). Notes on possible themes were hand-written on the transcripts. Patterns of issues raised, agreement or discordance of participant views, or the language used in the data were also noted at this time, and used to form codes for sub-themes. The text data, and the images associated with the photo comments, were then entered into NVivo 8 for coding, and initially coded according to the main themes identified previously. Data that could have been allocated to more than one environment type were coded according to its relevance and importance to the research questions, and according to the definitions provided by the ANGELO framework’s authors.

Within each theme, codes for sub-themes were developed based primarily on the participants’ focus group discussions, photo comments and banner captions. The sub-themes were developed iteratively, being added, removed or renamed, or reallocated to other sub-themes as each new transcript or passage of text data was reviewed. As new or revised sub-themes were developed, data coded early in the coding process were reviewed and re-coded accordingly (Barbour, 2007; Braun & Clarke, 2006). Before coding was finalised, the themes, codes and any data that were allocated to more than one environment type were discussed with a supervisor to confirm their allocation. The same supervisor also coded several transcripts for comparison and verification purposes. Discordant views on coding were discussed and the final coding agreed by negotiation. Patterns within and between focus groups were identified through cross-referencing in NVivo 8, supported by the researcher’s field notes. To illustrate and provide supporting evidence for the written findings, selected participant photographs, notebook comments, and banner captions that
represented the themes and sub-themes were chosen and included in the write-up of the findings. (These are presented in Chapters Seven and Eight.)

6.8.2 Analysis of image data
Photographs may be analysed for their content, or interpretively, where the context and latent meaning of the image is taken account of and analysed. To determine what participants saw in their sport-related food environment and understand common features of that environment, a content analysis of the photographs was conducted. Content analysis typically involves systematically quantifying the content of an image in a replicable way, or in visual research specifically, “counting the frequency of certain visual elements in a clearly defined sample of images, and then analysing those frequencies” (Rose, 2006, pp. 61–62). Rose (2006) defines the four steps of content analysis for image data as: (i) sample selection; (ii) devising categories for coding; (iii) coding the images; and (iv) analysis.

The photographs taken by the eighty-two child and thirty-one parent participants were initially examined for ‘usability’; photographs that did not have a clearly identifiable image were recorded as such and discarded. A coding schedule was developed iteratively, based on initial observations and the identification of categories and sub-categories of items. Broad categories were developed first, which were: ‘food’, ‘beverages’, ‘food environment at children’s sport venues’, ‘rewards’ and ‘other’. Sub-categories were then developed based on the images within each category. For example, a picture of a sports drink was coded as ‘beverages’→‘sports drinks’→‘brand’; a picture of lollies21 at half-time was coded as ‘food environment at children’s sports venues’→‘lollies’. Each participant’s usable photographs (children, n=551; parents, n=274) were examined for their content. Data were entered into an Excel spreadsheet. A photograph with multiple subjects, for example, a bottle of water and an apple, would be coded twice. Where a participant took more than one photograph of the same item, the item was coded only once. Frequencies of occurrence (absolute and relative) of items were calculated for each broad category and sub-category, and sporting code.

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21 Confectionery
6.9 Conclusion
This chapter outlined the research methods used in this study to understand the sport-related food environment children live in, and children’s and parent’s views on that environment. Participatory visual research methods were used to capture children’s sport-related food environments from the perspective of children and parents. Children who played football, netball and rugby, sports popular with New Zealand children, and their parents, were given cameras to photograph the sport-related food environment that they encountered over a two week period during the winter of 2010. Participants’ photographs were subsequently used in focus groups with the same children and parents to generate discussion on what they thought about the sport-related food environment, how it impacted them and what should be done about it. The following two chapters present the children’s and parents’ results, respectively.
CHAPTER SEVEN: RESULTS – CHILDREN

7.1 Introduction

This chapter presents the findings from the children’s data, sourced from the children’s photographs and accompanying notebook comments; transcripts of focus group discussions; and focus group photo banners. Data have been collated to address the following central research question:

– Does the sport-related food environment in New Zealand support children’s right to health?

and in this chapter, the following sub-questions:

– What does the sport-related food environment look like from children’s perspectives?

– What are children’s opinions on the sport-related food environment?

The chapter commences with a description of what the children photographed, based on the content analysis of the images. The results of the thematic analysis of the notebook comments, banner captions and focus group transcripts are then presented in accordance with the elements of the ANGELO framework, as detailed in Chapter Two. As with the use of the ANGELO framework in previous chapters, the findings have been presented according to the ‘best fit’ environment type based on significance to the research questions. Each section is summarised and the final section presents a conclusion of the findings.

7.2 Children’s photographs and photo banners

The children photographed a wide range of food and beverage-related items. Almost all children (93%) recorded at least one food item; two-thirds (67%) photographed fruit and vegetables, and two in five (42%) photographed breakfast cereals. Just over a third of the children recorded meals at or from home (39%), and snack foods (35%), including muesli bars, cookies and crisps. Three-quarters of children recorded beverages (73%), the most popular being water (42%), sports drinks (33%) and milk-based drinks (29%). Among sports drinks, ‘Powerade’ (23%) was photographed four times more frequently than any other drink in the category. About a quarter (26%) of the children documented the physical food
environment at community sports venues; where subjects included the food sold and the food items provided for children at game-time. Food advertisements (for example, in newspapers); commercial sponsors of sport (such as local supermarkets and fast food franchises); healthy food promotion tools; and alcohol, were each recorded by fewer than 10% of all children.

Food items were photographed in a variety of places and contexts, ranging from showing them being consumed by the participants or teammates during the half-time break or at the end of their game; available in the home, at sports venues and on supermarket shelves; and promoted in newspapers, posters, banners, supermarkets and on TV. The children gave a wide range of reasons for photographing items. Some items were recorded for the children’s perceived belief of nutrient quality or functional association with sport. For example, breakfast cereal, water, fruit and vegetables, snack foods, food from home, sports drinks, fruit juice, milk and confectionery were photographed as they were ‘good for sport’, provided ‘energy for the day’s game’, ‘improved sports performance’. A few items were photographed because the children recognised they had an association with sport, for example MILO, Weet-Bix and sports drinks. Some items were photographed as they had sport-related images on the packaging or promotion, such as rugby players, collectable trading cards of rugby players, and Player of the Day vouchers. Other reasons included to show sports sponsors, the types of food available at venues, for example, sausage sizzles, and rewards and treats, from whom it was being sold, such as mobile vendors and at club rooms, and the food used as fundraisers. Notebook, photo banner headings and focus group comments were used to confirm the meaning or context of a photograph.

The children selected images from their group’s collection of photographs and by consensus created a group banner. The majority of groups (n=10) displayed their photographs descriptively, according to item type, such as ‘fruits’, ‘drinks’, ‘breakfast’ and ‘lollies’. The remaining groups (n=5) arranged their banner analytically, according to the nutritional characteristics of the food, the relevance of the food to sport, or both. The depth of analysis in the latter style also varied between groups. For example some groups categorised the foods simply as “healthy” and “unhealthy”, whereas others used more detailed captions such as: “Liquids – drinks to keep you hydrated” (Porirua, rugby). Data from the banners are included throughout the chapter, where relevant. Examples of each presentation style are presented in Figures 19 and 20.
Figure 19: Example of an analytic photo banner displaying healthy and unhealthy food (Wgtn, netball, girls)
Figure 20: Example of a descriptive photo banner displaying categories of food and drink (Porirua, netball, girls)
7.3 Physical environment

This section presents the children’s perspectives on the physical sport-related food environment, or “what is available” (Swinburn et al., 1999, p. 565). It includes their views on the nature and extent of the food available at sports venues. All children reported having attended local sports venues including netball courts and arenas, and rugby and football grounds associated with their organised weekend sport and tournaments, either as players and spectators, or both. Other venues mentioned, but less frequently discussed, included school sporting events, council-administered sports centres (swimming pools, recreation centres and basketball stadia), cross-country running competitions, triathlons and indoor cricket. Two groups had also attended sports tournaments outside the Greater Wellington region. Although none of the children attended the Regional Sports Stadium in Wellington (‘the Stadium’) while they had a camera, the majority said they had been on prior occasions to watch regional, national or international professional sports events.

Children’s sources of sport-related nutrition information and expertise are also presented. Food marketing has a physical presence in the food environment. However, the findings on food marketing are more closely linked to the socio-cultural environment, and are therefore presented in that section. Participants’ photographs are used in this chapter to illustrate the findings, captioned using the accompanying notebook comment.

7.3.1 Local sports venues

Nature and extent of food sold

To determine the types of food sold at Saturday morning sports venues, all groups were asked “do you get food at the places where you play sport” and “what types of foods are available?” (MS). Collectively, the children reported having purchased food from privately-owned, mobile food carts parked at venues; on-site ‘tuck-shops’; and vending machines. Girls from two Porirua groups also reported patronising the convenience store and bakery located opposite their netball courts. However, as Saturday morning sports venues often varied from week to week (particularly for rugby and football), so too did the locations where children accessed food, and not all venues had a food outlet. By contrast, most groups reported that they supplied their own drinks, usually water from home, although some said they would purchase a sports drink on the way to their game.

22 A small shop usually located within a premise selling food and drink; a canteen.
All groups reported that the foods available for purchase were those that would be classified as energy-dense and nutrient-poor or unhealthy, and included ice cream, hot dogs, donuts, lollies, carbonated beverages, sausage sizzles, pizza, cheerios (cocktail sausages), hot chocolates, coffee and “hot fatty chips” (Porirua, netball, girl). The photograph and accompanying comment by the netballer who took the photograph in Figure 21 illustrates a typical vendor and the types of food they sell at sports venues. A few groups recalled having seen some healthy food, albeit infrequently. A footballer said of his sport’s club rooms, “there might be like a few apples” (Wgtn, football, boy). The caption in Figure 22 illustrates the abundance of energy-dense and nutrient-poor foods at Saturday morning sport described by most children, “I took a photo of the place where they sell all that stuff [food and beverages]...there were about 14 boxes of fizzy drinks and two boxes of water....Like a 1 to 7 ratio” (Wgtn, netball, girl).

Figure 21: Mr. Chilly van, ice creams, toasted sandwiches, lollies, hot chips..... It shows the types of food they sell at the netball courts. People can go there after netball for a treat/reward (Porirua, netball, girl).
Figure 22: Soft drinks (and water) sold at our games - There were significantly more boxes of soft drink than of water. Lots of people were drinking these soft drinks (Wgtn, netball, girl).

When asked what they thought about the type of food they described being sold, the majority of groups expressed some displeasure, particularly netballers. Most children thought it conflicted with their understanding of healthy nutrition, “they always sell all this food we shouldn’t be eating” (Porirua, netball, girl) and did not support the healthy nutrition behaviours they were encouraged to practice “you’re like tempted to go eat it, but you know you can’t” (Porirua, netball, girl), especially as “we’re like trying to be fit” (Porirua, netball, girl). They said the aroma of the food or seeing others eating it worsened the situation. Most groups also agreed that much of the food available was not suitable to eat when playing sport, as it was “heavy, it’s not light food” (Porirua, netball, girl). When groups were asked why they thought such foods were sold, several remarked it was because “they [the providers] probably think...children want fizzy drink cos it’s attractive” (Wgtn, netball, girl).
During the pilot, sausage sizzles were identified as a significant feature of Saturday morning sport, therefore all groups were asked what they thought about them. The consensus view was that sausage sizzles were strongly associated with sport, and a normal and expected part of local sporting events. For instance, the girl who captioned the photograph of a sausage sizzle said, “there's usually always a sausage sizzle at netball games” (Wgtn, netball, girl) (Figure 23). Another netballer commented, “they’re really common at all netball games or football games. They’ve become like a representative for sport food” (Wgtn, netball, girl).

Figure 23: "A sausage sizzle - there's usually always a sausage sizzle at netball games" (Wgtn, netball, girl).

All groups agreed that sausage sizzles were popular with both spectators and players, that the aroma was particularly attractive, and many children said they looked forward to purchasing a sausage because “you really want to eat it after the game” (Wgtn, netball, girl). Although most groups acknowledged it was not healthy, they also thought sausage sizzles were a convenient and popular food for spectators that had benefits in cold weather, illustrated by the photograph in Figure 24 and the accompanying comment.
To determine children’s views on what they thought should be sold at Saturday morning sport, all groups were asked “what type of food should be available where sport is played? (MS). Several groups suggested that it “should be something small that we could have during games, and something that’s easy to eat” (Porirua, netball, girl), such as sandwiches, fruit, and muesli bars. Several children from different groups, predominantly girls, expressed a desire to consume healthy, but tasty, foods; as a netballer said, “most kids want like something that’s healthy but tastes nice” (Wgtn, netball, girl). Also, some could see benefits in having healthier food available, “then people won’t get sick” (Wgtn, netball, girl) and opportunities for positive role modelling and behaviour change or “inspire people to eat healthy foods” (Porirua, football, boy).

7.3.2 Food provided at game-time
A few children from different groups photographed items typically provided for them immediately before, during or following their Saturday morning games, including orange
segments (‘oranges’), lollies and drinks. All groups were asked their views on having these items available. The provision of orange segments varied from team to team, and from year to year. Nevertheless all groups were familiar with the practice, if not from the current season, then either from a previous one or a sibling’s sporting activities. All groups agreed that ‘oranges’ were a customary feature of rugby and football but notably absent from netball, as a netballer said, “they’re for football and rugby, they have it at half time” (Wgtn, netball, girl). The children who had had ‘oranges’ said the practice was promoted by parents and coaches to have “‘cos like they’re a light food and it doesn’t slow you down too much” (Porirua, rugby, boy).

Most children said they liked having ‘oranges’ as they were juicy, colourful, “quite sweet” (Porirua, rugby, boy) and refreshing—“they just taste good after you’ve been running around for like a half hour” (Porirua, rugby boy). Moreover, virtually all children acknowledged ‘oranges’ had benefits for their sport, believing they “give you lots and lots of energy, slow energy releasing food” (Porirua, rugby, boy) and “they hydrate you, and also an energy food” (Wgtn, rugby, boy). Figure 25 shows rugby boys eating ‘oranges’ for “more energy”. However, a minority of children believed that they were “bad...it has acid and burns your energy up” (Porirua, football, boy) and therefore not suitable to consume during sport. A few other children had heard from coaches that, “apparently they don’t actually do anything, they just dehydrate you even more” (Wgtn, netball, girl).

Figure 25: My team and I eating oranges - It was 1/2 time and we needed more energy and something to eat (Porirua, rugby, boy).
According to all groups, lollies were a “tasty after-game treat” (Wgtn, rugby, boy) or as the netballer in Figure 26 noted, a “reward”. For most children, the potential for lollies to provide “fast energy” (Porirua, rugby, boy, Figure 27) also made them essential for sport, to “hype you up a little bit before your game and then you’ve got a little more energy to burn (Porirua, netball, girl).

Figure 26: Chocolate fish at football...It is a reward food (Porirua, netball, girl).

Figure 27: Our coach handing out lollies to our team...It was 1/2 time at the U11 (under -11y) Rep game. It was to give us fast energy with our oranges (Porirua, rugby, boy).
Children photographed a variety of drinks located at the sideline or being consumed at Saturday morning games. Several groups also photographed their team’s rack of water bottles, regularly provided by their coach or a parent, such as those featured in Figure 28. However, as the photograph in Figure 29 demonstrates, not all groups followed this custom. As described previously, some children purchased sports drinks on the way to their game, which they put in the team rack.

**Figure 28:** Our team's drink bottles...It demonstrates how we keep ourselves cool when play sports and so we don't get dehydrated (Porirua, football, girl).
Figure 29: The team’s drink bottles...Everyone brings a bottle to keep rehydrated (Porirua, netball, girl).

In summary, the children described the food environment at their Saturday morning sports venues as featuring mostly poor quality food and often sugary drinks, particularly sports drinks. There were few if any healthy items for sale, although fruit and water did feature in most children’s Saturday morning nutrition regime. Most children thought the types of food sold were inappropriate for sport, conflicted with the nutrition advice they received, and made it difficult to comply with recommended dietary patterns. Most children were keen to see healthier alternatives available for purchase. Children reported sausage sizzles as being a regular and traditional part of the Saturday morning sport food environment, and well received by spectators and players, despite being considered unhealthy. Several food and beverage items are provided for children at game-time to provide them with extra energy, or as a reward. The nutrient quality of the items available to children was mixed, and included orange segments, confectionery, water and sports drinks.

7.3.3 The Stadium
When asked about the food they purchased when visiting the Stadium, all groups reported that mostly foods described as being energy-dense and nutrient-poor were available, including carbonated drinks, hot dogs, donuts, fish and chips, hamburgers and chips. The collective view among all groups was that that the food at the Stadium was poor quality
and expensive, typically commenting, “it’s not very nice and expensive...everything is kind of a rip-off” (Wgtn, rugby, boy) and “it’s filled with fat and salt” (Wgtn, netball, girl). Children in several groups said they had not seen any healthy food at the Stadium, with one boy saying, “Crazy, fatty, fatty, fatty....There’s no fruit there, definitely” (Wgtn, football, boy). So synonymous was the nature of the food available with the venue, a boy labelled it “stadium food” (Wgtn, football, boy).

All groups were ambivalent when asked whether they thought the type of food sold at the Stadium was appropriate, answering ‘yes’ and ‘no’ equally, or after some hesitation, saying “sort of” (Porirua, rugby, boy). They said that although the food on offer was not good for them, there were good reasons and some benefits for having ‘stadium food’. Their attitude appeared to be founded on how they viewed a visit to the stadium. All groups agreed that going to the Stadium was a special event, and an occasion where they expected and looked forward to consuming unhealthy foods, as a netballer explained, “sometimes my family go to the rugby game and we have dinner there, so we get like burgers and hot chips and a drink and that’s like a really good occasion, special occasion thing” (Wgtn, netball, girl).

All groups also considered a visit to the Stadium to be fun and entertaining, which equated with consuming unhealthy food. A footballer remarked that “it’s just stadium food...they’re [spectators] there to have a good time...they’re there for the excitement, they’re not there to eat like posh people holding their knives and forks [but to] eat with their hands” (Wgtn, football, boy). Many children argued that the infrequency of their visits to the Stadium legitimised eating ‘stadium food’ and posed little harm. For example, a young rugby player said, “oh well, if the rugby is kind of something you only go to occasionally, I guess it’s kind of okay if you pig out when you’re there” (Wgtn, netball, girl). Several groups also said that the food provided a level of comfort for spectators, “it’s good to have if you’re hungry and you need something to eat and it’s cold, it keeps you hot. Then it’s bad to have because it’s all fatty and it’s got too much grease (Porirua, rugby, boy).

Several groups raised potential issues with healthier alternatives that meant they would not be universally accepted by spectators. Some girls said that “because there’s heaps of men and boys [at the stadium], they probably wouldn’t buy it....men...won’t worry about being overweight and stuff” (Porirua, netball, girl). Furthermore, some groups thought tradition
and national identity would be influencing factors as the following brief discussion highlights,

Ppt A: Guys like that food, and there’s normally heaps of guys there
Ppt B: And they sell beer there
Ppt C: And it’s kind of like tradition to get hot chips and sauce and pies
Ppt B: It’s kiwi (Wgtn, rugby).

Taste also appeared to be a barrier for several children, as they believed that healthier foods were “not as nice as what they sell at the moment” (Wgtn, rugby, boy).

In summary, children reported the food environment at the sport stadium was dominated by poor quality, energy-dense and nutrient-poor food, or ‘stadium food’. Although most children thought the food was inappropriate for a sporting venue, they associated it with entertainment and a special occasion, and therefore considered it normal and to fit with the setting. Although some children thought that healthier food should be available, they also believed it would not be popular as it was not traditional or lacked flavour.

7.3.4 Sources of children’s nutrition information

To determine the sources of the children’s nutrition information, especially for sport, all groups were asked “where do you learn about nutrition?” (MS). Groups were prompted to discuss sport-related sources if not mentioned voluntarily. According to most children in all groups, parents were the main source of sport-specific nutrition advice, such as, “you should eat more fruit and take muffins and muesli bars for sport because they are light. What’s it called – recovery food” (Porirua, netball, girl). One netballer gave a detailed account of the advice she received from her parents, typical of responses from most groups:

your parents [other children agreeing] they kind of say, ‘if you eat this it is going to give you energy like bananas and fruit’, whereas if you kind of ask your parents to get lollies before a game my parents say, ‘it’s going to give you a stitch because you haven’t had enough energy and it only gives you a burst of energy for short periods of time’. So if you eat more fruit and drink heaps of water it gives you energy to last the whole game (Wgtn, netball, girl).

In addition, a few children mentioned their parents buying or recommending specific sport-related foods and beverages, such as a netballer who said, “my father told me that sports players drink this [Powerade] and it says it gives you a lot of energy and hydration” (Wgtn, netball, girl).
When prompted, most children said they also learnt about nutrition from school, although the quantity and method of delivery of information varied between schools. Most children said that nutrition education was usually provided by externally-sourced health programmes and initiatives such as the ‘5+ A Day’ campaign and ‘Harold the Giraffe’, the latter being the mascot used by the Life Education Trust to deliver, at the invitation of schools, a broad-ranging health programme. Those children who recalled receiving some formal nutrition education in the school curriculum said they learnt “about the food pyramid” (Porirua, rugby, boy) and were told “not to eat too much junk or we’ll get fat” (Porirua, rugby, boy). One girl commented her class used the internet, “to look up healthy food and what to eat, like athletes who eat healthy” (Porirua, netball, girl). For the most part it appeared that the advice they received at school was consistent with the messages their parents’ provided.

Only a few children confirmed that coaches or other sport-related sources provided nutrition information, which was often limited to the provision of ‘oranges’, or a brief recommendation on what to eat or drink. For example, a netballer said her coach told them to “drink heaps of water instead of having like fizzy, because you need to be able to run around for a long period of time” (Wgtn, netball, girl). Higher levels of sport, such as area representative teams, appeared to engender greater nutrition input from the team administrators and coaches. One Wellington netballer said she thought coaches at those levels “basically teach you a lot of new stuff you don’t learn” when playing sport at school or club level.

Netball was an exception. Both Wellington netball teams and two of the three Porirua netball teams talked about receiving brief, sports-specific nutrition information from netball sources. One girl said she read about bananas being “really good to eat after games...in some Silver Ferns thing” (Wgtn, netball, girl) and another from Porirua said she learnt about consuming “jet planes” and other sport nutrition tips from a “netball [water] bottle we got” (Porirua, netball, girl). Some girls from one Porirua netball club, who were also area representatives, talked about receiving ‘Tournament Packs’ from their local netball association prior to an away event, which contained a sandwich, a piece of fruit, fruit juice and a muesli bar.

23 http://www.lifeeducation.org.nz/
24 NZ’s National netball team.
25 A jube-like confectionary shaped like jet planes.
26 Higher competition level, above club level and selected on ability.
Several groups of children also reported that product packaging was a source of nutrition information. For example, a netballer replied, “on the Mizone [a sports drink] it says 'everything you need and nothing you don’t’” (Wgtn, netball, girl). Two other netballers wrote about breakfast cereals in their notebooks, “fibre, vitamins and minerals is what the packet says are good for sport and great for ‘little athletes’ (Wellington, netball, girl) and as written almost word-for-word on a Weet-Bix box, “gives you long lasting energy throughout the day” (Porirua, netball, girl). Several children from different groups said they also learnt about the nutrient value and sports benefits of food products from viewing numerous television commercials. For example, a footballer wrote in his notebook, “Powerade...It gives you a good boost in your game as advertised in TV” (Porirua, Football, boy) and a rugby player said, “you always see the advertisements, like it has heaps of energy in it and stuff” (Wgtn, rugby, boy).

In summary, children learnt about nutrition from a variety of sources, predominantly from home and school, but also from food packaging and advertising. Only netballers and children engaged in higher level sports reported receiving any substantial nutrition advice from sports sources.

7.4 Socio-cultural environment

This section presents the children’s perspectives on the socio-cultural sport-related food environment, or “what are the attitudes and beliefs” (Swinburn et al., 1999, p. 565). Aspects discussed include the children’s understanding and beliefs about food for sport and social and cultural norms associated with sport, and their views on the influence of role models in their sport-related dietary patterns and the presence of sport-related food marketing.

7.4.1 Children’s nutrition knowledge and beliefs about food for sport

Nutrition knowledge

To gauge the children’s level of nutrition knowledge, all groups were asked to name some healthy and unhealthy foods, and their recommended frequency of consumption. All groups immediately and correctly identified healthy foods, most commonly fruit and vegetables, which they said should be eaten “five plus a day” (Porirua, football, boy). Likewise, all groups identified unhealthy foods as “junk food” or “fatty, sugary stuff”

27 As written, almost word-for-word, on the boxes of Weet-Bix cereal
While virtually all children said the latter should only be consumed “occasionally” (Porirua, netball, girl) or on “special occasions” (Porirua, netball, girl), when asked to define occasional, responses ranged from weekly to monthly. Several children from a few different groups demonstrated more in-depth nutrition knowledge citing technical nutrition terms and specific nutrients, although when prompted they could not always reasonably explain them. For example, when asked what ‘isotonic’ meant, a girl replied, “I’ve heard that a lot....my Dad told me the other day but I forgot” (Wgtn, football, girl). Several children from different groups said that flavour often defined the nutritional quality of foods. For example, they typically stated, “unhealthy foods are really attractive...and there’s heaps and heaps of taste...but not much in the healthy” (Wgtn, football, boy), and a Wellington rugby player commented, “if something tastes good you can’t really think of it as healthy” (Wgtn, rugby, boy).

When asked what they thought the consequences were of consuming ‘junk food’, almost all groups mentioned weight gain and poor sports performance, for instance “you will be obese and you won’t be able to do much sport” (Wgtn, rugby, boy). Other adverse consequences several children from across the groups mentioned included immediate outcomes such as tiredness, vomiting and hyperactivity—“you just go like ‘spazz’....you get like a sugar rush and go crazy” (Wgtn, rugby, boy), and longer term effects, including diabetes, heart disease, tooth decay, and a few groups mentioned amputation and death. Unprompted, children in most groups followed up their responses with an explanation of the necessity of engaging in physical activity to counter the adverse impacts of consuming ‘junk food’, or as they said, “burn it [junk food] off really quick otherwise you just go ‘bleh’ [making a face and indicating a larger size] ” (Wgtn, rugby, boy). Children in a few groups said they were not concerned about the consequences of consuming ‘junk food’.

**Foods important for sport**

It was evident from their photographs and notebook comments, that for most children fruit, breakfast, snacks and certain drinks held particular significance when undertaking sport. Their importance to the children was explored, prompted by their photographs and accompanying comments, and being asked, “Why are these foods important for sport?

**Energy**

‘Energy’ was the most frequent reason children noted for taking a photograph and was a common, recurring theme throughout the children’s discussions about the significance of
the foods, beverages, and meals they had photographed. The energy capacity of various foods and beverages, the personal requirement for ‘energy’, consuming foods and beverages which provided energy, and maintaining energy balance underpinned comments made in most notebooks and focus group discussions, and several banner captions (Figure 30). As one netballer said, “It’s really important that you have energy, like food you eat, foods that give you energy beforehand [in sport]” (Wgtn, netball, girl). According to most groups, energy was important because it assisted sporting performance and endurance. As two netballers remarked, consuming foods for energy meant that “you don’t get tired quickly and we can play longer” (Porirua, netball, girl), or, as many groups also said, you become “hyped” (Porirua, netball, female).
Figure 30:  Photo banner showing the use of 'energy' in captions (Porirua, rugby, boys)
According to most groups, sugar content, more than any other constituent, determined the energy potential of foods and beverages. Only a few children noted that other carbohydrate sources provided energy, such as cereal or bread. In contrast to their categorisation of sugar and sugary foods as ‘junk food’, and its linkage with adverse health outcomes, sugar appeared to be seen by most groups as a key part of sports nutrition, providing them with sufficient vigour to play sport and play it well. A discussion between myself and a footballer is illustrative:

MS: And why is it [sugar] good for you before a game?
Ppt: You get energy and energy boost
MS: And what do you need an energy boost for?
Ppt: To keep you running (Porirua, football, boy)

In the context of sport, most groups said it was permissible and appropriate to consume sugar. Discussions in response to questions about the children’s views on whether sports drinks (which contain high amounts of sugar) were healthy or not are illustrative:

Ppt A: It depends like, what sports event you are doing [Ppt B: and how much you drink], if you are doing a running one it’s sort of healthy (laughter)
Ppt B: It’s bad for you if you drink it on a day to day basis, but it depends on what you are about to do. It’s normally quite good if you are doing a sports thing (Wgtn, rugby, boys).

Ppt A: Well sugar is good for you but a lot of sugar
Ppt B: It depends when you have the sugar because you can get a sugar boost for energy (Wgtn, netball, girls).

Several groups cited the competitive level of sport in which they were participating, or the duration of the event, as situations where consuming sugary foods and drinks were particularly legitimate. For example, several children said that they would use (or their parents provided) sports drinks, at tournaments. A rugby player from Wellington explained that “you’d do it for a rep game...that’s when I get Powerade.... 'Cos they are more important, they’re bigger. If you lose a club game it doesn’t really matter” (Wgtn, rugby, boy).

Yet, some children had contrasting views saying that too much sugar slowed people down and “makes you tired” (Porirua, rugby, boy) while others, remained confused and uncertain when talking about a sugary drink, such as a rugby player who said, “it gives you energy, but it doesn’t as well cos it’s got sugar in it” (Porirua, rugby, boy).
**Sports drinks**

Sports drinks were a major discussion topic in all groups, with most children reporting that they had tried sports drinks and consumed them on occasions (although a number of notebook comments indicated they were consumed more frequently), or that they would like to have them. A few said they almost always have them at game time and a minority had never had them.

When asked why they would drink, or want to drink, sports drinks, the consensus among most groups was because they provide energy to play sport. Notebook comments typically read: “Powerade drink...it’s a good energising drink before, during and after sport” (Porirua, netball, girl) and “e2[a fruit drink]...I drank it while playing football to give me energy” (Porirua, rugby, boy); and a banner caption read, “performance enhancing drinks” (Wgtn, rugby, mixed). According to most children, drinking sports drinks before or during games assisted them in sport by getting them “all hyped up and ready to go and like brand new, just got out of bed, ready for action” (Porirua, rugby, boy). When asked how sports drinks did this, they said it was the ingredients, especially sugar, as two boys from two different groups explained, “they have these things that kind of boost your energy....Like Powerade, it says it’s got electrolytes that make you fast” (Wgtn, rugby, boy) and “a special type of Powerade has like rehydration salts and stuff...which are really good for games” (Wgtn, football, boy).

The few children, mostly girls, who said they preferred not to consume sports drinks cited a dislike for the taste, a preference for natural ingredients, or both, and at times, expense, as reasons for not drinking them. They typically remarked, “water is better for you....because it’s not coloured and it doesn’t have anything in it like sugar and stuff” (Porirua, netball, girl). Believing the energy expended at Saturday morning sport was insufficient to counter the increased energy intake from sports drinks, one or two children in a few groups also thought they were inappropriate for children and were only “meant to help you if you’re actually doing athleticness” (Wgtn, netball, girl).

Given their earlier assertions that sugar was unhealthy, substantial debate within groups was generated when asked their opinions on the nutrient quality of sports drinks. Children in most groups responded with ambivalence, typically saying “I think half and half” (Porirua, rugby, boy). While there was general agreement that the drinks were unhealthy, because of their energy potential, and perceived utility in the sporting context, some
children also viewed them as beneficial. One or two children in each group would say either “healthy” or “unhealthy”. Overall, sports drinks were neither declared ‘healthy’ nor completely unacceptable by most children. At the very least, the children considered them to be a regular, normal feature of the sport-related food environment.

**Water**

The consensus among all focus groups and in notebook comments was that water is “healthy and [the] no. 1 drink for everybody, a natural drink” (Porirua, rugby, boy) and “good for hydration when playing sport” (Porirua, netball, girl). The majority of children said they usually took water to their practices and games. However, despite its healthy, natural profile, many children said that water was not as flavoursome as sports drinks and flavoured waters, agreeing with a footballer who described water as “boring” and favoured drinks as “yummy” (Porirua, football, boy) respectively. Consequently, most children preferred the latter as they “refresh you after you’ve had a game” (Porirua, netball, girl).

**Fruit**

Almost all children considered fruit as “a big part of sport” (Wgtn, football, boy). Eating fruit before or during games was frequently mentioned in notebooks, and when explanations were sought in focus groups, most groups referred to its healthy and nutritious, energy-giving potential as the main reason for this belief, for example, “it gives you energy which isn’t complete sugar” (Wgtn, football, girl). Most children said they enjoyed eating fruit because it was “juicy and yummy” (Porirua, netball, girl), “quite sweet” (Wgtn, rugby, boy), and “sometimes really crispy” (Porirua, rugby, boy).

Nevertheless, similar to sports drinks, some children from several groups had difficulty reconciling the sugar content of fruit with being healthy, and yet for some, fruit’s ‘naturalness’ seemed to counter the harmful effects of sugar, as the following conversation between two rugby team mates illustrates:

*Ppt A: fruits are really healthy, but it’s like all food you can only have a certain amount of it or it’s bad for you, ‘cos like apples have heaps of sugar in it*

*Ppt B: the sugar in apples is not fake sugars, not artificial sugars....‘cos the fake sugar is worse for you, it’s not like naturally made*
Two netball groups held similar views: “it’s kind of more natural than having something else...some junk food or lollies and stuff” (Porirua, netball, girl) and “technically, it’s better for you than drinking Powerade” (Wgtn, netball, girl).

**Breakfast and cereals**

Across all groups, meals consumed in the home before or after games were commonly discussed. The importance of a specific meal reflected a child’s sports practice or weekend game schedule, and as most games are played on a Saturday morning, many children photographed their breakfast believing it was “the most important meal of the day” (Wgtn, netball, girl). For example, a netballer described her bowl of cereal as “the first meal of the day and for me who plays rugby and netball I need a boosting breakfast to play good games of rugby and netball.” (Porirua, rugby, girl).

Cereal was the most photographed breakfast food, and Weet-Bix the most photographed cereal. According to most children, Weet-Bix was an iconic product that was good for them and had strong, traditional sporting ties in New Zealand. For instance, a rugby player described it as “NZ’s #1 cereal and it gives rugby players...an energising start each morning” (Porirua, rugby, boy) and a footballer wrote that it was “a Kiwi healthy sports food” (Porirua, football, boy). Almost all children also thought it had great energy potential for sport as children typically commented, “I eat Weet-Bix for breakfast and it’s good for me. It helps me for my rugby games by keeping me energised” (Porirua, rugby, boy).

**Snacks**

In contrast to rugby and football players, snacks appeared to hold special significance for netballers, who frequently photographed muesli bars, cookies and fruit. Snacks were considered healthy and seen as beneficial as they “are always good for a quick burst of energy, like during the game or something” (Wellington, netball, girl).

In summary, the children in this study appeared knowledgeable about the nutrient quality of different food and drink, and aware of the recommendations regarding consumption of those foods and the health consequences of consuming ‘junk food’. The children associated certain nutrients or dietary patterns with sport. To improve performance and endurance, energy and in particular the consumption of foods high in sugar, such as lollies and sports drinks, were considered important to most children. Despite acknowledging that sugar was not healthy, most children agreed that the health impacts of consuming
sugar were negated by their self-reported infrequent consumption and increased activity levels. Virtually all children associated fruit and water with sport and being nutritionally superior. However, many children also displayed confusion about fruit, thinking that it was less healthy as it contained sugar. Breakfast was considered by almost all children to be an important part of their sports nutrition regime, and for netballers, snacks were also significant.

7.4.2 Role models

Parents
While discussing nutrition information sources, several children in all groups mentioned how their parents also passed on nutrition knowledge through the types of foods they provided for the home. All groups were of the view that parents tried to provide a healthy home food environment, with some children having documented it through photographing the types of food they ate, or that were in their refrigerator, or health promotion aids such as the fridge magnet in Figure 31. Several children also commented that they realised their requests for junk food were turned down because their parents were trying to act in their best interests and protect them from potential adverse consequences. Typically, they would say, “sometimes it can be really unhealthy for you and like, they’re [parents] watching out for...your kid” (Wgtn, rugby, boy) and “they don’t want us to be big and fat” (Wgtn, rugby, boy). The following discourse within a Wellington netball team summarises the role of parents in the children’s nutrition education,

Ppt A: They’re [parents] a good influence, ’cos they want you to eat healthy
MS: And how do they do that?
Ppt B: By giving you healthy food
Ppt A: By telling you maybe more about it
Ppt B: Probably only buy healthy food like they probably only buy healthy food (Wgtn, netball, girl).
Figure 31: At home - healthy eating fridge magnets (Porirua, football, boy).

Athletes
The influence of high-profile athletes on children’s dietary behaviours was discussed by all groups, usually prompted by questions about the use of athletes to promote food. The consensus among all groups was that high-profile athletes were “inspiring” (Porirua, netball, girl), “idols” (Porirua, netball, girl) and “role models....someone who you look up to” (Wgtn, netball, girl). As such, most groups also agreed that children wanted to emulate their favourite athlete’s actions and be as successful. For example, two children from different groups said, “kids are looking up to them [sports people] and seeing what they’re doing and they are probably going to want to have what they have (Wgtn, football, boy) and “they want to be like the All Blacks...do everything the All Blacks do” (Porirua, netball, girl). This desire to try and be like their idols included eating and drinking the same foods and beverages athletes consumed. A netballer remarked, “my cousins eat it [Weet-Bix] because they think they’re going to be in the All Blacks” (Porirua, netball, girl), and when asked why they themselves drank Powerade, several children from different groups said it was “’cos the All Blacks have it” (Porirua, rugby, boy).

All groups recorded and reported seeing high-profile athletes promoting food products in TV advertisements, purchase incentives, product packaging, and posters. In many of the TV advertisements they described, the athletes were engaged in (usually improved)
sporting action or having increased ‘energy’ after consuming the advertised product. For example, a rugby player from Wellington recalled: “the ad for Powerade [that] shows Joe Rokocoko [an All Black] drinking Powerade and he runs through with one and scores [a try]” (Wgtn, rugby, boy). In another example, a few groups recounted an advertisement which depicted the All Blacks challenging children to out-eat them with Weet-bix:

Pt A: he [the All Black] can do six Weet-Bix - ‘I can do six’
Pt B: And then that little kid comes along and says ‘I can do eight’
(Wgtn, football, mixed).

Several groups said they also recalled seeing athletes consuming products or drinking from product-branded drinking bottles, at the side of the field or during half-time during televised games. They also reported seeing products placed in the players’ changing rooms, as a rugby player described, “they have like twenty of them [Powerade] just like sitting there and some of them are drinking it and some of them are not” (Porirua, rugby, boy).

When asked what they thought professional athletes ate and drank, the majority of groups agreed that they would likely consume healthy food and eat a good breakfast, as they “need the energy and power and get ready to get out on the field and play for our country” (Wgtn, netball, girl). Yet when asked if they thought athletes consumed the food they promoted, responses were mixed, often varying by age. On the one hand, most children thought that athletes would only consume healthy products, as these were likely to be concerned about the health and performance implications of consuming unhealthy foods. For example, a Wellingtonian said, “if they [athletes] got fat and everything, they wouldn’t be able [to play]” (Wgtn, netball, girl). However, given the athletes’ level of activity, some also thought athletes might consume the products they were promoting, even if they were unhealthy. Comments from rugby players from two different groups about the All Blacks drinking Powerade are illustrative, “they’ve been [working] really hard and covered in sweat and they’re going their all so they probably deserve it [Powerade]” (Wgtn, rugby, boy) and “it’s junky…but they just burn it off when they go play rugby” (Porirua, rugby, boy). The younger children in a few groups believed athletes did consume the products they promoted, and seeing them eat or drink those items cemented this belief, such as a younger rugby player from Wellington said, “they do, ‘cos at half time you see Richie McCaw [All Black captain] get his red Powerade and go [indicating swallowing]” (Wgtn, rugby, boy).
Teachers were another set of role models mentioned by some children who set examples for healthy eating. A few children also said that seeing other people at sports venues eating made them hungry and to want to purchase food. Other potential role models, such as sports coaches, sporting organisations and peers were not raised by the children as role models, nor prompted for.

In summary, most children reported parents role modelled healthy food behaviours through the foods they provide for the home. Children realised that by doing so they were fulfilling their role in providing a healthy food environment in the home. Well-known athletes were a significant influence on children’s dietary patterns and beliefs. They appeared to be highly revered by the children, who wanted to emulate their dietary behaviours in order to perform like them. The majority of children reported seeing many high profile sports people in various types of food marketing, typically endorsing or being sponsored by food products, some of which are unhealthy. Most children were uncertain as to whether the athletes consumed the products they were associated with.

### 7.4.3 Sport-related food marketing

**Nature and extent of food marketing**
The children’s photographs and notebooks and subsequent discussion featured numerous sport-related food marketing techniques photographed in the home, supermarkets, dairies, sports venues, and club rooms. Promotional activities identified included purchase incentives, such as collectable trading cards of high-profile sports people; competitions for autographed t-shirts, sports equipment, tickets to a sports game, and the chance to meet or spend a day with well-known athletes or teams; food-based rewards and free giveaways such as Player of the Day certificates and branded water bottles; sport-related graphics on product packaging, such as pictures of high-profile sports people, wording and nutrient content claims; signage; posters; and TV advertisements, either for a specific food item or “1/2 time advertising for McDonald’s & Powerade & KFC & Mastercard & wine!” (Wgtn, rugby, boy). Other strategies groups recalled, when prompted, included sport-related food marketing on billboards; advertising hoardings at the Stadium; and advertisements on the side of buses and bus stop shelters, on radio, and in newspapers and magazines. Several groups also reported that activities were sometimes combined, such as this Wellington rugby player who explained that,
[on the website] you can buy cases to hold the cards [collectible trading cards of the All Blacks in Weet-Bix packets] and it has games on it, and there’s a code on each card and you write down to see if you have the full cards and you win stuff (Wgtn, rugby, boy).

The range of marketing techniques the children recorded is presented in Table 14.

**Table 14: Sport-related food and beverage promotional activities identified in children’s photographs and focus group discussions**

<table>
<thead>
<tr>
<th>Promotional activity</th>
<th>Type and location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase incentives and rewards</td>
<td>In-product collectible trading cards (‘Team Tags’ and ‘Super Flyers’) and associated website-based competitions and extra collectables</td>
</tr>
<tr>
<td></td>
<td>Competitions for autographed t-shirts; sports equipment, tickets to a sports game, and the opportunity to meet well-known sports people</td>
</tr>
<tr>
<td>High-profile sports people/teams; role models</td>
<td>Appearing in TV advertisements, posters, product packaging, purchase incentives; seen consuming and in ‘action’ shots</td>
</tr>
<tr>
<td></td>
<td>Consuming product at half time and sideline of games</td>
</tr>
<tr>
<td>Corporate sponsorship</td>
<td>Clubs, and national teams and sporting codes</td>
</tr>
<tr>
<td></td>
<td>Children’s tournaments</td>
</tr>
<tr>
<td>Giveaways</td>
<td>Player of the Day certificates</td>
</tr>
<tr>
<td></td>
<td>Rewards: plastic drink bottles, free food vouchers, clothing</td>
</tr>
<tr>
<td>Product features and packaging</td>
<td>Pictures of sports people</td>
</tr>
<tr>
<td></td>
<td>Competitions</td>
</tr>
<tr>
<td></td>
<td>Wording</td>
</tr>
<tr>
<td></td>
<td>Team branding and logos – All Blacks</td>
</tr>
<tr>
<td>Product placement</td>
<td>Sideline of weekend sports games</td>
</tr>
<tr>
<td></td>
<td>Professional teams’ changing rooms seen during half-time on televised sports</td>
</tr>
<tr>
<td>TV, radio, newspaper and magazine advertising</td>
<td>Of sport-related foods</td>
</tr>
<tr>
<td></td>
<td>Food advertisements during televised sports</td>
</tr>
<tr>
<td>Static posters and billboards</td>
<td>Bus stop shelters</td>
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<tr>
<td></td>
<td>Side of buses</td>
</tr>
<tr>
<td></td>
<td>Diaries</td>
</tr>
<tr>
<td></td>
<td>Supermarkets</td>
</tr>
<tr>
<td></td>
<td>Hoardings on sideline of the Stadium field</td>
</tr>
</tbody>
</table>
It was evident that the majority of children were familiar with many of the promotional activities, as they readily, without prompting, recited advertising tag-lines, described the graphics on packaging, recalled the celebrity endorser or associated sport, or described, often in detail, the television or other media advertising for each product. For example, a netballer recounted an ad during a discussion about sports drinks, “the athlete guy who’s climbing the mountain and he’s got that pack and he pours the Mizone into the pack thing [oh yeah – general consensus]” (Wgtn, netball, girl).

Children’s comments across all groups also suggested that most children, especially football and rugby players, expected there to be an association between a sporting code or athlete(s) and food products or brands. The most frequently discussed linkage was that between food and professional rugby. A netballer remarked “everything’s All Blacks, eh?” (Porirua, netball, girl). Groups of young rugby players frequently talked about the sporting code’s relationship with Coca-Cola (Figure 32), Powerade (Figure 33) and Weet-bix (Figure 34). Likewise, footballers often spoke of the connection between their sport and McDonald’s (Figure 35). With the exception of Weet-Bix, professional rugby and football were predominantly linked with energy-dense and nutrient-poor foods. By contrast, most netball groups pointed out that their sport was linked with a “large supply of healthy food” (Porirua, netball, girl), being a brand of frozen food (McCain) and a supermarket franchise (New World). The previous comment by a netballer about the ubiquity of the All Blacks possibly also suggests a lack of expectation of a linkage between a food and netball, a view shared by several of her teammates.
Figure 32: All Blacks with Coke...The All Blacks are promoting Coke (Wgtn, football, girl).

Figure 33: Powerade...It has a Silver Fern / All Blacks symbol (Wgtn, football, girl).
Figure 34: Weetbix...It supports rugby (Porirua, rugby, boy).

Figure 35: “McDonald’s...Advertised on TV and also supports football” (Porirua, football, boy).
Table 15 summarises the associations between food brands and sporting codes commonly identified by the children.

Table 15: Associations between food brands and sporting codes or teams commonly identified by children in photographs or focus group discussion

<table>
<thead>
<tr>
<th>Product or company/organisation</th>
<th>Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weet-Bix</td>
<td>All Blacks (National rugby team) – franchise and individual players</td>
</tr>
<tr>
<td>Powerade</td>
<td>Super 14 Rugby Franchise (New Zealand’s professional rugby competition)</td>
</tr>
<tr>
<td>UP&amp;GO</td>
<td></td>
</tr>
<tr>
<td>Coca-Cola</td>
<td></td>
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<tr>
<td>Coke Zero</td>
<td></td>
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<tr>
<td>Diet Coke</td>
<td></td>
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<tr>
<td>Honey Puffs</td>
<td></td>
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<tr>
<td>Nutri-Grain</td>
<td>New Zealand Warriors (New Zealand’s professional rugby league team)</td>
</tr>
<tr>
<td></td>
<td>Ironman New Zealand</td>
</tr>
<tr>
<td>McDonald’s</td>
<td>All Whites (National football team); New Zealand Football</td>
</tr>
<tr>
<td>Mizone Isopower</td>
<td>A male Olympic rower and a female Olympic cyclist</td>
</tr>
<tr>
<td>Milo</td>
<td>Black Caps (National cricket team); New Zealand Cricket</td>
</tr>
<tr>
<td>McCain</td>
<td>Silver Ferns (National netball team)</td>
</tr>
<tr>
<td>New World</td>
<td></td>
</tr>
<tr>
<td>‘Beef &amp; Lamb’</td>
<td>Olympic female rowers and cyclists</td>
</tr>
<tr>
<td>Bottled water</td>
<td>National rugby players</td>
</tr>
<tr>
<td>Potatoes</td>
<td>Well-known Wellington runner</td>
</tr>
</tbody>
</table>

When asked how much sport-related food marketing they saw, children in most groups responded immediately and ‘en masse’ with, “there’s heaps” (Wgtn, rugby, boy) and “you see them a million times” (Wgtn, football, girl), and said it was mostly for ‘junk food’. Only three children (3.6%) photographed examples of sport-related marketing of fresh
food, and when promoted about how much marketing they could recall for healthy items, most groups typically responded: “I tend not to see much...[it’s] all this new not-good food on TV...instead of fruit (Wgtn, netball, girl), a situation they thought was “weird” (Porirua netball and Wgtn football girls). In response to prompts to determine their views on why they thought there was such little fresh food marketing, most groups agreed that compared to ‘new’ processed foods, fruit did not require promotion because it was normally available and people were aware of it: “everyone knows all of the fruits, but like with Powerade, they’re trying to get it out there to people who may not know about the new [drink]” (Wgtn, football, boy) Two different netball groups also said that, unlike manufactured products, fruit lacked any special features and was “very hard to brand” (Wgtn, netball, girl). Nevertheless, most groups said they usually saw commercial bottles of water in the All Blacks’ changing rooms at half time during televised games, and two groups confirmed having seen bowls of fruit in there.

**Opinions on sport-related food marketing**

All groups were prompted to discuss why they thought the various marketing strategies they photographed or recalled were used, how effective they were and who they targeted. The consensus view across all groups was that sport was used as a means to enhance a product’s profile, sell more of that product and generate profit, or in the words of a young rugby player, to “get more interest in it [a product] and they can get more money out of it” (Porirua, rugby, boy). Such was the attraction of sport that most children thought if it were not utilised, a product would not be as popular or sell as well. For instance, without the collectible All Blacks trading cards in Weet-bix several children from a number of groups said that the cereal “would be pretty plain and people won’t buy them as much” (Porirua, netball, girl) which would subsequently impact the manufacturers’ bottom line, “their profits would go down” (Porirua, rugby, boy).

According to most groups, the use of high-profile sports people was a particularly effective method of promoting a product, because as a Wellington girl said, “most people will have a favourite sporting person, and if they [marketers] choose the most popular ones, it enables [marketers]...to get to people (Wgtn, netball, girl). Several groups provided examples of how the strategy encouraged purchasing. A netballer thought that having a day with popular athletes as a prize would increase the likelihood of more product being
sold, “because they [children] really want to meet the Black Caps\textsuperscript{28} [and so] they keep buying more and more Milo until they have heaps of entries” (Wgtn, netball, girl). Similarly, a rugby player said of the All Black trading cards in cereal boxes, “if people like the cards it’s a cheap way of selling stuff...to get more [people] tempted” (Wgtn, rugby, boy).

Furthermore, according to most groups, the high-profile sports people’s trustworthiness, inherent in their status as a role model, enhanced a product’s nutrient benefit and value, sending a message such as: “it’s supported by the All Blacks so it must be good for you” (Porirua, netball, girl). It also gave credibility to products, including those that the children categorised as ‘junk food’. This latter point was illustrated by a netballer’s comment about the All Blacks’ association with a sports drink, “it makes other people want to drink Powerade, ‘cos it’s like role model energy” (Porirua, netball, girl). Similarly, the association endorsed manufacturers’ nutrition claims, particularly those of improved sporting performance and success: “they [consumers] say ‘oh the All Blacks drink it and it probably helps them heaps, so I’ll get heaps of it, so I’ll be like real good” (Wgtn, rugby, boy).

Several children from most groups reported that they had been given commercially-produced ‘Player of the Day’ certificates which had a voucher for free food or beverage items attached. Establishments that provided the vouchers included fast food restaurants (such as the one in Figure 36), franchised sit-down restaurants (which serve large-portion, energy-dense and nutrient-poor meals), a bagel/pizza store, a bakery, and a ten-pin bowling alley (which gave away a carbonated drink). When groups were asked their purpose, most (particularly groups with older children) agreed they were a way for companies to get more people into their stores and generate sales. This view was illustrated by a young footballer who stated that ‘Player of the Day’ certificates are “just advertising really” (Wgtn, football, girl), the girl who took the picture entitled, “McDonald’s ad”, and commenting on a ‘Player of the Day’ certificate in Figure 36, the netballer wrote, “getting a free taster might make them [recipient] come back again...and pay $$$” (Wgtn, netball, girl). Nevertheless, some children took the certificates at face-value: “it’s rewarding ‘cos like after a good game you play well, you deserve more than a treat [meaning confectionery]” (Wgtn, rugby, girl): as a means to provide nutritional

\textsuperscript{28} National cricket team
benefits for players after a game, “you’ve been working hard and it gets some food into you” (Porirua, rugby, boy); and to incentivise players, or “persuade you to play good” (Wgtn, rugby, boy).

Figure 36: McDonald’s ad - it is attached to the player of the day (football) (Wgtn, netball, girl).

Figure 37: Player of the day certificate sponsored by Wholly Bagels - It is sponsored by Wholly Bagels and the person who receives it gets a free small kids bagel and a drink (kids). (Getting a free taster might make them come back again...and pay $$$) (Wgtn, netball, girl).
According to some children, the innate characteristics and package design of foods and beverages with sport linkages were also drawcards. The “bright colours” (Wgtn, netball, girl) of beverages were frequently mentioned, with a few children believing colour was related to a product’s ‘energy’ potential, “the blue one...boosts you up, it’s healthy” (Porirua, football, boy). Products’ external design, such as “pictures of the All Blacks, [it] looks cool, they’re like diving for a try” (Wgtn, rugby, boy), were another feature, as were nutrient claims, as a netballer said, “when you ask someone why they drink Powerade they sometimes go ‘because it says on the bottle it’s scientifically proven to make you last longer’” (Wgtn, netball, girl). Scientific-sounding terms and use of words on the product packaging, such as those highlighted by a football player in Figures 38 and 39, or mentioned by other children:

Ppt A: They have brands like Powerade – ‘power’, gives you power, trying to make it sound cool
Ppt B: Yeah, they can have nifty little words that you can play with like ‘UP&GO’ (Wgtn, football, mixed).

A few children noted that sponsorship of sporting codes was also a way of attracting more business. For instance, a footballer said that McDonald’s sponsoring his sport would “attract more people to go to McDonald’s” which he said was a “good thing for McDonald’s” (Porirua, football, boy).
Figure 38: Milo cereal...it uses the words ‘nutritious energy’ to promote it (Wgtn, football, girl).

Figure 39: Poster of ‘Loaded’...It has the words energy and hydration and new sports assassin. It is an isotonic sports drink (Wgtn, football, girl).
To determine children’s views on the target audience for the marketing strategies they discussed, all groups were asked “who do you think the ads or promotions are aimed at?” (MS). The consensus view was that that the techniques were particularly attractive to children, especially those who played sport, and were used for that purpose. For example, they said of purchase incentives, “definitely the kids with the [collectible trading] cards and things” (Wgtn, football, boy) and of competitions, “kids are going to go for things they can win in a packet” (Wgtn, football, boy).

Some groups, predominantly girls, discussed how they thought the marketing was gender-focused. Using Weet-bix as an example, the girls in one group said, “our brothers would most likely like rugby and All Blacks and everything, so if they saw the All Blacks on the Weet-Bix it would encourage them to eat it” (Wgtn, netball, girl). Alternatively, some girls also thought the All Blacks were used, “because lots of girls like them” (Porirua, netball, girl). A Wellington netball group had yet another viewpoint; that Nutri-Grain cereal was targeted at boys because of its claims of greater physical strength: “it says on the ads if you eat it through your life then you get more power and muscles and all that stuff. I think some boys will feel tough and girls will come to you (laughing)” (Wgtn, netball, girl). By contrast, most all-girls groups said that women and girls were rarely seen in any sport-related food promotion, or the target of marketing, an opinion shared by the sole girl in one rugby group—“I can’t really think of anything they advertise to girls” (Wgt, rugby, girl).

The majority of groups also discussed how they thought they were targeted as a means for companies to reach parents, as the ultimate purchaser. For example, a group of netballers explained that, “basically, when we see an ad that we like, we’re pressuring our parents to buy it for us” (Porirua, netball, girl), and:

- **MS: Who is the advertising aimed at?**
- **Ppt A: The kids**
- **Ppt B: And then they nag their mum and dad.”** (Porirua, netball, girl).

Children from a few other groups argued the point further by saying that they were being used for the financial benefit of food companies, as the following conversation between footballers about trading cards and an associated web-based competition illustrates:

- **Ppt A: I reckon they are trying to get more kids to go on there**
- **MS: Why do you think that?**
- **Ppt A: ’cos the kids might moan at their parents to get them [cards] for them**
- **Ppt B: They’re [food producer] sneaky**
Some children also thought that because of their vulnerability and inability to make discerning decisions, they, rather than their parents, were primarily targeted, for example, a Wellington football player said “they [children] are kind of like a weaker target and they can’t answer it... but our parents can actually say ‘no’” (Wgtn, football, girl).

Although all groups were asked what they thought about children being targeted, only a few chose to respond, and the depth of discussion varied between groups. Often opinions in these groups were divided; some were a little hesitant, “It’s kind of okay” (Wgtn, rugby, boy); while others were more positive, “I think it’s okay” (Porirua, netball girl) and thought marketing was a useful way to learn more about new products, “sometimes it’s good because, like, maybe you hadn’t seen it before and maybe you want to try it” (Wgtn, football, boy).

Opinions on the use of sport to promote food
All groups were prompted to discuss their views on sport being used to promote unhealthy food. Responses from most groups were mixed, and opinions were usually conditional on the nutrient profile of the food being promoted; a netballer’s reply reflected the general view: “it depends what’s in it, like, how much sugar there is and how much fat” (Porirua, netball, girl). Children in most groups agreed that the association between sport and energy-dense and nutrient-poor “doesn’t make sense” (Wgtn, football, boy); as a netballer explained McDonald’s’ support of football is, “kind of dumb, because McDonald’s has really fatty foods and promoting sport is like a complete opposite” (Wgtn, netball, girl).

When asked their opinions about ‘Player of the Day’ certificates specifically, the general agreement within and between several groups was that the message they conveyed was unhelpful and conflicted with those they received from parents and at school; a young footballer said, “they say we shouldn’t eat fatty food and if McDonalds is sponsoring the sports team then everyone thinks that it’s cool to eat it” (Porirua, football, girl). In addition, a few groups recognised the inappropriateness of the association for children, as a netball team from Porirua realised:

Ppt A: And then they’ll get more publicity and stuff (Porirua, football, all boys).

Ppt A: [It’s] a bad thing because like –

Ppt B: They shouldn’t be encouraging children to be unhealthy (Porirua, netball, girl).
A Wellington rugby player highlighted the irony of ‘Player of the Day’ certificates, saying that receiving an unhealthy food reward was “silly because player of the day is usually the one who runs around the most and [then] puts back on all the weight” (Wgtn, football, boy).

Alternative suppliers of Player of the Day certificates were often suggested, unprompted. Several netball groups said they would prefer healthier items, over which they had greater control; one thought, “we’d be better off with Subway or something” because “it’s nice and healthy...you can choose what you want...and you know what’s in it” (Porirua, netball, girl). Non-food items were also appreciated, “I like how Fisher and Paykel gave out free socks” (Porirua, netball, girl).

While almost all children said they enjoyed receiving rewards and the accolade of their peers and coaches, they said that Player of the Day certificates were not a major motivator. Instead, many remarked they would play sport regardless of any reward offered, for example, “I’d rather play good netball to like win the game, than just to win the player of the day award” (Wgtn, netball, girl). The children often continued by stating they had other, more influential factors, including “to make the school proud” (Porirua, netball, girl), “the coach” (Porirua, football, boy), “winning” (Porirua, netball, girl), and “so you can get into the Silver Ferns” (Porirua, netball, girl). The Porirua football group said their coach gave the team’s player of the day money to purchase ‘oranges’ for the following week’s game.

High-profile athletes endorsing unhealthy foods was of particular concern to some groups, who thought the association was not desirable and, for a few, violated a level of responsibility implicit in being good ‘role models’, as a netballer explained: “sometimes it can be good, but sometimes it can be bad, because if they’re [sportspeople] telling people to eat fatty foods it wouldn’t be that great” (Porirua, netball, girl). A Wellington netballer’s comment went further, implying that the association had the potential to reflect badly on the athletes, “it’s pointing back to sports people...if they [people] get diabetes they won’t be able to play and they’ll blame the All Blacks who are advertising it” (Porirua, netball, girl). By contrast, all groups were of the view that because the

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29 NZ appliance manufacturer and a former sponsor of the national netball team
30 National netball team
promotion of healthy foods did not have adverse consequences whether it was associated with sport or not, it “doesn’t really matter” (Wgtn, football, girl).

**Other impacts of sport-related food marketing on children**

During discussions about their views on food marketing techniques, children in most groups often commented on the techniques’ adverse impacts. Issues raised included the dishonesty and deception of the marketing; their subsequent disappointment and feelings of being used; and the financial burden on parents and family disharmony the marketing generated.

*It’s dishonest and disappointing*

Comments from a few children from several groups indicated that they often felt deceived and disappointed by the promotional activities they discussed. For example, when talking about the claims made about the chances of winning in order to entice people to enter competitions, children typically remarked, “I reckon they’re lying...we never won anything” (Porirua, netball, girl) and “you think you have a chance...but it’s not that much” (Wgtn, football, girl). Some children continued by explaining that their unsuccessful experiences with competitions had left them feeling duped and disappointed, despite having met the stated entry criteria (or so they thought). For instance, a footballer said of a competition associated with trading cards: “I had the most cards you could get, but they still didn’t give me anything” (Porirua, football, boy).

A Wellington netball group explained similar issues they had experienced on several occasions with Player of the Day certificates. They said the location where their voucher was to be redeemed was not easily accessed by children, “it’s all the way into town” (Wgtn, netball, girl); they encountered difficulties redeeming the voucher, “they [restaurant staff] said it was the wrong place” (Wgtn, netball, girl); and they felt let-down when they did not receive what they believed the voucher promised, “I went there and I like ordered it, and I sat there for about half an hour. And then they bought it and it was a tiny, tiny bagel and they didn’t even get my order right” (Wgtn, netball, girl). Other groups mentioned that most Player of the Day certificates had ‘conditions of use’, which generally specified the location where the vouchers could be redeemed, had an expiry date (usually limited or the same day), or that it was redeemable only when other items were purchased. Children frequently commented that the voucher was usually only the smallest or cheapest menu item.
Nutrition content claims and assertions of improved sports performance conveyed in the marketing were other areas that some children thought deceptive. When asked if they believed the claims, some (mostly older children) answered outright ‘no’, some were uncertain, saying, “um...not all the time” (Porirua, rugby, boy) or “maybe, maybe not” (Porirua, football, boy) and a few, usually younger children, would answer ‘yes’. Many of those who did not believe the claims challenged them, for example, “how can a cereal make you fitter and stronger?” (Porirua, netball, girl) and questioned portrayals of heightened sports performance seen in advertisements, “like the Powerade one where the guy’s just running and he goes ‘ohhhhh’ [gets a boost of energy] after he’s had a drink. That’s not going to happen” (Wgtn, football, boy). Some were realistic:

They [children] might think that if you eat lots of that [cereal] you become really fit. But you actually have to do exercise. You can’t just sit there all day eating all these cereals that say they’ll make you an Ironman because you’ll just become fat (Wgtn, rugby, boy).

Personal experience also seemed to shape some children’s opinions, as illustrated by a football group when speaking of sports drinks:

Ppt A: ‘cos I drink it and it doesn’t make me go any faster
Ppt B: doesn’t it say it will give you more energy?
Ppt A: but it doesn’t make me go phew (indicating shooting off like a rocket)” (Porirua, football, boy).

Several also expressed doubt about product labelling, “they say it [UP&GO] has the protein of two Weet-Bix, but that doesn’t mean it has all the goodness of Weet-Bix” (Wgtn, football, boy) and others pointed out that companies and promoters were being deliberately deceitful when highlighting healthy ingredients on the packaging while omitting those which were likely to be harmful or detract from its purchasing potential:

if something is really good [it’s] on the front, they have everything that’s not very good on the back...usually they pick a good thing like calcium, carbs, protein, like really big, and then they put the sugar on really small writing (Wgtn, football, boy).

Several children also questioned the legitimacy of athletes consuming products they endorse, arguing that they only gave the appearance of doing so and that it was merely a promotional activity. For instance, when discussing the All Blacks drinking from plastic water bottles branded with ‘Powerade’, children from two groups said that the bottles probably only contained water or that “they just pour it [Powerade] into their mouths and
spit it out” (Wgtn, netball, girl). They said they did this only “so that they [spectators] see the All Blacks in action with them” (Wgtn, football, boy).

However, a few children were not bothered by the inaccuracies, believing that there were no grounds for criticism of any claims made by the promoters as they “are legally allowed to say it through advertising” (Wgtn, football, boy). Often older children’s comments demonstrated greater insight and a level of cynicism about the marketing. For example, a group of Year 8 (aged 12-13) football players cynically remarked when discussing the promotion of Powerade,

*Ppt A: they are just advertising the sugar;*
*Ppt B: it’s sugar behind a screen pretty much (Wgtn, Football, boy).*

Rather than promoters using high-profile sports people to genuinely give credibility and endorse the nutrient qualities of food products as some children thought, several other groups stated that the strategy had a more misleading purpose, that is, “to make people think that it’s good for you...or make people think they’ll get like that if they eat it” (Porirua, netball, girl). The intent of sponsorship was also treated with scepticism by a few children who thought that there were less altruistic, ulterior motives to the strategy; a young football player said that McDonald’s sponsored his sport “to make it look like they’re not super unhealthy” (Wgtn, football, boy). However, a few (often younger) children from some groups believed that athletes wanted to encourage positive nutrition behaviours. For example, a football player said that the All Blacks promoted Weet-Bix, “’cos they want you to eat more healthy food” (Porirua, football, boy).

**Feeling used**

Overall, most groups concluded that the main reason deception and dishonesty was used to promote food was to sell more products and make more money. Some children appeared aggrieved at this situation, such as rugby players from different groups who said, “they [marketers] lie so people can have some more so they can make more money...but they lie and that’s wrong” (Porirua, rugby, boy) and “they [the companies] want kids to see it [product] so they make a profit and make lots of money” (Wgtn, rugby, boy). Several children also pointed out that while this situation worked in favour of the businesses, they had little positive or even had detrimental effects for children given the food being marketed was mostly nutritionally poor and associated with adverse health consequences.
A rugby player summed up the impact by stating, “they [companies] can get more money and they get more advertising...it’s good for them but bad for us” (Porirua, rugby, boy).

**Being disrespected**

In addition to the experiences of the netballers with their Player of the Day certificates, described previously, comments from other groups suggested they too felt disrespected by marketers. For example, a Porirua netball group commented on the condescending tone and assumptions they thought were used in an advertisement which was clearly aimed at children:

*Ppt A: There’s this really silly ad, a yoghurt ad, this cartoon dude. And they’re saying kids aren’t that smart, it’s easy to get them to eat unhealthy*

*Ppt B: They’re saying that we aren’t smart and that they could just stuff food at us (Porirua, netball, girl).*

**Impact of sport-related food marketing on the family**

In addition to the impact on children, the adverse consequences of some food marketing strategies on other family members was raised by several groups. One was financial burden. Citing collectible trading cards as an example, a few children said that, rather than purchasing products for consumption, “some people...just get the cereal because they have cards in them” (Wgtn, rugby, boy), a behaviour he and the other children thought resulted in needless expense. The requirement to purchase other food items to redeem Player of the Day certificates was also problematic for a few groups. From their perspective, the extra expenditure meant that they vouchers could not be taken at face value, a situation a rugby player labelled “a rip-off” (Wgtn, rugby, boy). Realising that only the company which donated the voucher benefited from the arrangement compounded their frustration, as this rugby player explained:

  *When you use them you have to have two adults pay for their meal as well....but you got it for free...your parents still have to pay so they [the business] get the profit as well....It’s kind of annoying because you’re still paying quite a bit (Wgtn, rugby, boy).*

Children in a few groups also admitted that the frequent purchase requests they made to their parents often resulted in family disharmony. When asked how parents would normally respond to purchase requests of advertised foods, one girl recounted a typical family scenario of escalating disharmony to illustrate:

  *MS:  What do your parents say when you see something you want?*
Ppt: ‘Maybe next time’, and then the next time they say ‘I don’t remember that’. She [mother] goes, ‘Did I really say that?’; ‘Yes!’ It’s really annoying. She goes ‘No I didn’t [girl’s name]’ and I’m like, ‘yes you did’: ‘If you say that one more time, I’ll dock some off your money’ (Wgtn, netball, girl).

In summary, all the children reported being frequently exposed to multiple types of sport-related promotional activities, which they appeared to be very familiar with. Children’s comments suggested that the link between a brand or product and an athlete or sporting codes was an expectation, with rugby and football generally being associated with energy-dense and nutrient-poor foods and brands, whereas netball was linked with healthier food products. The only healthy food marketing the children photographed or discussed was for Weet-Bix a popular, traditional New Zealand breakfast cereal with long-standing associations with sport.

Responses from the majority of groups suggested that the use of sport heightened a product’s attractiveness; increased consumer awareness of a product; improved its purchasing potential, including repeat purchasing; and made money for food companies. All the children reported that the activities used to promote food were highly effective in attracting people of their age to products.

Most children considered themselves to be the primary target of the marketers, either directly or as a means of reaching parents through pestering. When asked what they thought about using sport to market unhealthy foods, most children agreed that it was inappropriate and contradictory, although a few agreed that as it was allowed it was appropriate. From the children’s perspective, the marketing was often characterised as dishonest, deceptive and misleading, and they felt marketers and companies used children to generate profits through the sale of mostly unhealthy food with little benefit, and potentially harm, to children. Some children also described the disharmony and financial burdens food marketing sometimes generated in the home.

### 7.5 Economic environment

This section presents the children’s perspectives on the economic sport-related food environment, or “what are the costs” (Swinburn et al., 1999, p. 565). It includes their views on how food is used to financially support sport and the cost of food.
7.5.1 Financial support for sport

Children’s sport
To determine the extent of the use of food to raise funds for their sport, all groups were asked about their fundraising activities. According to all groups sausage sizzles were “a good fundraiser” (Porirua, rugby, boy) for clubs. For example, a Wellington netballer mentioned they had raised enough money from a sausage sizzle to “pay for their tournaments and their uniforms” (Wgtn, netball, girl). Groups were also prompted to discuss a scheme where boxes of commercial chocolate confectionery are sold to clubs by the manufacturer at reduced cost, for the children to then on-sell it to raise money for their sports team. About half of the groups said they were aware of the scheme and thought it had become a “really common fundraiser” (Wgtn, rugby, boy), so much so that one child said it was virtually a “tradition” (Wgtn, football, boy) in another sport he played. The children said the scheme was very popular and raised “heaps of money” (Wgtn, rugby, boy). While they acknowledged they were selling an unhealthy product, most also agreed that it was acceptable given the scheme’s well-meaning purpose. Children from a few groups also reported having taken boxes to school to sell to other students, even at health promoting schools because, as a boy said, “we’re not allowed chocolate at school but since we’re fundraising we’re allowed to sell chocolate and lollies and stuff” (Wgtn, rugby, boy).

A few groups photographed and voluntarily discussed a fundraising scheme for free school sports equipment where consumers collect and redeem stickers from commercially-packed bags of apples, as pictured in Figure 40. When asked what they thought about the scheme, the children agreed that it was clever as “it helps our school put money towards sports gear and we need more sports gear” (Porirua, netball, girl) and that it also made it “fun to eat healthy things” (Porirua, netball, girl). Consequently, they thought the scheme encouraged healthy eating behaviours and improved sport performance, although one group pointed out that the initiative did not always mean people consumed more fruit, rather they might “buy the apples and get the stickers and then just give the apples away” (Wgtn, netball, girl).
Figure 40:  *Apples in a ‘Yummy’ fundraiser bag (Wgtn, netball, girl)*

**Professional sport**

Sport funding for professional athletes and sporting codes was often discussed when groups were asked about why they thought sport was used to promote foods (described in the socio-cultural environment section). For example, when talking about the All Blacks, several groups thought “they get paid a lot of money” (Wgtn, rugby, boy) for promoting Weet-bix and Powerade, and that by being featured with a product “people might buy it more and the All Blacks will get more money” (Porirua, netball, girl). According to several groups, the associations formed between a sport or team and a financial backer were essential, as a footballer said, “every sport needs a sponsor” (Porirua, football, boy). Almost all children agreed that the arrangement was “how some sports teams earn some more money” (Wgtn, rugby, boy) which, in turn, ensured quality and longevity of sport and sporting codes. Asked what they thought if they did not have financial support, almost all groups predicted, “it [the sport] would die” (Porirua, football, boy) or,

*Ppt A: We wouldn’t have a team*
When discussing their views on athletes’ choice of products to promote and their motivations for doing so, most children across all groups suspected that one reason was, “they probably just promote whatever pays best” (Wgtn, netball, girl) because “they want the money” (Porirua, football, boy).

7.5.2 Cost of food

Discussions about the cost of food were usually initiated by questions put to groups about the types of food that should be sold at sports venues. The consensus view among most groups was that healthy food was usually more expensive than the energy-dense and nutrient-poor foods that were typically available. Many children thought the higher cost of healthy food jeopardized its provision and commercial viability, as a footballer said, “it costs them [administrators/clubs] money to get other [healthy] food. So they need to be making money and not wasting it. Some people might not buy fruit, so that’s just a whole lot wasted” (Wgtn, football, boy).

The availability and sale of ‘stadium food’ was also linked to the financial realities of ‘supply and demand’. As the following boy stated, healthy food was considered less desirable and not as profitable as ‘stadium food’, “I reckon it’s [stadium food] going to get more money out of it than fruit, but it’s bad stuff to sell....they sell yum food ‘cos more people will buy it” (Wgtn, football, boy). Furthermore, most groups recognised that convenience and high turnover were also important features for commercial success. These were criteria most groups thought healthier food may not meet, as this Wellingtonian implied, “they do fast food so there’s not people waiting, it’s easier” (Wgtn, football, girl).

In summary, the children reported having engaged in several food-related activities to raise funds for their sports clubs, of which most were effective and some had become a traditional part of their sporting activities. Although most fundraising activities involved the sale of unhealthy foods, a few children reported a healthy scheme was available to raise funds for school sports equipment. There was a widespread view among children that commercial sponsorship of sport was required for the viability of professional sport and athletes. The high cost and lower profitability of healthy food relative to unhealthy food were identified as a barrier to the availability of the former at sports venues.
7.6 Political environment

This section presents the children views on the political environment or “what are the rules” (Swinburn et al., 1999, p. 565). Political aspects of the food environment children discussed related to rules that existed around the microenvironments, namely home and school. When asked about where they learn about nutrition, some children described the healthy food policies instituted at their schools that assisted in promoting and supporting healthy food behaviours, particularly children who attended school in Porirua. For example, a netballer said her school was,

*one of those healthy schools*\(^{31}\) and we don’t even have a canteen and stuff. We don’t get pies and that. Yeah, we get like sandwiches and rolls....we have a snack break at ten o’clock if we want to eat um fruit or a vegetable. (Porirua, netball, girl).

In addition, some Porirua groups also talked about receiving fruit while at school, through the ‘Fruit in Schools Programme’.\(^{32}\) A few children confirmed that their school did not have a healthy food policies, selling predominantly energy-dense and nutrient-poor foods in their school canteen.

Other political-related topics raised by children and presented in previous sections included the relaxation of healthy eating policies in schools when selling chocolate for fundraising purposes; informal rules around the consumption of sports drinks during representative sport; and the perceived rules around well-known sports people having to endorse products as part of their contract agreements.

Macroenvironmental policies, such as the regulation of food marketing, were not discussed by any group, nor were children in the focus groups prompted to discuss them. However, a note accompanying a photograph of Milo (a powdered chocolate drink) suggested that one netballer thought action should be taken to restrict the sport-related marketing of unhealthy food,

*Milo always advertises being healthy and being great for before or after games. I don’t think it is healthy (the milk is, but that isn’t the product they are trying to advertise) and they should stop associating it with sport (Wellington, netball, girl).*

\(^{31}\) Health Promoting School, discussed in Chapter 2, p.31  
\(^{32}\) Discussed in Chapter 2, p. 31


7.7 Conclusions

This chapter presented the findings from the photographs and accompanying written comments, and focus group transcripts (n=13) and banners (n=15), of 82 Wellington children aged 10-12y who played football, netball or rugby, to determine what they see in their sport-related food environment, what they thought about the environment and how it impacted them.

The physical food environment includes the types of food available at various locations and the availability of nutrition information and expertise (Swinburn et al., 1999). Children photographed a wide range of foods, including unhealthy items such as sugary drinks, confectionery, and fried and takeaway food, or ‘junk food’; and healthy items such as water, fruit and some breakfast cereals. Netballers took significantly more photographs of snack foods than rugby players.

Many children reported that the food available for purchase at all sports venues (local and professional) were unhealthy, with there being little choice of healthy items available. The children thought this situation was inappropriate at Saturday morning sports venues, as it conflicted with the nutrition messages they receive from home and school and did not allow them to follow recommended nutrition guidelines. However, they often thought that unhealthy foods were appropriate when attending as spectators at professional sport as such food is traditionally associated with and consumed at such special occasions. Although the children said that it would be preferable for healthy food to be sold at all sports venues, they also thought that it would not sell well given its perishability, relative lack of flavour and being ‘non-traditional’ in such settings.

The majority of children appeared to be knowledgeable about recommended dietary patterns and understood the consequences of consuming ‘junk food’. However, their understanding of energy intake requirements for their level of sport and the source of energy was inaccurate and confused. The majority believed that foods containing sugar in particular were required for sport to provide them with extra energy and improve their sport performance. Children said that they learnt about nutrition from parents, school, from the nutrition content claims and promotions on food packaging and the endorsements of high-profile athletes. Only netballers and children playing higher level sport received nutrition information, albeit minimal, from a sport source.
Food marketing influences children’s food preferences and behaviours (Cairns et al., 2009, 2013; Hastings et al., 2003; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006), and along with role models, are considered part of the socio-cultural food environment (Swinburn et al., 1999). The children reported being exposed to many marketing strategies, and a combination of those strategies, that used sport to promote foods. The majority of foods promoted were unhealthy, with the only healthy item being a breakfast cereal. An association between sport and a food product or brand was considered normal. All the children were well acquainted with the strategies and showed considerable insight. They often thought they were very effective in attracting children, and were used to deliberately entice children to purchase products or pester their parents to purchase them for them. High-profile sports people were especially influential on the children, who thought of them as role models. Most children thought it was inappropriate to promote unhealthy foods using sport, as it contradicted the healthy profile of sport, conflicted with the nutrition messages they were receiving from home and school, and sent poor nutrition messages.

Sport-related food marketing also had some flow-on effects on the children. While many of the younger children believed the food marketing messages, most of the older children understood its persuasive intent. Many of the children reported feeling disappointed, disrespected and deceived by much of the food marketing. In particular, their comments suggested they felt used by the food industry to generate profit at the expense of children. The marketing also sometimes created disharmony in the family, and on occasions, financial hardship for parents.

The costs associated with the sport-related food environment, or economic environment, discussed by most of the children included the cost of food at sports venues and the use of food to fund sport. Almost all children agreed that, when available at sports venues, unhealthy food was cheaper to purchase than healthy food. They thought the price difference would present a barrier to improving the food environment at sports venues. The food used to generate income at all levels of sport was mostly unhealthy. There was agreement among most groups that sports sponsorship by food companies was necessary for sport, ranging from club to professional level, to remain viable.

Policy, or the rules about food availability and provision (Swinburn et al., 1999), was not extensively discussed by the children, nor were they prompted. Rules, both institutional
and informal, were occasionally broken regarding the consumption of unhealthy foods in the context of the sport. The associated energy expenditure associated with sport (actual or perceived), was used to justify the consumption of unhealthy foods, as was the (actual or perceived) infrequency of opportunities to consume it. Comments made by a few children suggested that they had little control over the nature of the sport-related food environment, and they thought that there needed to be controls put in place to improve it.

The following chapter reports on the sport-related food environment from the parents’ perspective, including what they saw, what they thought about the environment they describe and how it impacts their children’s dietary behaviours and their ability to provide a healthy environment for their children.
CHAPTER EIGHT: RESULTS – PARENTS

8.1 Introduction
This chapter presents the findings from the parents’ data, sourced from their photographs and accompanying notebook comments; transcripts of focus group discussions; and focus group photo banners. Data have been collated to address the central research question and similar sub-questions posed the previous chapter:

- Does the sport-related food environment in New Zealand support children’s right to health?

and in this chapter, the following sub-questions:

- What does the sport-related food environment look like from parents’ perspectives?
- What are parents’ opinions on the sport-related food environment?

The parents’ findings are presented in a similar format as the children’s. The chapter commences with a description of what the parents photographed, based on the content analysis. The results of the thematic analysis of the notebook comments, banner captions and focus group transcripts are then presented in accordance with the elements of the ANGELO framework, as detailed in Chapter Two. As with the use of the ANGELO framework in previous chapters, the findings have been presented according to the ‘best fit’ environment type based on significance to the research questions. Each section is summarised and the final section presents a conclusion of the findings.

8.2 Parents’ photographs
The parents photographed similar items to those recorded by the children. Three-quarters (74%) of parents photographed food, predominantly breakfast items (58%), and fruit and vegetables (42%), and four in five (81%) parents photographed drinks. Of the latter, almost half (45%) were of sports drinks and almost a third (29%) were of water. The majority of parents (87%) photographed the food environment at their children’s Saturday morning sports venue; the most popular features recorded were lollies (52%), food vendors (39%) and ‘oranges’ (32%).
As with the children, items were photographed in a range of settings and contexts, including availability at home, at sports venues, and in supermarkets; being consumed at sport; or to show how they were being marketed, for example newspapers and TV advertising. Parents’ reasons for photographing items were similar to the children’s explanations, including ‘energy for sport or game’, products’ marketing associations with sport including well-known sports people, collectible trading cards and sponsors; food used for rewards or treats; and the food being sold at sports venues and by whom.

Each group’s photo banner provided a summary of the consensus view of the sport-related food environment from the parents’ perspective. In contrast to the children’s banners, which mainly depicted foods categorised by type, almost all of the parents’ banners depicted typical scenes of the sport-related food environment; the food and beverages parents associated with sport, for example ‘sausage sizzles’ and sports drinks; and promotional activities such as sport sponsorship. On balance, the banners depicted a food environment that was mostly unhealthy. Although healthy foods featured in most banners, proportionally their presence was minimal consisting of fruits and vegetables, and foods and beverages consumed or available in the home. Healthy food advertising was generally limited to Weet-Bix and bottled water.

The captions on almost all banners critiqued the sport-related food environment. Topics focused on the marketing of foods they considered unhealthy or that were dishonest and “over-hyped”; ‘pestering’ or “parental pressure”; the poor quality food available at weekend sports venues and the stadium; and one group hinted at how advertising impacts children with the caption “subliminal advertising”. Of all the groups, the banner shown in Figure 41 best summarises parents’ perspectives of the impact of the sport-related food environment on their ability to provide a healthy food environment for their children. Healthy foods are at the top captioned “we know what’s best and we start off well” and unhealthy foods feature through the remainder of the banner with the caption “but...advertising and child pressure surrounds and corrupts our ideals”.

Figure 41: Parent focus group banner describing parents’ perspectives of the sport-related food environment
8.3 Physical environment

This section presents the parents’ perspectives on the physical sport-related food environment, or “what is available” (Swinburn et al., 1999, p. 565). It includes their views on the nature and extent of food availability at sporting venues. Parents photographed or recalled visiting the same community sports venues as the children. In addition, a few parents also photographed or discussed council-administered sports centres (swimming pools, recreation centres and basketball stadia), cross-country running competitions, triathlons and indoor cricket. Two parent groups attended away-tournaments while they had cameras. All parents were familiar with the regional sports stadium, and a few photographed it. This section also includes parents’ views on the availability of children’s sport-related nutrition information and expertise. As in the previous chapter, food marketing is presented in the socio-cultural environment section. Also as in the previous chapter, the findings are illustrated using the participants’ photographs and the accompanying notebook comments as the caption.

8.3.1 Saturday morning sports venues

Extent and nature of food sold

As with the children, when parent groups were asked “what types of foods are sold at the sports venues you go to? (MS), all groups identified a variety of vendor types selling predominantly energy-dense and nutrient-poor foods. For example, a rugby mother recalled their club “always had the chip van, hot chips just at normal games at [club name] they’re always in the car park there ... and the hot dogs” (Porirua, rugby, mother). An example is shown in Figure 42. A Porirua netball mother also confirmed how a “steady stream” (Porirua, netball, mother) of children (players and spectators) patronised the bakery, fish and chip store, and dairy across the road from their regular netball centre. All groups agreed on the lack of food choice at these venues, particularly for healthy foods. For instance a netball mother said of the catering at a tournament, “it was freezing cold and it was wet...you couldn’t buy hot soup or sandwiches, there was hot dogs, pies, chips and hamburgers” (Porirua, netball, mother). The same mother, when describing her photograph of a vending machine at their local netball venue, said, “you can't escape crap food anywhere...[it is the] only food available on premises” (Porirua, netball, mothers).
When asked what they thought about the food environment they described being associated with sport, most parents in all groups said the widespread availability of nutritionally poor foods, limited choice and their children’s frequent purchasing requests for the food being sold, was frustrating. They also commented on how the food environment was unsupportive of the healthy food messages that children received at school and that as parents they tried to relay at home, and that it was “creating bad habits early on” (Wgtn, football, father). Although the majority of parents in all groups thought the availability of unhealthy food at sports venues was “wholly inappropriate” (Porirua, netball, mother), a few were unconcerned given their children were going to expend energy playing sport, or as described by a father, “going to burn it off” (Wgtn, football, father).

When groups’ views were sought on why the types of food they described would be sold at sports venues, parents from several groups said it was most likely due to consumer demand. For instance, when discussing his photographs of pies and sausage rolls for sale at a tournament, a father stated, “I think this is what people want, so that’s what people give them” (Wgtn, rugby, father).
**Sausage sizzles**
During the pilot, sausage sizzles were raised by the parent group as an item typically available at sport. Therefore, discussion on the topic was prompted by asking all groups, “what do you think about sausage sizzles?” (MS). The groups’ unanimously responded saying (and some commented in notebooks) that the “ubiquitous” (Wgtn, football, father) sausage sizzle was a traditional part of Saturday morning sport. For example, the netball mother who took the photograph in Figure 43 noted, “there’s hardly a sports event where sausages...aren’t sold” (Wgtn netball, mother) and a rugby parent said “it was just one of those things that happened around sporting venues” (Porirua, rugby, mother). A football mother reflected the consensus view when she said she thought they were popular “because they smell good and it’s convenient and usually they are only about a dollar” (Porirua, football, mother). Many parents also commented on how the mere presence of a sausage sizzle attracted children and engendered purchasing requests, for example, “after the games the children would ask for either a sausage or a fizzy drink because it was there” (Porirua, rugby, mother).

When prompted to comment on their nutrient quality and acceptability, most parents agreed that although sausage sizzles were not particularly healthy, they considered them to be a special occasion item and an infrequent purchase, and therefore of little concern nutritionally, such as a football father who stated, “nutritionally obviously it’s crap, but um, once in a while there’s no harm” (Wgtn, football, father). Moreover, most parents believed that by patronising sausage sizzles they were financially contributing to local sports clubs, and in turn possibly benefitting their own children.
Figure 43: Sausage sizzle at...netball...There’s hardly a sports event where sausages and fizzy aren’t sold – a fundraiser (Wgtn, netball, mother).

8.3.2 Food provided for children at game-time

Like the children, most parents either photographed or discussed the foods children typically had available to them before and during their Saturday morning game. Items available included orange segments, lollies, water and sports drinks. Some parents also discussed the food given to children during end-of-season celebrations.

When all groups were asked their views on ‘oranges’, almost all said, “we’ve always associated oranges with their sports” (Porirua, rugby, mother). Netball mothers pointed out that ‘oranges’ did not feature significantly in netball, although they said they were familiar with the practice through other sports their children had played. Parents from all groups were very happy with the practice given the fruit’s high nutrient quality. It was “weekly event and very traditional” (Wgtn, rugby, father) that was very familiar to them, “when I was young I remember oranges” (Porirua, rugby, father). Many parents’ comments suggested that by providing ‘oranges’, they were assured their children were eating some healthy food at sport. For example, a rugby mother said of taking a
photograph of ‘oranges’, “I wanted to put a positive spin on that, the parents provided for our boys at the half-time point oranges or mandarins as a healthy snack and that was quite good” (Wgtn, netball, mother). Most groups agreed that children enjoyed having ‘oranges’. Describing a typical half-time scene, a mother said: “they love them...they gobble them down and they’re always happy and no kid is turning up their nose and ‘I don’t want to eat an orange – yuck’, they’re all right into it (Wgtn, netball, mother). A rugby mother summarised the consensus view stating, “oranges, good old tradition, still happens and has happened for donkey’s years and it’s a good one” (Wgtn, rugby, mother).

All groups were prompted to discuss the use of lollies during halftime at children’s games. Parents from several groups said they had noticed the practice had started to “become a real common thing” (Porirua, netball, mother) and that it was often recommended by sporting associations, coaches and occasionally other parents. For instance, a football father explained that, “one year our coach said don’t forget oranges and bring lollies along for half time just to get the energy, just a sugar rush I guess for them, that was his theory” (Wgtn, football, father). A father’s comment when describing his related photograph conveyed the consensus view, saying that they were used “to jolly the kids along at half...and full time. It was just a sweetener to keep them going really, a bit of energy I think. Just a treat to reward them for turning up on such a bleak day” (Wgtn, football, father). A netball parent also said that she understood the practice was supported by scientific evidence, “jet planes are quite big in most sports literature at the moment” (Porirua, netball, mother).

When asked if they thought the practice was appropriate, parents in most groups said they did not “begrudge it” (Wgtn, rugby, mother) given its infrequency, small amount, and the children’s level of physical activity. A rugby mother’s comment is illustrative, “they’ve just played an hour hard and trained, and it’s one little thing. Because they’re so active I don’t have an issue with them getting them....It’s a treat it’s not an everyday thing (Wgtn, rugby, mother). Nevertheless, the Porirua netball mothers talked about how recommendations from the netball association to consume lollies during sport were often misconstrued by the children, who took it to mean unrestricted consumption. They said they found the situation difficult to control given the recommendation came from a perceived authority figure.

33 A popular New Zealand soft, sugar-based confectionary shaped like jet planes
Parents photographed a variety of drinks being consumed or present at children’s games. Some parents, such as the mother who took the photograph in Figure 44, photographed team drink bottles with water to demonstrate “how teams are ‘hydration’ organised” (Porirua, football, mother). All parents approved of water, illustrated by a mother’s comment that it “is good, healthy, all the teams generally have it” (Porirua, football, mother). By contrast, other photographs reflected a different scene, taken to “show...that the majority of them actually turn up with um Powerade” (Porirua, netball, mother). Several groups of parents had noticed recently that sports drinks had become a common sight at children’s sports and that the drink had special significance for some children. For example, a mother who wrote in her notebook, “the kids have these [sports drinks] before, during and after the game. It seems to be a friend” (Wgtn, rugby, mother). Almost all groups agreed that there was a “great demand” (Wgtn, mother, rugby) from children for sports drinks, and several groups were of a similar opinion to a mother who wrote as a caption for a photograph of sports drinks, “unless you are out on the field playing intensity sport, a child does not require additional nutrition apart from a consistently good diet of appropriate foods and drinks” (Wgtn, rugby, mother). When prompted to share their views on sports drinks, parents typically responded, “I have real issues with things like Powerade” (Wgtn, rugby, mother) or “those bloomin’ energy drinks, they annoy me” (Porirua, football, mother), referring to their poor nutrient quality.

Sports drinks were often referred to and used interchangeably with energy drinks by parents. Energy drinks differ from sports drinks by typically containing caffeine.
For a few groups, data collection occurred towards the end of the sports season. Consequently, some parents from these groups photographed and recounted the foods provided for children as end-of-season prizes. For some, confectionery was used because it overcame the challenge of finding simple and inexpensive rewards, “it’s about the only easy, quick reward...anything else is expensive” (Porirua, netball, mother). Speaking of her daughter’s team, one parent-coach said they could not think of anything other than “a certificate...and a little goodie bag of crap...chips and lollipops and chocolate” (Porirua, netball, mother). Parents from one group recalled how every child in their club received a home-branded, two-litre bottle of full-sugar, carbonated beverage, a gesture they thought “quite horrific, really” (Porirua, football, mother), but again most likely based on cost, “it’s cheaper to buy them that way [in bulk]” (Porirua, football, mother). Another group discussed the ‘loot bags’ their children received as prizes containing “a banana, a massive orange, I think there was a little chocolate, just little ones, um a little ribbon” (Porirua, rugby, mother). All members of the group said they were pleased to see fruit included, but recognised that the bag was not completely healthy. As one of the mothers said

it was a mixed bag and I think it was balanced because the majority of it was good, but there were unhealthy things in there...we couldn’t get away
from doing that. We tried to, but we thought ‘okay we put an orange and a banana what else do you have in it?’ (Porirua, rugby, mother).

When asked why fruit was included, a mother who was also a committee member said that, given the club’s high Pacific membership, they deliberately made the decision in order to convey the message that,

there is a healthier way, you don’t have to keep eating junk food you know, you can eat oranges, you can eat bananas, you can eat fruit, it’ll be better for you’... the whole theme around this year’s prize giving was just to get the healthy message out there (Porirua, rugby, mother).

Another mother from the same club who was a new member said she was really pleased with the decision given her previous club’s offerings, “it was a bit of an eye-opener...I thought what a big difference you know than taking along all that junk food” (Porirua, rugby, mother).

In summary, most parents appeared to be aware of which foods were healthy and which were not. Most reported there being little choice in the types of food available for purchase at sports venues from a variety of vendors, with most of it being energy-dense and nutrient-poor, and of poor quality. The majority of parents thought the food available was inappropriate for children playing sport, and that it did not support healthy dietary patterns or recommendations. Others were unconcerned about the poor nutrient quality given their children’s level of physical activity. Sausage sizzles are a common feature at sport. They are popular with all children and as they are traditional, infrequent and raising funds for sport, the majority of parents did not consider them inappropriate. The nutrient quality of the foods provided for children at game-time was mixed. Some were foods traditionally provided, such as oranges and water. Others were more recent additions which were becoming increasingly traditional such as lollies and sports drinks. Occasionally there were deliberate attempts to make the food environment more health, such as providing fruit in prize-giving bags and sandwiches and fruit in Tournament Packs.

8.3.3 The Stadium
Comments from all groups about the nature of the food available at the Regional Stadium, mirrored those of the children, “it’s expensive and garbage, it’s the worst ever” (Wgtn, football, father). They said the food available was almost always unhealthy, such as the “punnet of hot chips” (Porirua, rugby, mother) shown in Figure 45, and that there were very few healthy options. The mother who took the photograph in Figure 46 summarised
the consensus view of the Stadium noting “typically sports venues offer quick, easy, relatively cheap food – mostly not healthy” (Wgtn, rugby, mother). One or two parents from a few groups reported some “semi-healthy” (Wgtn, rugby, father) foods being available at the Stadium, such as baked potatoes and ‘Indian’, although they added that it was often difficult to locate and some said they had also noticed a water fountain located within the stadium building.

Figure 45: Punnet of hot chips...Food we purchased at the stadium during Wellington Lions” game (Porirua rugby, mother).

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35 The Wellington Lions Rugby Team is Wellington’s senior national representative rugby team.
Figure 46:  *Typically sports venues offer quick, easy, relatively cheap food – mostly not healthy (Wgtn, rugby, mother).*

All groups were asked their views on the appropriateness of selling such food at a sports stadium, and almost all parents said that going to the Stadium was a special and entertaining occasion, and as such there was an expectation that ‘stadium food’ would be consumed. Therefore, when viewed in the context of entertainment almost all parents thought the food was appropriate. As a father remarked, “it’s entertainment food, totally inappropriate for sport, but entertaining food” (Wgtn, rugby, father). In addition, most groups discussed how convenience often dictated the type of food served. There had to be minimal ‘viewing interruption’, for example, a father commented, “all you want to do is go down and get your burger or whatever it is and get out again and watch things...it’s convenience” (Wellington, rugby, father); and the food had to accommodate spectator participation, as a rugby father explained: “you can’t sit down in the stadium with a steak and all that stuff, not with a fork and a Mexican wave” (Porirua, rugby, father). Also, as the Stadium was open to the weather, several parents said comforting food was ideal, “when it’s cold outside hot chips are perfect” (Wgtn, rugby, mother). A rugby mother’s comment summarises the consensus view on the appropriateness of ‘stadium food’: “oh
it’s an expectation...you turn up to the rugby, you want a cold beer and a hot dog or a pie...my granddad did at the rugby at Athletic Park\textsuperscript{36} and that’s what they are still doing now” (Wgtn, rugby, mother).

However, from the perspective of sport, all groups agreed that the food available was inappropriate and conflicted with the setting. As a rugby father said,

they contradict each other...food for the sports people - it’s all healthy, healthy, but when...they bring out food for the spectators it’s anything goes you know, you’ve got big hot dogs with tomato sauce all over it, you’ve got chips (Porirua, rugby, father).

Some parents from a few groups, particularly mothers, expressed frustration at the food environment at the Stadium. They believed it sent poor nutrition messages, typically stating, “it’s giving the message...they’ve [the children] gone to a sports game, so they’re associating treat food, junk food, as acceptable” (Wgtn, football, father). To ensure better quality food, several groups (again mostly mothers) discussed their preference to self-cater or taking “the stuff you would want to have and you know it’s not going to be available” (Wgtn, rugby, mother). However, they added that the Stadium’s ‘no self-catering’ policy was problematic in this regard and compounded their frustration. They felt that as a captive audience the policy left them with little choice but to purchase poor quality food, and thus little control over what their children consumed while at the Stadium. The situation became especially challenging when attending day-long sporting events.

Other frustrations about the food environment at the Stadium were mentioned by parents from different groups. Several parents said that the frustration engendered by their children’s pestering for ‘stadium food’ was compounded by the lack of healthy choices, as a father remarked, “the kids will be crying in your ear ‘oh get the chips, I want to go down and get those’. There’s nothing healthy, there’s nothing healthy” (Wgtn, football, father).

Also, for some parents, the high cost of the food at the Stadium, when combined with the lack of choice and control, and pestering, placed a (sometimes substantial) financial burden on their family when visiting the Stadium. One or two parents also mentioned how they felt having to purchase unhealthy food undermined their role as role-models for their children, describing their own eating behaviour at the Stadium as “not a good signal” (Wgtn, rugby, mother) for their children. Overall, several parents from all groups (again mostly mothers) said their greatest difficulty when eating at the Stadium was balancing

\textsuperscript{36} Former sports stadium in Wellington.
positive eating behaviours with a desire for their children to experience the ‘entertaining’ aspect of the event. The overall attitude among these parents was one of resignation, typically saying, “it might not be right, [but] that’s the way it is”.

A few parents in one or two groups took yet another stance, arguing that ‘stadium food’ was probably no less healthy than that which most people would consume in their own home while watching televised events, and therefore the appropriateness of ‘stadium food’ was irrelevant. A rugby mother said, “if you’re sitting at home [watching sport] chances are you’ve got a bowl of chippies in front of you or something anyway, you know?” (Wellington, rugby, mother).

To determine parents’ thoughts on suitable alternatives to ‘stadium food’, all groups were asked “what types of foods should be available at sports venues?” (MS). Collectively, groups, and mostly mothers, suggested fruit smoothies, sandwiches, filled rolls, wraps, soup, sushi and children’s snack packs with fruit. A number of barriers to the uptake of healthy alternatives were discussed among most groups. Perishability and children’s lack of interest in these foods was thought to be problematic, the latter point being illustrated by a father’s comment on observing the uptake of healthy food at a tournament he attended,

they were selling...hot chips and they had soup (surprised)...but I don’t think there were many kids eating soup...they were giving away fruit to the kids and I listened for a little bit to see if any kid accepted any fruit, but they didn’t (Wgtm, football, father).

Most groups agreed that given the association between ‘stadium food’ and attending an event at the Stadium, it would be difficult to institute changes, as a rugby mother explained,

if you’re looking at just variety and better food and nicer food and more interesting food that’s one thing, but if you’re talking about...what you call truly healthy options - it’s not what people want when they go Friday night to a game (Wgtm, rugby, mother).

Such was the strength of the relationship, several parents from different groups were vehemently opposed to the suggestion of healthy alternatives at the Stadium, stating, “I’m not going there to have a club sandwich to be honest...it’s normally to have a beer and a bottle of chips” (Wgtm, rugby, father) and

My kids go to the stadium half a dozen times in a year. If they eat fish and chips and have a Coke because they are out for a big night with Mum and Dad at the rugby then I don’t think that’s a problem, you know. And we
have a couple of beers so why would we sit there and say ‘go and have your sushi’ (laughing) (Wgtn, rugby, mother).

Similar to some of the children, an all-mother group discussed the apparent gender bias to ‘stadium food’, which they identified as another potential limiting factor in instituting healthy food options at the Stadium a point illustrated by the following discussion,

Ppt A: It [the food] probably matches the whole ‘good game of rugby chips and burger...and a beer’...it’s all that whole macho image
Ppt B: It’s ‘grub’ really isn’t it?
Ppt C: When the guys get together they’re not sitting around having dainty sandwiches and grapes at their boys’ nights are they? (laughing)
Ppt B: They’re geared for that rugby mentality. But it’s not appropriate health wise, but it’s that whole image thing yeah
Ppt A: And we’re growing little men, and the boys want to emulate their fathers. But you imagine on a rugby night they were selling smoothies and fresh fruit juice and stuff
Ppt C: That’s women’s food...It wouldn’t be cool would it? To be seen walking in there, buying their DB [a brand of beer] and their carrot sticks.

In addition, several parents from different groups said they doubted the quality and price of healthy food at the Stadium would be any more acceptable, given the standard supplied by the current contractors. In a bid to improve the ‘healthiness’ of the food, yet preserve its ‘treat’ aspect, some groups suggested improving the preparation methods of the food currently available, “they could...use a healthier oil. Chips are always a staple of these events, maybe if they can revamp the cooking product...to one a bit healthier” (Wgtn, football, father).

8.3.4 Sources of children’s nutrition information and expertise
To determine children’s sources of nutrition information and expertise, all groups were asked, “where do your children learn about nutrition?” (MS). In addition to identifying sources, this line of questioning also generated discussion within several groups about parents’ own level of nutrition knowledge. If not raised voluntarily, groups were prompted to specifically discuss the nutrition information sports clubs and associated personnel provided for children.

Almost all parents said they advise their children on appropriate nutrition, for example a mother said, “I do talk about it [food] being good for you or not good for you...you know, you don’t eat this, you have a small amount of this” (Porirua, football, mother). Yet, most parents admitted to having little formal nutrition education themselves. Instead, members
agreed that they knew how to adequately provide for their children nutritionally, either “naturally as parents” (Porirua, football, mother), or that they use “common sense” (Porirua, netball, mother). Parental role modelling was also raised as another source of children’s nutrition education by all groups. The findings relevant to this latter point are presented in the socio-cultural environment section.

Most parents thought that school also provided nutrition education and literacy skills, which they said were more detailed than they could provide, such as “the sugar thing and the fat thing, yep their checking [product labels] is learnt from school” (Porirua, football, mother). Other positive aspects of the school food environment several groups discussed were the policies requiring only healthy food be sold at school; the provision of the fruit and breakfast schemes; auxiliary health professionals undertaking health promotion, such as school dental therapists; and external health education programmes the children mentioned, such as ‘5+a Day’ and the Life Education Trust. The majority of parents said they found that the information their children received at school and the positive school food environment reassuring as it supplemented and supported the nutrition messages they were trying to pass on to their children. For example, a footballer’s mother said, “school reinforces...and that’s a really good thing because, you know, we are being backed-up” (Porirua, football, mother). Nevertheless, the consensus view was that the responsibility for children’s nutrition education ultimately resided with parents. As a netball mother said, “[the children] can learn all sorts of things at school. But you’re the one giving them the food” (Porirua, netball, mother).

Similar to the children, only a few parents recalled, when prompted, children receiving nutrition information through their sport or sports club. Where it was provided, they said it was usually limited to coaches or team managers advising children to drink water or eat ‘oranges’. There were two exceptions. The Porirua netball parents said they were pleased their daughters’ club distributed healthy food packs for tournaments (as the children described) and that the netball coaches generally provided good nutrition advice. They also recalled the national netball organisation had given out water bottles printed with basic nutrition information. One also thought nutrition information was available on the national netball organisation’s website, but she said it was difficult to locate. The Porirua

37 Dental therapists provide dental treatment and oral hygiene advice and care for children up to the age of 12 through the Government’s School Dental Service Scheme.
rugby group also reported the inclusion of fruit in their children’s prize bags at their club’s end-of-season celebrations.

In summary, parents report that their children received general nutrition information from parents and school, with parents reporting that the latter supported their efforts at home. There appeared to be little nutrition expertise and information available for children from sports sources, with the exception of netball.

8.4 Socio-cultural environment

This section presents the parents’ perspectives on the socio-cultural sport-related food environment, or “what are the attitudes and beliefs” (Swinburn et al., 1999, p. 565). Aspects discussed included the influence of role models, and the nature and extent of sport-related food marketing.

8.4.1 Role models

Parents

The role of parents in influencing children’s food behaviours was discussed by all groups when they were asked about children’s sources of nutrition education. The consensus view was that parents are “your number one influence, because we have that first five years where we try and put our version in there” (Porirua, rugby, mother). All groups agreed that parental role modelling is a key mechanism by which children learn about nutrition and dietary behaviours are shaped. Several parents talked about how through parental role-modelling, including the food they provided for the home, their children subconsciously acquired an understanding of nutrition, or as a father said they learnt “by osmosis” (Porirua, rugby, father).

The majority of comments in all groups indicated that the parents saw providing advice and a healthy home food environment for their children as their job and they were committed to doing it, such as a rugby mother who said,

\[I\ try\ and\ promote\ healthy\ eating\ in\ my\ home\ for\ my\ children.\ I\ don’t\ want\ them\ to\ battle\ with\ high\ cholesterol,\ you\ know\ heart\ conditions,\ etcetera,\ later\ on\ in\ life.\ So\ I\ try\ and\ instil\ good\ habits\ at\ an\ early\ age\ (Porirua,\ rugby,\ mother).\]

As such, they appeared to make considerable effort to promote healthy nutrition, often describing how they achieved that, such as a Porirua mother who said, “we have three
vegetables minimum on our plate...I make sure everyone has breakfast in the morning as well as a good healthy lunch” (Porirua, rugby, mother). Most parents said they tried to actively discourage their children from consuming unhealthy foods such as fast foods, takeaways and processed foods. When their children did have unhealthy foods, parents said they tried to choose or encourage the healthier options, or that they would “make those things a treat” (Porirua, rugby, mother). A few other parents believed that encouraging moderation was the key.

**Food and beverages parents consider important for sport**

All groups were asked about the foods, if any, that they thought particularly applicable to sport. Breakfast cereals were widely photographed by the parents, especially Weet-Bix, which was considered a ‘sport’ food, as the mother who took the photograph in Figure 47 wrote, “Weet-Bix...seems to be a standard breakfast before any rugby game. It is what my son eats before a game, but also because of the advertising on the box – they highly recommend rugby” (Wgtn, rugby, mother). Another mother wrote, “promoted as eaten by the All Blacks as sustainable energy breakfast food. Meant to be great for sport-minded people” (Wgtn, football, mother). The consensus among groups was that Weet-Bix was healthy and a “good hearty plain breakfast” (Wgtn, rugby, mother). The following discourse from a Wellington rugby group is illustrative,

\[\text{Ppt A: it’s [Weet-Bix] quite a good product, it doesn’t have a lot of salt, doesn’t have a lot of sugar, whereas Nutri-Grain, you look at that and you just go –} \]
\[\text{Ppt B: oh yeah it’s all sugars, sugar’s huge} \]
\[\text{Ppt A: it’s so highly manufactured} \]
\[\text{Ppt C: the Weet-Bix is a definite staple (Wgtn, rugby, mothers and fathers).} \]

Tradition and familiarity were other reasons for parents’ partiality to Weet-Bix, with several typically commenting that it was “a healthy breakfast when I was a kid, and possibly when my father was a kid” (Wgtn, rugby, mother).

All groups agreed that fruit was a healthy ‘sport food’; a mother’s notebook comment summarises most parents’ views, “Energy and vitamins for any sports. Good fluid intake in the oranges. Sweet taste for the children. Good and tasty for a ½ time snack for the sports players” (Wgtn, football, mother). The majority of parents also said that they encouraged their children to drink water when playing sport, as it was “naturally good for you, no additives” (Porirua, rugby, mother).
Figure 47: Weet-Bix...seems to be a standard breakfast before any rugby game. It is what my son eats before a game, but also because of the advertising on the box – they highly recommend rugby (Wgtn, rugby, mother).

Athletes
All groups confirmed the children’s views of well-known athletes, that is, they are popular with children, and highly regarded, as these mothers explained: “the All Blacks are an icon in New Zealand...[t]here aren’t that many young lads in New Zealand who don’t know who Tana Umanga\(^{38}\) is or who Sonny Bill Williams\(^{39}\) is, regardless of what sport they play” (Wgtn, rugby, mother); and “that’s who they [the children] kind of aspire to be, they look up to them, they’re role models in sport” (Porirua, netball, mother). Some parents from different groups viewed well-known athletes as a positive influence for their children, particularly as they often came from similar home backgrounds. For instance a mother said she considered sports people as “role models for them [her children]....it’s just what they can achieve, look how far you can go....and they will have started at grassroots like our kids” (Porirua, rugby, mother).

Given their status with children, almost all parents thought children were “totally, one hundred percent” (Wgtn, rugby, father) attracted to and wanted to consume products promoted by their favourite sports people. For example, a mother said her son, “will drink

\(^{38}\) Former well-known and popular All Blacks captain

\(^{39}\) Popular current All Black
UP&GO only because the All Blacks do it” (Porirua, rugby, mother) and of purchasing Weet-Bix, a father captioned his photograph, “in our house the Weet-Bix cereal with rugby players are the only reason to buy Weet-Bix” (Wgtn, rugby, father). Most parents also believed that athletes endorsing products influenced children’s nutrition knowledge and behaviour. For example, a football mother said that the All Blacks promoting Weet-Bix, “gives kids ideas that eating a good breakfast will make them big and strong like these big sports players” (Porirua, football, mother) and according to a father, the All Black trading cards “help the kids choose Weet-Bix for breakfast” (Wgtn, father, rugby). A few parents admitted that they too were sometimes influenced by the messages portrayed by athlete endorsers. For instance, of the association between the All Blacks and Weet-Bix a mother said, “[my son’s] got it in his head, and we have too I guess, that ‘hey, load up on Weet-Bix if you’re going to play sport’” (Wgtn, rugby, mother).

In summary, parents saw themselves as role models for their children and as having a responsibility to promote healthy nutrition in the home. They achieved this by providing healthy foods for their family and encouraging healthier options. Parents also thought that high-profile athletes were role models who influenced their children, including their dietary behaviours, particularly those associated with food product sponsorship.

8.4.2 Sport-related food marketing

Extent and nature of food marketing

Like the children, the parents photographed a range of food promotional techniques associated with sport. In response to questions put to all groups about the amount and nature of the marketing parents thought their children were exposed to, all groups agreed that there was a “constant stream” (Wgtn, football, mother) of advertising, mostly for unhealthy foods. When further prompted about the extent of healthy food marketing, they also agreed that “there’s nothing really, apart from the cereals” (Porirua, football, mother). Only two groups of parents cited a healthy sponsor of children’s sport events, “[the] ‘Weet-Bix Tryathon’ is a good example of a good, healthy promoter” (Porirua, netball, mother).

This line of questioning usually initiated discussion among most groups about the perceived changes in the food environment since their own childhood. All groups talked

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40 A community-based event run over the summer for children aged 7-15y by the manufacturers of Weet-Bix.
about how the promotion (and availability) of a greater variety of “very convenient” (Wgtn, football, father) food and beverages had increased since they were young, as had the frequency of eating out. Also, they believed the foods promoted (and made available) to children now were of poorer nutritional quality than when they were children, describing it as “processed rubbish” (Porirua, rugby, father) and “disgusting” (Porirua, football, mother). A father’s comment reflected the general view within groups that, “the balance is far too much in favour of unhealthy options. We’ve been bombarded with unhealthy options” (Porirua, rugby, father).

Most groups also talked about how, unlike themselves, children seemed to know all about products through marketing, typically remarking, “I reckon it’s subliminal...it is there all the time aimed at kids...they seem to recognise things through advertising...they just know ‘cos they’ve seen it or hear it” (Porirua, football, mother). A few parents further stated that they themselves only became aware of the extent of the marketing and availability of products when undertaking their photographic task for this research or when confronted by their own group’s photographs. For instance, a football father said of his own data collection experience, “what also amazed me was going around the supermarket doing this and just how much the All Blacks sponsored everything. It was just incredible, the All Blacks’ name was on everything” (Wgtn, football, father), and a mother wrote in her notebook, “I had not paid attention to all the marketing before except to think ‘great, these athletes have sponsors’” (Wgtn, rugby, mother).

Overall, parents reported that, unlike during their own childhood, their children were constantly exposed to a wide range of promotions for unhealthy food items, although there were also some promotions for a healthy cereal product. They also thought that dietary patterns had altered and that the food available for purchase was more accessible and of poorer quality than when they were young.

**Opinions on the use of sport-related food marketing strategies**

All groups were asked why they thought sport was used to promote foods and how effective the various strategies they photographed or recalled were in influencing children. Similar to the children, the consensus view among parents was that sport was an effective means of attracting children to food products, and that the various methods used were successful in achieving that. In addition to the use of well-known sports people and the use of free giveaways such as the Player of the Day certificates described previously,
groups discussed the effectiveness of other strategies. For instance, a father said of the All Black trading cards, “that’s huge, that’s the way to get the kids, get them collecting stuff” (Wgtn, football, father). Sport-related words or tag-lines in product advertising or labelling were also considered by a few parents to be eye-catching, for example, “‘UP&GO Energise’, why do you need it?” (Wgtn, rugby, mother); “the catchphrase of ‘isotonic’” (Wgtn, rugby, father); “the slogan ...‘Ironman Food’...that’s how they sell it [Nutri-Grain]” (Porirua, netball, mother). A few parents also commented on the influence of product packaging and design, for instance, a rugby mother said, “they [the packages] are bright and colourful and clear....and big writing on it and the whole thing happening for them in a nice little package” (Wgtn, rugby, mother). Colour was another feature discussed by a few other groups. A father explained that he took the photograph of sports drinks in Figure 48 and captioned it “colours of the rainbow” because he had noticed how “the kids are just so drawn to it” (Wgtn, father, football).

![Figure 48: Colours of the Rainbow (Wgtn, football, father).](image)

All groups agreed with the children that the ultimate purpose of the promotional activities they photographed or discussed was to increase product purchasing and generate profit for food companies. Parents’ comments about Player of the Day vouchers are illustrative. When asked why they thought companies would provide the rewards, the majority of
parents said that they were used to “catch the big fish” (Wgtn, football, father) or “get that foot in the door” (Porirua, netball, mother) and as a means of garnishing further sales, as two football parents from different groups explained, “they give it to one person and ten people go along, the family goes along, so it’s a business thing for them” (Wgtn, football, father) and “they’ve [companies] got the in, ‘oh Mum and Dad’ll have to buy McDonald’s while the kid comes down with voucher’, so I mean it’s a marketing ploy (Porirua, football, mother).

All groups also corroborated the children’s belief that the marketing specifically targeted children, a mother’s opinion reflected the consensus view, “I think from a marketing point of view, they [industry] say ‘yes, this [children] is our market. This is how we make money’” (Wgtn, netball, mother). Most parents from all groups also concurred with the children’s view that the marketing activities were also used to reach parents through ‘pestering’. This finding is illustrated by mothers from two different groups who said, “I think they advertise to children to nag their parents and they [advertisers] know the parents have got the money” (Wgtn, rugby, mother) and “I think it is targeting both of us [children and parents] really. It’s the kids who got me to buy that [product] in the first place” (Porirua, netball, mother).

Opinions on athlete endorsement of food products

Opinions were mixed regarding sponsorship of elite sports people and usually dependent on the nutritional quality of the brand or products the sporting codes or athletes were associated with. Some groups were confident that athletes and teams were careful, and more astute, in their alliances with food companies, such as a Porirua mother who said, “I think most of them [athletes] now are trying to promote healthy. I think they’ve worked out that there’s no point being associated with crap food” (Porirua, netball, mother). A rugby mother was impressed with the positive arrangements the All Blacks had deliberately made with Weet-Bix,

what the All Blacks have done is they’ve aligned themselves with something that’s good as opposed to going down the McDonald’s route...I would respect their marketing people quite highly because they haven’t taken them down the wrong track (Wgtn, rugby, mother).

However, a few other parents were more cynical. A father from Wellington believed that sports associations were more calculating in their approach given the majority of sponsors produced unhealthy food. He thought the promotional activities and products within their
sponsors’ range were carefully selected to ensure ‘fit’ and to portray the least-damaging image. To illustrate his point, he said of his photograph of a Coke bottle with the All Blacks on the side promoting a competition,

*I don’t think you’d see them on TV sponsoring Coca-Cola would you....because they might not want to be directly associated with a perceived non-healthy drink...so they have a competition....[and] they do the Powerade which has got all the catch-phrases of ‘isotonic’ and the healthy sports drink sort of thing” (Wgtn, football, father).

He continued to say he thought it was “interesting” such care was taken given the two drinks were both “high in sugar”.

By contrast, other groups thought that athletes and sports administrators “don’t really care where the money’s coming from as long as someone gives it to them...they’ll take money off anyone” (Wgtn, football, father). According to members of two rugby groups who held this view, sponsorship was a means to an end for professional sports people, regardless of source, as the following brief discourse illustrates,

*Ppt A: they've got a very short career span, they should make the most of that time
*Ppt B: yeah dead right... if I could make money selling sports drinks I’d do it (Wgtn, rugby, parents).

Consequently, the support of sport by unhealthy sponsors was considered by these parents as a justifiable business arrangement; as a father in one of these groups said, “it’s just professionalism [of the sport]. If you are going to have professional sports, they have to pay” (Wgtn, football, father) and that any adverse consequences of sponsorship were considered “a commercial reality” (Wgtn, football, father).

**Opinions on Player of the Day vouchers**
Commercial Player of the Day certificates were raised by the parents in the pilot study as being a significant feature in sport, therefore all groups were asked what they thought about them. All parents in all groups were aware of the certificates and their use as a reward for the children’s achievements, for example, the mother who photographed the Player of the Day certificates in Figure 49 said: “the only player of the day vouchers I know of now are all food-related...it seems about just the only way kids get rewarded for sport (Porirua, netball, mother).
Unprompted, most groups agreed that children deserved to be rewarded for playing well, and that they enjoyed receiving the accolade and validation of being the ‘player of the day’. Some parents added that the children seemed to expect rewards and as such, the practice had become a regular part of children’s Saturday morning sport, saying, “they’re pretty consistent in giving them [Player of the Day certificates] out every week...usually every team member gets one” (Porirua, football, mother). According to most parents, Player of the Day certificates were particularly popular with children as it presented them with a unique opportunity, as a Porirua netball mother observed, “they do like it, the idea they can go to McDonald’s. It’s open season to go to McDonald’s isn’t it? That your parents might not necessarily take you” (Porirua, netball, mother). However, one parent’s views aligned with those children who said that they could take or leave Player of the Day certificates, stating that the practice more likely satisfied parental desires than children’s, “there’s been a couple of times where they’ve forgotten the voucher, they’re [the children] not worried at all, they don’t seem to be too demanding about it. It’s probably more the parents” (Wgtn, netball, mother).
Opinions were mixed when groups were asked about the appropriateness of Player of the Day certificates in particular. Some groups were of the view that they were a special occasion or treat and were therefore comfortable with the practice, “I mean it’s a treat for my kids because I never take them there [McDonald’s] so yeah, and it is a reward. I think it’s okay” (Porirua, football, mother). By contrast, other parents thought they set up poor eating patterns. Recalling Player of the Day certificates being given out to his son’s team, a father’s comment is illustrative,

“I just thought ‘you can’t be serious!’... ‘why, why food, why give the kids food?’... why go and give them something that is making [them] associate their game with McDonald’s so that after every game they go and get a McDonald’s burger?” (Wgtn, football, father).

Some parents in a few groups said that the acceptability of the practice increased where there was the possibility of choosing healthy alternatives at the businesses that distributed Player of the Day certificates, as indicated in the caption for Figure 49. Nevertheless, while a few groups thought this was beneficial and indicative of businesses trying to make positive changes to the food they produced, most were cynical about the companies’ motives. For example, a Wellington mother said, “they’re [companies] dollar driven, they’re not going to care about kid’s health” (Wgtn, rugby, mother). They also questioned the realities of children choosing the healthy alternative, “when you get the kid’s foot in the door they’re not going to pick the healthy option” (Porirua, netball, mother).

Impact of food marketing on children
To determine parents’ views on the impact the marketing of unhealthy food through sport had on children, all groups were asked “what do you think about these strategies being used to attract children?” (MS) and “what impact do you think they have on children?” (MS). Points of view were mixed within and between groups, and occasionally individuals contradicted themselves.

Children are vulnerable
Children’s vulnerability to food marketing strategies was the issue of greatest concern to several groups of parents, with their unease being founded on three issues. First, they frequently commented on the “totally manipulative” (Wgtn, rugby, father) nature of the promotional activities. For example, a netball mother explained that manufacturers “try and promote it [food] in the most positive way, that it’s supposedly healthy and supposedly cheaper and all that sort of thing, but it’s not really it’s just all smoke and mirrors” (Wgtn,
netball, mother). Second, they thought the messages being sent were largely misleading and dishonest, particularly when products were portrayed as being performance enhancing. For instance, describing her photograph of a breakfast cereal being promoted in association with a professional sports team, a mother remarked, “it [the cereal] is so full of sugar and they say it’s going to produce all these wonderful sportsmen, but actually if you look at it that’s actually unfair (Wgtn, football, mother). Third, they believed that children did not always have the capacity to differentiate between the marketing intent and the truth, and consequently accepted the marketing messages at face value. For instance, a father said of a sports drink, “they [children] believe in the properties it has, you know, recuperate and all that kind of stuff” (Porirua, rugby, father), and another said “there is no...connectivity between you having an All Black [on a product] and you eating something. They [the children] don’t see that but all the marketers do, they see it straight up” (Wgtn, football, father). A brief conversation between two mothers further illustrates this point:

Ppt A: they’re not a discerning audience, kids, so they’re just going to suck in whatever’s thrown at them
Ppt B: they do believe, they are so gullible (Wgtn, rugby and football, mothers).

Several groups’ views on product endorsement by well-known athletes demonstrate their concern about the impact of marketing on children. Responding to the question “how appropriate do you think it is for athletes to be endorsing food products?” (MS) they said that given athletes’ influence, their suitability in promoting products was very much dependent on the food’s nutritional quality. A Porirua mother’s statement reflects the view of these parents,

it depends what type of foods they’re promoting. Yeah, you’d agree if they were promoting things like Weet-Bix or UP&GO. But would you really want to see a sports hero – because that’s what the kids think of them as – promoting things like McDonald’s and KFC? You know, do you want our kids to grow up thinking ‘well they eat it, so it’s okay for us to eat it?’” (Porirua, rugby, mother).

To further illustrate their view, the majority of groups discussed their annoyance and disappointment at a previous marketing campaign they recalled in which well-respected and popular New Zealand Olympic athletes were promoting McDonald’s.

Given the children’s desire to emulate their heroes and their “belief they [athletes] are going to deliver the truth” (Porirua, football, mother) many of these parents also thought
athletes had a responsibility to consider their audience members and send honest messages about the products they were endorsing. A mother from Wellington advised that, “sporting identities need to be careful with regards to who their fans are” (Wgtn, netball, mother).

Ultimately, the majority of groups agreed that children “are impressionable...they’re targeting them wrongfully really” (Porirua, rugby, mother).

**They understand it’s marketing**

By contrast, some parents from a few different groups agreed with the children in that they were confident their children saw the marketing for what it was and consequently thought it was not as influential or had much of an impact. For example, a Wellington mother said,

> I don’t think this [marketing] is really having much impact. I don’t believe it is with our kids ‘cos I think they reasonably sort of understand what advertising is, so it won’t make a difference because they’re not looking at it really (Wgtn, rugby, mother).

However, this mother, as with the other parents who held similar views, often contradicted themselves, having earlier discussed how children “were pretty aware” (Wgtn, football, father) of the advertising and its efficacy in attracting their children to, and creating desire for, products. What is more, they had observed that despite knowledge and education, their children still desired unhealthy food, saying, “we think they’re educated but they’re still sucked in” (Porirua, netball, mother) and “five plus a day ads and stuff they learn at school. They come back quoting these little sayings, but they don’t put it into practice (Porirua, rugby, mother).

**8.4.3 Impact of the sport-related food marketing on parents**

To determine the impact of sport-related food environment on parents’ ability to provide a healthy food environment, groups were asked, “How easy or difficult does the marketing make it for you when trying to provide a healthy food environment for your children?” (MS).

**It undermines my responsibilities**

Parents from most groups stated that, despite “trying very hard” (Porirua, rugby, mother), they felt undermined by the ubiquitous nature of the marketing. For example, a Porirua mother said, “it’s hard to promote healthy food at home if they’re going to have all that stuff [products] out there for them to look at, it’s really quick and easy to get, you know” (Porirua, rugby, mother). They also said the contradictory messages being sent and
behaviours demonstrated in the marketing had a similar impact, a challenge summarised by a football mother who said,

\[
\text{I reckon it is quite difficult because you are up against the advertising constantly. They [the children] go 'oh so and so gets that it must be alright and I see it on TV so it must be alright' and it’s like ‘no’. A lot of it’s contradicting what you are trying to teach them, and it’s for all the unhealthy type junk food things (Porirua, football, mother).}
\]

**It can be financially burdensome**

During discussions, most groups mentioned the financial burden promotional activities created. For example, several parents from different groups spoke of having to purchase additional food for their other children who were with them when redeeming a voucher from a Player of the Day certificate, such as a mother from Porirua, “*I had two other children as well so you know it hits your pocket. ‘Cos you can’t take one [child] along and not the others*” (Porirua, rugby, mother). A Wellington mother who had similar experiences commented that a seemingly free meal from a Player of the Day certificate turned into an unexpected expense, “*you have to take the whole family [to the restaurant] and there goes a couple of hundred dollars and it’s supposed to be a free meal*” (Wgtn, netball, mother). For a few parents, the expense of purchasing a product just to obtain the incentive within it, rather than cheaper alternatives, also generated financial burden. For example, a mother from Wellington said she would usually purchase the cheaper supermarket brand of a cereal, however because of the trading cards “*we got Weet-Bix and now we’re hooked in...we don’t even think about it, we just buy them*” (Wgtn, netball, mother).

**‘Pestering’**

There was agreement among all groups that pestering was frequent and difficult to deal with. They described the frustration of being constantly harassed by their children, especially as “*they’re always asking for the bad stuff*” (Wgtn, netball, mother). A Wellington mother reflected the general view when she said, “*I think it’s really annoying they all want that, and I’m like ‘I don’t have to buy it’ but we’re being marketed to, and we get the ‘can I have? can I have?’*” (Wgtn, rugby, mother). Confirming the children’s observations, pestering often resulted in family tension; several parents recounted scenarios, such as this Wellington mother,
I refuse to buy Weet-Bix unless my son actually eats them. And now that the cards are gone and it’s the tags it’s, ‘did you get Weet-Bix this week?’ ‘no I didn’t get Weet-Bix this week’ because you still haven’t eaten the last one (Wgtn, netball, mother).

Counter-strategies to ‘pestering’ were often discussed and if not raised voluntarily, groups were asked how they dealt with purchase requests. Almost all parents admitted that, despite the best intentions, they eventually capitulated and bought the requested product, as it was preferable to dealing with family conflict, as a rugby mother explained, “when you’re tired and you’re really run down, especially in the school holidays, if they’re shopping with you, it is very hard not to give in at once, you know? It’s easy” (Wgtn, rugby, mother). Some parents said they would justify their giving-in by considering it as a special purchase, for example, a mother said, “we do kind of contradict ourselves saying ‘oh we’re the ones who buy the food’, but you do take an easy option and Powerade as a treat, because you eventually do cave” (Porirua, netball, mother). Several parents from different groups described how they would hide Player of the Day vouchers in the hope their children would forget about them or they would have expired, discard them immediately, or use the drive-through as a means of avoiding further requests and expenditure. A few parents said they relied on good fortune, “you do sometimes try it [a requested product] and they [children] actually don’t like it, and it’s like ‘thank God for that’ (Wgtn, rugby, mother). A few others were stoic, saying that they either ignored requests or set limitations and adhered to them, while others spoke of negotiating and compromising, “when it’s their birthday they can choose whatever they like” (Porirua, football, mother).

Overall, most parents said ‘pestering’ challenged their responsibilities to provide a healthy environment. While a few parents said they could ignore it, the majority view was summarised by two rugby parents who said,

_Ppt A: You get sick of saying no
Ppt B: Yeah don’t you? It’s a battle actually (Wgtn, rugby, mother and father)._  

**It’s up to us to counteract unhealthy food marketing**

In addition to their responsibilities to provide a healthy food environment, parents from most groups agreed that they also considered it their job to ensure their children
understood the intent of the marketing. Given the perceived lack of truth in the marketing, the changes in the food environment since their childhood and the potential health consequences, most parents spoke of having to encourage their children to, “question that not everything they hear and see is the truth. And we do need to encourage them to, um, you know, just dig a little bit deeper sometimes” (Porirua, football, mother). At least one parent in most groups described what they would say to their children, for example, a rugby mother explained,

> it’s that discussion about why are you having it [a particular food], is it a treat or is it something you need for energy. And if it’s something you need for energy, well what’s the best option. And I think a lot of people these days have those discussions with their kids because we have to. I guess forty years ago you just had what was on the table (Wgtn, rugby, mother).

However, a few parents from different groups commented on how they felt there was often little opportunity for parents to intervene and ensure children understood the marketing messages. When talking about an advertisement for a sports drink for example, a mother said, “they [children] haven’t got the opportunity to discuss it [the advertising message] and there’s not an adult supervising, putting in what they see as the truth” (Porirua, football, mother).

**Food marketing can be supportive**

Notwithstanding the negative aspects of the marketing, almost all parents reported some positive spin-offs, which almost arose entirely from discussions about the All Blacks’ endorsement of Weet-Bix. As much as parents had also cautioned against sports heroes promoting unhealthy food, almost all groups said they felt supported when ‘role models’ promoted healthy food as it reinforced the food and nutrition messages and behaviours they tried to pass onto their children. A mother’s notebook comment about Weet-Bix is illustrative, “my boys play rugby...top sports people choose this, it must be good! In general this is great! (Wgtn, rugby, mother). The majority of parents were appreciative that a healthy cereal was promoted in this way; a Wellington mother’s comment was typical: “I’m relieved that they promote that [Weet-Bix] on TV with national heroes, sport heroes, because it does encourage small children...so it can be quite positive (Wgtn, football, mother). Some parents appeared so happy, they said they were prepared to endure frequent purchase requests from their children for Weet-Bix, for example a rugby mother said, “I’m not going to argue if he wants three Weet-Bix in the morning. Go for it [others agreeing]” (Porirua, rugby, mother).
In summary, parents thought that the sport-related food marketing strategies children were exposed to were highly effective in attracting children in order to sell more product and generate profit. They thought that children were specifically targeted and that parents were indirectly targeted through pestering. Parents held mixed views on the impact of the marketing on children. The majority were uneasy about the practice as they thought it was largely dishonest and misleading, and that children were impressionable and vulnerable, and did not have the skills to differentiate between the persuasive intent of the advertising and the truth. A few parents thought that their children were not impacted by the food marketing and that they understood its purpose.

Parents felt that the contradictory and misleading messages being sent and behaviours portrayed through the food marketing undermined their parental responsibilities in providing a healthy food environment for their children. It also placed extra financial burdens on some parents and pestering engendered tensions between them and their children. Parents employed a number of strategies to counter the persuasiveness of the food marketing, but often with little success, with most parents reporting it easier to give in. While they thought it was their responsibility to counter the marketing and teach their children about its purpose, most parents described feeling embattled and resigned to the situation. Parents felt that the use of high-profile sports people to sell healthy food was particularly successful and supportive.

8.5 Economic environment

This section presents the parents’ perspectives on the economic sport-related food environment, or “what is the cost” (Swinburn et al., 1999, p. 565). It includes their views on how food is used to financially support sport, the purchasing of healthy food policies and practices through sponsorship, and the cost of food.

8.5.1 Financial support for sport

The funding of local clubs and regional, national and professional sports teams and individual athletes through fundraising, sponsorship and product endorsements was discussed by all groups. The use of sponsorship and endorsements as a marketing strategy, and its impact, are presented in the socio-cultural environment section.
**Children’s sport**  
**Fundraising**

In response to the question, “how do you raise funds for your club?” (MS), parents in all groups said they had undertaken many fundraising activities that involved food. For example, a rugby mother said that ‘sausage sizzles’ are “your traditional fundraiser, your sausage sizzle, quick and easy and cheap and you make money out of it” (Wgtn, rugby, mother). Several groups also discussed the sale of home baking, and the on-selling of commercial chocolate confectionery. The caption of the mother’s photograph in Figure 50 indicates the popularity of the latter scheme, “many sports clubs use chocolate for fundraising” (Porirua, netball, mother). Non-food fundraising methods recalled by a few parents across different groups included raffles; quiz, movie and bowling nights; discos; and bric-a-brac stalls at local markets.

All groups reported that fundraising was difficult, but reasonably successful. They said that sausage sizzles and home baking were desirable as they frequently relied on parents’ volunteer labour and donated raw materials, and they generated a good return with all the profit going to the club, as a football mother explained:

> Well it’s [home baking] free to begin with, for the people raising the money...so you get a lot of people making stuff and helping out, and you’re not charging [for rent or raw materials] and the club gets a lot of money or all the money. And generally home baking is probably – if done well, is quite nice (Porirua, football, mother).

While parents from several groups confirmed that the on-selling of commercial chocolate confectionery was quite lucrative, not all thought it was appropriate. Most parents disliked the scheme as unsold boxes were financially burdensome and had adverse dietary impacts, as a netball mother explained, “they [the children] can leave it at home and you slowly eat it and you’ve got to pay fifty bucks for the box” (Porirua, netball, mother). In contrast, one group of parents said they thought it was an ideal way for children to be directly involved in fundraising for their sport, as a mother said, “how else can you get your kids to fundraise where they are actually doing something for themselves... chocolate’s about the only thing they can do....They can take it around netball courts...[or] door-to-door (Porirua, netball, mother).
Sponsorship
All groups discussed the role of sponsorship of sport by food companies in funding children’s sport when promoted. The majority of parents said that food-related sponsorship was common and mostly unhealthy. For example, the mother who took the photograph in Figure 51 noted, “I took this photo at this tournament of the big McDonald’s sign because they were the sponsors and the kids all got McDonald’s drink bottles and McDonald’s vouchers” (Porirua, netball, mother). When asked their views about whether it was appropriate or not to use unhealthy food sponsors, parents’ responses across all groups were ambivalent, stating “there’s pros and cons” (Wgtn, football, father) or describing it as a “‘Catch-22’” (Wgtn, netball, mother) situation. While they acknowledged a conflict of interest existed and it was a relationship they were not all-together comfortable with, they were resigned to it and tolerated it. Their attitude appeared to be based on two beliefs. First, that it guaranteed the sustainability of sports clubs, through the supply of equipment, or achievement certificates with food vouchers and other post-game rewards. In turn, their children benefited from continued participation in sport, which was a factor of significant value to all parents. For example, one Wellington group discussed how sports clubs were a safe and reliable after-school venue for their children, which as a mother from the group explained, was of particular benefit to working parents,
both of us work...you rely...on sports coaches to look after your kids, um, so you want those people to be looked after, you want your community to be looked after...You want the money to be available so that these people can do what they do (Wgtn, rugby, mother).

Figure 51: McDonald’s sign...They sponsor events and give vouchers away (Porirua, netball, mother).

Second, almost all parents believed that the amount of money required for the maintenance and the development of sports clubs was of a magnitude that could only be provided by large commercial companies or “big business food” (Wgtn, netball, mother). Consequently, most parents said they could not afford to be fussy about funding sources for children’s sports, typically commenting,

You get it [funding] where you can, unless it’s something really really offensive, because there are very few businesses that can provide that kind of financial backing. And they get the trade off too. But it’s very hard to get that dollar and it’s essential for those sorts of things to keep going (Wgtn, rugby, mother).

and

Probably you wouldn’t want them [unhealthy corporate sponsors], but then without them you wouldn’t have the same quantity of sponsorship, so many teams participating, you know? So yeah, I don’t know, until you find someone better that will be willing to sponsor, I suppose you have to stay with them, otherwise probably the subs [club subscriptions] and everything
else will have to go up and you’d probably see a decline in numbers participating in the sport. I mean it’s a Catch-22 eh? (Wgtn, football, father).

One Porirua parent also recounted the difficulty smaller sporting codes had in procuring sponsorship funding and her view that mainstream sports (rugby and netball) attracted funding at the expense of smaller codes. She recalled raising funds and prizes for waka ama\(^1\) tournaments as being “really, really hard” (Porirua, rugby, mother) and reluctantly accepting more easily obtained, although less desirable, prizes from multinational companies. She said that she had “approached all the local businesses...McDonald’s were probably one of the most forthcoming. They were giving out [food] vouchers left, right and centre...they are generally pretty forthcoming when it comes to sponsorship (Porirua, rugby, mother).

During prompted discussions on the possibility of restricting unhealthy food sponsorship of children’s sport, most groups said they believed the subsequent lack of club resources or the financial burden placed on parents would result in reduced opportunities for their children to engage in organised physical activity, as a Porirua mother explained,

> We don’t have to pay high subs [now]. But if things were different, my children wouldn’t be able to play, because we wouldn’t be able to afford it [All: yeah]. That’s where the challenge is. If we weren’t getting sponsorship then a lot of children wouldn’t be able to play sport (Porirua, football, mother).

When asked if they knew how their club administered the sponsorships they receive, the members of several groups said they were unaware of the sponsorship process. A father’s comment on Player of the Day vouchers reflects the general understanding,

> I don’t know how much – whether they have the [sponsorship] rights for that or whether they just hand these out I’m not sure....Yeah they must pay for the rights to do that, I should imagine. So they must give a donation and that’s their kickback but I don’t know the ins and outs of that (Wgtn, football, father).

One parent who was involved in local netball administration said funding involving food was inconsequential relative to other sources of finance for children sports. She said that money from community trusts\(^2\) was of greater benefit to clubs.

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\(^1\) Out-rigger canoe paddling

\(^2\) Charitable trusts that raise money to fund community organisations through the operation of gaming machines.
Overall, despite any misgivings regarding the appropriateness of unhealthy food sponsors in sport, most parents appeared grateful for sponsors’ contributions and thus were hesitant to criticise it, as one parent noted, “they do do a lot for the kids at the end of the day” (Porirua, rugby, mother).

Professional sport
Similarly, all groups believed that the sustainability of professional sport was dependent on a level of funding that could only be provided by large multinational companies that produced mostly unhealthy foods. When asked about suitable alternative sponsors parents had difficulty identifying any, considering healthier organisations lacked sufficient financial resources or commercial standing to sponsor sport, typically commenting, “you need a big organisation with lots of money and they are few and far between, especially oriented towards healthy food or healthy products, you know?” (Wgtn, football, father), and “carrot or healthy food providers haven’t got the clout or the organisation to provide anything like that so it’s either them [current sponsors] or nothing” (Wgtn, football, father).

Replacement of commercial sponsorship
When asked “what do you think of the government replacing unhealthy food sponsorship, like they did with tobacco?” (MS) most groups agreed in principle with mothers who said, “it needs to happen” (Porirua, netball, mother) and “if that’s a way that sports can then continue to run it would obviously be far better for a netball tournament to be sponsored by Healthy Eating and Healthy Action or whatever” (Porirua, netball, mother). However, they also added that unlike multinational companies, government had insufficient funds for such a move. For example, a Porirua father said, “it would be a good idea, but I don’t think the government’s got the money to do it because there is so much money these corporations put into sport. Um, I honestly don’t think the government could match it (Porirua, rugby, father). Several groups also noted how, in recent years, a number of government-funded health promotion initiatives had disappeared. Consequently, they perceived central government funding to be sporadic, in contrast to more reliable corporate support, such as a Porirua mother who said, “the government stuff is all flash-in-the-pan and then it’s gone. It’s just like the ‘Five Plus a Day’, the ‘Push

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43 Previous Government’s obesity prevention strategy, disbanded by the current Government in 2009. Discussed further in Chapter Four.
44 Charitable Trust that encourages New Zealanders to eat five or more servings of fresh fruit and vegetables per day.
Play⁴⁵, it was in for a while then it’s gone, and all those other companies are still there” (Porirua, rugby, mother). They also thought that, unlike the government, multinational companies had the means and freedom to acquire further financial resources as and when necessary, “when you hit a certain budget they [government] go ‘oh that’s it we can’t sustain that’. But big corporates, they can just go ‘oh we’ll just throw another ten million billboards up and we’ve got the money’ (Porirua, rugby, father).

### 8.5.2 Investment in health promotion

Prompted by questions to elicit parents’ views on food marketing regulation, a few groups discussed the apparent imbalance between the money spent by the food industry on promoting unhealthy foods relative to that spent on promoting healthy foods, and its likely impact on the country’s future health expenditure.,. As a preventive measure, some parents in these groups concluded that government needed to invest more in healthy food promotion, as a footballer’s father said, the investment

> should be five hundred dollars for healthy stuff and one dollar for the other. I mean they [corporates] make money on it...you have to be concerned. There’ll be a real problem with diabetes in Pacific Island and Māori families, it’s just going to be a disaster of the health system...actually putting some money in it now could save you so much more down the track (Wgtn, football, male).

This father continued, pointing out that unless government intervened with stricter statutory controls on advertising (detailed in section on political environment), health promotion initiatives would not be easy to implement,

> Funding five plus a day is a drop in the hat compared to the Burger King, McDonald’s and Coke have. Obviously they are fighting a losing battle with something like this. Until that’s evened out and some more regulation is put in place – if you are going to advertise so much junk you have to put so much towards funding something decent you know in other areas” (Wgtn, football, male).

### 8.5.3 Food cost

In response to being asked “why do you think the food at sports venues is of poor quality?” (MS) almost all groups concluded that it was largely due to commercial and financial considerations, rather than health. They said caterers and administrators probably chose the types of food available because it was cheap, and quick and easy to prepare and

⁴⁵ Campaign administered by Sport New Zealand (formerly Sport and Recreation New Zealand, and prior to that the Hillary Commission) aimed to get all young New Zealanders involved in physical activity and games.
serve to large numbers of people, therefore improving turnover and maximising profit, “it’s all about marketing and competition and money” (Wgtn, netball, mother).

The cost of healthy food considered as staples, relative to unhealthy foods, was raised by several groups, mostly from Porirua. For example, a group of Porirua mothers said, “milk’s gone up for us….That’s a problem isn’t it? They put the things up which are good for you which is really annoying...how ridiculous...it doesn’t make sense” (Porirua, football, mother). Consequently, some parents from these groups mentioned that taxing unhealthy foods or removing tax on healthy foods would be supportive, as two mothers from different groups suggested, “tax the bad food, like a fat tax” (Porirua, netball, mothers) or “have no GST on the fruit and vege, and the healthy food” (Porirua, rugby, mother).

8.5.4 Features of the economic environment presented elsewhere
Economic-related issues raised during discussions but presented in other sections included the high cost of food (particularly healthy food) at the Stadium, the extra expense incurred when redeeming free food vouchers given to the children as rewards, removing the goods and services tax (GST) on healthy food items, the expenses associated with purchasing products to collect trading cards, the low cost of confectionery for prizes and rewards for children’s sport, athletes’ income from sponsorship, and the costs related to the perishability of fresh foods.

In summary, parents reported food was frequently used as a means of financially supporting both children’s and professional sport, the majority of which was unhealthy. Most parents appeared unconcerned about the health implications of the food sold at children’s sport given its infrequent consumption, and most were ambivalent about unhealthy food sponsorship. While they thought the latter was inappropriate, they also thought it was necessary for the sustainability of sport, and their children’s sporting and physical activity opportunities. Furthermore, although sponsorship by health food companies and government were preferable, parents thought neither had the financial means to support sport. Overall, they thought the benefit of sponsorship for their children and sport outweighed the financial (and possibly) health costs.
8.6 Political environment

This section presents the parents’ perspectives on the political sport-related food environment, or “what are the rules” (Swinburn et al., 1999, p. 565). Topics discussed included the regulation of food marketing using sport, and parents’ knowledge of the Code for Advertising to Children (the Code) and complaints process, the government’s role in healthy food promotion, who is responsible for ensuring a healthy food environment, food policies at sports venues, and parents’ rules around their children’s sport-related food consumption.

8.6.1 Parents’ rules on food consumed

During discussions about how parents handled ‘pestering’ and their opinions on the acceptability of the availability and promotion of unhealthy food items parents often mentioned ‘rules’ they had regarding their children’s consumption of them. Parents’ discussion on sports drinks are illustrative. While some commented on having observed sports drinks being regularly consumed at children’s sport, such as the mother who took the photograph in Figure 52, most groups agreed that they did not allow their own children to have them. They cited several reasons for this decision including the high sugar content, “it is the extent of the sugar, the fact that I don’t consider them necessarily to be children’s drinks” (Wgtn, netball, mother); the artificial ingredients, “just the fact that a lot of them are blue, puts me right off, it’s like how unnatural can you get? (Porirua, football, mother); and that they were unnecessary for children playing club level sport as this mother wrote of her photograph of “Mizone...sold as a rehydrator and energy provider for sport. Took photo ‘cos it’s packed full of sugar/carbs and over-the-top energy replacement for everyday sport. Don’t buy” (Wgtn, rugby, mother).

8.6.2 Food policies at sports venues

All groups were asked if they were aware of any policies about the provision of food at community sports venues. Very few knew of any formal arrangements. A parent who managed a large netball centre where numerous clubs played said they had a policy of allowing clubs to use the kitchen facilities on a weekly rotational basis to provide and sell food for fundraising purposes. Several other groups, predominantly football and rugby parents, voluntarily questioned the legitimacy of mobile vendors trading at council-owned or club-managed sports fields, and whether they (as owners or managers) received a fee from the vendors in exchange for being able to trade at those venues. They added that if
they did pay a fee, the club could justifiably act to improve the quality and type of food available. For example, a netball mother said, “I wonder if...the sports club might be able to complain and say we don’t want...that unhealthy sort of thing offered while we have hundreds of children around....Maybe they don’t have a say in it whatsoever? (Wgtn, netball, mother).

Yet some parents from different groups said that there were exceptions to this rule, under certain circumstances. Confirming the children’s comments, they said they would buy sports drinks for their children when they were “in something serious” (Porirua, rugby, mother), such as representative games, or if “they are going to be playing a whole day’s tournament” (Wgtn, rugby, mother). A few parents said that they often treated or rewarded their children with sports drinks, as a netball mother explained, “we push at home with Powerade being a treat drink. The kids love Powerade and if they achieve...some huge thing, then they’ll get a Powerade and that’s the big trophy” (Wgtn, netball, mother). Most groups held similar attitudes towards other unhealthy foods, including lollies, fast food when redeeming Player of the Day vouchers and sausage sizzles.

8.6.3 Views on regulating food marketing
To determine parents’ views on instituting statutory control of food marketing, all groups were asked “what do you think about regulating food marketing to children?” (MS).
Opinions were divided on this subject and it was an area of discussion where there were marked differences in groups’ opinions by location.

Almost all Wellington groups viewed greater restriction of food advertising through statutory regulation as unwelcome, with most parents strongly agreeing with a Wellington father who said, “I would be uncomfortable and struggle with that degree of control, legislation over choice” (Wgtn, rugby, father). Most parents saw government intervention as an indication of parents absolving their parental responsibilities, as a mother said, “we give away a lot of our responsibility as parents back to making everything right in the big world, and I don’t think that’s right” (Wgtn, rugby, mother). Their views were founded on the belief that the foods available and promoted were a “legitimate part of the diet, in moderation” (Wgtn, football, father) regardless of nutrient quality; that it was reasonable for corporate companies to market their products, “they have a legitimate right to advertise their wares” (Wgtn, football, father); and in contrast to other health risks, such as tobacco, the consequences of consuming unhealthy food did not pose as great a health or economic threat.

Discussions on unhealthy food sponsorship of sport among these groups are illustrative. When asked “what do you think about restricting unhealthy food sponsorship” (MS) they were unconvinced of the benefits of such a move. Their reasoning was based on their view that sponsorship was a useful way for companies to counteract the potential adverse health consequences of the food they produced, as a netball mother explained,

[they are] giving back to the community and they are giving to these healthy activities and pursuits, and the chance to balance out their equation in society. So you know, you could say ‘we might contribute to obesity, but we’re also contributing to a healthy portion of the population’ (Wgtn, netball, mother).

A few Wellington groups also thought sponsorship was a valid commercial arrangement. As such, it was one they were comfortable with regardless of the nature of the sponsoring business. Speaking of Player of the Day vouchers from McDonald’s for example, a father from one of these groups remarked, “I think it’s okay, you know. It’s not the healthiest food in the world but it’s a legitimate business...business is business” (Wgtn, football, father). A parent from another group further argued that restricting unhealthy food sponsorship and the subsequent reduction in opportunities for children to be physically active might inadvertently cause harm, “if you get rid of even unhealthy advertising the
sport’s going to decline and so is the attendance and then you’ll get a negative effect anyway” (Wgtn, netball, mother).

For these parents, educating children, and parents, especially through the provision of lessons on cooking and meal preparation, greater use of schools to support home nutrition education, and school nutrition policies were the preferred means of improving the food environment and children’s health. Typically, they would say, “I’d probably prefer an education type of approach. I just don’t think the government should be telling us what to do all the time” (Wgtn, rugby, male). This attitude may have been founded on their own successful education experiences, for example the previous father added, “for me the education works” (Wgtn, rugby, male) and a belief that this approach would correct deficiencies in current levels of knowledge and parenting skills, as they often commented:

educating people about what they’re eating and knowing about it is something that’s just totally been lost....I think teaching people to cook is really important....it’s amazing how ill-informed a lot of people are about what’s in it and they don’t read it and they don’t read the content (Wgtn, rugby, mother).

Nevertheless, consensus was not always achieved within these groups and occasionally some parents contradicted themselves. For example, in one Wellington group, a father who thought education was the key, conceded central government control would benefit some parents, particularly those who “obviously struggle to have their kids have a healthy lifestyle and diet” (Wgtn, rugby, male). He also realised that requiring schools to provide nutrition education was quasi-government intervention, albeit not as intrusive as regulating marketing. Another father in the same group refuted the group’s general view on education, by pointing out that even with adequate knowledge, people had difficulty following nutrition advice, “we’ve all got the message, you know that food pyramid thing...but jeepers creepers, my food pyramid’s the other way round you know, and I know better!” (Wgtn, rugby, male). He continued, hinting that regardless of people’s intentions, without some higher-level support people still may not make the best choices, “you occupy the moral high ground, but fundamentally we’re all weak aren’t we? And if you’re left to your own devices...“ (Wgtn, rugby, male).

By contrast, all Porirua groups and one Wellington group had different views on greater statutory controls on food marketing. While not in favour of “a blanket ban” (Wgtn, football, father) on food marketing and agreeing that education was important, the consensus view of parents from these groups was that there should be greater controls on
food advertising content, that is, “there has to be high standards on what is shown to children...it’s got to be balanced. It really should be more balanced - and a lot more accurate” (Wgtn, football, mother). Overall, these groups believed that greater regulation would have benefits, such as Wellington mothers who said,

There are an awful lot of people in New Zealand who’s attitude is ‘we can make our own choices, we don’t want somebody making these decisions for us’...but unfortunately you’ll get some who make the right choices and some that won’t (Wgtn, rugby, mother).

I think it is very hard on the parents. I’d rather it was a little bit less blatant. I wished they had their facts a little bit more accurate. I wish it was more fair the way they promote some things...it’s [Nutri-Grain] so full of sugar and they say it’s going to produce all these wonderful sportsmen, but actually if you look at it, that’s actually unfair. I think some of these adverts should not go to air. I think we should be a lot more fussy about what we show our kids (Wgtn, football, mother).

Furthermore, a Wellington father was critical of industry’s lax and careless attitudes to the marketing of food and beverage products, which from his perspective further justified greater regulatory control,

they are meant to be self-policing and they’re not. And when I’ve heard discussions from these marketing people, what they’re allowed to do, and they sort of say, ‘well, we’re allowed to do it’, you know, I mean they have no social responsibility. So there’s a level of social responsibility that has to be injected back in there. And if they can’t self-policing it...sometimes you just have to do these things to put the balance back (Wgtn, football, male).

In summary, parents often relaxed their own rules regarding the consumption of unhealthy food on special occasions. They were unaware of any club having a specific food policy or rules about food vendors at community sports venues. Parents’ opinions were divided on the institution of food marketing regulations. Almost all parents from higher income households were opposed to changing the food marketing regulations, citing nutrition education and cooking skills as the solution to improving children’s dietary patterns. In contrast, those parents from lower income households were supportive of stricter regulation than is currently in place.

8.6.4 Children’s Code for Advertising Food and complaints process

Knowledge of the Code
All groups were asked questions to determine parents’ awareness and knowledge of the Code, their understanding of the complaints process and their confidence in complaints
being addressed appropriately. Among all groups, all parents were either unaware of the details of the Code, or their knowledge was limited to the time restrictions for alcohol advertising and programming for adult content, and on broadcast media only. All groups asked for an explanation of the Code. Control around non-broadcast media was mentioned by only one participant who concluded that given the unrestricted nature of Player of the Day voucher distribution, the Code did not include forms of non-broadcast media. One participant mentioned (voluntarily) the current controls were “self-policing” (Wgtn, football, father).

**Knowledge of the complaints process**

Parents’ understanding of the advertising complaints procedure was also minimal. Almost all groups incorrectly stated the Broadcasting Standards Authority as the complaints body; only one parent correctly identified it as the Advertising Standards Authority. A few others thought the New Zealand consumer advocacy group Consumer NZ, and the Ministry of Consumer Affairs might also investigate advertising breaches.

In response to the question, “If you made a complaint about food advertising, how successful do you think you would be?” (MS), most parents across all groups said that they had little confidence in the complaints process, although a few parents were certain complaints would be dealt with appropriately. The majority view was based on the perception that there was an imbalance between themselves and the much more powerful and influential food companies. Relative to the food industry, parents typically described themselves as having “lone” (Wgtn, rugby, mother) or “small” (Wgtn, netball, mother) voices when describing the influence they would have on the outcome of a complaint. Consequently, they said, their complaint would most likely “just disappear into the woodwork” (Wgtn, netball, mother). By contrast, they perceived industry had substantially more influence given their commercial and financial strength, for example, a football mother stated, “money speaks louder than words really” (Wgtn, football, mother). Parents from one Wellington group also believed that multinational companies had greater capacity to manipulate the system in their favour, an action they thought difficult for parents to counter; one parent said: “they sugar coat things. And I don’t think you’ve got a show of actually dealing with that” (Wgtn, rugby, mother).

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46 Monitoring body for TV and radio broadcasting programming standards.
Some parents in a few groups also thought that complaining about unhealthy food advertisements would not be considered to be a significant enough problem to warrant investigation, and that “you’d have to have a very good case that you thought it was negative towards your child for anything to happen” (Wgtn, football, mother). For a submission to be taken seriously and to have a chance of being successful, parents from several groups agreed that a larger forum, such as a referendum, would be required. A few parents also remarked that, when submitting a complaint, they would have to rise to the standard of their opponent when lodging a complaint—“you would have to word it right so it doesn’t sound like rubbish you know. It has to be really good and you have to express yourself properly” (Porirua, rugby, mother).

8.6.5 Government role in health promotion
An area where some parents thought government could intervene to improve the food environment was to increase the amount of healthy food promotion. Citing the efficacy of high-profile sports people in promoting food, such as the industry campaign that used high-profile women athletes to promote beef and lamb, they suggested the same strategy could be used by central government to promote fresh produce. A football mother suggested, “get[ting] a couple of All Blacks to go on TV and say ‘hey guys eat more oranges’...‘I always have an orange at half time and always have had look at me now’ (Wgtn, rugby, mother). A fellow group member was enthusiastic about the idea, stating, “I’d love to see some people [athletes] up there telling my kids to eat more fruit and vegetables” (Wgtn, football, mother). Similarly, a mother from another group recalled professional netballers visiting her daughter’s club to promote the ‘5+ A Day’ campaign, a scheme she was pleased with and that had engaged the children.

8.6.6 Responsibility for providing a healthy food environment
All groups were asked, “who do you think is responsible for ensuring children live in a healthy food environment?” (MS). All groups were unanimous in their response, stating that ultimately the responsibility lies with parents, notwithstanding the diversity of opinions on government involvement in shaping the food environment, and the external pressures they experience, such as pestering or the ubiquitous availability and promotion of unhealthy food. For example, a rugby father remarked, “it [the marketing] slowly worms its way in...but it still comes down to us whether we buy it or not [and]...‘cos we give the kids money” (Porirua, rugby, father) and a mother said of McDonald’s sponsorship, “it’s just part of the environment and again it comes back to what they’ve
been taught at home” (Porirua, netball, mother). A few parents from those groups in favour of greater government input thought “it’s a bit of both (Porirua, netball, mother). However, their comments were often prefaced with phrases such as “the reality is” (Wgtn, rugby, male) and “at the end of the day” (Wgtn, rugby, mother) indicating they accepted their responsibility with a degree of resignation.

In summary, almost all parents were unaware of the Code, and they did not know about how to use the complaints process. Relative to the food industry, parents perceived themselves as being powerless in the complaints process, and that food advertising was not considered a significant enough issue to complain about. Therefore, they thought that raising an issue about food advertising through the current system would be pointless. Although some parents would welcome support from government, parents saw themselves as having the ultimate responsibility of providing a healthy food environment for their children and resigned to meeting their responsibilities on their own.

8.7 Conclusion

This chapter presented the findings from the photographs and accompanying written comments, and focus group transcripts and banners (n=8), of 28 parents of Wellington and Porirua children aged 10-12y who played football, netball or rugby, to determine what they see in the sport-related food environment, what they thought about the environment and how it impacted them and their children.

The parents photographed a similar variety of sport-related food and beverage subjects as the children, including the food available for purchase at local and professional sports venues, the food provided for children at Saturday morning sports, food at home, sport-related food sold at retail outlets and examples of food marketing associated with sport. Items were photographed in a variety of settings particularly home and sports venues, and were taken for their role in their children’s sports-related diet, their availability and the strategies used to promote them.

Supported by the visual evidence, the majority of parents reported that the majority of the food available at local and professional sports venues, lacked choice, was nutritionally poor and of poor quality. The nutritional quality of food provided for children during Saturday morning game time was mixed, including sports drinks, water, fruit and confectionery. Overall, the majority of parents found the physical sport-related food
environment challenging due to frequent purchase requests for the food available, and because its nature often contradicted the nutrition information they were providing for their children at home. Some parents were not confident about the extent of their own nutritional knowledge and relied predominantly on intuition about what foods to provide for their children. All parents appreciated the support they received from the nutritional education their children received at school and the presence of healthy food policies. Other than in netball, the parents were unaware of their children receiving nutrition advice from sporting sources.

Almost all parents recognised that through the types of food they provided for the home and at meal times they modelled healthy food behaviours. Parents appeared to make considerable efforts to fulfil their food provisioning responsibilities. Parents also considered high-profile sports people as role models to their children. They thought the athletes were highly influential in their children’s food preferences and consumption patterns learning vicariously. The parents reported a range of marketing techniques used in association with sport, and thought they were very effective in targeting and attracting children to food products. Other than a healthy cereal product, the majority of food products marketed through sport were energy-dense and nutrient-poor, as well as reaching parents through frequent purchase requests from their children. In this way parents thought children were used by the food industry as a means to generate more sales and increases profits. Most parents thought that children were especially vulnerable to the persuasive, dishonest and misleading marketing techniques used by food manufacturers and marketers, and should not be targeted by the food industry.

The food marketing environment associated with sport was very challenging for the majority of parents, many of whom felt embattled by it. They said the messages conveyed in the marketing often conflicted with their own nutrition messages, which undermined their parental responsibilities to provide a healthy food environment for their children. The food marketing often created conflict within the family, typically through pester power, and for some parents it generated financial burdens. By contrast, when healthy foods were promoted, especially by well-known athletes, parents felt supported. Parents reported having a variety of mechanisms to counter the influence of the unhealthy food marketing, however many were resigned to accepting the environment.
According to the majority of parents, food is a significant source of funding for both children’s and professional sport, much of it being unhealthy. Fundraising activities for children’s sport includes commercial and traditional sources. Parents reported that raising funds for their children’s sport is difficult. Parents were ambivalent about commercial sponsorship of sport. On the one hand, they and their children benefited from such financial sources, providing the opportunities to take part in sport and to provide activities for busy parents. On the other, they acknowledged that sponsorship by unhealthy food companies was not ideal and they preferred healthier options. However, they believed that a substantial amount of money was required, that could only be provided by large multinational companies. Although they were keen for healthier alternative sponsors such as government, they did not perceive them as a reliable source of sufficient funds.

Parents were unaware of there being any food policies to guide food availability and promotion at their children’s sports club. Parents reported having some rules around the consumption of unhealthy foods, often considering them treats or consumed on special occasions. Parents’ opinions on the regulation of food marketing were divided, with those from less deprived households in favour of education and improving cooking skills rather than instituting statutory requirements, considering them too intrusive. Parents from more deprived households welcomed greater control of food advertising children see. Most parents would be keen to see more money spent on healthy food promotion. Only one parent knew the details of the complaints process for food advertising and most parents indicated that the process left them feeling disempowered due to the imbalance in power and between themselves and the food industry.

The findings from this study are discussed in the next chapter, which considers whether the sport-related food environment in New Zealand supports children’s right to health.
CHAPTER NINE: DISCUSSION

It is important for States to have in place well-functioning child-focused governance structures and mechanisms which ensure that children's rights are not 'left behind' and overshadowed by consideration of business interests (UNICEF & Corporate Social Responsibility, n.d.).

9.1 Introduction

This chapter concludes this thesis. First, the findings from the children’s and parents’ data are synthesised and discussed in relation to previous research, answering the research sub-questions:

- What does the sport-related food environment look like from children’s and parents’ perspectives?
- What are children’s and parents’ opinions of the sport-related food environment?

Conclusions drawn from the synthesis combined with the evidence presented in the previous chapters inform a discussion on the specific health situation this thesis addresses, that is, the prevalence of diet-related chronic conditions of most concern for children, in relation to the sport-related food environment. It also answers the central research question of this thesis:

- Does the sport-related food environment support New Zealand children’s right to health?

This discussion is presented in accordance with the stages of a child rights situation analysis (outlined in Chapter Three). The health issue in question, its main causes and the rights that are being violated or most of risk of being violated in the sport-related food environment are re-stated (issue identification and causal analysis). The key rights-holders and duty-bearers in the sport-related food environment, and their roles and responsibilities, are then described (role analysis). The key rights children and parents may claim or that are at risk of violation in the sport-related food environment are identified (discussed in Chapter Three). The compliance of the sport-related food environment with those rights, and the reasons why children’s and parents’ (as rights-holders) rights are not being fully realised and duty-bearers are not able to fully act to meet their obligations to children in the sport-related food environment (capacity gap analysis) are discussed. The strengths and
weaknesses of this research and a critique of the theoretical models used in this thesis are presented, followed by a discussion on the implications of the study findings for public health policy and practice, and future research. The latter aligns with the stage in a situation analysis in which solutions and interventions are developed to improve the capacity of the rights-holders and duty-bearers. Conclusions drawn from this research close the chapter and this thesis.

9.2 The sport-related food environment – what children and parents see and their opinions on it

9.2.1 Physical environment

This section discusses the findings on the physical sport-related food environment, or “what is available” (Swinburn et al., 1999, p. 565). The physical sport-related food environment includes the nature and extent of food availability at sporting venues, and the availability of children’s sport-related nutrition expertise and information. As in previous chapters, food marketing is presented in the following section that discusses the socio-cultural environment.

Nature and extent of food availability

Comments made and photographs taken by the children in this study revealed that mostly unhealthy foods and beverages were available for purchase at the sports venues they frequented. Likewise, parents visually and verbally reported that, predominantly, foods and beverages of poor nutrient quality were sold by a variety of vendors at the sports venues their children attended. Children and parents alike also remarked on the lack of healthy options available for purchase in such settings. There are no previous studies describing the nature of the physical sport-related food environment from children’s viewpoints, although unhealthy items dominated the sports settings of the studies reviewed in Chapter Five. However, the parents’ accounts of the nature and extent of food availability at sports venues in this study are consistent with Carter’s (2013) observations of the food for sale in New Zealand sports settings, and with parents’ (Ireland & Watkins, 2010; Kelly et al., 2008; Thomas et al., 2012) and sporting officials’ self-reports (Young et al., 2012), and observational studies of such locations internationally (Andreassen, 2007; Chaumette et al., 2009; Drygas et al., 2011; Kelly, Baur, Bauman, King, et al., 2010b; Kelly et al., 2008; Naylor, Bridgewater, et al., 2010; Young et al., 2012).
Most parents reported observing an increased presence of unhealthy food items at children’s organised sport since their own childhood, for instance the introduction of confectionery at half-time during games, sports drinks, Player of the Day vouchers and chocolate fundraisers. Furthermore, they thought these items had become a normal part of Saturday morning sport, and that consequently children seemed to have a heightened expectation that such items would be available to them. These changes in the physical food environment in children’s organised sport have not been reported by parents elsewhere. However, they are consistent with changes in the wider food environment discussed in Chapter Two (Cordain et al., 2005; Hoek & McLean, 2010) and with research that demonstrates the majority of foods consumed away from home are unhealthy (Lin & Guthrie, 2012; Mancino et al., 2010).

Children’s and parents’ comments and photographs indicated that much of the food at sports venues was provided by external suppliers such as volunteer groups, mobile food vendors and contract caterers. The participants’ images and discussions revealed that parents, coaches and sporting organisations also supplied food for children before, during and after games as energy-boosters, and ‘treats’ or ‘rewards’. A variety of items ranging in nutrient quality were available, including oranges and water, sports drinks and confectionery, and for some netballers, healthy lunches for their away-tournaments. Coaches and sporting organisations in Australia and the United States appear to provide sport-playing children with a similar range of foods as their New Zealand counterparts, also as treats and rewards (Kelly, Baur, Bauman, King, et al., 2010b; Thomas et al., 2012). Reports on the provision of food for, and dietary patterns of, spectators, teams and clubs in New Zealand are scarce, with only Carter (2013) confirming that external suppliers are the main source of food at sports venues, and that some senior rugby players are provided with meals by their sporting organisation.

**Opinions on food availability**

The majority of children and parents agreed that much of the food available for purchase at sports venues was nutritionally inappropriate given the child-focused or health-promoting nature of those venues conflicted with dietary recommendations. This in turn made it difficult for children to comply with them, and encouraged ‘bad habits early on’ rather than supporting the establishment of healthy dietary patterns. Concerns about the nature and behavioural impacts of the physical food environment at children’s sports venues have not been previously reported in New Zealand. However, parents from the United States
and the United Kingdom report being frustrated by, and concerned about, the widespread availability of unhealthy foods and lack of healthy options at sports venues in those countries. They too were of the view that the unhealthy food environments at those locations convey contradictory dietary messages to their children (Ireland & Watkins, 2010; Thomas et al., 2012).

Parents had mixed views on the acceptability of their children consuming unhealthy foods at Saturday morning sport. While many were concerned about the subsequent impacts on their children’s dietary behaviours and health, some also believed that any adverse health consequences would be mitigated by the energy their children expended playing sport and the infrequent consumption of the foods of concern. An exception was frequently made by all participants for sausage sizzles on the basis of their traditional links with children’s sporting events and role in fundraising. For a few parents, the foods available were considered part of a sport-related diet. Similar divisions of opinions on, and rationalising of, children’s consumption of unhealthy foods among parents have been reported elsewhere (Thomas et al., 2012).

The consumption of unnecessary energy-dense foods, including those typically available to children who play organised sport, should be of concern. According to dietary guidelines in New Zealand and elsewhere, remaining hydrated is the only dietary requirement for children playing weekend and occasional sport; additional foods for energy or rehydrating with sports drinks are not necessary (Committee on Nutrition and the Council on Sports Medicine and Fitness, 2011; Ministry of Health, 2012a; National Health and Medical Research Council, 2003; US Department of Agriculture & US Department of Health and Human Services, 2010). Research shows that altering energy intake has a greater impact on weight gain or loss than energy expenditure (Luke & Cooper, 2013). It is likely that the amount of energy children expend while playing organised sport is not sufficient to account for the energy those foods supply. Furthermore, the health implications of consuming such foods go beyond weight gain to include type 2 diabetes and dental caries (Basu et al., 2013; Hu & Malik, 2010; Malik et al., 2010; Vasanti S. Malik et al., 2010; Vartanian et al., 2007).

The availability and consumption of unhealthy food while watching live sport at the Regional Stadium was almost universally considered acceptable among the study participants, who viewed such occasions as entertainment rather than sport. Unhealthy
food is typically available at entertainment locations and events, such as movie theatres, or festivals. The frequent exposure to such food in the context of entertainment normalises people’s food preferences and behaviours, and perpetuates the expectation that it will be available in those settings. Thus, the food available and consumed at the Regional Stadium reflects the context, even being labelled by the participants as ‘entertainment food’ or more specifically, ‘stadium food’. Coupled with the infrequent attendance of such sporting events and, as the parents reported, the long tradition associated with the practice, classifying the event as entertainment legitimised the consumption of ‘stadium food’ for participants. The majority of participants were also highly resistant to its replacement with healthier alternatives, suggesting the linkage is strong, although healthier methods of preparation of the types of food sold were welcomed by some.

These findings align with New Zealand sporting officials’ descriptions of ‘stadium food’ in previous research as ‘usual’ and that in their experience, such foods are expected (Carter, 2013). Thus, the overwhelming consensus among spectators and sporting officials on the issue suggests that the practice of providing and consuming ‘stadium food’ is firmly embedded within New Zealand’s sport-related food culture. Similar expectations and attitudes have been expressed by sports spectators in the United Kingdom (Ireland & Watkins, 2010). Given the previously described parallels in the nature of sport-related food environments internationally, it is likely that such attitudes are held by spectators in other countries.

**Availability of nutrition expertise and advice**

The availability of nutrition information and expertise is considered part of the physical food environment (Swinburn et al., 1999). The children in this study reported they learnt about general nutrition and dietary principles from a variety of sources, but predominantly home and school. Netballers and children engaged in higher levels of sport were the only children who reported receiving some nutrition information from coaches and their sports organisation. Any dietary advice given in other situations, typically by coaches and sports organisations, appeared to be on an *ad hoc* basis, inconsistent in its content, and on occasion, not in keeping with national food and nutrition guidelines. Most parents recollected observing similar information sources and inconsistencies in its delivery. For example, some coaches or organisations recommended the consumption of sports drinks or provided half-time confectionery, as reported by children and parents, and illustrated in their photographs. Children’s use of dietary advice, when available, was not specifically
determined in this study. However, the greater frequency of netballers’ images of snacks and confectionery, and their discussion of the unhealthy nature and inappropriateness of such items, than the other two sporting codes in this study, may reflect the impact of having received dietary advice from their sporting organisation about those specific items.

There is no previous research on the availability or provision of nutrition advice in New Zealand children’s sport, children’s and parents’ views on it, or how it is used when provided. Australian and Canadian evidence indicates that some sports clubs and organisations in those countries provide nutrition information for their young players (although not always for coaches). However, as in this study, foods not in keeping with nutrition guidelines are also recommended by the sport sector in those countries (Kelly, Baur, Bauman, King, et al., 2010b; Naylor, Bridgewater, et al., 2010). Although the New Zealand Ministry of Health’s Food and Nutrition Guidelines include advice for sport-playing children (Ministry of Health, 2012a), they were not referred to by any participant as a source of sport-related dietary guidance, suggesting that they are possibly not promoted and prioritised in such settings.

The majority of parents accepted they had a role in educating their children about nutrition. Many also reported that the information their children received at school supported their own efforts in advising their children, and welcomed the educational efforts made by a few of the clubs and organisations. However, many parents readily admitted that they had little formal nutrition education, and that the nutrition advice they give their children and their food selection for the home are based on ‘common sense’ or what comes ‘naturally’. This situation appears to be no different elsewhere. Parents in the United States report having gaps in their nutrition knowledge and finding it difficult to distinguish between healthy and unhealthy foods (Thomas et al., 2012), and Danish parents scored poorly in a survey to determine their level of sport-related nutrition knowledge (Andreassen, 2007).

Many of the children’s comments indicated that they also used labelling features – nutrition information panels, the health and nutrition claims, and the messaging accompanying product marketing – to inform their dietary choices, a finding supported by the parents’ observations. The information on food labels is often used by food companies and advertisers as a marketing tool (Chandon, 2013; Mehta et al., 2012; Nestle & Ludwig, 2010). As such, their impact on the children is discussed in the socio-cultural environment section.
Some differences in the physical sport-related food environment by sporting code, level of competition and gender were apparent in this study, including the previously discussed differences in the provision of nutrition advice by sporting codes and level of sport. Any conclusions drawn from this study about differences by gender might possibly arise from the gendered nature of netball, football and rugby in New Zealand. There is little previous information about such differences in New Zealand, although in the United States, parents thought that the food provided at sporting venues for girls’ sport was healthier than that for boys (Thomas et al., 2012). Several children and parents from different groups noted that the food provided at the Regional Stadium favoured men’s tastes and preferences rather than women’s, and that providing healthy alternatives at those venues would not appeal to men. Similar differences between women and men were noted at a professional sports stadium in the United Kingdom (Ireland & Watkins, 2010).

On balance, the physical sport-related food environment New Zealand children and parents describe is obesogenic. Much of the food available is energy-dense and nutrient-poor, there are few healthy options, and the sport sector does not routinely provide accurate nutrition advice. There are some differences in its nature by sporting code and gender, suggesting that change is possible. In the international context, the physical sport-related obesogenic food environment in New Zealand is similar to that described in other countries.

### 9.2.2 Socio-cultural environment

The socio-cultural food environment, or “*what are the attitudes and beliefs*” (Swinburn et al., 1999, p. 565), includes the influence of role models, and the nature and extent of sport-related food marketing, and its impact on children and parents. This section discusses the study findings in the context of the socio-cultural sport-related food environment.

**Role models**

The majority of the children identified parents as key role models in their sport-related food environment, and said that this role was fulfilled through the provision of healthy food in and from the home. Similarly, the parents recognised and accepted the role they had in modelling healthy food behaviours to their children, and said they tried to achieve this by providing a healthy food environment at home and encouraging their children to make healthy food choices. The parents’ strong desire to meet their responsibilities was reflected in their photographs, and those of their children, of predominantly healthy food at
and from home. The role and impact of parents and home on children’s sport-related food environments has been little explored in the literature. In one study from the United States, parents of basketballers reported that they provided healthy snacks for their children (Thomas et al., 2012). However, the findings of this study are consistent with other New Zealand research in which parents have expressed a desire to be positive role models with regard to their children’s food environments (National Research Bureau Ltd., 2008) and with a large body of international literature that demonstrates the significant role parents and the home play in shaping children’s dietary patterns (Birch & Fisher, 1998; Savage et al., 2007; Story et al., 2002). The findings are also consistent with research that demonstrates that food prepared and consumed at home is of a higher nutrient quality than that eaten away from home (Lin & Guthrie, 2012; Mancino et al., 2010).

Well-known sports people were highly respected by almost all of the children and parents due to their level of success, high public profile and perceived trustworthiness. Both participant groups considered them to be good role models for children. Consequently, most participants agreed that the athletes had considerable influence on children’s food preferences and behaviours. For this reason, the use of well-known sports people is a popular and effective food marketing strategy, especially with children (Bush et al., 2004; Dix et al., 2008; Lear et al., 2009). The impact of athletes on the children’s nutrition preferences and behaviours is discussed in the context of food marketing in the following section.

**Food marketing**

**Nature and extent of food marketing**

The children’s images revealed a wide range of sports-related food and beverage marketing activities, including many of those discussed in Chapter Four. Several were also part of an integrated package of marketing, for instance, collectible trading cards, online competitions and free giveaways associated with Weet-Bix sponsorship of the All Blacks. Similarly, Powerade’s sponsorship of rugby was seen in posters, television advertisements, and product placement at games. For the most part, the promoted foods and beverages were energy-dense and nutrient-poor – fast foods, sugary drinks, confectionery and some breakfast cereals. The children reported seeing ‘heaps’ of such promotions. Healthy food marketing was limited to Weet-Bix, water and a fundraising scheme with apples. The parents’ images or recollections support the children’s findings, confirming the ubiquitous nature of such marketing in their children’s environments.
These findings are consistent with New Zealand and international research that demonstrates unhealthy foods are marketed in association with sport, that the marketing is widespread, and that sport-playing children are frequently exposed to it (Bragg et al., 2012, 2013; Carter, 2013; Harris et al., 2012; Kelly, Baur, Bauman, King, et al., 2011; Kelly, Chapman, et al., 2012; Kelly et al., 2013; Kelly, Bauman, et al., 2014; Maher et al., 2006). The findings also contribute to a larger body of research that consistently demonstrates children’s frequent exposure to a wide variety of promotions for predominantly energy-dense and nutrient-poor foods (Cairns et al., 2009, 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006). Parents also noted the greater presence of food marketing than during their childhood, a shift characteristic of the changes that have occurred in the food environment since the mid-twentieth century (Cordain et al., 2005; Hoek & McLean, 2010).

Sports sponsorship of sports codes, teams and athletes is a popular means of building brand associations, a key marketing objective (Cousens & Slack, 1996; Hoek, 1999; Meenaghan, 2001). Many of the children identified such associations, for instance between football and McDonald’s; rugby, and Powerade and Weet-Bix; and MILO and sport in general. Their comments suggested that they thought such associations were normal. The children’s observations support previous experimental studies that have demonstrated children’s awareness of specific associations between food and athletes, sporting teams and codes (Bestman et al., 2015; Pettigrew et al., 2013).

As with food availability in the physical sport-related food environment, some differences in the food marketing by sporting code, and possibly by extension, gender, were identified by the children in this study. Many of the netball players highlighted how their sport, a predominantly female game, did not have an associated ‘food’, as male-dominated football and rugby did, citing several non-food sponsors of their sporting code. They also commented on how much of the food marketing appeared to be specifically designed to appeal to young men through imagery of strength and endurance. The children’s remarks reflect New Zealand and Australian research that found netball’s food sponsors had a healthier profile than male-dominated sports (Carter, 2013; Kelly, Baur, Bauman, Smith, et al., 2011).
Children’s opinions on the sport-related food marketing
Given the health-promoting context, most of the children in this study thought the marketing of unhealthy food products in association with sport was ‘silly’ and ‘dumb’ as it was inappropriate and contradictory. This view is shared by other New Zealand children of a similar age (Dorey & McCool, 2009). A few children and some parents in this study also thought it irresponsible of athletes to endorse unhealthy products, a finding consistent with the few studies that have reported on children’s and parents’ opinions on the issue (Dorey & McCool, 2009; Lewis, 2006; Ofcom, 2004; Which?, 2005).

Impact of sport-related food marketing on children’s dietary behaviour
Almost all the children and parents thought that the marketing they reported was highly successful in attracting children to products, and engendering preferences and prompting requests for products. Most children and parents agreed that children were the main target audience of the marketing, regardless of whether it was directly targeted at them as consumers, as a means to reach parents through pester power, or intended for more general audiences. Furthermore, many parents’ comments suggested that, compared to themselves, their children seemed to have a heightened awareness of the marketing, describing its mode of acquisition as ‘subliminal’. The children’s often detailed recollection of many of the marketing activities illustrates their familiarity with them. The impact of the marketing was confirmed by the many written and verbal comments made by the children indicating that they desired, often purchased – either directly or via their parents – and sometimes consumed the products they recorded and recalled.

These findings are consistent with previous research that shows that the marketing associations between sport and food appear to influence children’s, and parents’, to create favourable perceptions of the promoted products and companies and generate a preference for them (Baskin et al., 2013; Boyland et al., 2013; Dixon et al., 2011, 2013; Kelly, Baur, Bauman, King, et al., 2011; Kelly et al., 2013; Morley, et al., 2012; O’Sullivan & Kelly, 2005; Thomas et al., 2012). The findings further support a larger body of evidence that shows that food marketing influences children’s food preferences and behaviours (Cairns et al., 2009, 2013; Institute of Medicine of the National Academies, Committee on Food Marketing and the Diets of Children and Youth, 2006).

Impact of sport-related food marketing on children’s nutrition knowledge
The impact of the marketing on children’s, and sometimes parents’, understanding of nutrition was evident in this study. For the most part, the children appeared
knowledgeable about the nutritional quality of different food and drinks, and were aware of dietary recommendations, and the health consequences of consuming ‘junk food’. They associated healthy dietary patterns with sport, such as eating breakfast, consuming fruit and low-fat foods, and drinking water for hydration. This finding possibly reflects research that demonstrates that sport-playing children are more likely to eat breakfast and have a greater intake of fruit (Cavadini et al., 2000; Tomlin et al., 2013).

Most children had cynical views of food marketing and understood the negative health impacts of consuming foods such as confectionery and sports drinks. Many of the children thought that consuming such foods would give them ‘energy’ and help with ‘hydration’, and hence improve their sports performance and endurance. Nevertheless, for many, their knowledge and understanding about the need for extra energy intake, especially from high-sugar foods, was inaccurate and confused. Similarly, for some, their knowledge about the nutrient status of fruit and the health impacts of its consumption was also confused and inaccurate due to its sugar content. Children’s and parents’ uncertainty regarding the need for high-energy foods in sport, especially those high in sugars, has been previously documented (Andreassen, 2007; Phillipson & Jones, 2008; Thomas et al., 2012).

Many of the children’s and some of the parents’ comments suggested that they learnt about sport-related nutrition and dietary patterns, such as eating breakfast, through the messages conveyed by food marketing. This is a possible explanation for the misunderstanding about the need for extra energy when playing sport, especially from high-sugar products. Celebrity endorsement was a particularly influential strategy in this regard evident in this study. The strategy relies on vicarious learning, whereby people learn behaviours by observing and emulating the behaviour of role models or other influential people they perceive to be similar to themselves (Nord & Peter, 1980). The majority of children’s comments confirmed the strategy’s effectiveness, indicating that having their sports heroes promoting food products or consuming them when playing games gave credibility to the messages being portrayed and legitimised the product’s consumption; and that by emulating those dietary behaviours, their own chances of performing well in sport would improve. The association was so effective that even unhealthy foods were seen as favourable with many children. For instance, a participant described Powerade, which is promoted by the All Blacks, as ‘role model energy’.
These findings align with previous experimental research that has demonstrated athlete endorsement influences children’s food choices and consumption (Boyland et al., 2013; Dixon et al., 2013) and the food choices of parents (Dixon et al., 2011). The findings of this study also support Phillipson and Jones’ (2008) assessment that sport-related food marketing renders children unable to assess the nutritional quality of a food in an independent way. Furthermore, the findings demonstrate the power of the marketing, overriding children’s previous nutrition knowledge acquired from expert sources, their apparent media literacy and their cynical views of food marketing.

**Other impacts of the sport-related food marketing on children**

Children in about half of the children’s groups expressed frustration and disappointment at, and felt disrespected by, the often dishonest, deceptive and misleading nature of food marketing. Their experiences, combined with the realisation that they were being used by the marketers and food companies for profit-generation with few reciprocal benefits, or possibly even harm, compounded their feelings of frustration and disappointment. Similar reports in the literature are sparse, although Mehta et al. (2010) reported the children they interviewed experienced the same frustrations and disappointments with food marketing. The children in this study also appeared cognisant of their vulnerability to the impact of the marketing, and displayed a reliance on their parents to protect them from it.

Cause marketing is a form of sponsorship linking products and companies with social causes, and is commonly used in sport (Smith & Westerbeek, 2007). Cause marketing and its effect were evident in this study, primarily through the provision of Player of the Day vouchers and club sponsorship. By providing children with a reward at no cost to the club, or providing tournament funding for example, the donor company performs a social good. Parents also spoke of how corporate sponsorship benefits them and their children, by providing the necessary funds to maintain the viability of their children’s club. In turn, the donor’s support provides sporting opportunities for their children, and a safe after-school activity for busy parents. The power of cause marketing was illustrated by the parents’ reluctantly accepting unhealthy sponsorship in exchange for ‘do[ing] a lot for the kids’, a view also shared by many of the children. Previous research supports these findings. Surveys with children demonstrate their positive view of food companies and sponsors who give out food vouchers (Kelly, Baur, Bauman, King, et al., 2011) and research investigating parents’ views of food marketing indicate the same (Pettigrew et al., 2011).
Impact of sport-related food marketing on parents

Many of the parents shared the children’s views of the sport-related marketing, considering it contradictory to use sport to promote unhealthy food products, and that doing so conveyed inaccurate, misleading and ultimately confusing messages. Most parents were also concerned about their children’s vulnerability to the persuasive intent of the marketing. These factors, combined with their belief in the marketing’s efficacy in attracting children and its ‘subliminal’ nature, left many parents feeling frustrated and annoyed at how food marketing undermined their efforts and parental responsibilities to provide a healthy food environment for their children. From the parents’ perspectives it ‘corrupts our [the parents’] ideals’. Despite efforts to manage their children’s food environment through discussion, rules and other strategies, many of the parents’ comments suggest that the food marketing often left them feeling embattled and powerless, a situation they were resigned to. As a parent said, “it might not be right, [but] that’s the way it is”. These findings correspond to those of limited previous research that indicates that parents exhibit a “begrudging acceptance” of the nature and extent of food marketing and its impact (Pettigrew et al., 2011).

The endorsement of Weet-Bix by the All Blacks was one of the few, often the only, instance in which parents felt supported by marketing. Most parents were delighted by the strategy as it encouraged positive dietary behaviours in their children, reinforcing their own recommendations to their children. Several parents expressed a desire for there to be more promotion of healthy food by well-known athletes. This view appears to be shared by parents elsewhere (Which?, 2005). Experimental studies have shown that children also recognise healthy sponsorship and endorsement associations (Bestman et al., 2015; Pettigrew et al., 2013). These findings suggest that the use of healthy food sponsorships, particularly celebrity endorsements, could be used to improve children’s dietary preferences and behaviours, and would be well received by children and parents.

Overall, the study participants reported a number of sociocultural influences on children in the sport-related food environment, of which many are obesogenic. Children and parents recognise that parents are a significant role model for food preferences and behaviours, and achieved this primarily through the food they provide in and from the home. There are a range of food marketing activities associated with sport that children are familiar with and that influenced their food preferences and behaviours. While there were a few healthy foods promoted, the majority were for foods and drinks that were energy-dense and
nutrient-poor. Children and parents thought the messages conveyed by the food marketing often conflicted with the expert nutrition advice children receive, was misleading and deceptive. Consequently, food marketing results in confusion about some aspects of nutrition among children, and for some it left them feeling disappointed, deceived and disrespected. On balance, the ubiquitous and pervasive marketing appears to undermine many parents’ efforts to educate and protect their children, was disempowering and left many feeling embattled.

9.2.3 Economic environment
The economic sport-related food environment focuses on “what is the cost” (Swinburn et al., 1999, p. 565). This section discusses the findings relating to the cost of food and how food is used to financially support sport.

Food costs
Cost is a key driver of people’s food preferences and behaviours (Glanz et al., 1998; Lennernäs et al., 1997). Almost all children and parents in this study reported that healthy food was more expensive than the usual unhealthy food items when available at sports venues. This finding aligns with Carter’s (2013) observations of the differential in food costs at New Zealand sports events, and with research that reports unfavourable price differences between healthy and unhealthy food in people’s food environments more broadly (Jones et al., 2014; Rao et al., 2013).

Almost all children and parents reported verbally and visually that food sales generate revenue for sports clubs and vendors at sports venues. Low preparation, serving and purchase costs of unhealthy food relative to healthy foods for suppliers were cited by most study participants as likely reasons for the typically unhealthy food sold at sports venues. Low cost also justified energy-dense and nutrient-poor foods being provided as ‘rewards’ and ‘treats’ for children at sport. Conversely, most participants thought that the perishability, greater storage requirements and lack of popularity of healthy foods translated into higher purchase costs for both consumers and suppliers, and poor profitability for suppliers and clubs, and were therefore barriers to providing a health-promoting food environment at sports venues.

Children’s views on how cost influences the type of food available at sports venues have not been previously reported. However, parents’ perceived loss of club revenue due to wastage and lack of popularity of healthy food has been previously documented (Thomas
et al., 2012). Furthermore, sports club and facility administrators in New Zealand, and internationally, have cited the same factors associated with the provision of healthy food as barriers to improving the food environment at sports settings (Carter, 2013; Kelly, King, et al., 2014; Naylor, Bridgewater, et al., 2010; Olstad & Raine, 2013; Thomas & Irwin, 2010). It is not surprising that energy-dense and nutrient-poor foods are an attractive option for food suppliers. Such foods are highly processed and are often cheaper to produce and purchase, have a longer shelf-life and being pre-prepared, are quicker to prepare and serve, than fresh, high-nutrient foods (Drewnowski & Popkin, 1997; Hoek & McLean, 2010; Popkin, 2006), thus, generating greater profits.

**Sponsorship**

The consensus view among almost all children and parents was that local sports clubs, and professional sporting codes, teams and athletes were financially reliant on food-related commercial sponsorships. Without the financial support from ‘big business food’, sport’s viability, children’s opportunities to engage with sport, as players or spectators, and a means of support for parents would be compromised. These findings are consistent with the views of children and parents elsewhere (Baskin et al., 2013; Kelly, Baur, Bauman, King, et al., 2011; Kelly, Baur, et al., 2012; Kelly et al., 2013; Mehta, 2013) and are similar to those held by key stakeholders in the sport sector in New Zealand and Australia (Carter, 2013; Kelly, Baur, et al., 2012). Nevertheless, the majority of parents reported that they would prefer healthy sponsors. However, they also believed that healthy sponsors, including government, did not have the financial means or wherewithal of large food companies to support sport; and their perception that government initiatives lacked sustainability and longevity gave them little confidence in State support.

It is possible that participants’ views regarding sport’s reliance on corporate food sponsorship, especially at local club level, are erroneous. As discussed in Chapter Four, New Zealand and Australian research suggests that the amount of financial support local clubs receive from sponsorship is minimal, more often receiving gifts-in-kind such as Player of the Day certificates, branded water bottles and vouchers for free food, rather than direct monetary contributions (Carter, 2013; Cordery & Baskerville, 2009; Kelly, Baur, Bauman, King, et al., 2010a). Many participants in this study visually and verbally reported children having received such items. Only one parent was certain of their club’s funding arrangements and their observations aligned with research that shows that the proceeds from community gambling (Cordery & Baskerville, 2009) and local businesses in
the community (Carter, 2013) are key funding sources for children’s sport in New Zealand. The ubiquitous and dominant presence of food marketing in sport might explain participants’ assumptions that such sources are required.

In New Zealand, sponsorship funding is not evenly distributed among sporting codes, with the bulk of it being received by those with a high-media profile, predominantly rugby (Carter, 2013; Cordery & Baskerville, 2009). The All Blacks’ dominance in the food marketing photographed and cited by participants during discussions possibly reflects this disproportionate financial investment. The only evidence of such differences in this study was from one parent who described difficulty in obtaining funding for her son’s low media profile sport. The sports played by the young participants in this study have a strong media presence, which may explain why such differences were not identified.

On balance, the economic sport-related food environment described by the study participants is obesogenic. Almost all children and parents were of the view that economic factors play a key role in determining the nature of the sport-related food environment. There is a perception among children and parents that sport’s sustainability, and in turn children’s sporting opportunities, as spectators and participants, at local through to professional levels rely on sources of revenue that are associated with are energy-dense and nutrition-poor foods. This finding aligns with the conclusions of the systematic review in Chapter Five and the overview of the literature on the economic sport-related food environment presented in Chapter Four.

9.2.4 Political environment
The political sport-related food environment encompasses “what are the rules” (Swinburn et al., 1999, p. 565). Study findings relating to food policies at sports venues and in the home, the regulation of food marketing and the complaints process are discussed.

Food policies
The children in this study were not asked to discuss policy-related issues within the sport-related food environment, and no group raised such issues voluntarily. However, most groups did consider that healthy food more in keeping with the healthy nature of sport should be made available at sporting venues. Parents’ comments implied similar preferences and that having healthy foods available at sports venues would support their efforts in providing a healthy food environment for their children. Although New Zealand children’s and parents’ views on healthy alternatives in the sport setting have not been
previously reported, children and parents from elsewhere also consider it important that the food environments at locations where they play sport are healthy, and have made similar suggestions to improve it (Andreassen, 2007; Booth et al., 2008; Chan et al., 2009; Ireland & Watkins, 2010).

Parents in this study appeared unaware of their children’s clubs or sports venues having policies on food availability and food-related funding arrangements. This finding reflects Carter’s (2013) observations that, overall, New Zealand sports clubs lack such policies, as they do elsewhere (Crisp & Swerissen, 2003; Kelly, Baur, Bauman, Smith, et al., 2010, 2011; Olstad et al., 2011). There were examples evident in this study of individual actions being taken by children’s coaches, sports clubs or organisations, such as recommending water at games, providing healthy lunch packs and fruit in the children’s prize bags, and printing nutrition advice on water bottles. Some sports entities have attempted similar individual actions, such as developing guidelines for caterers and improving the nutrient quality of the foods typically available (Carter, 2013). The general lack of food policies in sport settings and organisations possibly reflects a lack of focus on health in the sports sector when considering food provision, sponsorship arrangements and other food-related issues. It might also be explained by the numerous challenges the sector faces in trying to implement policies, including lack of nutrition knowledge and understanding on translating guidelines into policy (Drygas et al., 2011; Kelly, King, et al., 2014; Naylor et al., 2010; Olstad et al., 2011; Young et al., 2012). The entrenched attitudes described previously about ‘stadium food’ are possibly another key factor (Carter, 2013).

Most parents described taking actions to improve or restore ‘the balance’ in their children’s food-related food environments, such as regularly providing ‘oranges’ and water at game-time, and having ‘discussions’ on media literacy with their children. A number of parents also spoke of how they had formulated means of regulating their children’s sport-related food consumption, for instance, eating meals before going to live games; and having rules for their children’s consumption of sports drinks, the usage (or not) of Player of the Day vouchers, or responding to pester power. These actions or rules are further evidence of parents’ desire to fulfil their responsibilities and protect their children from harm. However, many parents also said they ‘caved’ or ‘gave in’, especially when busy or tired. This behaviour may reflect the amount and nature of the food availability and marketing parents reported in the sport-related food environment. Their attitude appears to mirror their feeling of embattlement discussed previously.
Regulation of food marketing

All the parents in this study believed they were ultimately responsible for their children’s food preferences and behaviours in the sport-related food environment, an outlook that reflects their desire to fulfil parental responsibilities. Very few other key stakeholders with such responsibility were mentioned by parents. Local government was noted by one parent group as having a possible role in determining the type of food sold by mobile vendors. Findings from other countries suggest that in addition to local and central government, parents consider coaches, sporting organisations and venues also have a degree of responsibility (Andreassen, 2007; Kelly, Baur, et al., 2012; Kelly et al., 2008). The reasons for the differences were not determined, although the parents in this study were not specifically prompted to discuss interested parties (other than central government, discussed below). That they did not cite them voluntarily suggests that they may not consider them important. The few examples they gave of the sport sector trying to improve the sport-related food environment were welcomed by the parents.

When asked their views on the role of government in reducing food marketing to children, opinions were divided. This was the only instance in this study where there appeared to be marked differences in opinions on the sport-related food environment by socio-economic deprivation. Almost all parents from clubs in more affluent neighbourhoods were opposed to implementing greater regulation of food marketing, whereas, parents from clubs in more deprived locations were largely supportive of more stringent regulations than currently in place. While the reasons for such differences were not determined, it is likely that the less affluent parents have access to fewer resources, such as income or time, than their more affluent peers to assist them in countering the food marketing, and as such could envisage the benefits of intervention. Although similar divisions in opinion have been noted in previous surveys in New Zealand and elsewhere (Kelly, Baur, et al., 2012; Kelly et al., 2013; Morley et al., 2012; Peak Group, 2007), they have not been analysed by deprivation.

Parents who opposed regulation cited improving nutrition education and cooking skills as their preferred option for improving children’s dietary patterns. Although a necessary component of a strategy to address diet-related chronic conditions, education and skill development are not sufficient in preventing poor health outcomes and maintaining healthy food preferences and behaviours (Contento, 2008; WHO, 1986; Worsley, 2002). Such strategies typically enjoy only short-term effectiveness, and are more likely to be successful if implemented in an environment with supportive policies so that children can
successfully act on the education and skills they acquire (Contento, 2008; Worsley, 2002). Education and skill development programmes are also not likely to result in the necessary population-level shifts in disease outcomes. Furthermore, individually-focused interventions are likely to widen inequalities rather than reduce them (McGill et al., 2015; White et al., 2009), as the better resourced have greater capacity to apply their knowledge and skills, or alter their environment accordingly.

As outlined in Chapter Two, the Advertising Standards Authority is the self-regulatory body that controls food advertising to children in New Zealand. To monitor and enforce industry’s compliance with the Children’s Code for Food Advertising to Children (the Code), the system includes a publically-accessible complaints process. Only one parent in this study was correctly informed about the organisation that monitored food marketing and the process for reporting breaches of the Code. The majority of parents’ comments also indicated that, if used, they would have little confidence in its effectiveness. Their comments indicated that they felt powerless in the process, perceiving their ‘lone voice’ would have little success against a more dominant and well-resourced food industry, and that breaches of the Code relating to unhealthy food marketing would not be considered a significant enough issue to warrant complaint. As discussed previously, most parents were resigned to finding means of countering the consequences of food marketing on their own. Parents from other countries report having a similar lack of knowledge and feelings of powerlessness in the complaints systems in their own jurisdictions (Ip et al., 2007; Morley et al., 2008; Pettigrew et al., 2011; Thomas et al., 2012).

On balance, the political sport-related food environment, as described by the participants in this study, is obesogenic. There appear to be few if any policies guiding food-related decisions at local sports clubs and organisations. Children indicated that they would prefer to have healthy food available at sports venues. However, most parents felt that it was their responsibility to monitor their children’s food choices at sport, and employed a number of rules and strategies to achieve that. Parents’ opinions on the regulation of food marketing were divided by deprivation. Some, particularly those living in areas of high deprivation, acknowledged that regulation is necessary and would be helpful in supporting them and protecting their children. Other parents, mostly from low-deprivation neighbourhoods, preferred greater education and skill development. Nearly all parents were unaware of the regulating authority for food marketing and how to use the complaints process, and lacked confidence in its efficacy.
9.3 Does New Zealand’s sport-related food environment support children’s right to health?

This section discusses the sport-related food environment in the context of children’s rights, based on the findings of this study and the relevant literature reviewed in previous chapters. First, the issue of concern is restated (issue identification), its immediate, underlying and fundamental causes are summarised, and the rights children can claim in the sport-related food environment are reaffirmed (causal analysis). Next the key duty-bearers in the sport-related food environment, their roles and responsibilities within that context, and their capacity to act to realise children’s rights are identified.

9.3.1 Issue of concern, causes and relevant rights

The public health issue central to this thesis is one of considerable concern for children worldwide, and especially New Zealand – the prevalence of diet-related chronic conditions (described in Chapter Two). A third of New Zealand children are either overweight or obese (Ministry of Health, 2015a), ranking them third in the OECD (OECD, 2014), New Zealand children are increasingly presenting with type 2 diabetes (Jefferies et al., 2012), a disease typically diagnosed in mid to late adulthood, and half of New Zealand children have experienced dental caries by the time they are twelve years old (Ministry of Health, 2010). Ethnic and socioeconomic disparities are evident in all three conditions, with Māori and Pacific children, and children from the more deprived neighbourhoods disproportionately affected (Ministry of Health, 2015a). Once established in childhood, the conditions and their consequences are often carried through into adulthood (Broadbent et al., 2005; Freedman et al., 2005, 2009). The consequences of such conditions include poorer quality of life, and significant economic and social burdens on individuals and society (Daniels, 2009; Lal et al., 2012; Lobstein et al., 2004; Ministry of Health, 2009, 2010, 2012a).

As discussed in Chapter Two, the immediate cause of diet-related chronic conditions of most concern for children is unhealthy dietary patterns. Research demonstrates that children’s dietary patterns are often not consistent with dietary guidelines, due to the consumption of foods and beverages that are high in energy-dense and nutrient-poor foods (Ministry of Health, 2003; University of Otago & Ministry of Health, 2011). Furthermore, children’s intake of health-protective foods and beverages are often below recommendations (Ministry of Health, 2003; University of Otago & Ministry of Health,
While food intake is often considered a matter of choice, the surroundings in which children live shape children’s food preferences and behaviours (Story et al., 2008; Swinburn et al., 1999). Hence, the underlying cause of diet-related chronic conditions of most concern for children is the obesity-promoting, or obesogenic, environment (Swinburn et al., 2011). In contrast to healthy foods, unhealthy foods have become highly available and accessible, ubiquitously marketed and promoted, and cheap to purchase (Hoek & McLean, 2010; Popkin, 2006). Such a situation is attributable to broad national and global factors such as increased mechanisation within the food system, urbanisation and globalisation, policies and political decisions (Hoek & McLean, 2010). Inequalities in the distribution of the social determinants of health, those factors that determine a person’s socioeconomic position, impact a person’s access and ability to purchase healthy foods (Drewnowski, 2009; WHO & Commission on Social Determinants of Health, 2008). Such factors are the fundamental causes of diet-related chronic conditions of most concern for children.

Children have the right to health and development and to meet their rights, children are entitled to live in a healthy food environment (OHCHR, 1989). Given the health situation described in this thesis, it would appear that for a substantial proportion of the New Zealand child population these rights are not being realised. The provisions within UNCRC that address children’s right to a healthy food environment, and in turn, the right to health, include the right to food, the right to nutrition information and education, the right to protection from exploitation, support for parents and the ‘best interests’ principle. It is these rights that are at risk of violation (OHCHR, 1989). As discussed in Chapter Four, the sport-related food environment is an important part of many New Zealand children’s overall food environment. The aforementioned rights are equally applicable to the sport-related food environment. Table 16 summarises the issues identified in this thesis, the immediate, intermediate and fundamental causes of that issue, and the relevant rights at risk of being violated.
Table 16: Issue identification, causes and rights at risk of being violated

<table>
<thead>
<tr>
<th>Issues</th>
<th>Short-term: High prevalence of diet-related chronic conditions - overweight and obesity; type 2 diabetes; and dental caries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medium/long-term: Increased morbidity and poor quality of life; premature mortality; social and economic costs to individual, community and society</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Causes</th>
<th>Immediate: Consumption of unhealthy foods and beverages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Underlying: Obesogenic food environments, including sport-related food environment</td>
</tr>
<tr>
<td></td>
<td>Fundamental: Inequalities in the distribution of the social determinants of health</td>
</tr>
</tbody>
</table>

**Relevant rights at risk of being violated:**

- Right to health (art. 24)
- Right to food* (art. 24)
- Right to nutrition information and education and to health-promoting information and protection from information harmful to health and well-being (arts. 13, 17, 24)
- Right to protection from exploitation (arts. 32 and 36)
- Right to support for parents (arts. 18, 24, 27)
- ‘Best interests’ principle (art. 3)

*availability of and accessibility to adequate (healthy) food

9.3.2 Rights-holders, and the roles and responsibilities of duty-bearers

As previously defined, rights-holders are those individuals or groups who can claim rights (Beracochea et al., 2011; Hunt et al., 2011) and duty-bearers are “those who have a particular obligation or responsibility to respect, promote and realize human rights and to abstain from human rights violations” (UNICEF, 2015b, p. 1). In the context of the health issue identified and the sport-related food environment, children who engage in or interact with sport are the main rights-holders. The parents of such children are secondary rights-holders, being able to claim rights on behalf of their children and to claim their own human rights, so that in turn they are able to meet their responsibilities to their children.

As signatory to the Convention, the State is the primary duty-bearer, responsible for ensuring that children’s rights within the sport-related food environment are respected, protected and fulfilled. A range of State sectors and organisations have roles and responsibilities, such as the Health Promotion Agency, Ministries of Health, Education, and Sport and Recreation, Food Standards Australia New Zealand, and local councils. The State is obligated to ensure children can access a healthy sport-related food environment. Such an environment includes: access to adequate food; nutrition information; protection

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from exploitation of any kind and harmful nutrition information, and ensures that children’s best interests are given primary consideration in all matters that concern them. Measures include, but are not limited to, legislation, regulations, policies, guidelines and programmes. The State must ensure that children’s rights are protected from violations by third parties and work with such parties to remedy any violations. In the sport-related food environment the food industry is a key third party. The State is also obligated to provide parents with the opportunities and resources to achieve the necessary capacity that enables them to meet their responsibilities in the raising of their children, and in their children’s healthy development. The State is also required to raise awareness among other duty-bearers of children’s rights relevant to the sport-related food environment and how to implement them, for instance parents, members of the sport sector, and other non-State actors. As signatory to the Convention, legally, the State has the responsibility, and the authority, to act to realise children’s rights in the sport-related food environment. In New Zealand, the State has sufficient resources to act. However, as discussed in Chapter Three, the level of responsibility the State accepts, and subsequent actions, are often dependent on the political ideology of the incumbent government.

Parents are also significant duty-bearers whose basic concern is their children’s best interests and are responsible for their children’s healthy development and well-being. As non-State actors they are obligated, within their capacity, to respect, protect and fulfil their children’s rights within the sport-related food environment. Their obligations include providing a healthy sport-related home food environment; providing the skills and knowledge that allow their children to develop healthy food preferences and behaviours, including nutrition education and role modelling; and protecting their children from harm, including the consumption of unhealthy foods and receiving harmful nutrition information. They are also obligated to ensure that the same rights are realised for all children in the sport-related food environment, for example when providing parent help or volunteer coaching services at sports clubs. However, as will be discussed in the following section, while parents have the motivation and authority to meet their obligations, they are poorly resourced.

Many other non-State actors have a role to play in children’s sport-related food environments and are responsible (within their capacity) for ensuring children’s rights within that environment are realised. As role models, professional and well-known athletes, have a responsibility to demonstrate healthy sport-related food behaviours. Sports
club personnel including coaches, managers and administrators all have a responsibility to ensure that the facilities they administer are health-promoting and that the food environment supports children’s healthy food preferences and behaviours. Such support includes availability of and access to healthy food and the provision of accurate nutrition information. Sports clubs and sporting organisations, such as Regional Sports Trusts, New Zealand Rugby, Netball New Zealand, and Football New Zealand, also have a responsibility to ensure that food-related decisions they make are health-promoting and are in children’s best interests, and that they role model healthy food behaviours. Similarly, schools with sports teams have a responsibility to provide a healthy sport-related food environment for their students. It is possible that athletes, sports clubs and organisations, and schools, are willing to take responsibility and are motivated to act in the best interests of children, and have the authority to do so. However, they may not be aware of their obligations, and as will be discussed in the following section, they likely lack the necessary resources to act.

The food industry, principally food manufacturers and food marketers, is another key duty-bearer in children’s sport-related food environment. As discussed in Chapter Three, this sector’s actions, including its corporate social responsibility actions, should respect and protect children’s sport-related food environment rights, and safeguard children’s best interests in that environment. Food industry members must not undermine children’s rights or the actions of the State in relation to sport-related food environments, and they are required to avoid rights violation and to work with the State to remedy such breaches. The food industry appears to accept its responsibility and claims to be motivated to act, for example, its declaration in the ASA’s Children’s Code for Advertising Food. It has the authority and necessary resources to do so. However, there are issues regarding industry self-interest that conflict with children’s best interests, which are discussed in the following section.

Other non-State actors likely to have a role in the sport-related food environment include non-governmental organisations, health professionals, health promoters, researchers and consumer groups. Such entities are responsible for supporting children and parents in claiming their rights in the sport-related food environment, advocating for children’s food-related rights associated with sport, providing support for sports clubs and organisations wanting to implement a healthy food environment at their facilities, providing evidence for monitoring and evaluation of the sport-related food environment and holding the State to
account for its actions in that environment. These duty-bearers have the authority to act and are most likely accepting of their role. However, as with the sport sector, they may not realise they should act and lack the necessary resources to do so.

Global duty-bearers in children’s sport-related food environments include organisations such as the UN, WHO and UNICEF, and the World Obesity Federation. Their role is to support national governments, civil society organisations and other duty-bearers in their child rights responsibilities by providing recommendations for action in the sport-related food environment to prevent diet-related chronic conditions of most concern for children, and leadership in this arena. Such organisations also have a role to play in holding government to account in its progress on implementing children’s rights, including those relevant to the sport-related food environment. Global duty-bearers accept their responsibilities and have the motivation, authority and necessary resources to act.

Figure 53 illustrates the key duty-bearers in New Zealand children’s sport-related food environments.
Figure 53: Key duty-bearers children’s sport-related food environment in New Zealand (derived from Kent (1994))

Table 17 summarises the roles and responsibilities of the key duty-bearers, and their capacity to act to realise children’s rights, in the sport-related food environment in New Zealand. The following section discusses how well the current sport-related food environment complies with the relevant provisions within UNCRC. The reasons for children’s rights being violated or not realised and duty-bearers are not fully able to act to realised children’s rights, whether rights-holders and duty-bearers have the necessary knowledge, skills, organisational, human and material resources to act, are discussed in the following section (resources element of capacity gap analysis). Each provision is considered in turn.
Table 17: Roles and responsibilities of key duty bearers and their capacity to act to realise children’s rights, in the sport-related food environment in New Zealand.

<table>
<thead>
<tr>
<th>Role and responsibilities</th>
<th>Motivation^</th>
<th>Capacity</th>
<th>Authority*</th>
<th>Resources#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent/caregiver</td>
<td>Yes</td>
<td>Yes</td>
<td>Inadequate</td>
<td></td>
</tr>
<tr>
<td>Provide their children with a healthy food environment that supports their development and is in their best interests through:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- availability of and access to healthy food at and from home;</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- accurate nutrition information and related skills such as media literacy;</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- role modelling healthy food behaviours;</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- protecting them from exploitation and harmful nutrition information;</td>
<td></td>
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<td></td>
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<tr>
<td>- ensuring children’s best interests are considered.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Support the realisation of other children’s right to health and a healthy food environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Community especially sports clubs and venues</td>
<td>Possibly</td>
<td>Yes</td>
<td>Inadequate</td>
<td></td>
</tr>
<tr>
<td>Provide a healthy food environment in sports clubs and venues, by</td>
<td>But may not be aware that they have a role or accept it.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- ensuring that healthy food is available and accessible to children;</td>
<td></td>
<td></td>
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<tr>
<td>- disseminating accurate nutrition information.</td>
<td></td>
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<tr>
<td>Role model healthy food preferences and behaviours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil society</td>
<td>Possibly</td>
<td>Yes</td>
<td>Inadequate</td>
<td></td>
</tr>
<tr>
<td>Support children to claim rights and parents’ role in realising children’s rights to health and a healthy food environment</td>
<td>But may not be aware that they have a role or accept it.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Support sports clubs and organisations in developing and implementing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food industry</td>
<td>Respect, and support children’s rights, including, right to health and a healthy food environment</td>
<td>Selective</td>
<td>Yes</td>
<td>Good</td>
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<tr>
<td></td>
<td>Work with the State to provide remedies for rights breaches</td>
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<tr>
<td></td>
<td>Not to undermine State or parents in their role of realising children’s right to health and a healthy food environment.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>Respect, protect and fulfil children’s rights</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Work with the food industry to provide remedies for rights breaches</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Develop, implement, monitor and evaluate measures to ensure children live and develop in a healthy food environment, including legislation, policies, regulations, programmes and promotions</td>
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<tr>
<td></td>
<td>Protect children from rights violations by third parties</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>To support parents, sports clubs and organisations, and other non-State actors</td>
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<tr>
<td></td>
<td>Raise awareness of children’s rights and advise on how to implement and incorporate them into practice</td>
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<td></td>
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<tr>
<td></td>
<td>Central government to provide local government with the means to act</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global community</td>
<td>To support nations/Member States and other duty-bearers in their responsibility to children by providing solutions, guidance and leadership</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
</tbody>
</table>

^Does the duty-bearer accept their responsibility?
*Does the duty-bearer have the authority to carry out their role?
#Does the duty-bearer have the knowledge, skills, organisational, human and material resources?
9.3.3 The right to food
To realise children’s right to food, food must be adequate, available and accessible (physically and economically) (OHCHR, 1989). By definition, adequate food contains the nutrients necessary for physical and mental development; energy-dense and nutrient-poor foods are considered inadequate (OHCHR, 2010), that is, unhealthy.

Compliance with UNCRC
This research suggests that, in the context of sport, New Zealand children’s right to food (art. 24) is not being fully realised. In general, food is highly available and easily accessed by children at sports venues in New Zealand, as is the food produced and marketed in association with sport. However, the majority of the food available and accessible is unhealthy, or, as defined by the Office of the Commissioner of Human Rights, inadequate (OHCHR, 2010). Such is the availability and accessibility of inadequate food, and its ubiquitous promotion, in the context of sport, that it has the potential to encourage overconsumption. The study findings also indicate that by contrast, the availability, accessibility and promotion of adequate food in association with sport is insufficient.

More broadly, given the harms associated with the consumption, and overconsumption, of inadequate food (discussed in Chapter Two), it has been argued that such food is unsafe, and its sale and promotion a risk to children’s health (Handsley et al., 2014). The safety implications of inadequate food are not as immediately apparent as poor food hygiene or the presence of contaminants. Nevertheless, the associated health outcomes and consequences are no less serious (WHO, 2003a).

Children’s right to food must be equitable (OHCHR, 1989). This research suggests there are sporting code, and therefore gender, differences in the availability, accessibility and promotion of adequate food for children in the context of sport. Given the social patterning of food availability, accessibility, adequacy, and promotion, described in Chapter Two, it would not be surprising to find the same patterns in the sport setting.

On balance, the nature of the sport-related food environment undermines children’s ability to access adequate food, that is nutritious, meets dietary recommendations to promote growth and development, and prevent ill-health; and potentially secure an adequate standard of living. In doing so, it reduces their capacity to fully enjoy their right to food (OHCHR, 2010).
Reasons for non-compliance

It is likely that the nature of the sport-related food environment in New Zealand reflects, in part, the lack of policies in sports clubs and organisations to guide decisions about food adequacy, availability and accessibility. The government, in fulfilling its obligations to children, including supporting other duty-bearers, produces guidelines to inform children, parents and other adults about children’s dietary preferences and behaviours (Ministry of Health, 2012a). However, it would appear that the guidelines are not being utilised in the sports sector for this purpose. Possible reasons include a lack of awareness of the guidelines, suggesting insufficient promotion by government; deficiencies in knowledge, skill and resources in the sports sector in translating the guidelines into policy, and in implementing them; a lack of support and input from the nutrition and health sectors; and no statutory or policy requirement by government to implement policies and guidelines. It is also not clear if members of the sport sector in New Zealand accept their responsibilities to children in this regard (Carter, 2013). People’s attitudes and expectations, especially the normalisation of ‘stadium food’ and reluctance to change it, also presents a potential reason for children being unable to realise their right to adequate food. Finally, the prioritisation of obtaining operational revenue, and profit-generation from the sale of cheap, non-perishable and easy-to-prepare food, over children’s health and well-being (Carter, 2013), is also likely to hinder young New Zealanders having adequate food available, accessible and promoted in sports settings.

Member States are required to implement measures to ensure that food made available and sold is safe to consume (OHCHR, 2010). As duty-bearers, food producers, also have a responsibility to ensure their products are safe and that the marketing of those products does not compromise children’s right to health; this obligation encompasses the provision and marketing of inadequate food (Committee on the Rights of the Child, 2013c). New Zealand meets its food safety and composition obligations to children by regulating food additives, and potential contaminants and residues (FSANZ, n.d.). However, the current food safety and composition regulations (FSANZ, n.d.) do not encompass foods that contribute to the chronic health conditions of most concern for children, including overweight and obesity, type 2 diabetes and dental caries. Thus, it could be argued that neither the State nor the food industry are fully meeting their obligations in this regard.
9.3.4 The right to nutrition information and education

Children are entitled to have access to health-promoting information and education in all its forms; and for the State to provide such information and support in its use (arts. 13 and 24(2e)) (OHCHR, 1989). Nutrition information should be disseminated equitably (art. 2) (OHCHR, 2010) and in a wide range of settings (United Nations, 2013).

Compliance with UNCRC

This research shows that although children have access to and receive nutrition information from several sources and in varying forms in the context of sport, their nutrition information rights are not being fully realised. This was evident from the poor provision of nutrition information in sports settings; the inconsistencies, potential inequalities and occasional inaccuracies in its content when disseminated; confusion among the children about some basic nutrition principles; and the poor modelling of healthy dietary behaviours within sport settings through the provision of mostly inadequate food. Children’s ability to access adequate food, and thus realise their right to food, is also reduced when they do not have access to accurate nutrition information (OHCHR, 2010).

Parents have the same rights to nutrition information and support as children (OHCHR, 1989). That parents’ nutrition knowledge is not expertly informed suggests that their nutrition information and support rights are also not being realised. In turn, this lack of expertly-informed nutrition knowledge reduces their capacity as duty-bearers in assisting their children to realise their right to nutrition information and adequate food. This situation also potentially has significant consequences for the rights of other sport-playing children, as parents are often involved in children’s sports as coaches and managers. Thus, it is perhaps not surprising that the nutrition information provided by coaches and managers is fragmented and at times inaccurate. Parents also often cater and sell food at children’s sports clubs. That they are lacking in expert-informed knowledge about nutrition may go some way to explaining the nutrient quality of foods provided in sports settings.

The messages conveyed through food labelling and marketing appeared to be another key source of nutrition information for most of the children, and some parents, in this study. Several scholars have suggested that such information is potentially harmful and exploitative, and breaches children’s rights (Handsley et al., 2014; Ingleby et al., 2008;
Mehta et al., 2012; Priest et al., 2010). Children’s rights in this situation are discussed in the following section.

**Reasons for non-compliance**
Publishing food and nutrition guidelines forms part of the government’s obligation to provide nutrition information for children and parents. Governments are also required to disseminate nutrition information in a wide range of settings, and sport is an ideal setting for such action (Donaldson & Finch, 2012; Kelly, Baur, Bauman, King, et al., 2010b; Kokko et al., 2006; Sport for Development and Peace International Working Group, 2008). However, as with the right to food, this research indicates that the guidelines, also designed to inform nutrition education resources, are not being utilised in sports settings. The failure to fully realise children’s and parents’ nutrition information rights in this regard is most likely attributable to many of the same reasons as those previously described for the right to food. These include a lack of the sport sector’s awareness of the guidelines and their potential as an educational resource; the sport sector’s lack of engagement with nutrition professionals to assist with resource development; and no government policy or regulatory requirements regarding their use in sports settings (Carter, 2013). Furthermore, the lack of food policies within New Zealand sports settings, which would most likely encompass the provision of educational resources to club members, most likely has some bearing on the quality and quantity of nutrition information provided.

9.3.5 The right to protection from exploitation
The Convention provides for children’s protection from exploitation (arts. 32(1) and 36) and information that is harmful to their health and well-being (art. 17) (OHCHR, 1989). The Convention requires governments to institute measures to enable children to realise those rights, which includes ensuring that third parties do not violate or infringe on children’s rights (OHCHR, 1989). As discussed in Chapter Three, in the context of food environments and diet-related chronic conditions, these rights are based on children’s vulnerability to the influence and effects of misleading marketing for foods that increase the risk of poor health and well-being outcomes, and the inaccurate nutrition information it might convey; and children’s reduced capacity to counter its influence (Handsley et al., 2014; Priest et al., 2010; Story & French, 2004).

Businesses are a key duty-bearer in the context of food marketing (Handsley et al., 2014). As such, they should ensure that their communications and marketing do not adversely
impact children’s rights by ensuring that the information conveyed in the marketing is “clear, accurate and complete...and empower children and parents to make informed choices” (UNICEF, 2012b, p. 26), and consider children’s “susceptibility to manipulation” (UNICEF, 2012b, p. 26). Their actions should also promote health and well-being, and reinforce government and community efforts to realise children’s rights (UNICEF, 2012b). The food industry in New Zealand claims to accept its responsibility to support children’s rights, by adhering to the Children’s Code of Advertising Food, and through pledges and philanthropy, as discussed in Chapter Two.

**Compliance with UNCRC**

Based on children’s and parents’ perceptions of the marketing, it is evident from the findings of this study that in the context of the sport-related food environment, New Zealand children’s rights to protection from exploitation from food marketing and the harmful nutrition information it can convey are not being met. Most children’s and parents’ groups were of the view that much of the sport-related food marketing they encounter was specifically designed to attract and influence children for the purposes of generating sales and increasing profit; and that sport and sport-related features were used specifically because of their influence with children. Furthermore, many of the children considered themselves to be a ‘weaker’ target, and likewise, the majority of parents expressed concern about their children’s vulnerability to the influence of the marketing, and its adverse effects on their food preferences and behaviours, and health.

Contrary to the provisions within UNCRC, it was evident that the messages conveyed by some of the food marketing the children reported were misleading, incomplete, untruthful or overstated the benefits of consuming the promoted product, and by conflicting with the dietary guidelines, led to confusion about healthy dietary patterns. In addition, many of the children, and parents, reported as much. The confusion around the role of sugar, or ‘role model energy’, is particularly illustrative. Some of the messaging also inherently suggests that playing sport mitigates the health risks of consuming unhealthy food and that such products help performance. For example, having the All Blacks promoting high-energy products such as Powerade suggests that such products are a necessary, beneficial and legitimate part of sport. However, unlike the children in this study, the All Blacks are professional sports people with genuine extreme additional energy requirements. That children may be led to believe that they also need and would benefit from such products,
and that the effects of the extra energy consumed will be mitigated through playing sport, is dishonest.

Some children were less aware of the persuasive and disingenuous nature of the marketing, considering it more as a means of informing consumers about new products and their nutritional qualities. However, even the children who appeared to objectively comprehend, and were sometimes cynical about, the commercial intent of food marketing appeared susceptible to its persuasive intent and misinformation. This was illustrated by their self-reported desire for, and consumption of, the promoted products. These situations suggest that nutrition and media literacy education are insufficient in protecting children from exploitation and the effects of harmful nutrition information.

Not all of the food marketing in this study was non-compliant, demonstrating that it can support children’s rights. For example, the marketing for Weet-Bix, a healthy breakfast cereal, in association with the All Blacks, was as successful as Powerade at influencing children. Having the All Blacks endorse a cereal – particularly one that is low in sugar and potentially unappealing to children – and successfully encourage its consumption is potentially empowering and supportive of children’s rights. However, such positive marketing communications are not typical, a situation that is inconsistent with children’s rights.

Sports sponsorship is another potential area where children’s rights may be being breached. As discussed in Chapter Two, sponsorship is a popular marketing strategy for businesses, being an ‘exchange relationship’, involving mutual benefits for the sponsor and recipient (McCarville & Copeland, 1994; Sleight, 1989). However, the findings of this study and of Carter (2013) suggest that the relationship is possibly not reciprocally beneficial. To children and parents, companies appear to be contributing to the financial viability of sport, and in turn providing a social good. Research demonstrates that is not always the case, especially at club level (Carter, 2013; Cordery & Baskerville, 2009). This point was illustrated by the various gifts-in-kind the children and parents reported receiving. For example, companies distribute Player of the Day vouchers to sports clubs as a social good. However, many children perceived such rewards as ‘just advertising’ – a marketing mechanism to increase sales and improve foot traffic (Cousens & Slack, 1996), and garner future customers. In fact, the findings of this study suggest that such rewards potentially
have negative outcomes, such as engendering disappointment among some of the children, and disharmony within some families.

Perpetuating the belief among children that unhealthy food sponsors are a necessity for the viability of sport, when in fact, the amount of money required to do so may not be as substantial as would appear is unfair. This is especially salient at club level, clubs generally do not benefit from items such as Player of the Day certificates as many people assume. Similarly, by suggesting to children that sponsors are performing a social good, supporting community actions and taking an interest in their welfare, when the prime interest is to generate profit, and develop favourable views of sponsoring companies among children, is insincere and potentially exploitative.

Marketing in general can have detrimental effects on children’s development and well-being (Handsley et al., 2014). Evidence from this study that ‘pester power’ could disrupt family supports Handsley et al.’s suggestion that such marketing violates UNCRC by inciting disrespect for parents, and also adversely impacting children’s long-term health and well-being through family discordance. In addition, it potentially breaches provisions within UCROC that address the need for a family atmosphere that is conducive to healthy development. Several children from different groups also described scenarios where the marketing left them feeling disrespected, disappointed, deceived or taken advantage of. Such experiences demonstrate that children are possibly not valued or supported in their development, a further indication that the measures to protect children from these situations are inadequate. Finally, many of the children’s comments suggested that they knew they were being used as a means of increasing sales and generating profit for food companies.

Marketing and profit-generation are legitimate business activities and objectives. The findings of this research demonstrate that in the context of the sport-related food environment, the food industry typically promotes and encourages the consumption of inadequate food, and disseminates unsupportive and harmful information. Having children – a susceptible audience – serve industry’s interests at the risk of their health and well-being is considered exploitation (Handsley et al., 2014). However, the successful promotion of a healthy food – Weet-Bix – demonstrates that industry is capable of acting in a manner that supports children’s rights while returning profit for shareholders. However, overall this research illustrates business’ failure to support children in realising their rights (Handsley et al., 2014; Priest et al., 2010). Crucially, it also indicates that government is
currently failing in its responsibility as primary duty-bearer to adequately protect children from such harm, and from the food industry, as a third party, infringing on children’s rights.

**Reasons for non-compliance**

As previously discussed, in New Zealand, the key protective measures relevant to the sport-related food environment are the industry-regulated codes of food marketing to children, and food labelling regulations.

The findings of this study demonstrate that the current self-regulatory system fails to protect children. Rather, it would appear that it allows exploitation by providing companies with a vested interest in making a profit a largely unrestrained opportunity to promote harmful food products in the sport-related food environment. According to General Comment No.16, “it is the lack of implementation or the poor enforcement of laws regulating business that pose the most critical problems for children” (Committee on the Rights of the Child, 2013c, p. 17). The gaps in children’s capacity to realise their rights in the socio-cultural sport-related food environment are likely to be attributed to issues relating to implementation and enforcement. With regard to the latter, the reach and principles of the current Code broadly encompass the considerations necessary to protect children in the sport-related food environment.

However, an examination of the promotional activities reported by the study participants indicates that there are breaches of the current principles of the Code. For example, the use of All Blacks to promote Powerade does not comply with Principle 3(b): “persons...well-known to children should not be used to endorse food high in.....sugar” (ASA, 2014, p. 24). If the Code was upheld appropriately, it is likely that marketing such as Player of the Day vouchers; branded merchandise; food packaging, and sponsorship and endorsements relating to unhealthy food products and companies would not occur and that the messages conveyed would not be misleading and undermine the food and nutrition guidelines. However, that they do occur suggests insufficient monitoring and enforcement of the Code. Furthermore, the ambiguity and lack of clear criteria within the Code leaves it open to interpretation and manipulation by industry, and as Hawkes (2005) concludes, the principles encompass the factual information conveyed in the advertising, rather than the emotional appeals used, for instance, the promise of strength and power conveyed in marketing for Powerade.
Ultimately, these issues arise from the voluntary and self-regulatory nature of food marketing in New Zealand, which provides the food industry means to freely pursue its commercial interests over children’s best interests, and the “lack of implementation of laws regulating” (Committee on the Rights of the Child, 2013c, p. 17) the food industry with regard to marketing. As such, the current regulatory system could be seen as being complicit in exposing children to exploitation and harmful information and confusing them by allowing the dissemination of incomplete, inaccurate or misleading information (Handsley et al., 2014). This conclusion is consistent with previous research that demonstrates self-regulatory food marketing systems are typically inadequate in protecting children (Hawkes, 2005; Martin et al., 2013; Thornley et al., 2010).

Moreover, it is government’s responsibility to ensure that businesses are compliant with and assist in the realisation of children’s rights. However, by electing to institute a self-regulatory process, particularly while not ensuring effective monitoring and remediation processes, the government has effectively relinquished to the private sector the control of food marketing aimed at children, and in turn their healthful development and protection. In doing so the government could be seen as not fulfilling its obligations, breaching children’s rights and, in turn, failing children.

As previously discussed, the sports sector’s acceptance of their responsibilities to children with regard to food marketing is mixed (Carter, 2013; Kelly, Baur, et al., 2012). The lack of food policies in clubs and organisations to guide sponsorship arrangements, and the associated reasons previously discussed, are further barriers to children being protected from harmful nutrition information and exploitation. In addition, the perceived threat of a reduction in funding if sponsorship was not available perpetuates unhealthy food marketing in sports, and subsequently impacts children’s protection from exploitation and harmful nutrition information.

Children, including many in this study, place their trust in well-known athletes, such as the All Blacks, to convey accurate and truthful information, and associate themselves with positive health behaviours. By conveying misleading information, athletes are potentially falling short of their responsibilities as duty-bearers to support children in realising their rights. Limited evidence suggests that athletes may accept they have a responsibility to convey health-promoting messages (Grunseit et al., 2012). However, as several of the children alluded to in this study, athletes are probably contractually locked in to
endorsement and sponsorship arrangements, which are often negotiated by professional sporting organisations and therefore out of the athletes’ control. That, and the need to earn income over a short period of time, may preclude many athletes from being selective about their sponsorship arrangements.

The New Zealand government also attempts to meet its obligations to protect children from harmful nutrition through food labelling regulations, including Nutrition Information Panels, and health and nutrition claims, as discussed in Chapter Two. However, the study findings suggest that these measures do not satisfactorily inform children about the potential harm of some food products, and in some instances, allow the dissemination of misleading, inaccurate or incomplete nutrition information. Thus, it could be concluded that the fulfilment of children’s rights are also compromised through inadequate labelling requirements. The recently launched interpretive Health Star Rating labelling system may assist in alleviating this situation and its efficacy is soon to be evaluated. However, anecdotal evidence suggests that there are a number of anomalies with the system including its voluntary nature, application to packaged foods only, and being based on nutrient content rather than on recommended foods (ABC News, 2015). In addition, while it has prompted some food producers to reformulate their products, the system awards very high ratings to some foods that are unhealthy (ABC News, 2015; Lawrence & Pollard, 2015).

9.3.6 Support for parents
The Convention recognises parents’ key role of raising their children, and ensuring their healthy development and realisation of their rights. As such, the State has a duty to provide parents with the necessary support to meet their responsibilities (arts. 18(2) and 27(3)), which includes preventing third parties, such as the food industry, infringing parental actions. State-led supportive mechanisms previously discussed include the food and nutrition guidelines, food labelling regulations and school nutrition education. The industry-led Children’s Code for Advertising Food (the Code) also contains principles intended to support parents. According to the Code, food advertising should not “undermine the role of parents in educating children to have a balanced diet” (ASA, 2014, p. 22) and children should not be “urged in advertisements to ask their parents” (ASA, 2014, p. 22) for particular products. As noted previously, a complaints process accessible to parents is also part of the industry’s self-regulatory system.
Compliance with UNCRC

Virtually all parents in this study accepted their role as primary caregiver and their responsibilities to their children as duty-bearers to realise children’s rights. However, the study findings indicate that the resources available to them to meet those responsibilities are inadequate. Many of the parents’ comments highlighted instances where their efforts to provide a healthy sport-related food environment for their children were either undermined or not supported. The widespread and ‘inappropriate’ availability and promotion of unhealthy food, and on occasions, the inaccurate nutrition information, provided through sports clubs and organisations made it difficult for many parents to choose healthy food for their children or advise their children as they would have wished. The majority of parents considered that much of the sport-related food marketing was misleading, conveyed untruthful messages, ‘unfair’, and pervasive in nature, and undermined the nutrition knowledge and behaviours they, and other adults such as teachers, were trying to provide their children, as discussed earlier.

Other illustrations of barriers to supporting parents in their obligations to fulfilling children’s rights in this study included the minimal promotion of healthy food at sports venues and through the mass media; the low cost of unhealthy food relative to healthier options; the perceived reliance of clubs on unhealthy food sponsors to maintain children’s sporting opportunities; parents’ own insufficient nutrition knowledge and lack of formal nutrition education; and the inconsistency and unreliability of government support in maintaining health promotion programmes.

Nevertheless, there was also evidence of the impact of supportive features of the sport-related food environment. Almost all parents felt ‘backed-up’ and better able to act on their responsibilities with the provision of fruit in children’s treat bags and healthy away-tournament food packs by sports clubs; school nutrition education programmes; and the All Blacks’ promotion of Weet-Bix.

Overall, the majority of parents’ indicated that they found the ubiquitous and pervasive nature of the sport-related food marketing, and the effects of its powerful influence on the children, ‘a battle’, and difficult to counter. In the absence of adequate support from higher-level duty-bearers, parents in this, as in other research, demonstrated resignation and a “begrudging acceptance” (Pettigrew et al., 2011) of a situation that “might not be right, [but] that’s the way it is”, and found ways to address them on their own. The study
findings indicate that the current sport-related food environment leaves most parents feeling undermined, embattled and disempowered. Consequently, their capacity to meet their obligations to realising their children’s right to a healthy food environment is reduced. Such a situation breaches children’s rights. Rather than undermine parents’ autonomy, the Convention’s intent is to facilitate conditions that empower parents and allow them to be better able to meet their responsibilities to their children.

**Reasons for non-compliance**

Parents appear ill-equipped to counter the influence of a sport-related food environment that largely promotes unhealthy food. This research suggests that the gap in parents’ capacity to act appears to be largely attributable to the lack of, or imbalance in, resources and mechanisms that would support or enable action. Many of these gaps are tied to the previously discussed issues that prevent children’s rights being adequately realised. The self-regulatory nature of the food marketing system, and its insufficient coverage and poor monitoring and enforcement, and lack of accurately informing parents of the existence of a complaints process and how to use it, are likely to be a significant hindrance to the provision of appropriate parental support. The lack of food policies at sports clubs and venues to guide food adequacy, availability and accessibility decisions, and the reasons for their non-existence are also contributory factors. Furthermore, any breaches in children’s rights to food, access to accurate and positive nutrition information, and freedom from exploitation and harmful nutrition information are also potentially unsupportive for parents and prevent them from meeting their parental responsibilities.

The food industry is a higher-level duty-bearer than parents in the hierarchy of responsibility and as such the onus is on the sector to act to support parents (Kent, 1994). It is also a well-resourced sector and therefore has a much greater capacity to act to realise children’s rights than do parents. As such, the food industry has a greater degree of responsibility and accountability in realising children’s rights (Kent, 1994). Yet, the food industry frequently places the onus of responsibility for children’s food behaviours on parents as a matter of poor choice and irresponsibility (Stewart, 2015). This is unhelpful, unfair and contravenes the sector’s responsibilities and ultimately children’s rights. Government has an even greater level of responsibility and accountability. However, government’s failure to implement sufficient legislative, regulatory, policy or programme actions is likely to adversely impact parents’ capacity to act.
According to Jonsson (2003), duty-bearers other than the State can only be held fully accountable for their obligations to children if they have the necessary capacity to meet those obligations. The realisation of children’s rights is also dependent on parents’ realisation of their own rights, and access to resources such as welfare, income and education. Thus, any gaps in the realisation of their own rights will by extension hinder their ability to ensure their children’s rights are being realised. This research indicates that parents are under-resourced and lack capacity to fully determine the nature of children’s food environments. Until such time that this situation is improved, parents cannot be held fully accountable for failing to meet their obligations in realising their children’s rights.

**9.3.7 Children’s right for the best interests to be considered**

That children’s best interests should be a primary consideration is an overarching principle of UNCRC (art.3). The ‘best interest’ principle governs the decision-making process in all actions concerning children. While the principle’s intention is not to encroach on the rights of others, decisions in all matters that impact children, especially “undeniable” impacts, should be weighted to consider children as the priority. Decisions that lead to outcomes that violate or do not satisfactorily address any provision within the Convention, including those to not act, must be considered not in the best interests of the child (Tobin, 2006).

This research has demonstrated that, in the context of the sport-related food environment, the best interest principle is not being met. Numerous situations have been discussed in which children’s rights to a healthy food environment are being violated, inadequately fulfilled and respected, or not complied within the context of sport. This suggests that the underlying rationale of the decisions that led to such situations did not adequately take children’s best interests into account. Rather, the findings of this, and other New Zealand research (Carter, 2012), indicate that the generation of current and future income for sporting organisations at all levels, and profit for the food industry and its shareholders, are the primary considerations on which decisions within the sport-related food environment are based. Such “countervailing considerations” (Handsley et al., 2014, p. 130) appear more important than ensuring that the sport-related food environment provides the best possible nutrition, and in turn health and well-being outcomes for children; protects children from exploitation and harm; and supports parents in meeting their responsibilities to their children. A child’s astute observation in this study about food marketing summarises where the balance lies for children in the sport-related food environment, that it is “good for them [food industry] but bad for us”.
Possible failure to realise children’s right to health and consider their best interests in the sport-related food environment could be attributed to a lack of awareness of children’s rights, and how to act to realise their rights, among children, parents, and other duty-bearers. Government has a duty to disseminate information about children’s rights and to make sure that duty-bearers, including businesses, understand how to act to realise children’s rights. It would seem that the government is not meeting its responsibility in this regard.

Overall, the findings of the situation analysis suggest that New Zealand children’s sport-related food environment is largely obesogenic and therefore does not support their right to health. Table 18 summarises the resources that are missing in the New Zealand sport-related food environment that enable children and parents to realise children’s right to health. Suggestions on ways to improve children’s sport-related food environments so that they may support children in realising their right to health follow a discussion on the theoretical frameworks used in this thesis, and the strengths and limitations of this research.
Table 18: Reasons* for children’s and parents’ reduced capacity to claim or realise children’s right to health in the context of the sport-related food environment

<table>
<thead>
<tr>
<th>Sports level</th>
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<tr>
<td>o Lack of skill, knowledge and resources (including expert advice) within sports clubs and organisations to assist development and implementation of food policies at sports clubs and venues</td>
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<tr>
<td>o Lack of policies to guide food-related decisions at sports clubs and organisations</td>
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<tr>
<td>o Social and cultural norms and attitudes, e.g. 'stadium food'; sausage sizzles; half-time confectionery</td>
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<tr>
<td><strong>Population level</strong></td>
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<tr>
<td>o No statutory requirement for sports venues to have healthy food policies</td>
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<tr>
<td>o Lack of national child plan of action and/or strong national obesity strategy</td>
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<tr>
<td>o Lack of acceptance of UNCRC as normative framework to guide policy-making</td>
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<tr>
<td>o Lack of awareness and uncertainty about including children's rights within organisations and how to apply them</td>
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<tr>
<td>o Limited/lack of financial and human resources in sectors</td>
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<td>o Lack of communication/coordination between civil society members and between government sectors (local and central)</td>
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<td>o Current government favouring neo-liberal political ideology</td>
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<td>o Lack of political will, and sporadic and unreliable State support</td>
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<tr>
<td>o Removal of local government's four well-beings mandate</td>
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<tr>
<td>o Self-regulatory approach to food marketing to children</td>
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<tr>
<td>o Poor monitoring and enforcement of food marketing, including that related to sport</td>
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<tr>
<td>o Cross-border media and communications</td>
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<td>o Inadequate labelling and food composition regulations</td>
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<td>o Competing priorities, including trade treaties and lobbying by food industry</td>
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<tr>
<td>o Imbalance in resources between parents and food industry</td>
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<tr>
<td>o Non-realisation of parents’ rights, particularly those relating to the social determinants of health</td>
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<tr>
<td><strong>Global level</strong></td>
<td></td>
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<tr>
<td>o Lack of global requirements, e.g. Global Convention to protect and promote healthy diets</td>
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<tr>
<td>o Lack of 'enforcement teeth' in UNCRC</td>
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<tr>
<td>o Cross-border media and communications</td>
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*Resources including knowledge, skill, organisational, human and material resources
9.4 Theoretical models

9.4.1 ANGELO framework

This study used the ANGELO framework, outlined in Chapter Two, to describe the sport-related food environment and conceptualise how its multiple elements might influence health outcomes. The framework was initially developed to “provide[s] a conceptual construct for dissecting obesogenic environments” (Swinburn et al., 1999, p. 569). However, many of the environmental dietary factors that contribute to obesity causation are common to type 2 diabetes and dental caries, and as such, the framework was amenable to being extended to encompass all three diet-related chronic conditions of most concern for children.

The four environment types (physical, socio-cultural, economic and political) and two environment levels (settings and sectors) of the framework were used at a number of stages in this thesis: to organise a summary of the environmental drivers of chronic conditions of most concern for children (underlying causes) (Chapter Two); to guide the reviews of the current literature on the sport-related food environment (Chapter Four), and children’s and parents’ opinions on that environment (Chapter Five); to inform the thematic analysis of the qualitative data (Chapters Seven and Eight); and finally to inform possible interventions to improve the sport-related food environment and health outcomes (Chapter Nine). It was also usefully applied to analyse a body of literature containing diverse samples and methodologies, and to identify gaps in the research. The multiple applications of the framework in this thesis demonstrate its usefulness and versatility in its application.

Food environments, including those related to sport, are complex. A benefit of the ANGELO framework over some other ecological models of obesity causation is its apparent simple and logical organisation of the multiple environment types and levels. However there is a trade-off for its simplicity. While it adequately describes each grid component, it treats them as though they are discrete dimensions. In doing so it fails to recognise the interactions and overlaps that occur between environment types and levels, interactions which are largely responsible for the complexity of food environments. These difficulties were seen in its application in this thesis, best illustrated by food marketing. The framework’s authors place marketing and mass media in the sociocultural environment. However, food marketing in the sport-related food
environment also has a physical presence, as evidenced by the participants’ images; an economic aspect through sports sponsorship; and a political interest in terms of its regulation. The ANGELO framework’s authors hint at this challenge and the reasons for it, stating that “developing reliable and valid indicators of sociocultural environments is complex because of the often intangible and interconnected nature of its element” (Swinburn et al., 1999, p. 567). Furthermore, the authors do not provide substantive guidance on how to measure, rate and prioritise each element in terms of its influence on health outcomes and potential interventions.

The ANGELO framework has also been criticised for not accounting for the differential effect each element may have on health outcomes within varying contexts, time and socioeconomic situations in which people live (Kim & Kawachi, 2010). It is possible that at any given time an element may have greater or lesser influence on overweight and obesity, type 2 diabetes and dental caries causation than another, or its influence change from one point in time to another. As previously discussed, a fundamental cause of diet-related chronic conditions of most concern for children is the inequitable access to healthy food resulting from disparities in the distribution of the social determinants of health. However, the ANGELO framework does not incorporate an equity lens to account for inequalities within the different environment types. Such a consideration is particularly pertinent to the New Zealand situation where there is significant disparity in health outcomes by ethnicity and socio-economic status.

The criticisms presented are applicable to other ecological models of obesity causation (Kim & Kawachi, 2010). It is likely they reflect the complex nature of obesity, type 2 diabetes and dental caries aetiology, and the challenges in thoroughly capturing and understanding the causal factors. They also highlight the difficulty facing practitioners, policy-makers and other key stakeholders in preventing diet-related chronic conditions of most concern for children.

9.4.2 Child Rights Situation Analysis Framework
The UN Convention on the Rights of a Child provides a blueprint for researching children’s issues and undertaking research with children (Melton, 2005). This study is one of the first to use an internationally-recognised child rights analysis framework to explore why the right to health is not being fully realised for a substantial proportion of New Zealand children, and to arrive at suggestions to improve their situation. Taking a
child rights approach extends the analysis beyond the typical research outcomes of understanding a social phenomenon through the identification of commonalities and differences among participants, to understanding how well it complies with children’s human rights entitlements and requirements (Melton, 2005).

Children’s rights are interconnected and indivisible (OHCHR, 1989). The application of a child rights approach forces the researcher to think beyond the immediate or most obvious factors that influence or cause the situation under consideration, to incorporate its broader contributory factors. Considering the issue within the context of the whole of the Convention also provides a more comprehensive understanding of the issue. Its use in research also ensures that children are included in the research process, compelling the researcher to view the issue from the child’s perspective. The Convention inherently considers issues of equity. That, combined with the Convention’s principle of interconnectedness, makes its use complementary to the ANGELO framework which, as previously discussed, lacks those features.

The sport-related food environment was under scrutiny in this study. However, the framework could be equally applied to investigate other child health-related situations such as the availability and promotion of alcohol or gambling, and in other settings in which children are a part, for example, schools, hospitals and other public facilities and spaces.

A child rights situation analysis should be conducted holistically, scrutinising all aspects of a situation and considering the views of a variety of key stakeholders. This thesis only sought to ascertain the views of two key population groups, albeit significant ones – that of children and parents. Other key stakeholders’ views were beyond the scope of this thesis, although the administrative personnel in the sport sector recently participated in research in this under-explored area (Carter, 2013). To gain a comprehensive understanding of the sport-related food environment in New Zealand and how it impacts children’s health, would require a more in-depth investigation and analysis.

9.5 **Strengths and limitations of the research**

This study is one of the first internationally to provide an in-depth understanding of children’s and parents’ opinions on multiple elements of the sport-related food environment. This is also one of the first studies internationally to take a child rights
approach to understanding and investigating the sport-related food environment, and its impact on the diet-related chronic conditions of most concern to children, using data collected by and from children. Up to now, UNCRC has been used by other scholars to scrutinise food marketing (Handsley et al., 2014; Ingleby et al., 2008; Thornley et al., 2010; Tobin, 2006) and to argue for greater controls over, and to develop guidelines for, food marketing to children (Swinburn et al., 2008). However it has not been used in relation to availability and other aspects of children’s food environments, and not in research with children as participants. Including children as participants and data collectors in this research aligns with the child rights approach taken in this thesis, and addresses the researcher’s obligations to article 12 of UNCRC – children’s right to participate in all matters that concern them. This study provided an opportunity for children to document an aspect of their world and to share their views on it, and fill gaps in the evidence base in these arenas.

Including participants as data collectors is another strength of this study. As outlined in Chapter Six, participants were asked to visually record the sport-related food environment as they saw it in their everyday lives; their images were then used to lead focus group discussions. This was in contrast to data being collected using questions developed, or images selected and presented, exclusively by the researcher. Photographs taken by participants capture their perspective of their world more accurately than if taken by the researcher (Collier & Collier, 1986; Harper, 2002; Rose, 2006). The content of participant-generated photographs is also more relevant and meaningful to participants, than photographs taken by a researcher (Collier & Collier, 1986; Harper, 2002; Rose, 2006).

The rigorous pre-planning and piloting to inform data collection, discussed in Chapter Six, strengthens this research. Formative evaluation undertaken in the early stages of the research assisted in identifying and developing optimal and robust data collection processes and procedures, which in turn optimised participant recruitment and ensured the collection of quality data. Particularly helpful were the testing of cameras to determine which type would be easiest to use and yield the best image data; piloting and refinement of the semi-structured interview schedule so that it captured the relevant aspects of the sport-related food environment; and discussions with coaches, parents and sporting administrators about the ideal timing and location of participant recruitment, briefing and focus groups.
The images also provided visual cues and memory-joggers in the focus groups, thus generating more discussion about an issue, or raising a topic not included in the list of themes for discussion, than may have occurred during interviews alone (Collier & Collier, 1986; Harper, 2002; Rose, 2006). For instance, one participant’s photograph would often trigger comments from fellow group members who had not photographed the particular item. Consequently, the findings of this research potentially have more depth and better reflect the study participants’ views of their sport-related food environment than in previous research. The use of several data sources in this research also allows for an issue to be considered from multiple perspectives, and thereby provide a more comprehensive understanding of the research topic (Darbyshire, MacDougall, & Schiller, 2005). It also allows for the findings to be triangulated, that is, compared or cross-checked for regularities or differences (Bryman, 2008).

Establishing good rapport and building trust between the researcher and participants are likely to yield better quality data, and strengthen the credibility of the research findings. Building trust is particularly relevant when working with children (Greene & Hill, 2005; O’Kane, 2008). The data collection process used in this research (described in Chapter Six) incorporated a number of strategies and best practice suggested by expert researchers on how to build trust between the researcher and participants. One such recommendation is to use methods that reduce the power differential between the researcher and the participants, which is achieved in this research through the use of visual research methods. Collier and Collier (1986) found that introducing images into the interview process broke down potential barriers to communication between researcher and the participant(s), as the images provide a useful distraction and mutual talking point, and act as an ice-breaker when initiating discussion. These effects were seen in this study. As soon as the children arrived for their focus group session, most were keen to see their photographs; and once participants had received their images, both children and parents would immediately start reviewing and discussing them with other members of the group. It was then easy to pick up an issue they were discussing and build on their conversations.

Other features of the research design in this study contributed to trust-building. Meeting the participants several times before the focus group sessions in familiar surroundings, including club rooms, sports fields or school rooms, or informally as a spectator at a game, is one. Thus, by the time of the focus groups, the participants knew the researcher, and were relaxed and keen to answer questions and discuss issues from the outset. The
focus group sessions were also largely conducted in familiar surroundings, such as school or club rooms. Familiarity between focus group participants, particularly children, improves data collection and quality (Hennessy & Heary, 2005; Lewis, 1992). In this study, recruiting children through sports teams was of benefit as the children already knew each other and were comfortable in each other’s company having interacted together on the sports field.

To reduce the chance of researcher-bias being introduced during data interpretation, themes for coding were discussed with supervisors and other University colleagues throughout data collection and analysis. In addition, a supervisor (initially) and a research assistant attended each focus group to observe and take notes and, after each focus group, discussed the overall conduct of the session. These notes and observations were also used to confirm some of the major themes that arose from each focus group. Furthermore, as the same research assistant assisted for the majority of the focus groups, they were not only able to provide consistent feedback, but also identify any differences or similarities in opinions between groups.

The children’s real participation and engagement in the research process, and in the interpretation of study findings and subsequent recommendations, is another strength of the research. A criticism of children as research participants (discussed in Chapter Six) is that they do not reliably or truthfully answer research questions, and thus findings are susceptible to social desirability bias (Greene & Hill, 2005). However, adults are also prone to responding to questionnaires and interviews in a favourable way (Hennessy & Heary, 2005). It was evident throughout the research process in this study that the children were genuinely excited to be involved and to have the opportunity for their voices to be heard. While the genuineness of the responses of the children is difficult to ascertain, they appeared to be focused on their data collection tasks, as evidenced by the number of photographs they took and extensive use of their notebooks. They were engaged in honest and frank discussion during the focus groups, almost always responding to questions or others’ comments immediately. Lively discussions took place on numerous occasions about specific issues. In addition, parents and coaches were not present at the focus groups, allowing the children to speak freely. This suggests that the children provided honest information, which has resulted in credible findings.
This research supports the assertions of expert visual researchers (Banks, 2008; Catalani & Minkler, 2010) that participant-led visual research raises awareness of the issue under investigation among the study participants involved. Several parents commented on how the research task made them more aware of the nature of their sport-related food environment than they had been prior to taking part in the study. For a few parents, their participation had benefits for both themselves and their children as it initiated discussion with their children on aspects of the sport-related food environment, for instance the intent of food marketing and media literacy. Feedback received from several parents indicated that they were pleased to have had the opportunity to express their views and have them heard. Including parents in this research was beneficial for several reasons. They were able to provide information on the political sport-related food environment from their perspective. The parents’ inclusion in this research was also useful as a key aspect of UNCRC – that of State support for parents – was able to be addressed; this is one of the first studies on the food environment to do so.

The participant sample is a possible limitation to this study, being restricted to Wellington children who played one of three sporting codes. However, the use of purposive sampling to achieve a diverse sample assisted in overcoming this limitation and strengthens the research. Strategically selecting participants with diverse characteristics allows for the collection of a range of views and improves the chances that the findings will be applicable to people beyond the study population (Mays & Pope, 1995). Data was collected from boys and girls, mothers and fathers; from the most popular sports played by New Zealand children; and from children and parents from contrasting areas of socio-economic deprivation.

Reflexivity, the extent to which the researcher recognises and reflects on their role in shaping the collection and analysis of the data, including the meanings they ascribe to it, is an important consideration in determining study rigour (Green & Thorogood, 2009). The researcher’s personal characteristics, including their assumptions and preconceived notions on the issue under investigation, can influence decisions and interpretation of the data and potentially introduce bias into the research process (Green & Thorogood, 2009). In this research, my perspective on how our current food environment impacts people’s health and how it should be organised to improve health outcomes aligns with a public health approach. My personal experiences of the food environment are also likely to have shaped my views and therefore it is possible that they had an influence on the
interpretation of the data. However, I am not a parent, and have had little exposure to the sport-related food environment as experienced by today’s children and parents. Therefore, I may bring fewer preconceived ideas to the research on such issues. Asking participants to take photographs and make written notes, and debriefing with a research assistant, supervisors and university colleagues, as described previously, supported the unbiased interpretation of the data and mitigates the possibility of bias.

On balance, this is a rigorously conducted qualitative study that used an innovative and engaging data collection method. It is one of the first to collect information on children’s and parents’ sport-related food environments, and their views on it, and one of the first to use visual methods to do so. Although the findings are limited to a specific population group, from the review of the literature presented in Chapters Four and Five, it would seem that they are likely to be relevant elsewhere. In a survey of sports venues and interviews with key stakeholders, Carter (2013) found that the food environments within a range of sporting codes and venues were similar across New Zealand. The nature of the sport-related food environment reported by the children and parents in this study are consistent with Carter’s findings. This suggests that the views of children and their parents on the nature of the food environments associated with football, netball and rugby reported in this study are likely to be similar to other children and parents elsewhere in New Zealand who are involved in sport. It is also likely that the findings of this study will be similar to the views of New Zealand children and parents of those children who play other sporting codes.

As discussed in Chapter Four, sports viewership is also a global activity. Sport provides food companies with a platform to promote their products internationally, including in New Zealand, with cross-border marketing facilitated by the advent of new media. The prevalence of diet-related chronic conditions of most concern for children is a worldwide issue. Furthermore, as discussed in Chapters Four and Five, the sport-related food environment in New Zealand, and children’s and parents’ views on it, are similar to other countries. Hence, the implications for policy and practice discussed in the following section are likely to be relevant to other sports clubs and sporting organisations in New Zealand, and internationally. They are also likely to be of interest to those organisations that govern food environments in other countries.
9.6 Implications for public health policy and practice

This section discusses the implications of the study findings for public health policy and practice. The actions proposed are informed by the previous discussion in which the gaps in children’s and duty-bearers’ capacity to claim or fulfil children’s rights in the sport-related food environment were identified.

The Convention provides a blueprint for public health policy making and practice for improving the capacity of rights-holders’ and duty-bearers’ in realising children’s rights (Goldhagen, 2003; Greenway, 2008; Ingleby et al., 2008; Jonsson, 1996; Kent, 1993; Priest et al., 2010; Simpson & Simpson, 2004; Swinburn et al., 2008; United Nations General Assembly, 2011). As discussed in Chapter Three, the State, as primary duty-bearer, is obligated to take all available measures to ensure children’s rights are being progressively realised and to support non-State actors so they may fulfil their responsibilities to children. Ideally, the principles of UNCRC should be embedded in legislation, policy and practice (Hunt et al., 2011; Jonsson, 1996), but may also be met through public debate, advocacy and social accountability (Priest et al., 2010).

Given the high levels of New Zealand children’s participation in sport (Sport New Zealand, 2012), the implementation of interventions and policies in the sport-related food environment is likely to have an impact on a substantial proportion of the population. Creating a healthy sport-related food environment would contribute to overall efforts to support health-promoting food choices, improve and prevent poor diet-related health outcomes, and the realisation of children’s right to health. Likewise, general population-based approaches that would contribute to overall improvements in food environments are likely to have a positive impact within the sport-related food environment. Sport-specific initiatives are discussed first, followed by the relevant broader public health measures.

9.6.1 Sport-specific measures

Local and professional sports settings
Sports settings are ideal locations for promoting healthy nutrition and supporting healthy dietary preferences and behaviours, and linking them to physical activity (Donaldson & Finch, 2012; Kelly, Baur, Bauman, King, et al., 2010b; Kokko et al., 2006; Sport for Development and Peace International Working Group, 2008). Given the dearth of
nutrition information and education provided by, and within, the sports sector, and inconsistencies in it when provided, it would seem prudent to institute comprehensive nutrition education programmes for members of the sporting community (parents, coaches, managers, administrators and caterers) and disseminate nutrition information in sports settings and through sporting organisations. Such action would also address children’s confused understanding of nutrition, especially about sugar and energy intakes, and parents’ self-reported lack of knowledge.

The efficacy of such nutrition programmes would be enhanced by sports clubs and sporting organisations implementing policies that guide the nutrient quality of the food available in sports settings, both that sold or provided by others, and decision-making on sponsorship arrangements. Government policy that ensured schools once again were required to have healthy food policies would benefit school-based sports teams. While health promotion efforts, such as the provision of nutrition information, water and oranges, and lunch packs revealed in this study, are welcomed by and popular with children and parents, their intent and sustainability are undermined by the predominantly unhealthy food environment in which they are delivered. Implementing food policies would empower children and spectators to act on and reinforce educational messaging, support parents’ responsibilities, and improve the adequacy of the food available and accessible to sport-playing children, which in turn would enable children to realise their rights to food and nutrition information.

A number of barriers to creating a healthy food environment were outlined in Chapter Four and outlined in Table 18. Sports clubs that have received support to create a healthy food environment within their organisation report improvements in the nature of the food environment (Dobbinson, Hayman, & Livingston, 2006; Naylor, Vander Wekken, et al., 2010). To overcome the difficulties sports clubs and organisations have in implementing nutrition guidelines into food policy, sports sector personnel would require input from nutrition and other health professionals. Health promotion efforts would also have to challenge the embedded culture of ‘stadium food’ and communities’ assumptions about and expectations of unhealthy food availability in sports settings. Developing and implementing social marketing campaigns would promote the benefits of a healthy sport-related food environment and the support the role of sports organisations in creating them. Doing so would provide a mechanism for change and raise awareness among the community and sports sector.
Further support would be required from health agencies, non-governmental organisations, and local and central government for sports administrators and organisations to implement improved food environments. Profit-driven external caterers would also need support to translate nutrition guidelines into products that would continue to generate income. Such campaigns have been implemented in Australia, and provide a framework for New Zealand’s situation. The Healthy Victoria Together (State Government Victoria, n.d.) initiative, on which Healthy Families NZ (Ministry of Health, 2014a) is based, is one such programme. The New Zealand initiative is in its early stages and its impact has yet to be evaluated. However, given its limited reach, and the limited financial and organisational support from government in New Zealand, in contrast to that received by Healthy Together Victoria, it is likely to have less of an impact than its Australian counterpart.

Some Danish parents thought that increasing the retail cost of unhealthy foods relative to healthy foods at sports venues might promote purchasing of the latter items (Andreassen, 2007). Limited evidence suggests that the efficacy of such local measures is questionable and most likely reliant on the presence of other health-promoting activities (Olstad et al., 2014). This demonstrates that to effect change, a comprehensive package is required.

Many of the playing fields on which children play sport and sports clubs rooms are owned by or leased from local councils, respectively. As discussed in Chapter Two, local councils in New Zealand are no longer mandated to cater to their community’s well-being, although many are continuing to do so. As an extension of the State, local government has the same obligations as central government to respect, protect and fulfil children’s rights. Thus, they have the authority and the responsibility of realising children’s rights. Implementing healthy food policies in council-administered sports venues and sporting events, which include sports grounds and associated buildings and other assets, would improve the food environment in those locations and support local clubs in doing the same. It would provide good stewardship and improve the capacity of parents, and sports clubs and organisations to realise children’s rights.

**Sponsorship replacement**

Most parents in this research indicated a preference for healthier sponsors. However, many parents are anxious that the loss in revenue could have detrimental consequences for their children and themselves. Consequently, their support for regulation of
sponsorship is often conditional on finding replacement sponsors. The available evidence suggests that the amount of money involved in sports sponsorship, especially at community level (Carter, 2013; Cordery & Baskerville, 2009), is small and could be replaced by other health-promoting sources, or from government. Such a scheme has been successfully implemented in Western Australia, whereby unhealthy sponsorships, including those that are food-related, are replaced by state funding sourced from tobacco excise tax (The Government of Western Australia, n.d.). A similar sponsorship replacement scheme, possibly funded through a sugary drinks tax, could be implemented in New Zealand. The successful replacement of tobacco sponsorship of sport (and other activities) by the Health Sponsorship Council (now Health Promotion Agency) with government funding raised through tobacco taxation in the 1990s (Thomson & Wilson, 1997) has set a precedent in New Zealand, and provides a blueprint for action in the New Zealand sports sector. The use of incentives, such as tax credits, for health-promoting or health-neutral companies and local businesses to sponsor local clubs may provide another solution.

**Use of athletes in food promotion**

This, and other, research (Boyland et al., 2013; Dixon et al., 2013) indicates the power well-known sports people have in influencing children’s behaviour. As suggested by organisations (Sport for Development and Peace International Working Group, 2008) and by some parents in this study, that influence could be harnessed to promote healthy food to children. Recently, in an attempt to address the prevalence of diet-related chronic conditions in children, a highly regarded New Zealand athlete promoted soap as a replacement for the chocolate fundraisers reported by the children in this study (Scoop, 2015). The engagement of healthier sponsors by high-profile women’s sports such as netball (Carter, 2013) also demonstrate that such action is possible. However, until such time that unhealthy food sponsorship is replaced or regulated for, or there are incentives for health-promoting or health-neutral sponsors, it is unlikely that athletes’ sponsorship arrangements will be improved. In cases such as the All Blacks and the All Whites (New Zealand national football team), the onus is on the respective sporting organisations to be cognisant of the impact their athletes have on children, and make sponsorship decisions that are in children’s best interests.
9.6.2 Population measures

Regulating unhealthy food marketing

Strengthening measures to reduce children’s exposure to unhealthy food marketing, which would encompass sport-related promotions, is a key recommendation made by experts for improving children’s food environments (Swinburn et al., 2014; WHO, 2010, 2016b). That self-regulation and other food industry measures appear to be failing children indicates that government intervention is warranted. In New Zealand and elsewhere, the public health and child health communities, and child rights advocates have recommended government regulation to be the most effective means of protecting children from harm and improving their health and well-being (Handsley et al., 2014; Hawkes, 2005; Ingleby et al., 2008; Martin et al., 2013; Signal, 2014; Signal et al., 2011). Strengthening regulatory systems is also in keeping with UNCRC requirements (Committee on the Rights of the Child, 2013c). Such actions would assist children in realising their right to food and health-promoting nutrition information, and protect them from exploitation, and improve the capacity of duty-bearers. It would also be particularly empowering for parents, and supportive of sports clubs and organisations when implementing food policies. As opposed to the current self-regulatory system, government regulation of food marketing could also fulfil the State’s duty to respect, protect and fulfil children’s rights and the shared obligation between the State and business to remedy to any violations or breaches of children’s rights. However, government regulation or more stringent marketing criteria than currently in place would very likely interfere with the food industry’s primary obligations to shareholders and therefore be unwelcome and strongly challenged.

A revision of the ASA’s Children’s Code for Advertising Food (the Code) in New Zealand is imminent, as part of the government’s recently announced childhood obesity plan (Ministry of Health, 2016). Despite popular opinion favouring regulation of unhealthy food marketing to children (Horizon Poll, 2015), such a move is not compatible with the current New Zealand government’s ideology (Watkins, 2015), and as such, voluntary, self-regulation will likely remain. Key implications for the revision from this study include greater specificity in the Code’s principles and criteria for advertising content to reduce the ambiguity when interpreted. Misleading, deceptive or incorrect information is currently addressed in the Code. In order to protect children further, the revised regulations should also address the emotive appeal of advertisements, such as that
generated by the use of sports heroes, and also address “the omission of information leading to an overall misleading impression” (Handsley et al., 2014, p. 126).

Children do not live in isolation from aspects of society that are not directly intended for them. For instance, children as young as 12y do see the promotions, and pay attention to the marketing and information conveyed by the marketing for sports drinks and energy drinks even though the food industry states that they are not their intended audience. This was evident in this study by the many instances of marketing for those products the children reported. Thus, revisions of the Code must not only encompass marketing activities directed at or designed specifically for children, but should be broadened to include the marketing that children are “likely to notice” (Handsley et al., 2014, p. 127). Currently, such promotions are overlooked by the Code.

Implementing independent monitoring and enforcement of food marketing, as recommended by public and child health experts (Swinburn et al., 2014; WHO, 2016b), would further protect children from exploitation and harmful nutrition information, and support parents in their efforts. An overhaul of the ASA’s complaints process, to include measures to improve parents’ and children’s awareness of how to complain and its scope, and so that it is more equitable for complainants, should also be included in the review. Finally, although the children in this research were approximately 12y and as such meet the Code’s criteria, it would be prudent to align the age covered by the Code with that of UNCRC, being anyone less than 18y.

Child rights’ expertise is not represented on the Code review committee, which is concerning and could be considered a violation of UNCRC. Given the food industry is represented on the committee, it is unlikely that any revisions to the Code will significantly impact the sector adversely. That the content of the National Obesity Plan, including the revision of the Code, was welcomed by the food industry (Underhill, 2015a, 2015b) strongly suggests that its members are not overly threatened by any changes to New Zealand’s political sector-level food environment, and meaningful health-promoting changes are unlikely to be forthcoming.

As suggested by the parents in this study, sport could be used more to promote healthy foods. The relationship between the All Blacks and Weet-Bix demonstrates that harnessing the power of well-known athletes is very effective and empowering for children and parents, and sets a precedent for such marketing. It must be assumed that
promoting a healthy food such as Weet-Bix is financially beneficial to the company, otherwise the association would not have endured. Providing incentives, either financial or regulatory, for companies to use their entrepreneurial skills to produce healthy foods and market their products in a socially responsible way, could be another part of a comprehensive approach to improve children’s food environments, including those associated with sport.

**Food labelling and composition**
Improving food labelling through regulation would improve children’s and parents’ food choices and support nutrition advice. For instance, placing warning statements on sugary drinks, such as sports drinks, as has been legislated for on tobacco products, have been shown to positively influence parents’ beverage choices (Roberto et al., 2016). In New Zealand, low and non-fat milk is required to be labelled as unsuitable for children under 2y (FSANZ, n.d.), demonstrating that such regulatory action is possible (Smith, Jenkin, Signal, & McLean, 2014). Applying stricter criteria to health and nutrition claims and ensuring such claims do not mislead through omission would improve the information conveyed in them. Defining foods high in salt, fat and sugar as unsafe, and regulating their composition accordingly, may also be effective.

However, it is unlikely that these measures will be adopted by the current New Zealand government (Watkins, 2015). Rather, the new front-of-pack Health Star Rating system, described in Chapter Two, may be the extent of the current government’s action in this arena. While the Health Star Rating system will most likely assist in informing and advising children’s and parents’ sport-related food choices, experts have questioned the efficacy of the system given it is un-tested and its adoption voluntary (Science Media Centre, 2014). A post-implementation evaluation has yet to be undertaken.

**Fiscal measures**
Altering the retail cost of food has the potential to impact people’s purchasing behaviours and improve health outcomes (Eyles et al., 2012; Mytton et al., 2012; Ni Mhurchu et al., 2010; Powell et al., 2013). To address the cost imbalances between healthy and unhealthy foods, and support healthy food choices, the price of food at sports venues could be altered to favour healthy foods. However, such changes are more likely to be effective when accompanied by other health promotion activities than if implemented in isolation (Olstad et al., 2014).
Population-based fiscal strategies such as taxation, suggested by some parents in this study, are likely to be effective (Ni Mhurchu et al., 2015). Options include subsidies or removal of GST on healthy items, and taxation of unhealthy items. In the sport-related food environment in particular, a tax on sugary drinks would have an impact on drinks such as sports and energy drinks. As discussed in Chapter Two, emerging evidence shows that a tax on sugary drinks reduces people’s purchasing of the taxed items and increases purchasing of non-taxed drinks, particularly among at-risk population groups (Colchero, Popkin, Rivera, & Ng, 2016). Modelling studies also demonstrate the measure has the potential to lower consumption and improve health outcomes (Eyles et al., 2012; Mytton et al., 2012). Similar action has resulted in the reduction of tobacco consumption and significant improvements in health outcomes (Chaloupka et al., 2012).

Some parents also identified the lack of financial investment in health promotion activities in New Zealand, including in sport settings. Hypothecation of tax on nutrient-poor foods could be used to fund the implementation of such health promotion initiatives, including in sports settings (Ni Mhurchu et al., 2014). However, as with food marketing regulation, fiscal policies such as those discussed here do not align with the New Zealand government’s ideology (Watkins, 2015), and is one reason it is not included in the New Zealand government’s national obesity plan.

**National plans of action**

Member States are obligated to implement a national plan of action for children (OHCHR, 1989) that outlines the changes required to bring a country into compliance with UNCRC, who is responsible for implementation, and how compliance is reviewed and monitored. Meeting this obligation in New Zealand would support the previously described policy and practice recommendations. While a national plan of action is being developed for vulnerable children in New Zealand, and is welcomed, the plan should include all aspects of all New Zealand children’s lives.

The recent WHO Report of the Commission on Ending Childhood Obesity calls on governments to “take leadership...and recognize their moral responsibility in acting on behalf of the child to reduce the risk of obesity” (WHO, 2016b, p. vi) and provides guidance for such action. According to the New Zealand’s Ministry of Health (2016), the WHO report has, in part, informed the national childhood obesity plan (described in Chapter Two). However, public health experts consider the childhood obesity plan to be
a soft approach, with several short-comings (Hutton, 2015; Plumb, 2016). In particular it lacks or pays minimal attention to addressing environmental drivers of obesity such as those discussed in this thesis, it has poor enforcement measures with many actions being voluntary or guidelines, and it lacks measures for monitoring and evaluation, of both childhood obesity prevalence and the plan itself. Incorporating the measures recommended by INFORMAS (outlined in Chapter Two) in a national strategy for ending childhood obesity in New Zealand would most likely strengthen government leadership in this area and improve child health outcomes. It would also support the previously discussed suggestions for action in the sport-related food environment.

A number of sectors are responsible for addressing the nature of the sport-related food environment, and hence realising children’s rights, including health, sport, education, local government and primary industries. Effective improvements in the sport-related food environment, and beyond it, would potentially be achieved through intersectoral action and collaborative policy-making among key duty-bearers in the sport-related food environment (WHO, 2016b) and provide consistent and supportive decision-making. However, it is essential that government ensures that the members of all sectors involved, including public and private members, are aware of children’s rights and how to include them in their decision-making (Committee on the Rights of the Child, 2003).

Children have the right to be heard in all actions concerning them (OHCHR, 1989). Some of the children in this study indicated that the food made available in sports settings or the rewards they received were not necessarily what they would like or want, or were items that they could do without. This suggests that their views on determining the nature of the sport-related food environments in which they participate regularly were possibly not sought. The data collection process for this research provides evidence that children have plenty to say on the topic and are willing to talk about it. Including children in the food-related decision-making process in sports settings would address the realisation of children’s right to participation.

9.6.3 Global measures
Sport, and its associated marketing, is a global phenomenon, with multi-media now making it highly accessible across international borders. Attempts to improve the sport-related food environment in New Zealand are likely to be undermined by international sports broadcasts and cross-border marketing campaigns. To improve the capacity of
New Zealand’s sport-related food environment, global solutions and leadership are required. As outlined in Chapter Two, WHO has produced several documents to guide national policy development and practice (WHO, 2004, 2012a, 2012b, 2016b). Adoption by governments or other organisations of the proposed Global Convention to protect and promote healthy diets (Consumers International & World Obesity Federation, 2014), outlined in Chapter Two, would also provide global leadership on policy and practice, just as the FCTC has successfully achieved for tobacco consumption. The State would also be obligated under UNCRC to implement and enforce such a Convention (Committee on the Rights of the Child, 2013a). Ratification would require international political will and cross-country support, which is likely to be even more difficult to achieve than with tobacco. While food is also highly political, it is also a necessity of life (Mann & Truswell, 2012); it also differs from tobacco in that its role in poor health outcomes is more complex. Until ratification, leadership will have to come from individual countries that have the courage, insight and political will to implement the necessary initiatives, and action from cooperation between nations.

Overall, a comprehensive approach to policy and practice will be the most effective means of improving children’s health and well-being, and for children to realise their right to health in food environments (Hunt et al., 2011; Jonsson, 1996; WHO, 2016b), including those associated with sport. Implementing and monitoring the previously discussed policy and practice actions would likely be effective in generating positive changes and improvements in the sport-related food environment. A range of duty-bearers have a responsibility to act in this arena, from parents and other adults, through to the community and civil society, and local, national and global identities and organisations. Decisive action that considers children’s interests as a primary concern at the sector-level in the sport-related food environment, particularly by the food industry and government, would restore the capacity ‘balance’ in favour of the most vulnerable in that context – children. It is the collective efforts of society that will have the greatest impact on children’s health and well-being in the sport-related food environment, and beyond. Table 19 summarises the recommendations for public health action in the New Zealand sport-related food environment to support the realisation of children’s right to health.
Table 19:  Recommendations for public health action in the New Zealand sport-related food environment to support the realisation of children’s right to health

**Sport-specific measures**

- Raise awareness among children, parents, and sports personnel about children’s food and nutrition guidelines and dietary requirements when playing organised sport
- Develop health promotion programmes that include:
  - nutrition education and awareness raising with players, parents, coaches and sporting managers and administrators
  - support for developing healthy food policies within sports clubs and venues, and sporting events
- Support caterers to supply healthy food in sports settings
- Institute healthy food policies in local government-owned facilities and events, including lease agreements with sports clubs
- Regulate for healthy food policies in sports clubs
- Replace unhealthy sport sponsorship with government sponsorship sourced from hypothecated taxation on unhealthy foods and beverages, for example, sugary drinks
- Incentivise health-promoting or health neutral businesses to sponsor sport, for example with subsidies or tax rebates

**Population measures**

- Institute measures for local government to act to support people’s health and well-being
- Develop fiscal policies including taxation and subsidies
- Regulate food marketing, strengthen food marketing criteria and implement independent monitoring and evaluation of food marketing
- Develop and implement national plan of action for children including healthy food policies
- Require the reformulation of foods and beverages
- Strengthen regulation of food labelling and composition
- Raise awareness among duty-bearers and provide support to apply a child rights approach to policy and decision-making within organisations and public health actions
- Develop policy to address fundamental determinants of health including welfare, income, employment, discrimination, education
- Provide ‘reinforcement teeth’ by incorporating UNCRC provisions in national legislation

**Global measures**

- Adopt or ratify Global Convention to protect and promote healthy diets
9.7 Implications for further research

Researchers are a duty-bearer in children’s sport-related food environment and have a responsibility to respect, protect and fulfil children’s rights. Their investigations can inform other duty-bearers’ decision-making, and provide baseline information, and monitoring and evaluation of children’s situations. The latter activities are useful in holding duty-bearers to account, particularly government and the food industry, and academic researchers have a key role to play in this arena as society’s critics and conscience. Researchers are also able to assist children in realising their right to have their opinion heard on all matters concerning them, either as participants in research or as researchers themselves. Finally, researchers have a role, and duty, in disseminating research findings for the benefit of the wider community.

A child rights situation analysis involves consultation with all relevant individuals and organisations, as rights-holders or duty-bearers, regarding the issue under consideration. Consultation for this research was limited to children and parents. For a more complete understanding of children’s sport-related food environments, consultation with other duty-bearers is necessary. Carter (2013) investigated the views of members of the sport sector, including clubs, and regional and national sporting organisations, although not using a child rights lens. Given well-known athletes’ influence on children’s food preferences and behaviours, and the potential benefits of that influence for health promotion, identified in this research, ascertaining athletes’ views on the nature of sponsorship of sports people would fill a gap in the evidence and provide valuable information to inform interventions. Furthermore, an evaluation of sports people as agents of change in children’s food environments would be beneficial.

While much is known about children’s exposure to individual marketing media and in a number of settings, the totality of children’s exposure to food marketing has yet to be determined. While this study captured a number of sport-related products or brands in multiple settings and media, it did not capture the daily exposures to unhealthy sport-related food marketing in terms of duration or frequency, nor did it capture the food available in sports settings. Furthermore, the visual data collected in this study was potentially biased, being aspects of the sport-related food environment children and parents thought were important. New visual technologies, such as wearable cameras that photograph people’s environments at regular, frequent intervals, would objectively...
capture children’s sport-related food environment and potentially provide a more accurate account of its nature (Barr, Signal, Jenkin, & Smith, 2015; Cowburn et al., 2016). Analysis of such data would assist in determining the nature and extent of children’s daily exposure to sport-related marketing.

This study did not investigate children’s daily sport-related food and beverage consumption. Limited research to date suggests that the dietary patterns of sport-playing children differs from those children who do not participate in organised sport (Cavadini et al., 2000; Ranjit et al., 2010; Tomlin et al., 2013). Determining children’s consumption of the foods promoted in the sport-related food environment would provide further evidence as to the extent and nature of children’s sport-related food and beverage intake, and some certainty to the influence of the sport-related food marketing. This, combined with the visual research described previously, would assist in determining the significance of children’s sport-related food intake to their overall dietary consumption.

Replacing unhealthy sports sponsorship with health-promoting sources warrants further investigation. Conducting an economic evaluation of sport-related sponsorships and endorsements at each and all levels of sport to inform such an intervention and finding mechanisms to achieve that is warranted. Commercial sensitivities hinder economic investigations. However, exploring the costs required to replace current unhealthy sponsorships with health-promoting support, including the use of subsidies or incentives, and investigating the feasibility of such action with stakeholders, might provide possibilities for alternative sponsorship and shed light on the situation.

To inform interventions that would support sports clubs in improving the associated food environment, research could be undertaken, modelled on the Australian examples cited previously (Healthway, n.d.; New South Wales Ministry of Health, n.d.). Objectives of such an investigation might include determining the partnerships and collaborations required, delivery of nutrition information, development and implementation and evaluation of food policies, and replacement of unhealthy sports sponsorships, and evaluate the impact on children and parents.

Although the children provided information that was unique and until now uncollected, they were not explicitly asked for potential policy solutions. On reflection, it would have been useful to have collected their views on sector-level improvements to their sport-related food environment, such as sport-related food marketing. Subsequent research
conducted with children of the same age that included such questions has provided valuable and interesting insights and can usefully inform interventions. Ultimately, such an investigation would identify a framework that could be applied country-wide, but adaptable to local circumstances. Finally, research is required to identify means of empowering parents and mobilising them into action to put pressure on the government and industry to act. Doing so would also provide a catalyst for government action to strengthen parents’ capacity to realise their children’s rights and improve children’s sport-related food environment.

9.8 Conclusion

A substantial proportion of children in New Zealand, and internationally, bear the burden of diet-related chronic conditions, and therefore do not fully enjoy their right to health. Various physical, socio-cultural, economic and political elements of children’s food environments shape children’s food and beverage preferences and behaviours. Preventing diet-related chronic conditions of most concern for children is considered a priority situation requiring urgent action (WHO, 2016b).

The sport-related food environment is an important element of New Zealand children’s overall food environment, and most likely for children in other countries. However, its obesogenic nature does not support children’s right to health. Improving children’s sport-related food environments would likely contribute to addressing the alarming prevalence of diet-related chronic conditions of most concern for children in New Zealand, and likely elsewhere. However for success, decisions made within the sport-related food environment that concern children must be weighted in favour of their health and well-being.

Everyone has a responsibility in this arena, however, progress requires the political will to act. As signatory and prime duty-bearer, governments, including New Zealand’s, must rise to WHO’s (2016b) challenge to lead, and meet not only their legal obligation to act in the best interests of children but, along with other key duty-bearers, also address their “moral responsibility” (p. vi) to children. This means implementing all necessary measures to improve children’s diet-related health outcomes. To not do so fails children, perpetuates harm and denies them their entitlement to develop, participate, fulfil their potential and live healthy lives.
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right of the child to have his or her best interests taken as a primary consideration
CRC%2fC%2fGC%2f14_&Lang=en

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### Appendix 1: Search terms used in systematic review

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## Appendix 2: Database search history

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Search mode: Boolean/phrase; Limiters: Full text; Scholarly (peer-reviewed) journals

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### Appendix 3: Quality assessment summary – qualitative

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*Note: The table uses a 0-2 scale where 0 indicates not met, 1 indicates partially met, and 2 indicates fully met.
## Appraisal and clarification questions

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<td>Was the recruitment strategy appropriate to the aims of the research? [0,1,2]</td>
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<td>• Did the researcher explain how the participants were selected?</td>
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<td>• Did they explain why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study?</td>
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<td>• Were there a discussion around recruitment (e.g. why some people chose not to take part?)</td>
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<td>Was the data collected in a way that addressed the research issue? [0,1,2]</td>
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<td>• Was the setting for data collection justified?</td>
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<td>• Was it clear how data were collected (e.g. focus group, semi-structured interview, etc.)?</td>
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<td>• Did the research justify the methods chosen?</td>
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### Appraisal and clarification questions

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<td>Did the researcher make the methods explicit (e.g. for interviews, is there an indication of how interview were conducted or did they use a topic guide)?</td>
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<td>Were methods modified during the study? Is there an explanation of how and why?</td>
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<td>Was the form of data clear (e.g. tape recordings, video material, notes, etc.)?</td>
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<td>Has the relationship between researcher and participants been adequately considered? [0,1,2]</td>
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<td>Did the researcher critically examine their own role, potential bias and influence during formulation of the research questions; data collection, including sample recruitment and choice of location?</td>
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<td>How did the researcher respond to events during the study and did they consider the implications of any changes in the</td>
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<td>Have the ethical issues been taken into consideration? [0,1,2]</td>
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<td>- Were there sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained?</td>
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<td>- Did the researcher discuss issues raised by the study around informed consent or confidentiality or how they handled the effects of the study on the participants during and after the study?</td>
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<td>- Was approval sought from the ethics committee?</td>
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<td>Was the data analysis sufficiently rigorous? [0,1,2]</td>
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<td>- Was there an in-depth description of the analysis process?</td>
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<td>- Was thematic analysis used? Was it clear how the themes were derived from the data?</td>
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<td>presented were selected from the original sample to demonstrate the analysis process?</td>
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<td>- Was sufficient data presented to support the findings?</td>
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<td>- To what extent were contradictory data taken into account?</td>
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<td>- Did the researcher critically examine their own role, potential bias and influence during analysis and selection of data for presentation?</td>
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| Is there a clear statement of findings? [0,1,2] | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| - Were the findings explicit? | | | | | | | | | | | | | | | | | | | | |
| - Was there an adequate discussion of the evidence both for and against the researcher’s argument? | | | | | | | | | | | | | | | | | | | | |
| - Did the research discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)? | | | | | | | | | | | | | | | | | | | | |
| - Were the findings discussed in relation to the original research questions? | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|----------------------|---------------------|-------------------|---------------------|------------------------|------------------------|----------------------|------------------------|---------------------|-------------|----------------|--------------|---------------------|---------------------|---------------------|----------------|------------------|
| How valuable is the research? [0,1,2] |                      |                     |                   |                     |                        |                        |                      |                        |                     |             |                |              |                     |                     |                     |                |                  |
| • Did the researcher discuss the contribution of the study to existing knowledge or understanding? | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 0 | 2 | 2 | 0 | 1 | 0 | 2 | 0 | 0 |
| • Did they identify new areas where research is necessary? | 20 | 16 | 16 | 18 | 17 | 18 | 16 | 20 | 17 | 15 | 6 | 19 | 20 | 6 | 12 | 8 | 19 | 3 | 6 |
| • Did the researcher discuss where or how the findings can be transferred to the other populations or consider other ways the research may be used? |                     |                     |                   |                     |                        |                        |                      |                        |                     |             |                |              |                     |                     |                     |                |                  |
| Conflict of interest                  |                      |                     |                   |                     |                        |                        |                      |                        |                     |             |                |              |                     |                     |                     |                |                  |
| • Were conflicts of interest disclosed? [Y,N] | N | Y | N | Y | N | N | N | N | Y | Y | N | Y | N | N | N | N | N | N | N | N | N |
| • Were funding sources disclosed? [Y,N] |                           |                     |                   |                     |                        |                        |                      |                        |                     |             |                |              |                     |                     |                     |                |                  |
| Peer-reviewed                         |                      |                     |                   |                     |                        |                        |                      |                        |                     |             |                |              |                     |                     |                     |                |                  |
| • Was the publication peer-reviewed? [Y,N] | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | Y | N | N | Y | N | Y | N | N | N | N |
## Appendix 4: Quality assessment summary – quantitative

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<td>Has the research question / objective been clearly stated? [Y,N]</td>
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<td>Was the study type / methodology appropriate for the research questions? [0,1,2]</td>
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<td>Were the target population, recruitment strategy and sample adequately described? [P,Y]</td>
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<td>Was the target study population (inclusion/exclusion criteria appropriate?) [0,1,2]</td>
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Appendix 5: Introductory email to club coaches or managers

Hi ________

I am a researcher and PhD candidate with the Department of Public Health, University of Otago, Wellington doing a research project about the promotion of food and drink in sport. My particular interest is learning more about what children and parents see, what they think about it and how it influences what they eat or drink.

Part of research involves talking to children aged 10-12 years and their parents about food in sport and to do this I am using a technique called photovoice – I give out disposable cameras to participants for about a fortnight to take photos of food and drink items they see which are related to sport. The participants become researchers in the project. The photos are then discussed in a group discussion. I have attached information sheets which explain the project in more detail.

What is required time-wise? About 20 minutes one night after practice and then an hour or so outside sport time (either an evening or weekend afternoon). The project involves children and their parents from Wellington and Porirua who play netball, soccer or rugby. As this technique has not been used in this way before, this is an opportunity to be involved in a unique project as well as a chance for children and parents to talk about what they see and what they think about the topic.

I would be grateful if I could make contact with coaches in your club who coach U11s and U12s and discuss the possibility of approaching team members to invite them to participate in this project (to recruit two groups of children and one group of parents). I would be happy to make a donation to your club in appreciation of your assistance. Please contact me by return email or give me a call on the number below.

Regards
Appendix 6: Information sheets, consent forms, demographic questionnaire and photo release form

July 2010
Ethics Approval # 10/005

FEAST – Food Environment And SporT Study

What children and parents think about food and drink in sport

INFORMATION SHEET FOR PARTICIPANTS (CHILDREN)

Hi, my name is Moira and I am a researcher. I am writing a report for my University study about what young people think about how food and drink are advertised in sport. To help me with my report, I will be asking you, along with 5 to 8 of your team-mates, to be junior researchers and take part in a discussion group. Your parent or guardian has said it’s all right for me to talk with you, but if you don’t want to talk with me, that’s fine. You can ask me any questions you want about the study; for example, about being a junior researcher or about taking part in the discussion group.

First, I will provide you with a camera for about two weeks to take photos of anything you see which is related to food and drink in your sport. Then, in your group, I will be asking some questions about the subject and talking about the photos you have taken — as well as anything else you think and feel about food and drink advertising in your sport. This discussion group will last about 30 minutes. You do not have to answer the questions if you do not want to. There may be two other adults at the discussion group as well as me, including one of my teachers, to help with the discussion.

There will be a tape recorder on while we are talking in the group and one of the adults will be writing down some of the things you and your team-mates say in the discussion. If you want the tape turned off that’s fine — you just need to tell me and I will keep going with it off. If you want to leave at any time, that’s fine too — I will just carry on talking to the other people in the group until we have finished.

Later on, the words on the tape will be typed out by a typist. Only I, my teachers and the person who did the typing will see this. After I have finished the report the tapes will be destroyed but the typed copy and photos will be stored securely for five years and then destroyed. (This is part of the rules of the University.) You can ask to see the notes.
When I am writing my report, I may write about some of the things that you have talked about, but I will not use your name, your team-mates’ names, or the name of your team or club.

If you have any worries or questions after the group discussion, you can come and talk to me, on your own or with a parent or guardian. I will keep everything private, unless I think another adult needs to know (for example, if I think you might not be safe, I might have to tell some other adults who can help us make you safe).

You will be able to keep a copy of your own photos. After we have finished our discussion group, you and the group will be provided with some food to thank you for agreeing to be junior researchers in my study.
Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether you and/or your child wish to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

What is the aim of the project?

This project is looking at the attitudes and perceptions of parents and children to the food environment – advertising and marketing of food and drink – in sport. I am particularly interested in the impact the environment has on children’s daily lives. I will be asking groups of children who are involved in rugby, netball and soccer, and parents or caregivers, to take photos of the food environment – food and beverages they associate with or see in sport, such as what the children eat or drink before and after practice and games, what food and drink are advertised and marketed in sport or anything else which is food and sport related. The photos will be used in group discussion about the research subject.

This project is part of my PhD study investigating the influence of the food environment in sport on children. It is also part of a larger project, the FEAST study, being conducted in the Department of Public Health, University of Otago, Wellington.

What type of participants are being sought?

The participants for this study are intermediate school-aged children and parents of intermediate school-aged children who participate in organised sport (netball, rugby and soccer).

What will participants be asked to do?

If you and/or your child agree to take part in this project, you and/or your child will be part of a group of team-mates or parents or caregivers taking photos of the food environment in sport. A briefing session to explain what you will be doing and distribute cameras to each participant will be held at the end of a practice session and will last about 20 minutes. Two weeks later, I will collect your camera and develop the photos. A group discussion, which will take about 45 minutes, will be held a week later where each photographer will be asked to select some of their photos to use in the discussion group. Refreshments will be provided at the discussion session, as well as childcare if necessary.
myself, there may be other people associated with the project present to assist with the group discussion.

**Can participants change their mind and withdraw from the project?**

You and/or your child may withdraw from participation in the project at any time and without any disadvantage of any kind.

**What data or information will be collected and what use will be made of it?**

The discussion will be tape recorded, and notes taken, so that I can analyse the discussion later.

As well as myself, my supervisor and a typist (who will type up the discussion) will have access to the data – recordings, photos and typed copy of discussion. The typist will be asked to sign a confidentiality agreement. The data collected will be securely stored and at the end of the project the audio tapes will be destroyed. The typed copies of the discussion and the photographs will be kept in secure storage for five years and then destroyed.

A set of general questions I want to ask the group in the discussion session has been reviewed by the University of Otago Human Ethics Committee. However, as this will be an open discussion it is not a complete list and the committee cannot review all the questions which may come up as a result of ideas raised in the group.

You will also be asked three brief questions which will provide information to describe the discussion group. This information will not be used to describe individuals, only to describe the group.

If you or your child feels uncomfortable answering any of the questions at any stage, you or your child can choose to stop talking or leave the room. You will be told you can do this at the beginning of the discussion.

The results of the project may be published and will be available in the University of Otago Library, Dunedin, New Zealand library. Any information published will have all identifying details, for example you or your child’s name, removed.

All participants will be given a copy of your photos and you are most welcome to request a copy of the results of the project should you wish.

**What if participants have any questions?**

If you have any questions about our project, either now or in the future, please feel free to contact either:-
Moira Smith  
PhD Candidate / Research Fellow  
Department of Public Health  
Email: moira.smith@otago.ac.nz  
Ph 04-806 1879 or 021 476 099

Assoc. Prof. Louise Signal  
Department of Public Health  
Email: louise.signal@otago.ac.nz  
Ph 04-385-5541 ext 6477

This study has been approved by the University of Otago Human Ethics Committee.
FEAST – Food Environment And SporT Study

What children and parents think about food and drink in sport

CONSENT TO HAVE PHOTGRAPH TAKEN

I know about the above project and I give my consent for my photo to appear in pictures taken by study participants. I understand the photos are for research purposes only.

Signature: ..................................................

Name: ....................................................

Date: .............
FEAST – Food Environment And SporT Study

What children and parents think about food and drink in sport

CONSENT FORM FOR CHILD

I understand that:

- I don’t have to take part in this research project if I don’t want to.

- Nothing will happen to me if I choose not to take part in the project.

- The researcher will be asking me to take photos of food and drink in sport and ask questions about what young people think about food and drink advertising in sport.

- There are no right or wrong answers and I don’t have to answer any questions if I don’t want to.

- I can ask the researcher to turn the tape off at any time and I will just keep talking with it off.

- I can leave any time I want to and they will just keep talking with the other people in the group.

- The researcher is writing a report for her University study.

- She will write about some of the things I’ve talked about but won’t use my name or the name of my club/team.

- The photos, tape and the copy of the words on the tape will only be seen by the researcher, her teacher and the typist.

- If I have any worries about my discussion I can talk to the researcher or her teacher about them.

- I agree to talk with the researcher and a group of other team-mates and to this talk being taped.

Signature.................................................... Date.....................................................

Name.......................................................... Club/Team........................................

This project has been reviewed and approved by the University of Otago Human Ethics Committee
FEAST – Food Environment And SporT Study

What children and parents think about food and drink in sport

PARENTAL/CAREGIVER CONSENT FORM FOR CHILD

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I can ask for further information at any stage.

I know that:-

1. My child’s participation in the project is entirely voluntary;

2. This study is looking at the impact food and beverage advertising in sport has on children;

3. I am free to remove my child from the project at any time without any disadvantage;

4. The typed copies of the tapes will be kept in secure storage for five years and then destroyed;

5. My child does not have to answer any of the questions if they don’t want too, and they can choose to leave the discussion at any time. They will be told this at the start of the discussion.

6. The researchers know the general areas that they want to cover but exactly what questions they ask will depend on what ideas the group brings up.

7. The results of the project may be published and will be available in the University of Otago library but any quotes used will have all identifying details like my child’s name removed.

I agree for my child to take part in this project.

Child’s name ............................... Child’s Team............................

Parent/caregiver signature............................. Date ..............................

Parent/caregiver name ..............................

This project has been reviewed and approved by the University of Otago Human Ethics Committee
FEAST – Food Environment And SporT Study

*What children and parents think about food and drink in sport*

**CONSENT FORM FOR PARENT/ CAREGIVER PARTICIPANTS**

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I can ask for further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. This study is looking at the impact food and beverage advertising in sport has on children;

3. I am free to remove myself from the project at any time without any disadvantage;

4. The photos and typed copies of the tapes will be kept in secure storage for five years and then destroyed;

5. I do not have to answer any of the questions if I don't want too, and I can choose to leave the discussion at any time. I will be told this at the start of the discussion.

6. The researchers know the general areas that they want to cover but exactly what questions they ask will depend on what ideas the group brings up.

7. The results of the project may be published and will be available in the University of Otago library but any quotes used will have all identifying details like my name removed.

I agree to take part in this project.

................................................  ...........................................
(Signature of parent/guardian)         (Date)

................................................
(Name of parent/guardian)

This project has been reviewed and approved by the University of Otago Human Ethics Committee
FEAST – Food Environment And SporT Study

What children and parents think about food and drink in sport

1. Which ethnic group do you/does your child belong to?  
(Mark the space or spaces which apply to you)

☐ New Zealand European
☐ Māori
☐ Samoan
☐ Cook Island Māori
☐ Tongan
☐ Niuean
☐ Chinese
☐ Indian
☐ Other (please specify Dutch, Japanese, Tokelauan etc)

2. What is your/your child’s gender?

☐ Male
☐ Female
☐

3. What is your address?

Street: ________________________________
Suburb: ______________________________
City: ________________________________

This project has been reviewed and approved by the University of Otago Human Ethics Committee
Appendix 7: Researcher Task Sheet

FEAST – Food Environment and SporT Study
Junior Researcher Task Sheet

What does a junior researcher do?

- Researchers usually have many questions about how things work or why things are the way they are. They do fieldwork - collect information in the community - to investigate or research a subject to find the answers to their questions.

- My research questions for this project are - "what food and drink items associated with or linked to sport do young people see?" and "what do young people think about those things and why?" As a junior researcher you will be helping me to answer these questions by doing fieldwork.

Your research task:

- We are going to use ‘photovoice’ for our fieldwork.

- Over the next two weeks, I would like you to take photos of the food or drink-related items you see which are associated with sport. It might be what you and your team-mates drink or eat at practice, games or tournaments. It might be sold where you play sport or where sport is played. Or you might think of other food-related things in the environment surrounding your sport such as advertisements or pictures in newspapers or magazines.

- On each page in your photovoice notebook, record what you took a photo of and a sentence about why you took it.

- Later, we will have a group discussion about the photos you have taken - to find some answers to my questions about food in sport.

Some tips:

- There is no right or wrong answer - whatever you do will be great.
• Remember to be considerate of other people when you take your photos.
• Instructions in your fieldwork notebook will remind you how to use the camera and take great photos 😊
• And........HAVE FUN!

Cameras collected: Group Discussion: