

Premier's Priority: Tackling childhood obesity

Reduce overweight and obesity rates of children by 5% over 10 years

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NSW Childhood Overweight and Obesity Premier's Priority

Annual Data Report 2016



Health

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Table of Contents

Introduction	4
Executive Summary	5
Chapter 1. Overview of childhood overweight and obesity in NSW	6
Prevalence of childhood overweight and obesity	6
Chapter 2. Social and behavioural risk factors associated with childhood overweight and obesity 10	
Fruit and vegetable consumption	10
Water consumption	12
Sugar-sweetened drink and fruit juice consumption	13
Consumption of energy-dense and nutrient-poor foods	14
Physical activity	16
Cardiorespiratory fitness	18
Sedentary behaviours	20
Breast feeding support	25
Chapter 3. Environmental factors associated with childhood overweight and obesity	27
Built environment	27
Food environment	35
Chapter 4. Health conditions associated with childhood overweight and obesity	36
Dental caries	36
Diabetes and high blood glucose	37
Maternal medical conditions	38
Data Sources and Explanations	39
Resources and Information	41
References	43

Introduction

In September 2015, the Hon. Mike Baird MP, Premier of NSW, announced his twelve Premier's Priorities, including the priority to reduce the rate of overweight and obesity in NSW children by 5% over 10 years. Achieving this target will result in a reduction of childhood overweight and obesity from 21.5% to 16.5% by 2025, leading to at least 62,000 fewer children being overweight or obese.

The NSW Ministry of Health leads the whole-of-government response to reducing childhood overweight and obesity in the state, including the monitoring and reporting of government actions against the target. The Ministry will regularly publish the following reports throughout the period of the Premier's Priority:

- **Program Performance Report Cards** will be published quarterly to report on progress of NSW Health programs contributing to the childhood overweight and obesity delivery plan.
- **Data Reports** will be published annually to report on the status of childhood overweight and obesity in NSW, together with other population indicators on associated health conditions and risk factors.

The **NSW Childhood Overweight and Obesity Premier's Priority: Annual Data Report 2016** contains four chapters:

- *Chapter 1* presents an overview of childhood overweight and obesity in NSW, including estimates of population prevalence.
- *Chapter 2* provides information on various social and behavioural factors that contribute to, or mitigate against, childhood overweight and obesity.
- *Chapter 3* provides data on environmental factors that contribute to childhood overweight and obesity.
- *Chapter 4* provides data on various health conditions associated with childhood overweight and obesity.

Implementation of the NSW Healthy Eating and Active Living Strategy 2013-2018 is the blueprint towards achieving reductions in childhood overweight and obesity. Enhancements to current efforts, together with the introduction of new initiatives, will be required to meet the Premier's Priority target by 2025.

More information on NSW Health and the Premier's Priorities can be found online (see: Resources and Information, page 41-42).

Executive Summary

In 2015, it was estimated that 22.0% of NSW children aged 5-16 years were overweight or obese (21.5% in 2014). The prevalence of overweight and obesity in children has been relatively stable in NSW since 2007, however the prevalence remains high and is a cause for concern.

Progress against the Premier's Priority target will be measured via the NSW Population Health Survey, reported annually. Prevalence of overweight and obesity as measured through the Population Health Survey is based on parental self-report of weight and height status of children. With a targeted reduction of 5% over 10 years, NSW aims to achieve a childhood overweight and obesity prevalence of 16.5% by 2025 (a reduction from 21.5% in 2014).

Overweight and obesity in NSW children aged 5-16 years (2015)	22.0%
Males	21.5%
Females	22.6%
Children aged 5-12 years	25.5%
Children aged 13-16 years	15.6%
Adequate daily physical activity among NSW children aged 5-15 years (2014-2015)	28.2%
Males	31.9%
Females	24.0%
Children aged 5-8 years	35.6%
Children aged 9-15 years	23.7%
Sedentary leisure activities (i.e. more than 2 hours per day) among NSW children aged 5-15 years (2014-2015)	41.5%
Males	46.7%
Females	35.9%
Children aged 5-8 years	31.6%
Children aged 9-15 years	47.4%
Recommended daily consumption of fruit among NSW children aged 2-15 years (2014-2015)	68.8%
Males	70.2%
Females	67.3%
Children aged 2-8 years	77.4%
Children aged 9-15 years	60.0%
Recommended daily consumption of vegetables among NSW children aged 2-15 years (2014-2015)	7.7%
Males	6.3%
Females	9.2%
Children aged 2-8 years	10.6%
Children aged 9-15 years	4.8%

Source: NSW Population Health Survey (SAPHaRI).
Centre for Epidemiology and Evidence, NSW Ministry of Health.

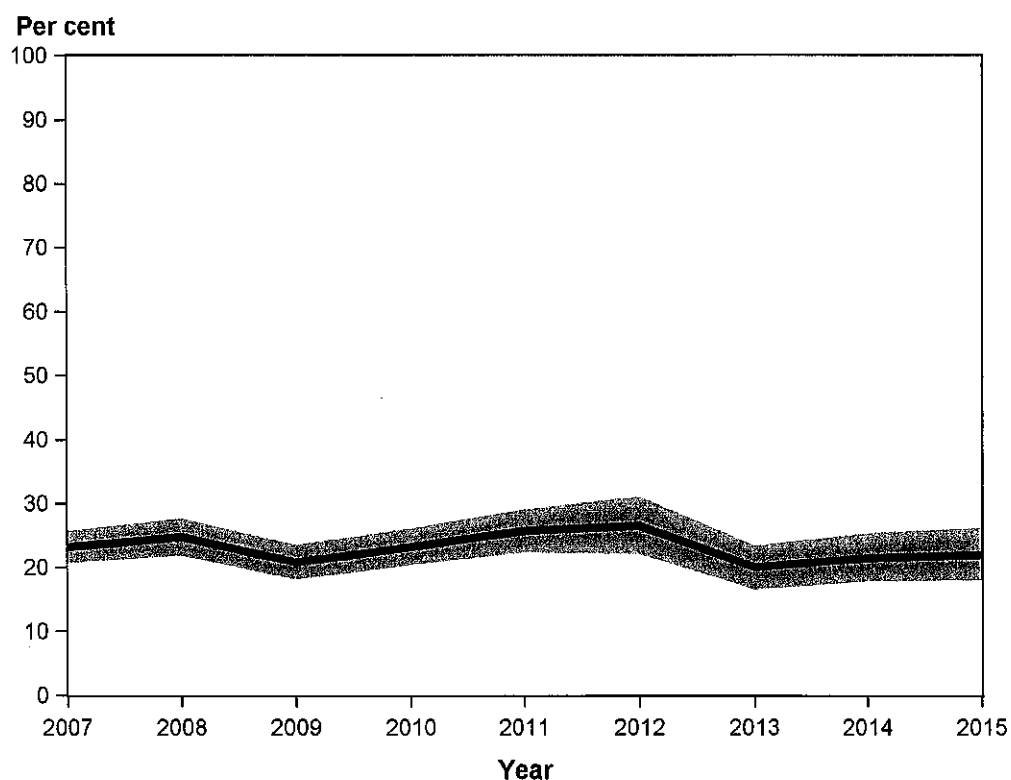
Chapter 1

Overview of childhood overweight and obesity in NSW

Prevalence of childhood overweight and obesity

The prevalence of overweight and obesity in children has been relatively stable in NSW since 2007, with an estimated prevalence of 22.0% among 5-16 year old children in 2015 (15.0% overweight and 7.0% obese). However, the prevalence of overweight and obesity remains high and is a cause for concern.

Figure 1. Overweight and obesity in children aged 5-16 years, overall trend, NSW 2007-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

In 2015, 21.5% of males and 22.6% of females aged 5-16 years in NSW were estimated to be overweight or obese. Differences in year-on-year prevalence estimates in 2007-2015 between males and females, however, have not been significant.

Differences in year-on-year prevalence estimates in 2007-2015 between younger children (5-12 years) and teenaged children (13-16 years) have generally not been significant. In 2015, 25.5% of children aged 5-12 years and 15.6% of children aged 13-16 years were estimated to be overweight or obese.

Figure 1A. Overweight and obesity in children aged 5-16 years, by sex, NSW 2007-2015

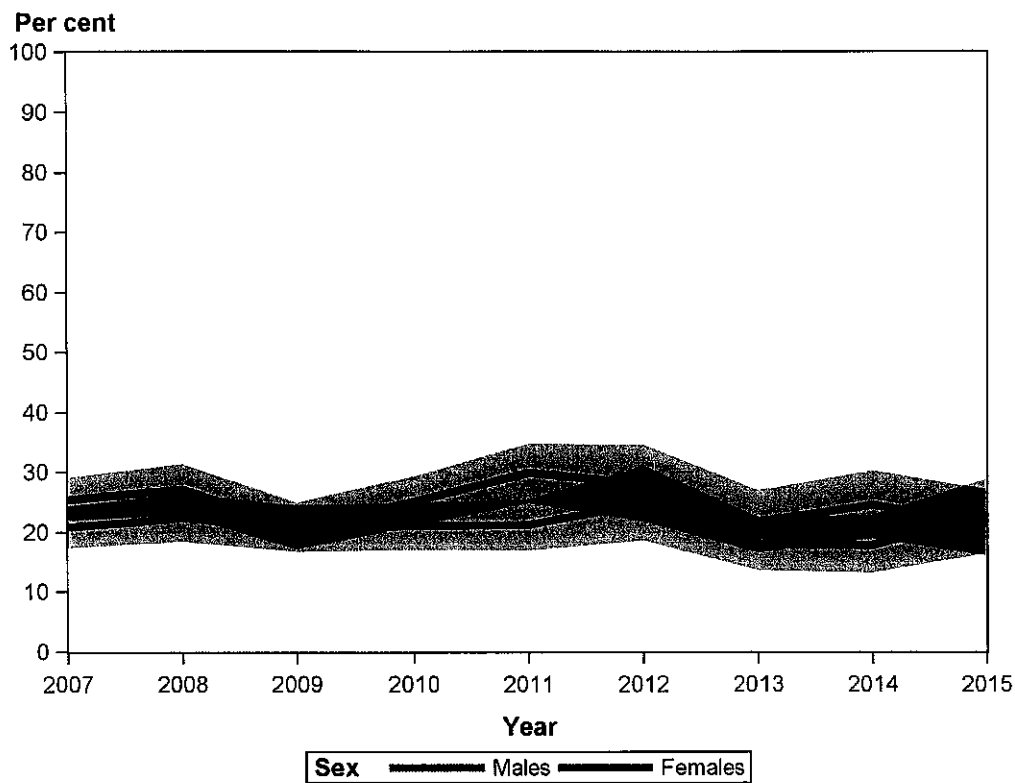
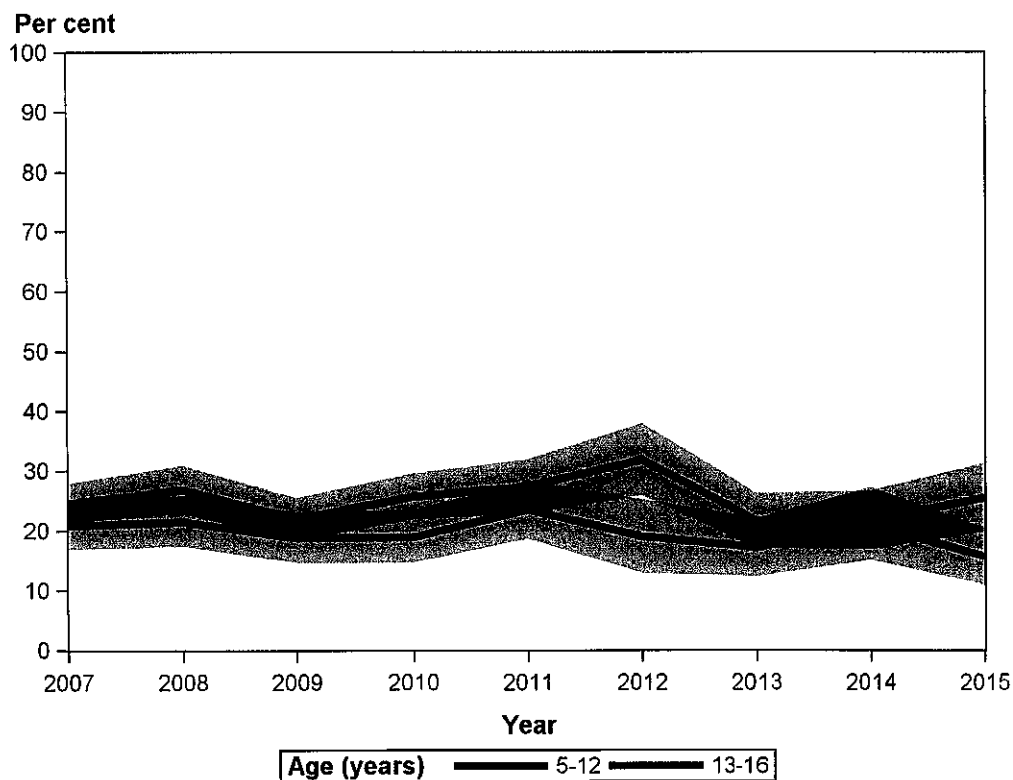
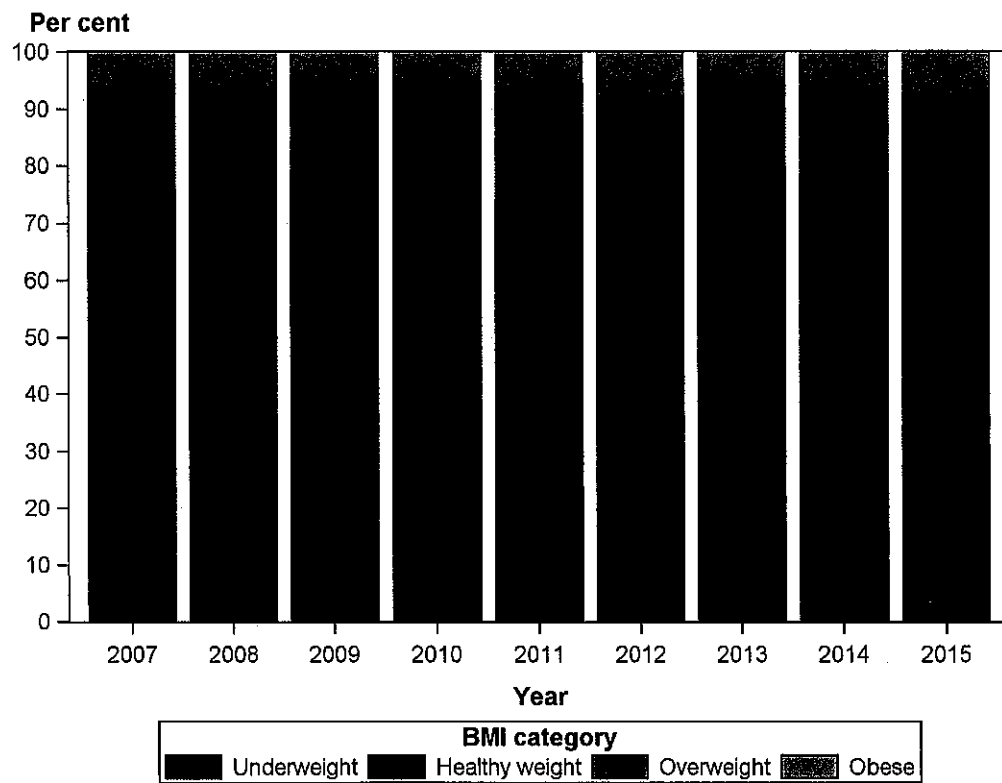


Figure 1B. Overweight and obesity in children aged 5-16 years, by age, NSW 2007-2015



Source: NSW Population Health Survey (SAPHARI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Figure 2. Body Mass Index categories of children aged 5-16 years, NSW 2007-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

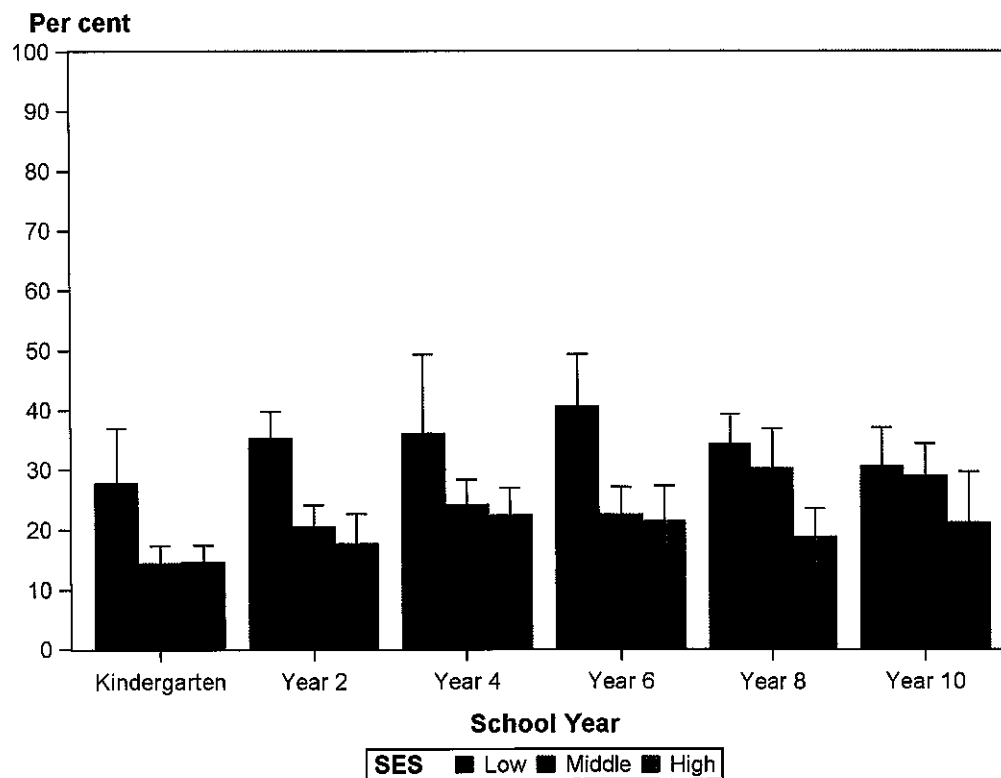
Prevalence of overweight and obesity in children is additionally estimated through the NSW Schools Physical Activity and Nutrition Survey (SPANS). SPANS provides overweight and obesity data on a representative sample of NSW school children, Kindergarten to Year 10, via school-based surveys conducted in 1985, 1997, 2004, 2010 and 2015.

The estimated prevalence of overweight and obesity among children, based on SPANS 2015, is 24.5%. Differences in prevalence estimates between the NSW Population Health Survey and SPANS are due to methodological differences in data collection. However, similarly to the Population Health Survey, SPANS trend data also indicates that childhood overweight and obesity has been relatively stable in NSW.

Findings from SPANS 2015 also indicate that:

- Overweight and obesity significantly increased among NSW children aged 5-16 years from low socioeconomic backgrounds (27.3% in 2010 to 33.7% in 2015)
- Estimated prevalence of overweight and obesity was significantly higher among NSW primary school children from low socioeconomic backgrounds (34.9%) compared with primary school children from high socioeconomic backgrounds (18.9%)
- Children in NSW from low and middle socioeconomic backgrounds were more likely to be in the overweight or obese BMI categories (33.7% and 23.4% respectively), compared with children from high socioeconomic backgrounds (19.3%).

Figure 3. Overweight and obesity in school-aged children, Kindergarten to Year 10, by socioeconomic status, NSW 2015



Source: Hardy LL, Mihrshahi S, Drayton BA, Bauman A. *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2015: Full Report*. 2016, Sydney, NSW Ministry of Health.

Chapter 2

Social and behavioural risk factors associated with childhood overweight and obesity

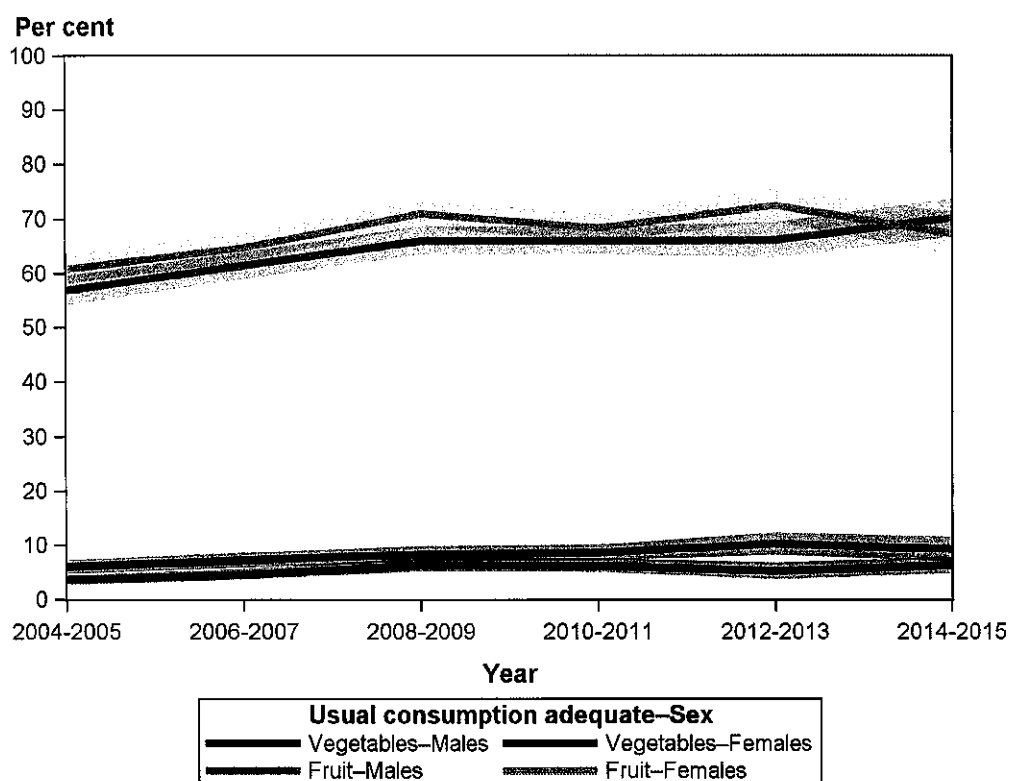
Fruit and vegetable consumption

Adequate fruit and vegetable consumption is strongly linked to the prevention of chronic disease and to better health. Inadequate fruit and vegetable consumption was estimated to be respectively responsible for 2.0% and 1.4% of the total burden of disease in Australia in 2011,¹ and is associated with overweight and obesity, as well as conditions such as coronary heart disease, some cancers, type 2 diabetes, dental caries, gall bladder disease and diverticular disease.

Recommended daily servings of fruit and vegetables are described in the Australian Dietary Guidelines (National Health and Medical Council, 2013), with data in Figures 4 and 5 reflecting the latest updates to these guidelines.

It is estimated that, in 2014-2015, 68.8% of children in NSW aged 2-15 years consumed the recommended number of serves of fruit per day for their age group, while 7.7% of children aged 2-15 years consumed the recommended number of serves of vegetables per day for their age group.

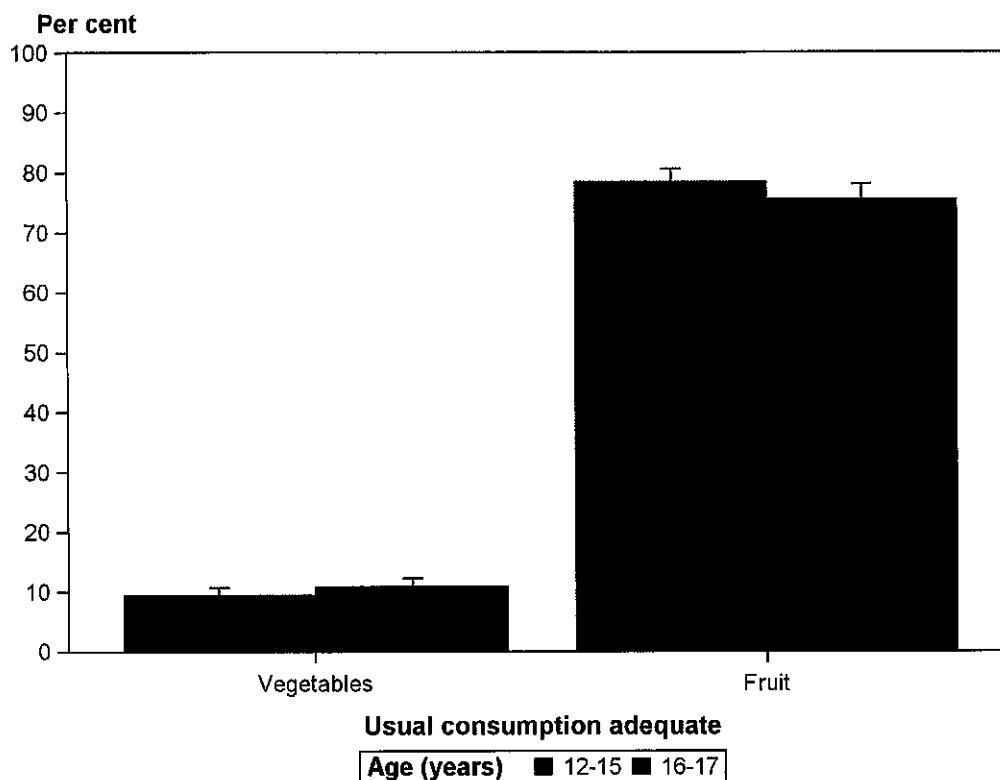
Figure 4. Fruit and vegetables: recommended daily consumption among children aged 2-15 years, NSW 2004-2005 to 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

The NSW School Students Health Behaviours Survey 2014 estimated that 77.7% of students aged 12-17 years consumed the recommended number of serves per day of fruit and 9.9% of students aged 12-17 years consumed the recommended number of serves per day of vegetables.

Figure 5. Fruit and vegetables: adequate consumption among secondary school students aged 12-17 years, by age, NSW 2014



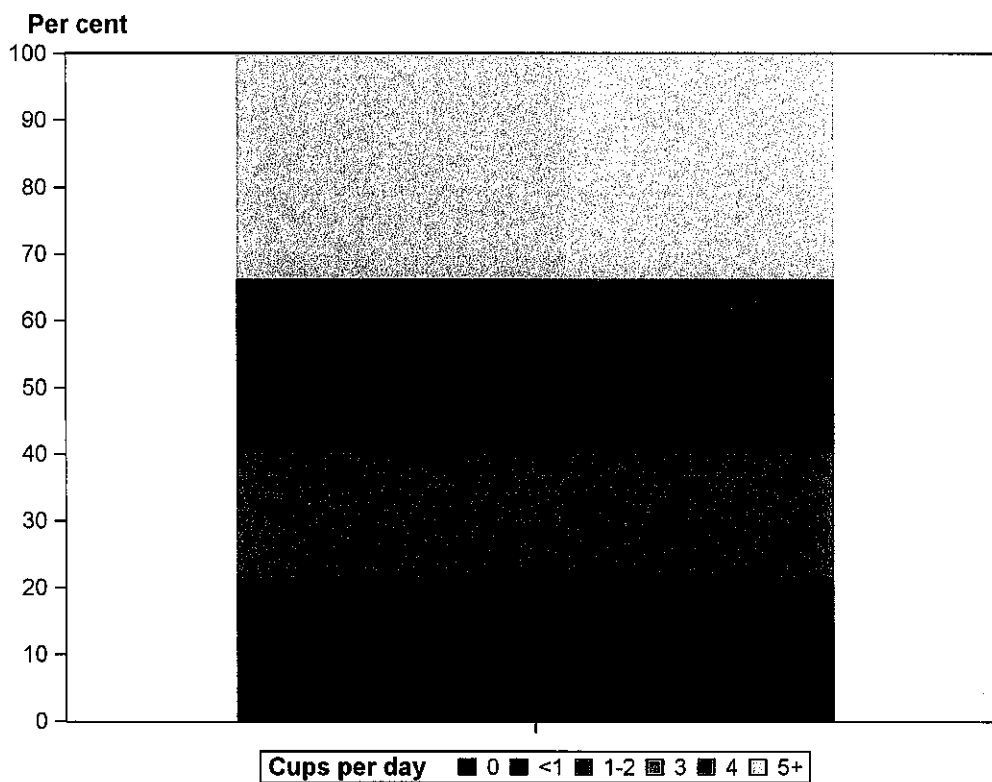
Source: NSW School Students Health Behaviours Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Water consumption

Water is an essential component of a healthy diet and not drinking enough water has been linked with poorer health outcomes, including obesity² and reduced cognitive control in children.³ The Australian Dietary Guidelines recommend the consumption of plenty of water while limiting the intake of sugar-sweetened drinks.⁴

In 2014-2015, it was estimated that more than half of NSW children aged 2-15 years (59.9%) consume 4 or more cups of water per day, with only a small proportion of children consuming less than 1 cup (or no cups) of water per day (1.4%).

Figure 6. Daily water consumption among children aged 2-15 years, NSW 2014-2015



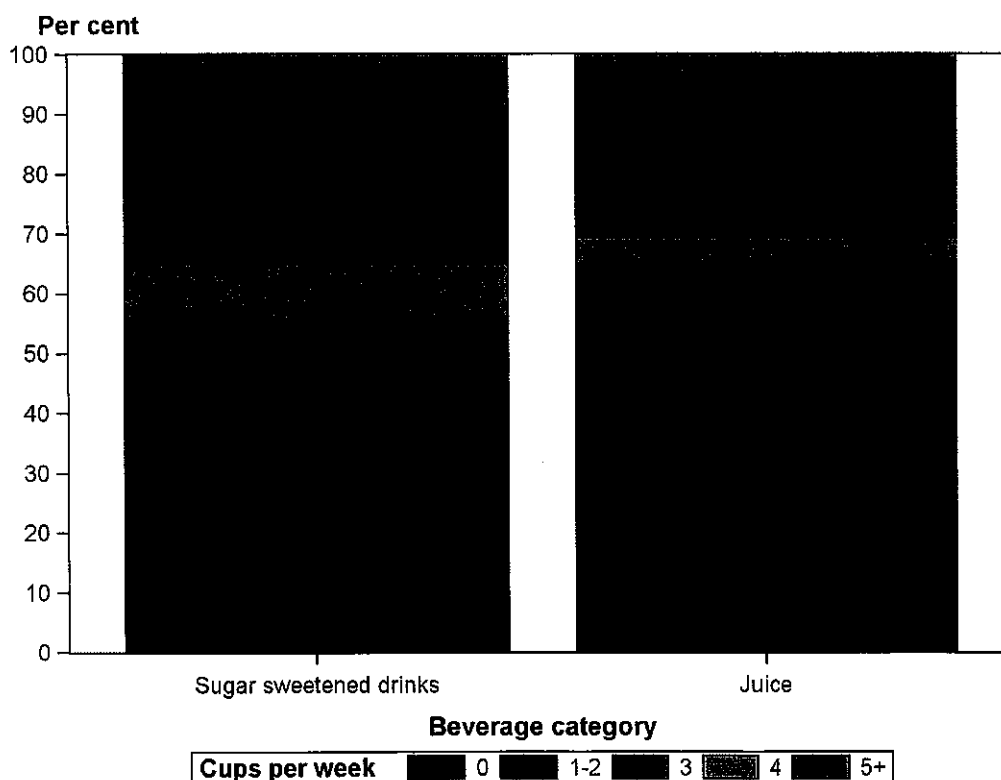
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Sugar-sweetened drink and fruit juice consumption

The Australian Dietary Guidelines recommend limiting the consumption of fruit juice and discouraging the consumption of sugar-sweetened drinks among children.⁴ Evidence indicates that high fruit juice consumption among children is associated with an increased risk of childhood overweight and obesity.⁵ Similarly, increased consumption of sugar-sweetened drinks – particularly soft drinks – has been associated with lower intakes of various nutrients as well as an increased risk in health conditions such as weight gain and obesity, diabetes and dental caries.^{6,7}

In 2014-2015, about one-third (35.0%) of children in NSW usually consume 5 or more cups of sugar-sweetened drinks per week, with a similar proportion (30.6%) usually consuming 5 or more cups of fruit juice per week. Notably, about 1 in 10 children (9.4%) do not usually consume any sugar-sweetened drinks per week, and around 4 in 10 children (38.5%) do not usually consume fruit juice on a weekly basis.

Figure 7. Weekly consumption of sugar-sweetened drinks and fruit juice among children aged 2-15 years, NSW 2014-2015



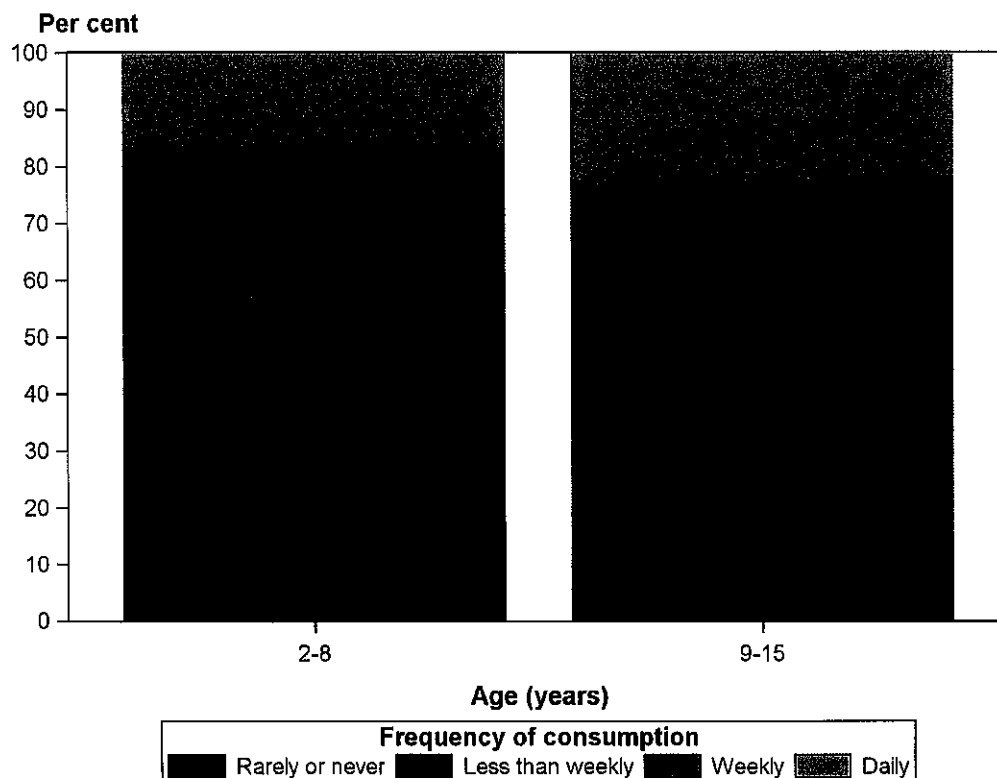
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Consumption of energy-dense and nutrient-poor foods

The Australian Dietary Guidelines recommend limiting the amount and frequency of consumption of foods and drinks that are energy-dense, nutrient-poor, and often high in fat, salt and sugar ('discretionary choice' food products).⁴

Figures 8 and 9 provide data on consumption of unhealthy snacks and fast foods among children in NSW aged 2-15 years. For these indicators, 'unhealthy snacks' include hot fried potato snacks, baked goods and salty snacks, and 'fast food' includes take away products. In 2014-2015, there was a significant difference by age group in the proportion of NSW children who were daily consumers of unhealthy snacks (23.0% of children aged 9-15 years consumed unhealthy snacks on a daily basis, compared with 16.3% of children aged 2-8 years).

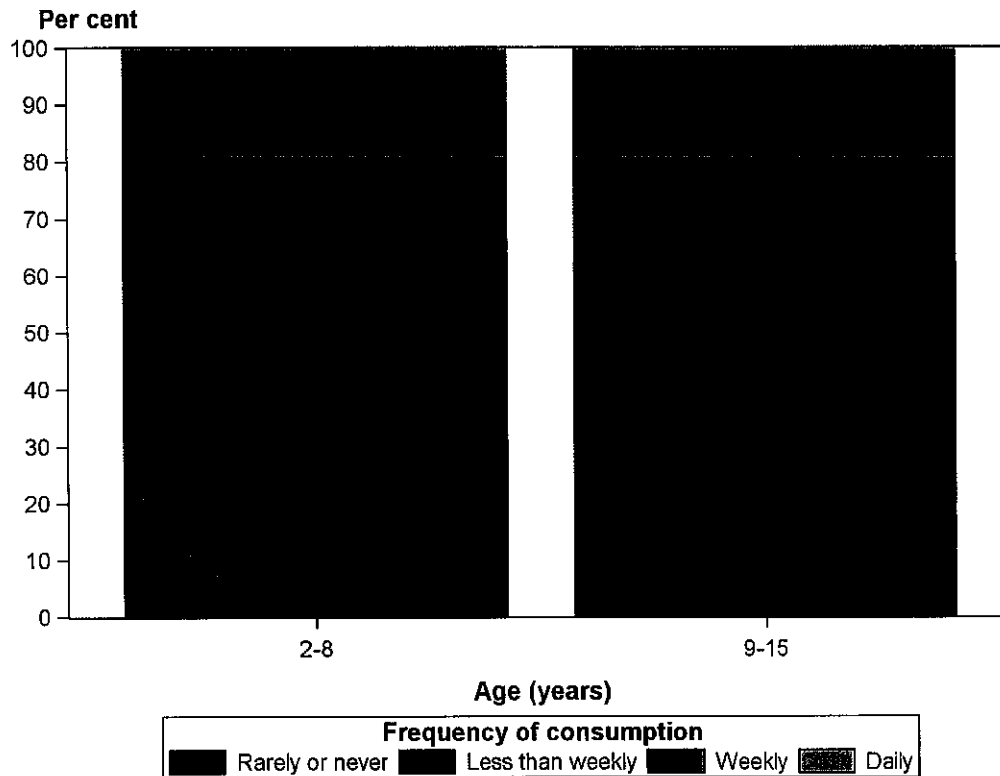
Figure 8. Consumption of unhealthy snacks among children aged 2-15 years, by age, NSW 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

In 2014-2015, it was estimated that about two-thirds of children in NSW consumed fast food on a weekly basis (31.5% of children aged 2-8 years; 37.3% of children aged 9-15 years). There was a significant difference by age group in the proportion of children who rarely or never consumed fast foods (26.8% of children aged 2-8 years rarely or never consumed fast foods or take away, compared with 19.8% of children aged 9-15 years).

Figure 9. Consumption of fast food among children aged 2-15 years, by age, NSW 2014-2015



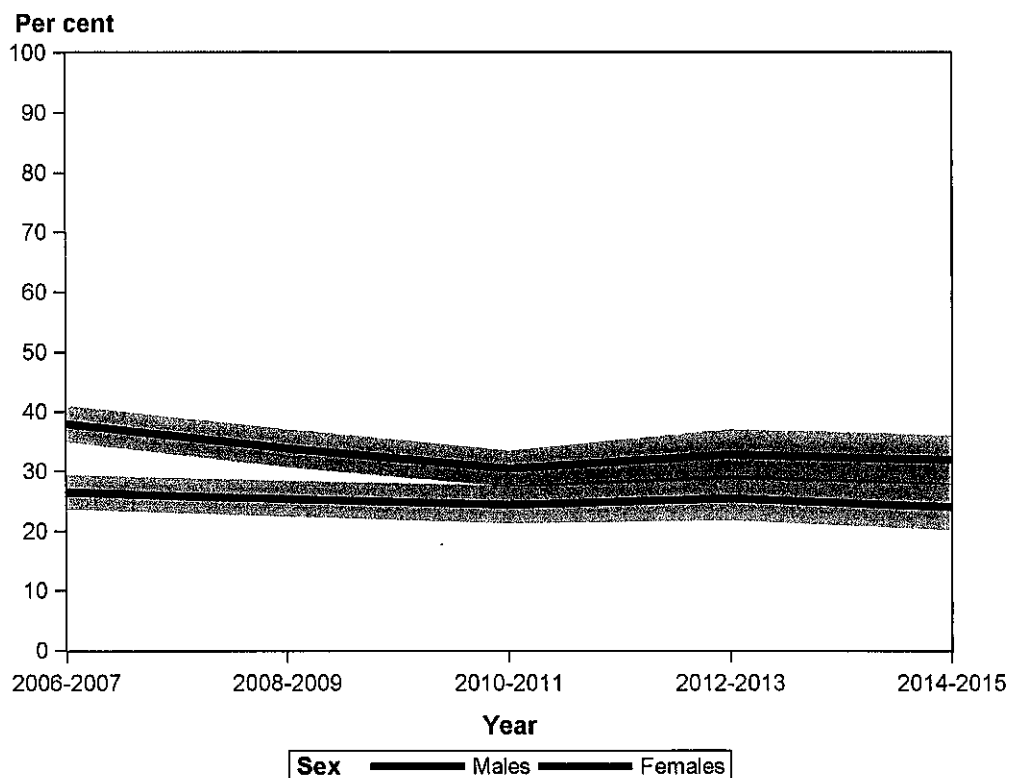
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Physical activity

There is strong evidence for the beneficial effects of moderate to vigorous physical activity on children’s musculoskeletal and cardiovascular health, adiposity, blood lipid levels, social and mental health, and academic performance.⁸

The Australian recommendation for physical activity in young people is at least 60 minutes of moderate to vigorous intensity physical activity every day,^{9,10} and the definition of ‘adequate physical activity’ in Figures 10 and 10A reflects these recommendations (i.e. one hour or more of moderate or vigorous physical activity outside of school hours each day). It is estimated that over a quarter of children in NSW aged 5-15 years (28.2%) achieved adequate levels of physical activity in 2014-2015 (31.9% of males; 24.0% of females).

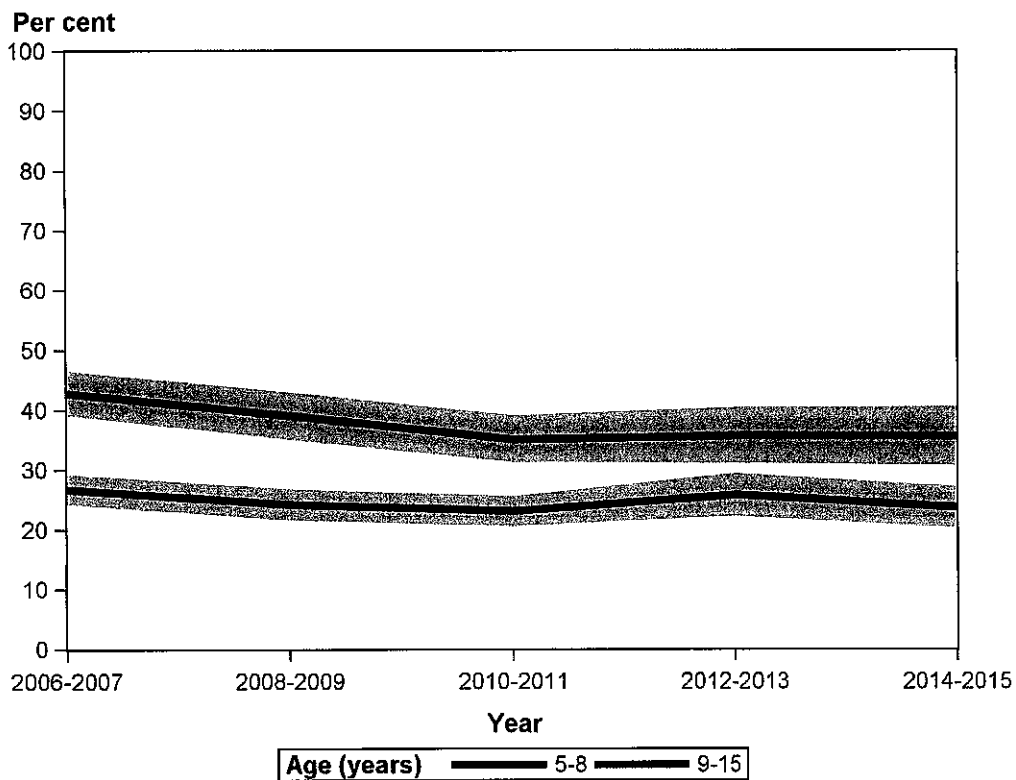
Figure 10. Adequate physical activity among children aged 5-15 years, by sex, NSW 2006-2007 to 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Since 2006-2007, children in NSW aged 5-8 years have been achieving significantly higher levels of adequate physical activity in comparison with children aged 9-15 years. In 2014-2015, around a third of children (35.6%) aged 5-8 years and a quarter of children (23.7%) aged 9-15 years achieved adequate levels of physical activity per day.

Figure 10A. Adequate physical activity among children aged 5-15 years, by age, NSW 2006-2007 to 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

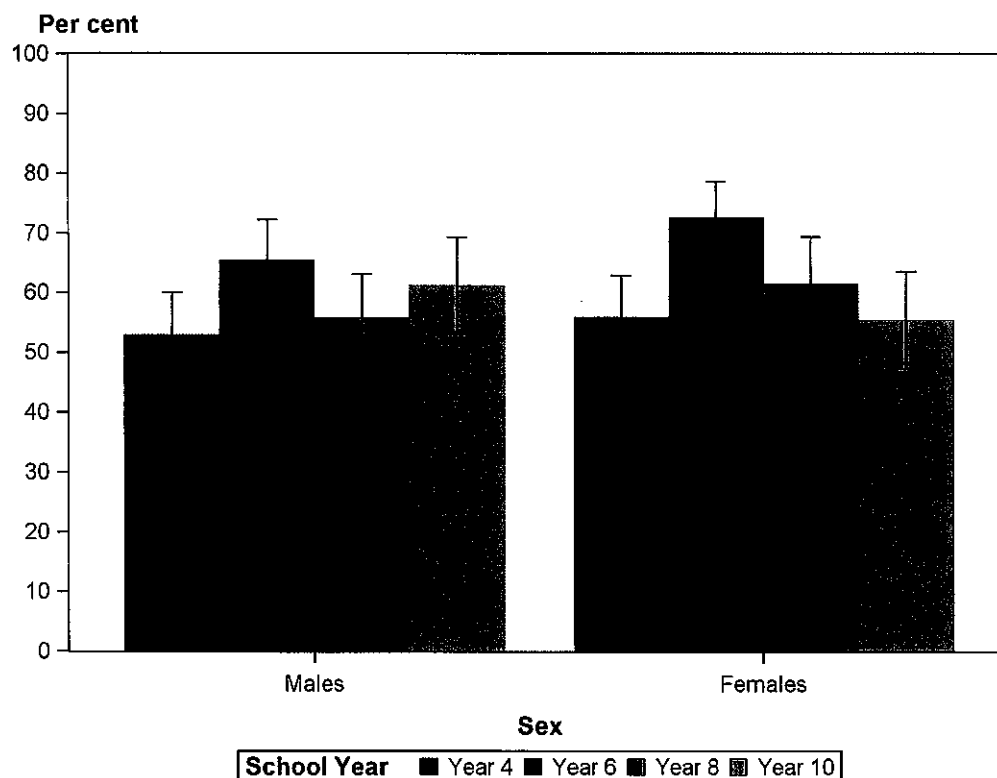
Cardiorespiratory fitness

Cardiorespiratory fitness was assessed by SPANS using the 20 metre shuttle run test. The test assesses the minimum level of cardiorespiratory fitness that protects against diseases resulting from inactivity or sedentary living, categorising children in the ‘healthy fitness zone’ or ‘needs improvement zone’ according to the age- and sex-adjusted, criterion-referenced standards developed by the Cooper Institute for Aerobics Research.¹¹

In 2015, approximately two-thirds (62.6%) of NSW primary school-aged children in Years 4 and 6 had adequate levels of cardiorespiratory fitness. Adequate cardiorespiratory fitness was significantly higher among primary school-aged females (65.4%) compared with primary school-aged males (59.9%). There were no significant changes in adequate cardiorespiratory fitness between 2010 and 2015 for primary school-aged children.

Adequate cardiorespiratory fitness for secondary school-aged adolescents was estimated at 58.5% in 2015. There were no significant differences between adolescent males and females, or any significant changes in prevalence for secondary school-aged adolescents from 2010 to 2015. Notably, adequate cardiorespiratory fitness was significantly lower among adolescents from low socioeconomic backgrounds (51.9%), compared with adolescents from high socioeconomic backgrounds (65.8%).

Figure 11. Adequate cardiorespiratory fitness among school-aged children, Years 4-10, by sex, NSW 2015



Source: Hardy LL, Mihrshahi S, Drayton BA, Bauman A. *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2015: Full Report*. 2016, Sydney, NSW Ministry of Health.

Figure 11A. Adequate cardiorespiratory fitness among school-aged males, Years 4-10, by Body Mass Index category, NSW 2015

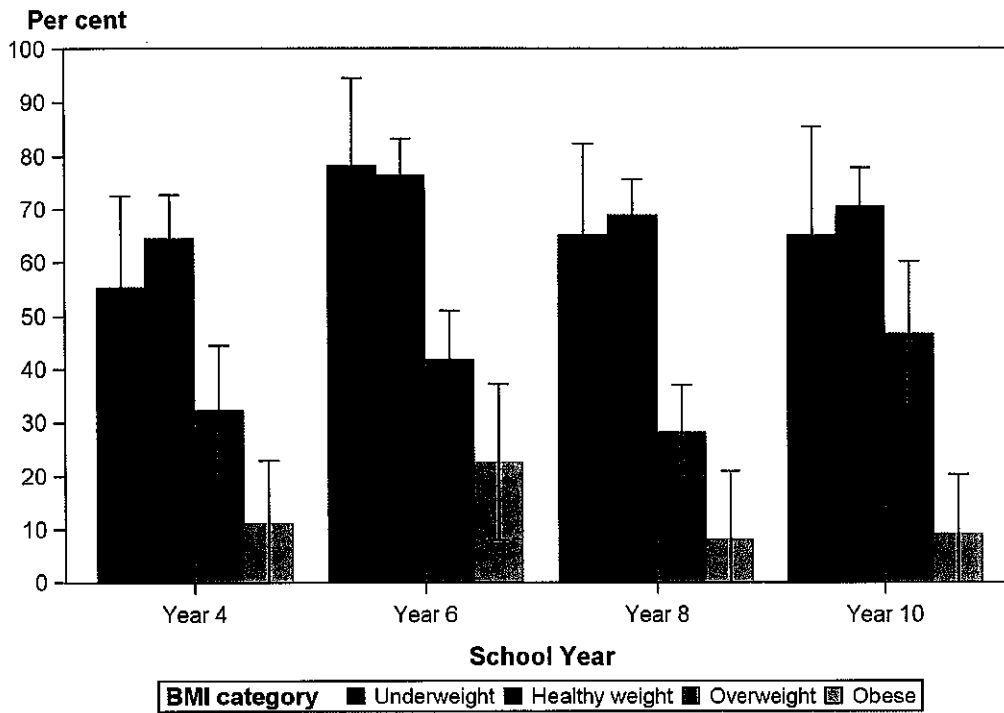
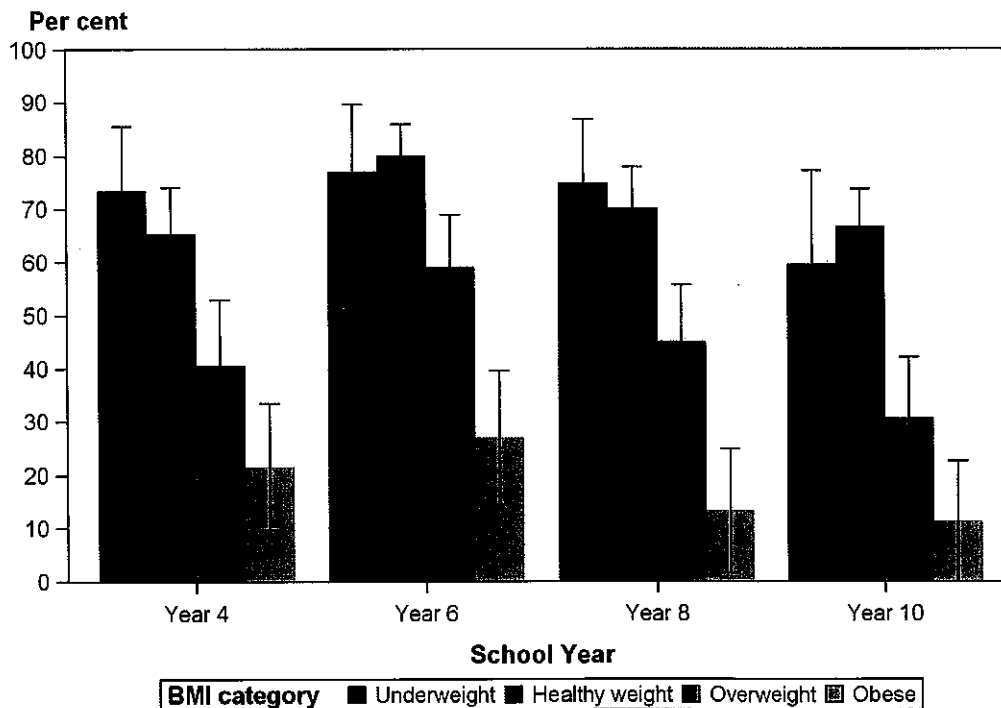


Figure 11B. Adequate cardiorespiratory fitness among school-aged females, Years 4-10, by Body Mass Index category, NSW 2015

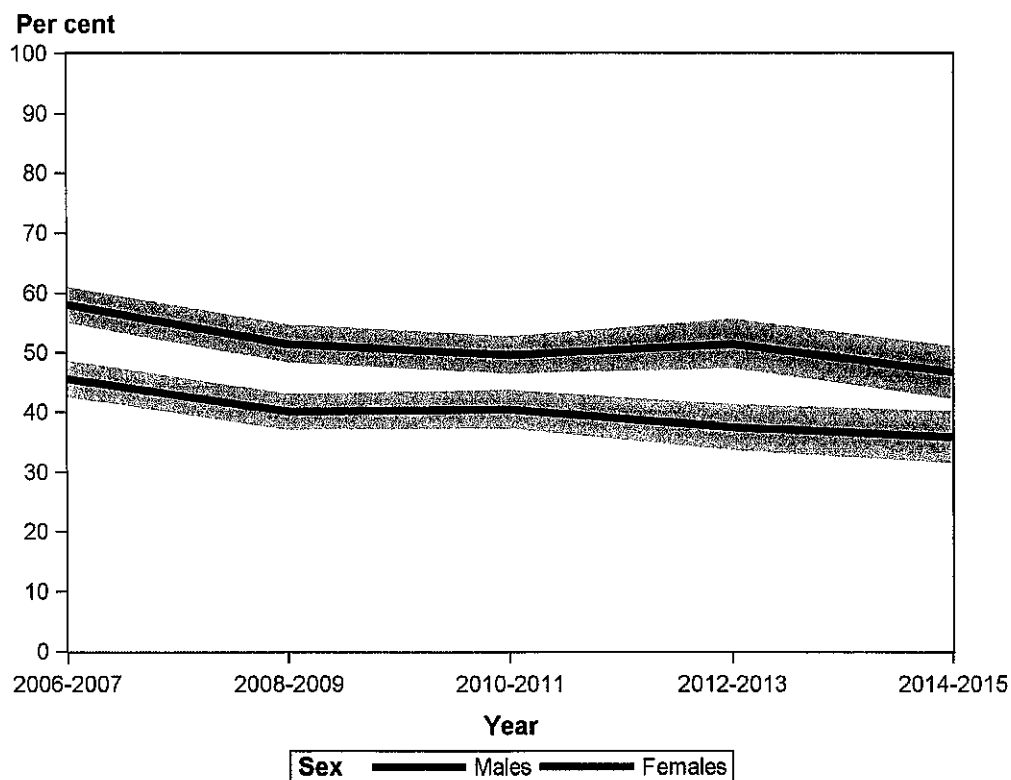


Source: Hardy LL, Mhrshahi S, Drayton BA, Bauman A. *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2015: Full Report*. 2016, Sydney, NSW Ministry of Health.

Sedentary behaviours

Sedentary behaviours are characterised as behaviours while sitting or lying that result in low energy expenditure (not including sleep),¹² and it is important to understand childhood sedentary behaviours as evidence has shown that these behaviours tend to continue across the lifecourse.¹³ For Figures 12, 12A, 13 and 13A, 'sedentary behaviours' are defined as sedentary leisure activities that exceed 2 hours per day. In 2014-2015, it was estimated that 41.5% of NSW children aged 5-15 years (46.7% of males and 35.9% of females) spent more than 2 hours per day on sedentary leisure. Daily sedentary behaviours were significantly higher in children aged 9-15 years (47.4%) in comparison with children aged 5-8 years (31.6%).

Figure 12. Sedentary behaviours among children aged 5-15 years, by sex, NSW 2006-2007 to 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Figure 12A. Sedentary behaviours among children aged 5-15 years, by age, NSW 2006-2007 to 2014-2015

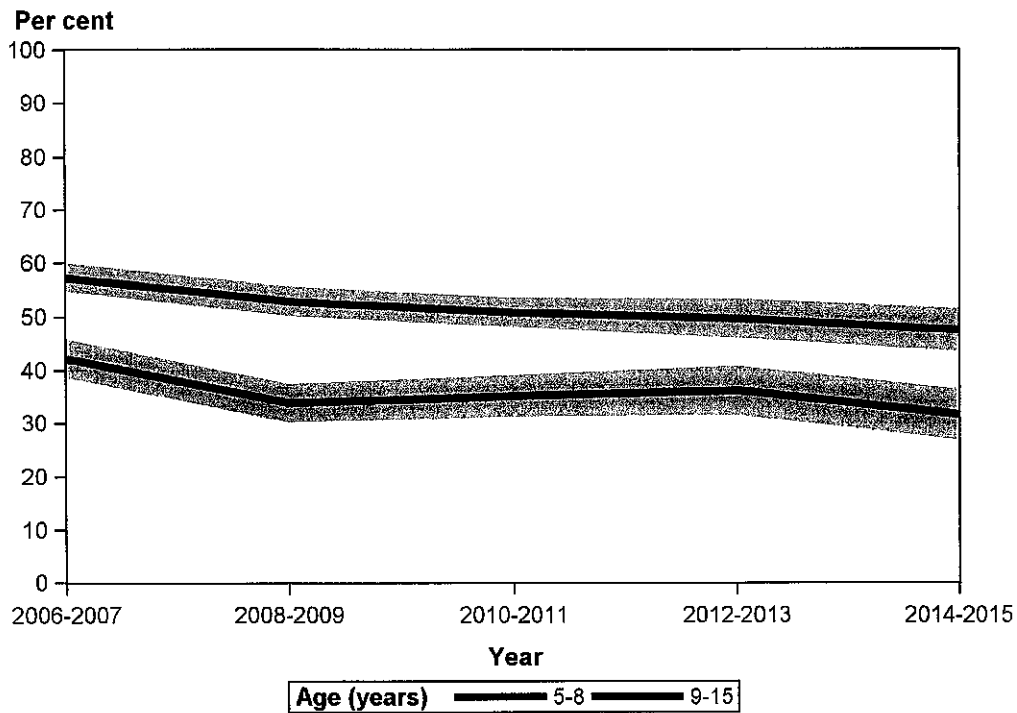
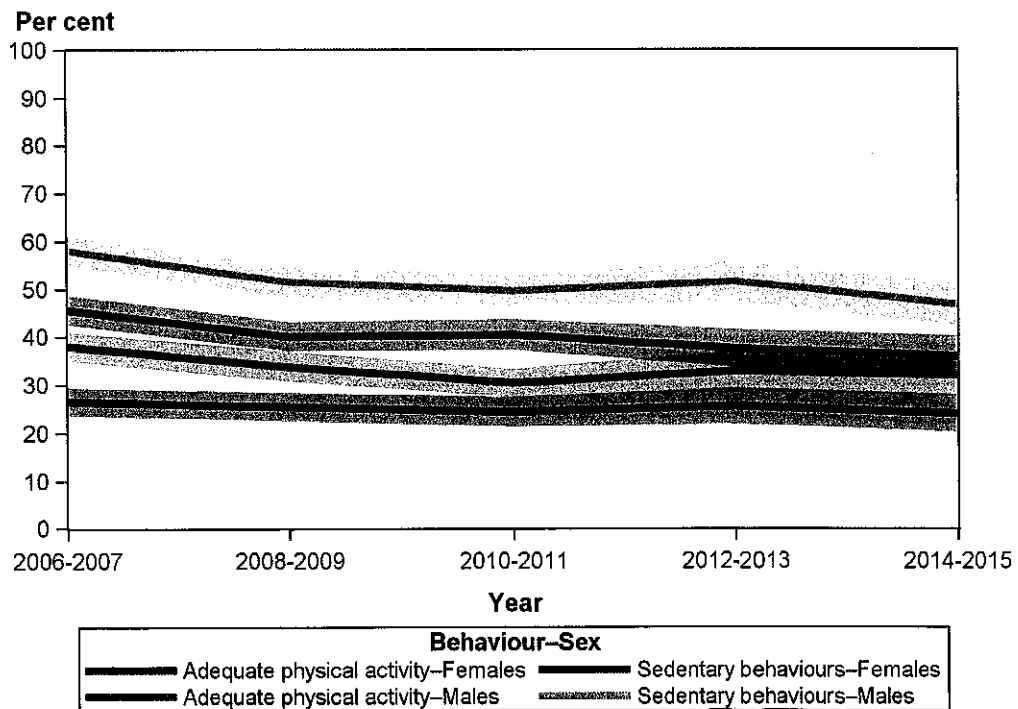
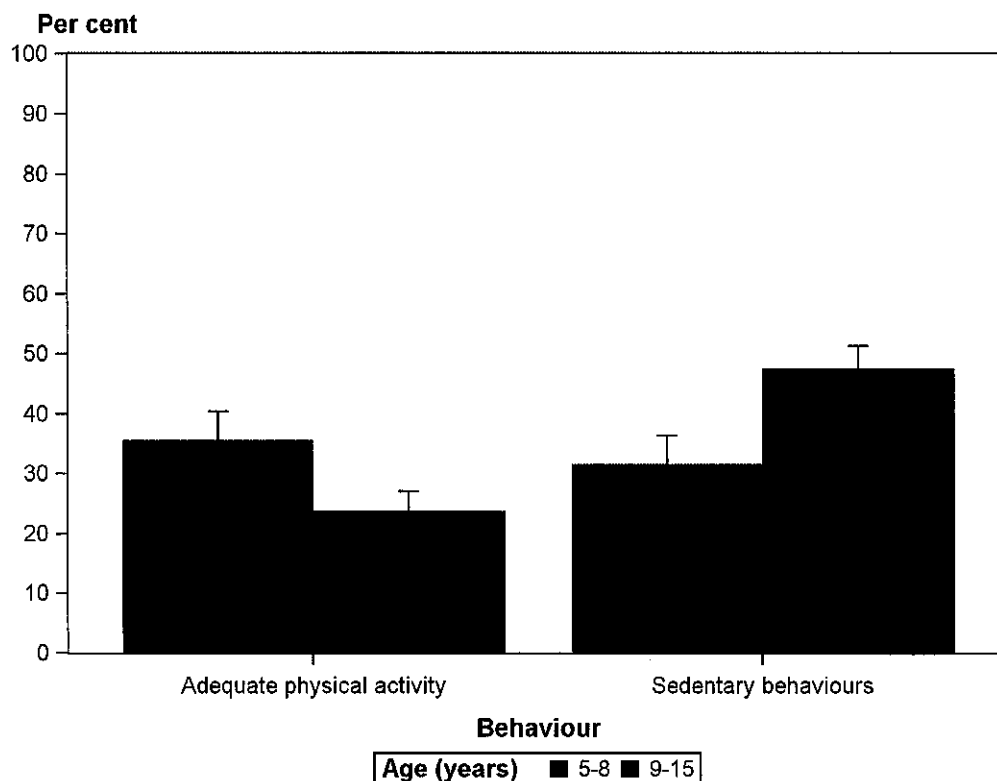


Figure 13. Adequate physical activity and sedentary behaviours among children aged 5-15 years, by sex, NSW 2006-2007 to 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Figure 13A. Adequate physical activity and sedentary behaviours among children aged 5-15 years, by age, NSW 2014-2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Health concerns about prolonged sitting are based on research which shows sedentary behaviours are associated with an increased risk of cardio-metabolic disease, all-cause mortality and a variety of physiological and psychological problems, independent of physical activity level.¹⁴ Research shows that decreasing any time sitting is associated with lower health risks in children aged 5-17 years. In particular, the research suggests that watching television for more than 2 hours a day is associated with reduced physical and psychosocial health, and that lowering time spent sitting among young people leads to reductions in body mass index.¹⁵

In 2015, among NSW children aged 5-16 years, the median sitting time was 3 hours 43 minutes on a weekday (outside of school hours) and 6 hours 40 minutes on a weekend day.

Figure 14. Median total daily sitting time on a week day, outside of school hours, among school-aged males, Kindergarten to Year 10, by school year and BMI category, NSW 2015

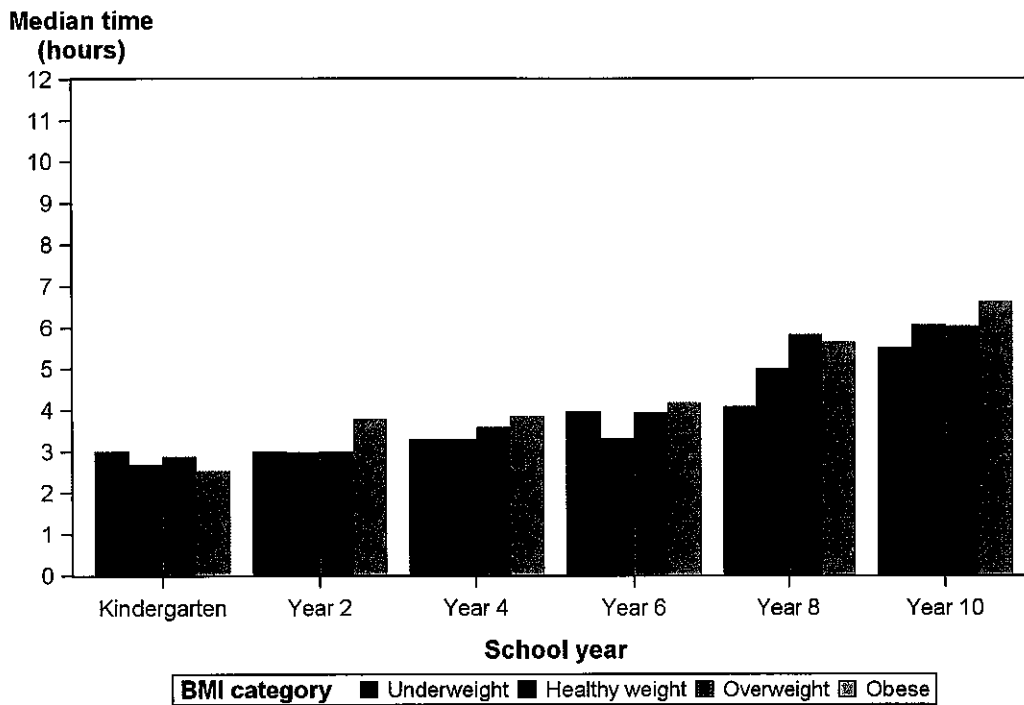
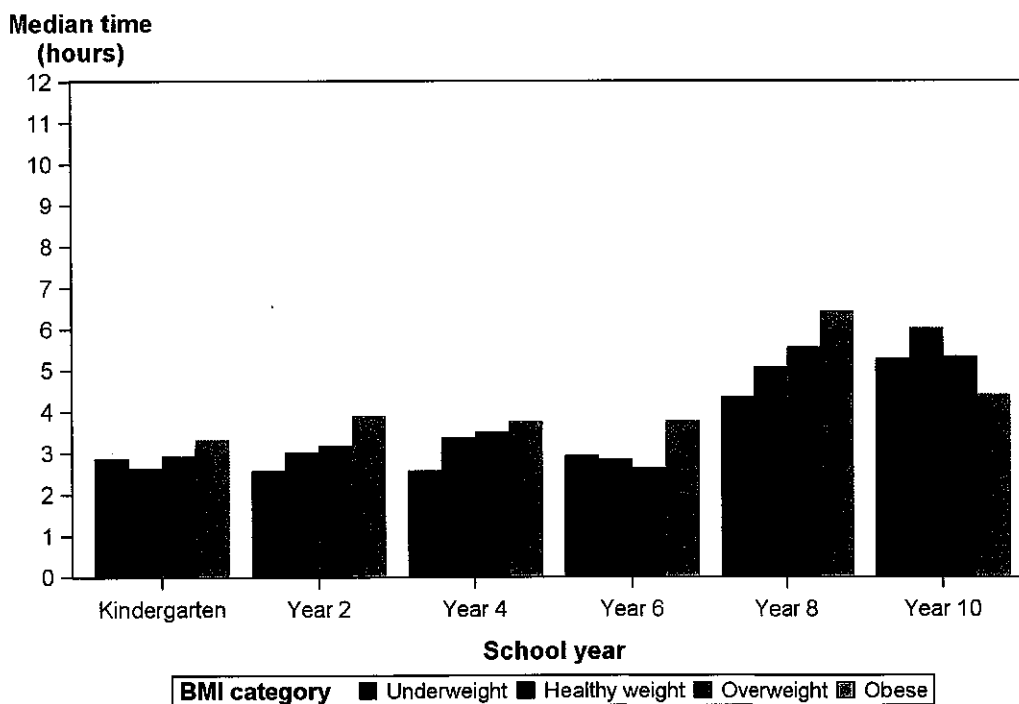


Figure 14A. Median total daily sitting time on a week day, outside of school hours, among school-aged females, Kindergarten to Year 10, by school year and BMI category, NSW 2015



Source: Hardy LL, Mihrshahi S, Drayton BA, Bauman A. *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2015: Full Report*. 2016, Sydney, NSW Ministry of Health.

Figure 14B. Median total daily sitting time on a weekend day among school-aged males, Kindergarten to Year 10, by school year and BMI category, NSW 2015

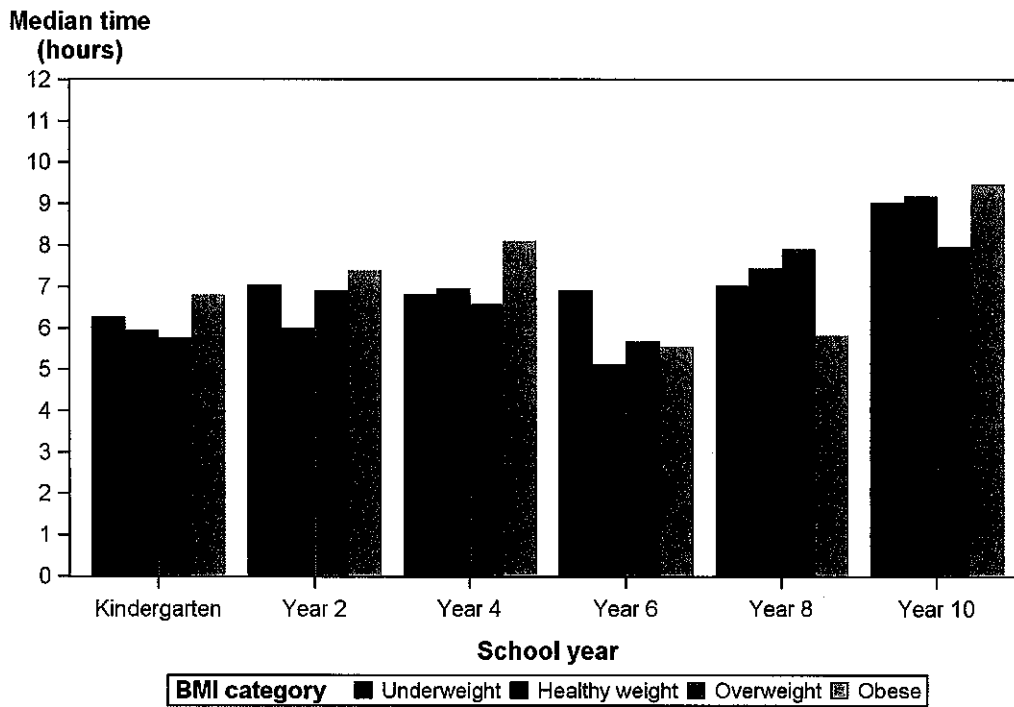
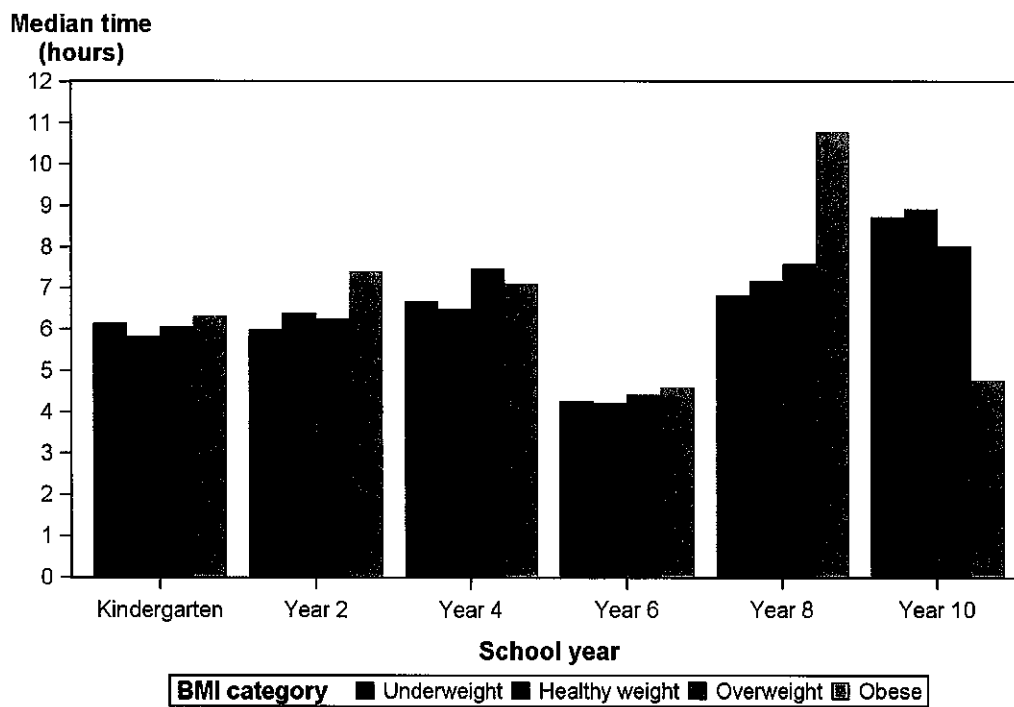


Figure 14C. Median total daily sitting time on a weekend day among school-aged females, Kindergarten to Year 10, by school year and BMI category, NSW 2015



Source: Hardy LL, Mihrshahi S, Drayton BA, Bauman A. *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2015: Full Report*. 2016, Sydney, NSW Ministry of Health.

Breast feeding support

A number of studies have indicated that breast feeding is a protective factor against childhood obesity,¹⁶ with the World Health Organization recommending that children up to the age of six months be exclusively breastfed.¹⁷

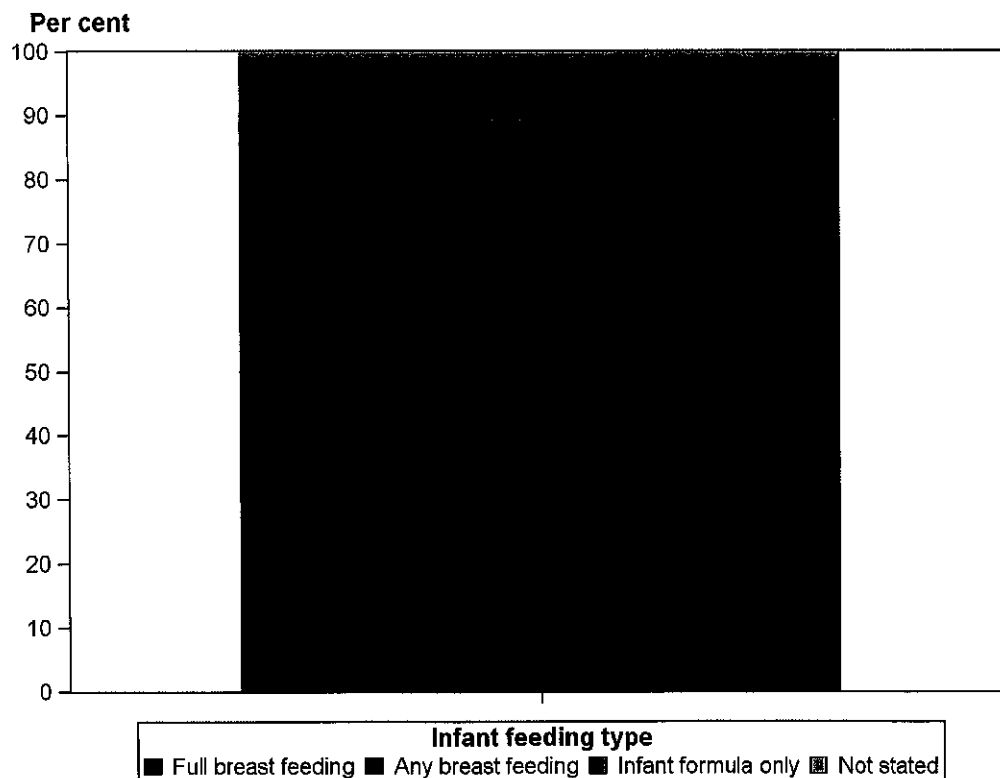
For Figures 15 and 15A, data includes all live births in NSW regardless of a mother’s permanent place of residence.

In Figure 15, infant feeding has been classified into three categories:

- *full breast feeding*, which includes babies who were reported to be breastfed or to be receiving expressed breastmilk
- *any breast feeding*, which includes babies who were reported to be receiving breastmilk and infant formula
- *infant formula only*, which includes all infants who received formula only and were not breastfed.

In 2014, almost 8 out of 10 (78.6%) infants born in NSW were fully breastfed at discharge from hospital, with just over 1 in 10 (10.5%) infants reported to have been receiving both breastmilk and infant formula. About 1 in 10 (9.9%) infants were only receiving infant formula at hospital discharge (1.1% were not stated).

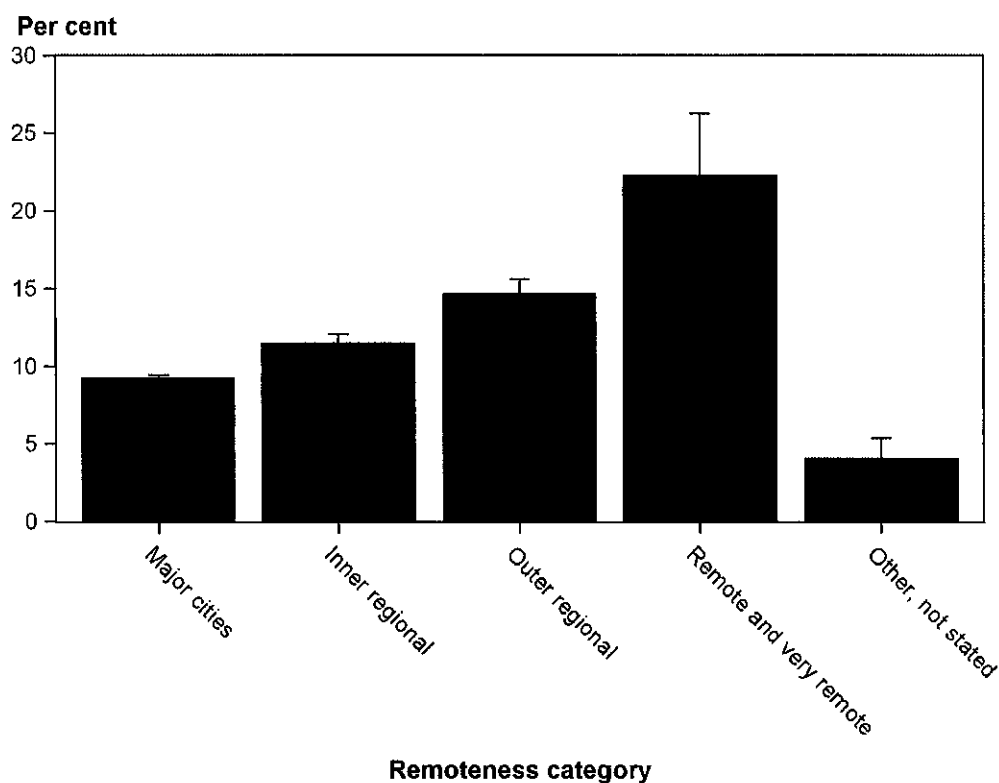
Figure 15. Infant feeding at discharge from hospital by type of feeding, NSW 2014



Source: NSW Perinatal Data Collection (SAPHARI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

For Figure 15A, Statistical Local Areas are grouped according to Australian Standard Geographical Classification (ASGC) remoteness categories on the basis of Accessibility/Remoteness Index for Australia (ARIA+ version) scores. In 2014, an association was found between the proportion of infants being exclusively fed infant formula upon discharge from hospital and remoteness from service centres. In major cities, 9.3% of infants were fed infant formula only, compared with 11.5% in inner regional areas, 14.7% in outer regional areas, and 22.3% in remote and very remote areas.

Figure 15A. Infant feeding at discharge from hospital by remoteness from service centres, infant formula only, NSW 2014



Source: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Chapter 3

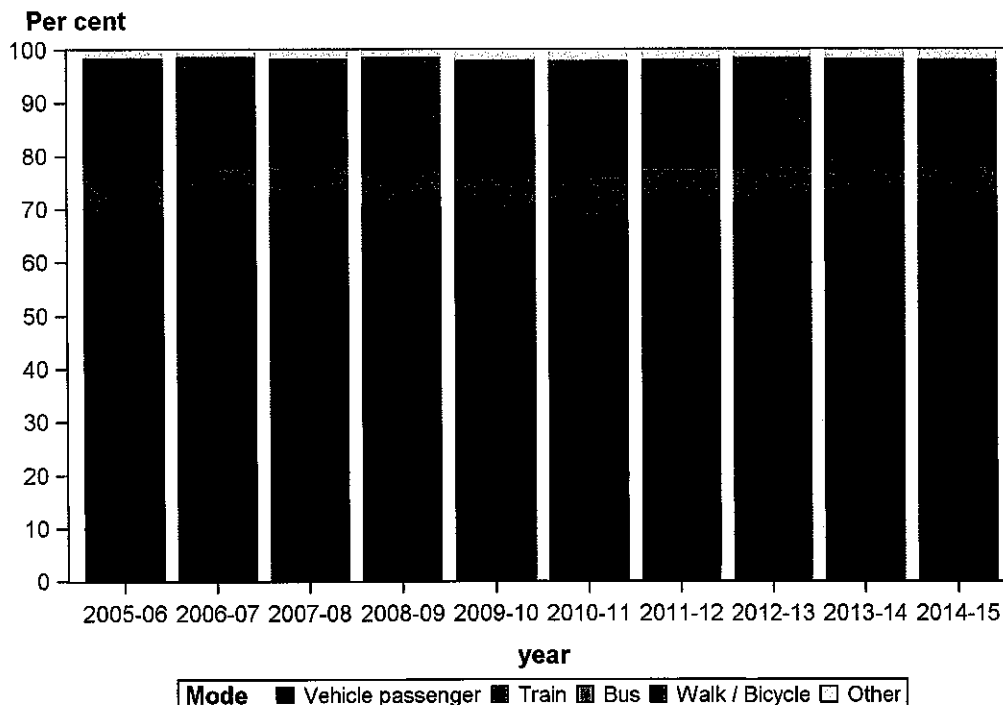
Environmental factors associated with childhood overweight and obesity

Built environment

The built environment comprises physical design, land use patterns, and the transport system – each of which play a role in promoting and supporting physical activity and healthy behaviours. A key strategy in the built environment central to promoting physical activity includes the facilitation and encouragement of active transport. A built environment that provides easy and accessible connections between buildings, walkways, cycle paths and public transport nodes is important for the encouragement of active transport, and the reduced reliance on vehicular transport.

In the decade leading up to and including 2014-15, however, vehicles were found to be the predominant mode of transport in the Sydney Greater Metropolitan Area (GMA) for children aged 5-17 years. In 2014-15, vehicles accounted for 74.2% of transport trips made by children aged 5-11 years on an average day (both weekdays and weekend days). For children aged 12-17 years, 40.0% of transport trips made on an average weekday were via vehicle, however this increased to 64.7% on an average weekend day.

Figure 16. Mode share of transport trips on an average weekday among children aged 5-11 years, Sydney GMA 2005-06 to 2014-15



Source: Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

Figure 16A. Mode share of transport trips on an average weekend day among children aged 5-11 years, Sydney GMA 2005-06 to 2014-15

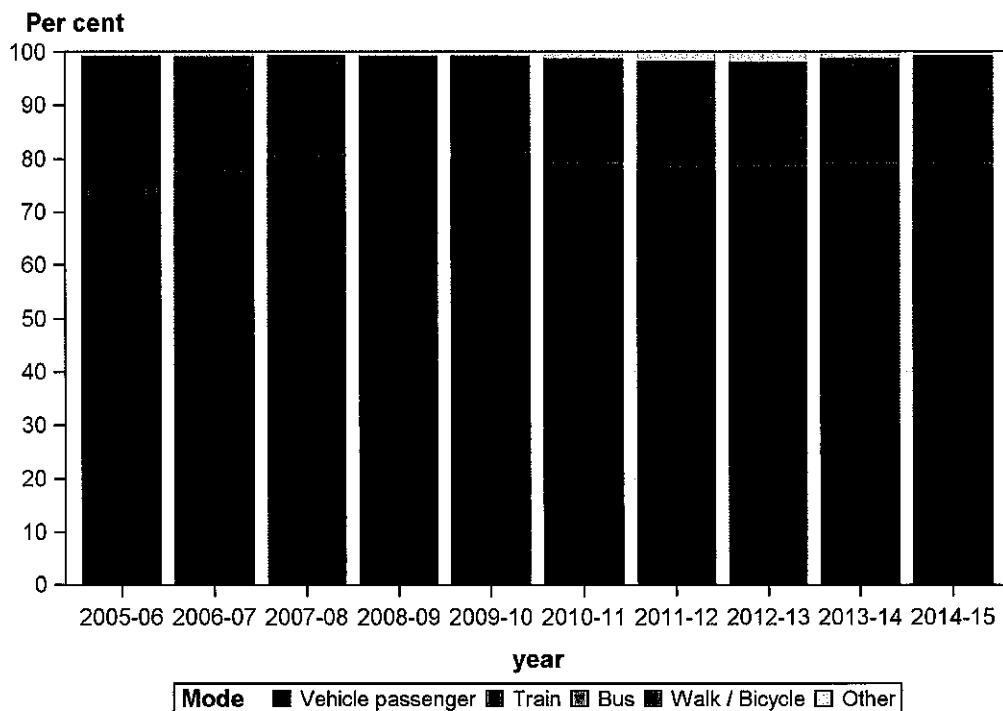
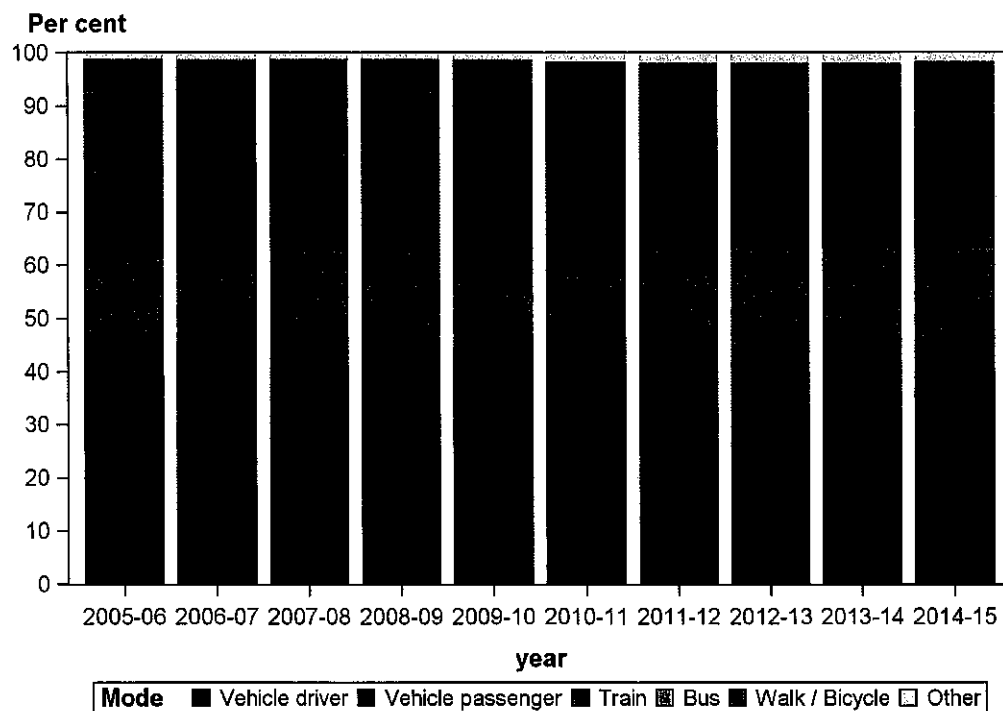
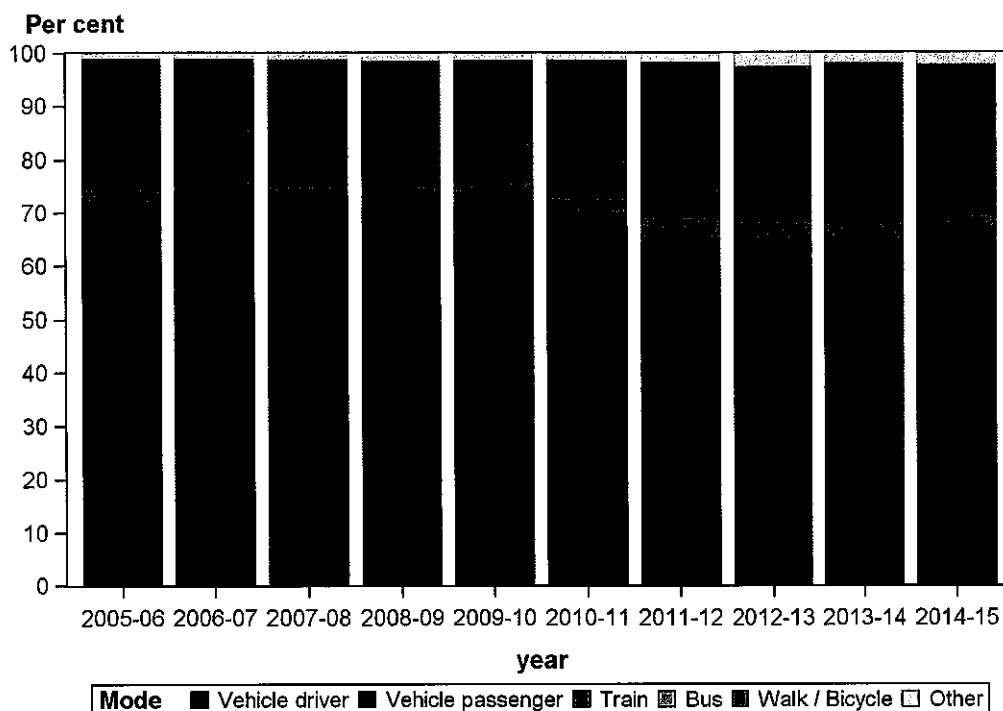


Figure 16B. Mode share of transport trips on an average weekday among children aged 12-17 years, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

Figure 16C. Mode share of transport trips on an average weekend day among children aged 12-17 years, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

In 2014-15, about 1 in 5 (20.5%) Sydney GMA transport trips made by children aged 5-11 years on an average day (weekday and weekend day) were by a mode of active transport (i.e. walking or cycling). The main purpose for making an active transport trip on a weekday was for education/childcare (53.4%), followed by social/recreation (21.1%). The main purpose for making an active transport trip on a weekend day was for social/recreation (64.1%).

On an average weekday, over two-thirds (35.3%) of Sydney GMA transport trips made by children aged 12-17 years were by a mode of active transport (i.e. walking or cycling). Primarily, active transport trips on a weekday were made for education/childcare purposes (36.8%). Social/recreation purposes accounted for 17.5% of the active transport trips made among children aged 12-17 years. On an average weekend day, walking and cycling accounted for 28.5% of transport trips made among children aged 12-17 years, with over half (54.0%) of active transport trips made for social/recreation purposes.

In 2014-15, the Sydney GMA walk trip rate per capita on an average weekday for children aged 5-11 years was 0.72 walk trips, compared with 1.56 walk trips for children aged 12-17 years. Per capita walk trip rates were lower on an average weekend day across both age groups (0.55 walk trips for children aged 5-11 years; 0.80 walk trips for children aged 12-17 years).

Figure 17. Walk trip rate per capita on an average weekday among children aged 0-17 years, by age, Sydney GMA 2005-06 to 2014-15

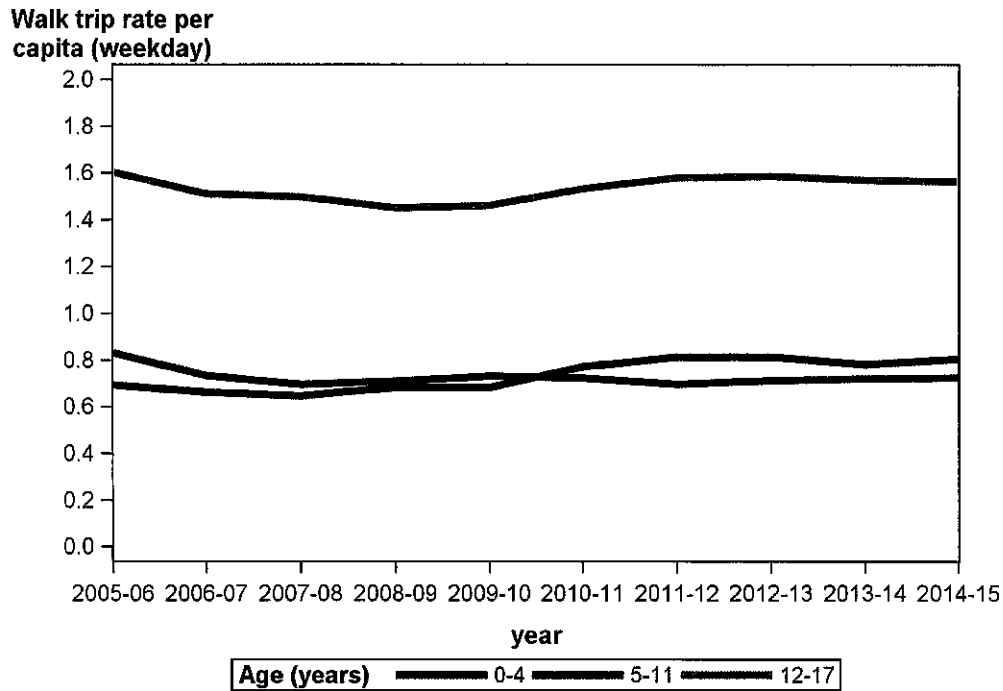
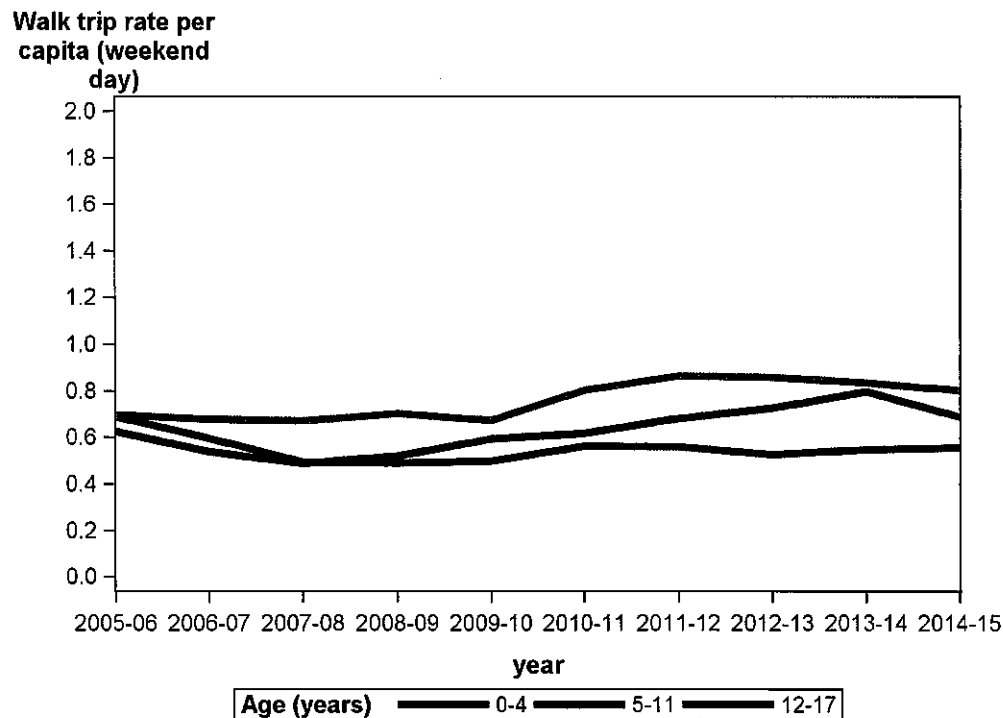


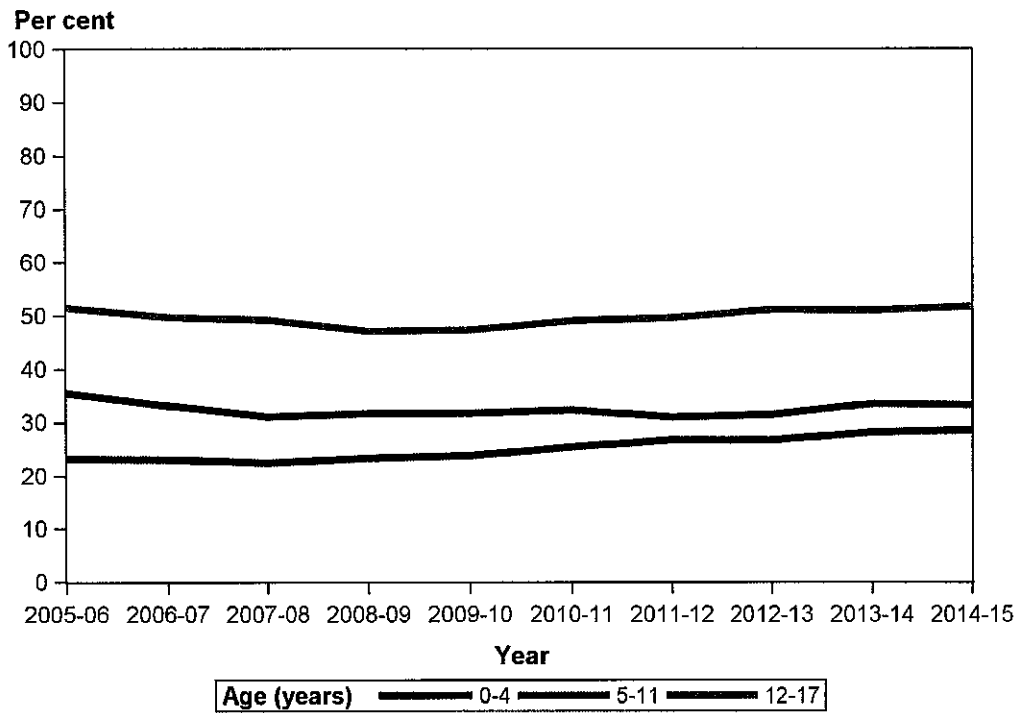
Figure 17A. Walk trip rate per capita on an average weekend day among children aged 0-17 years, by age, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

In 2014-15, 28.5% of Sydney GMA children aged 0-4 years, 33.3% of children aged 5-11 years and 51.7% of children aged 12-17 years took at least one active transport trip (walking or cycling) on an average day, regardless of duration.

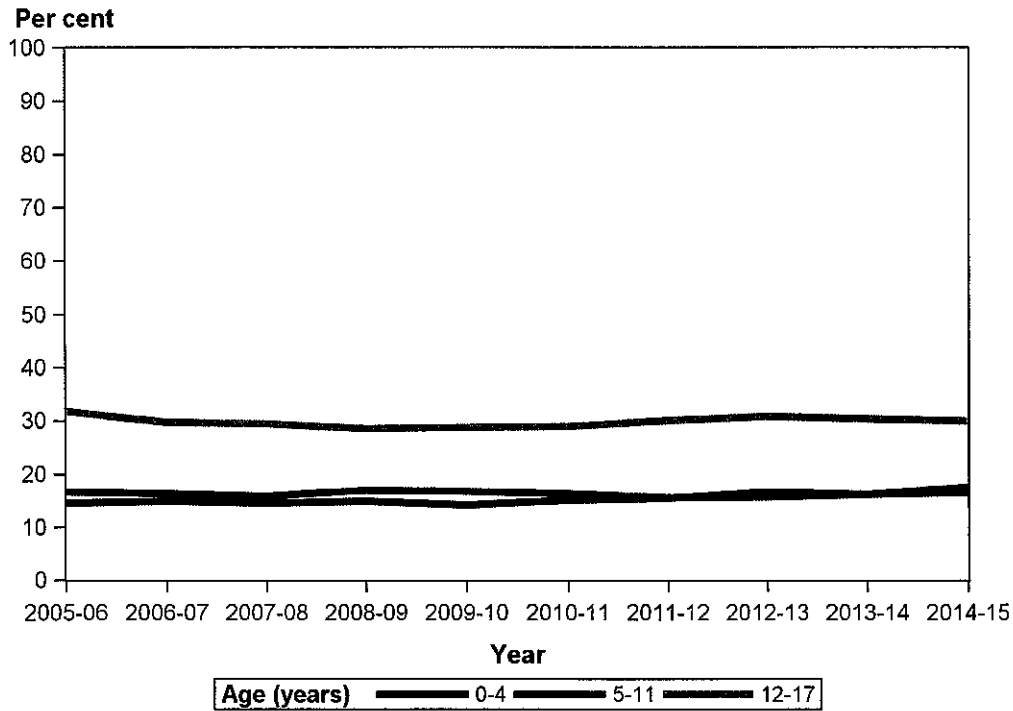
Figure 18. Any active transport trip (walking or cycling) on an average day among children aged 0-17 years, by age, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

For Figure 19, a 'health-enhancing transport trip' includes a walking or cycling trip that lasts at least 10 minutes. In 2014-15, 17.5% of Sydney GMA children aged 0-4 years, 16.4% of children aged 5-11 years and 29.9% of children aged 12-17 years took at least one health-enhancing transport trip on an average day.

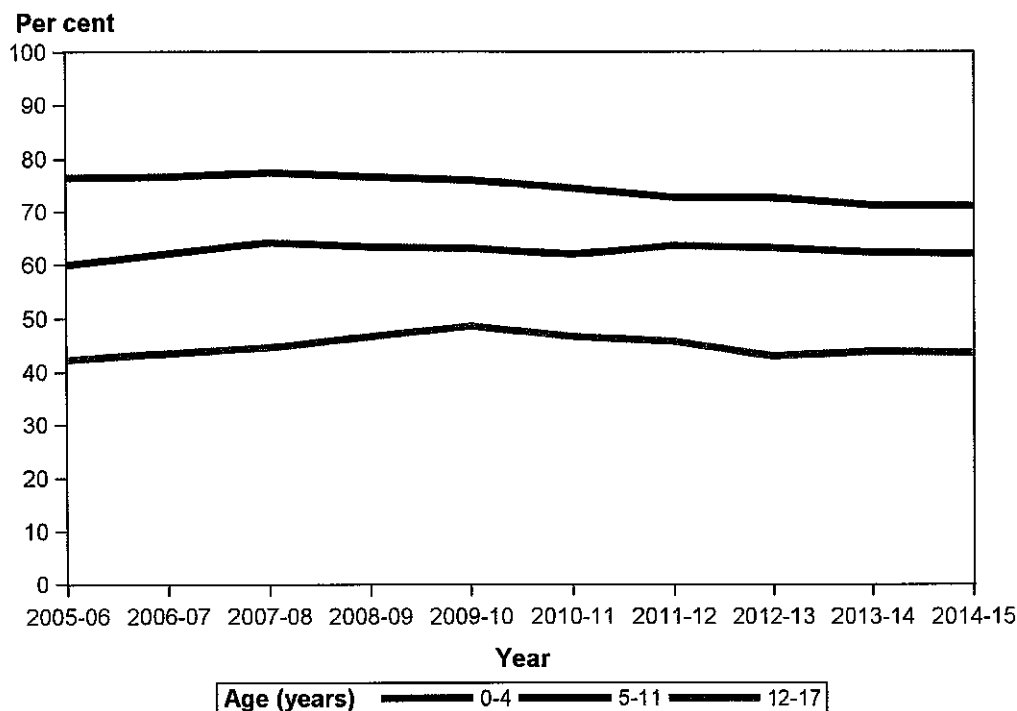
Figure 19. Health-enhancing transport trips (walking or cycling) on an average day among children aged 0-17 years, by age, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

For Figure 20, 'car dependence' refers to children who, on an average day, made transport trips only by vehicle and no other mode of transport. Only children without restricted mobility were included in the analysis. In 2014-15, on an average day, 71.1% of Sydney GMA children aged 0-4 years, 62.1% of children aged 5-11 years and 43.5% of children aged 12-17 years were car dependent.

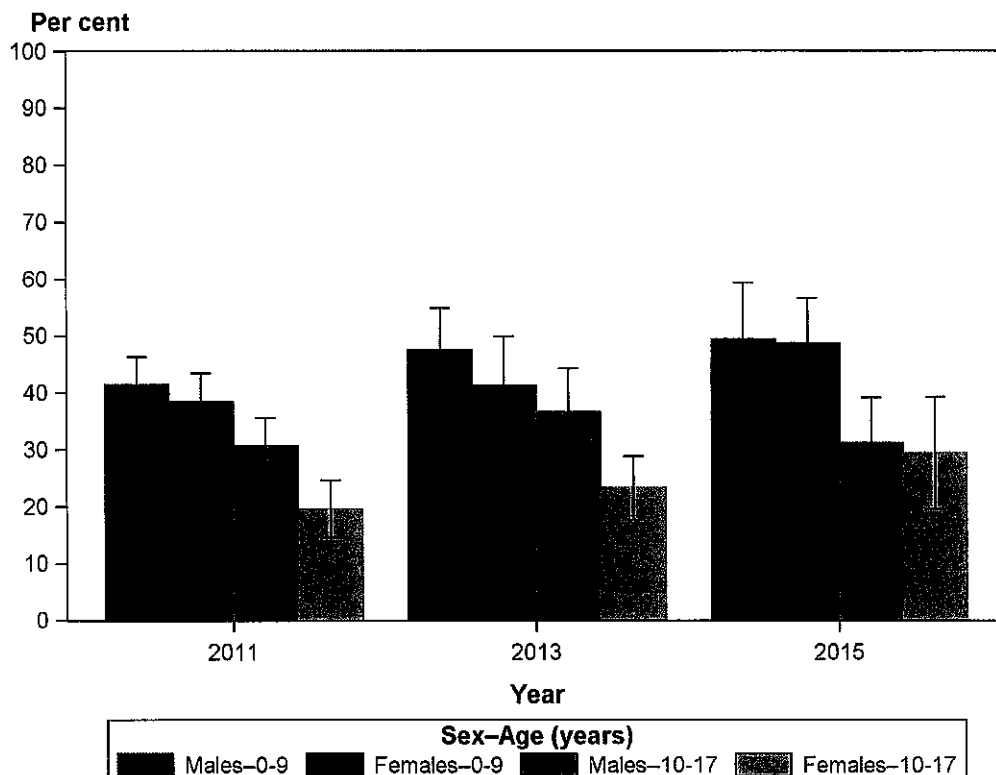
Figure 20. Car dependence on an average day among children aged 0-17 years (without mobility restrictions), by age, Sydney GMA 2005-06 to 2014-15



Source: NSW Household Travel Survey. Transport Performance and Analytics, Transport for NSW.

The National Cycling Participation Survey is a biennial survey that provides data on cycling participation at a national level, as well as estimates for participation in each state and territory.¹⁸ Based on the survey, it is estimated that in 2015 almost half of NSW children (49.1%) aged 0-9 years rode a bicycle in a typical week – this represents a significantly higher proportion of cycling participation in comparison with NSW children aged 10-17 years (30.3%).

Figure 21. Cycling participation in a typical week among children aged 0-17 years, by age and sex, NSW 2015



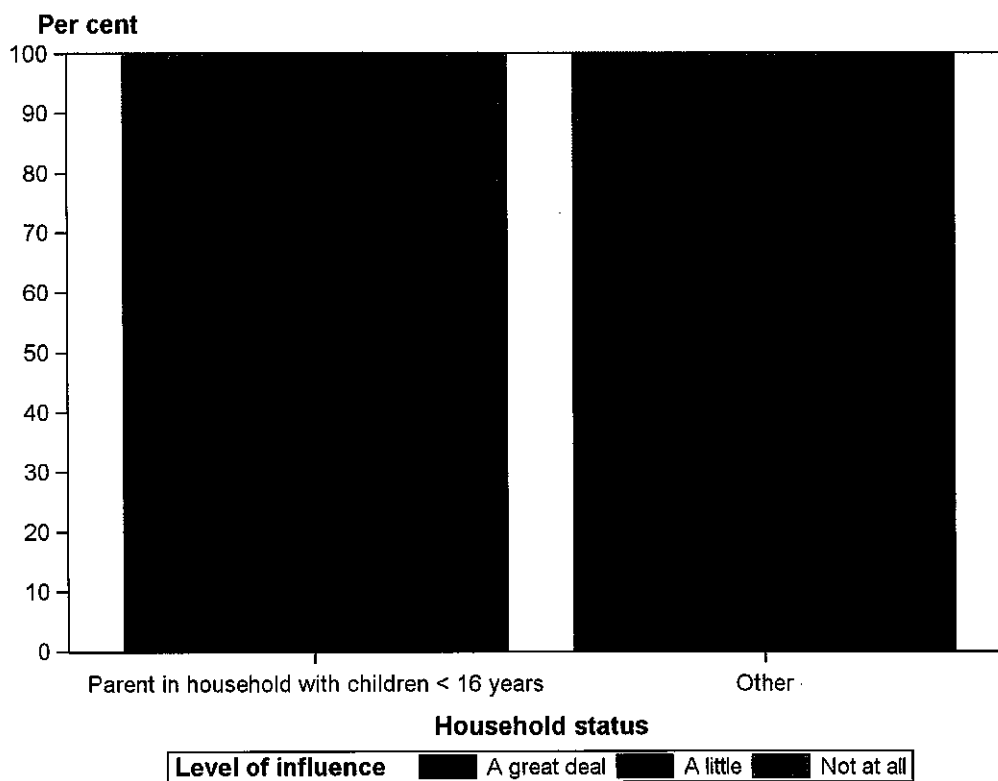
Source: National Cycling Participation Survey. Australian Bicycle Council.

Food environment

Food environments play an important role in food choices and purchases, ultimately contributing to dietary habits and energy intake. Policies and standards on nutritional information panel requirements and front-of-pack labelling through the Health Star Rating contribute to healthier food environments, providing greater opportunities for healthier food choices and purchases.

In 2015, nutritional information was found to have a degree of influence on food purchases for around 70% of people in NSW. Notably, there was a significant difference in the influence of nutritional information on food purchases between households with a parent and children (under 16 years of age), and all other households. Almost half (48.0%) of parents living in households with children under the age of 16 responded that nutritional information has a great deal of influence on their food purchases, compared with just 38.5% of all other respondents.

Figure 22. Influence of nutritional information on food purchases, by household status, NSW 2015



Source: NSW Population Health Survey. Centre for Epidemiology and Evidence. NSW Ministry of Health.

Chapter 4

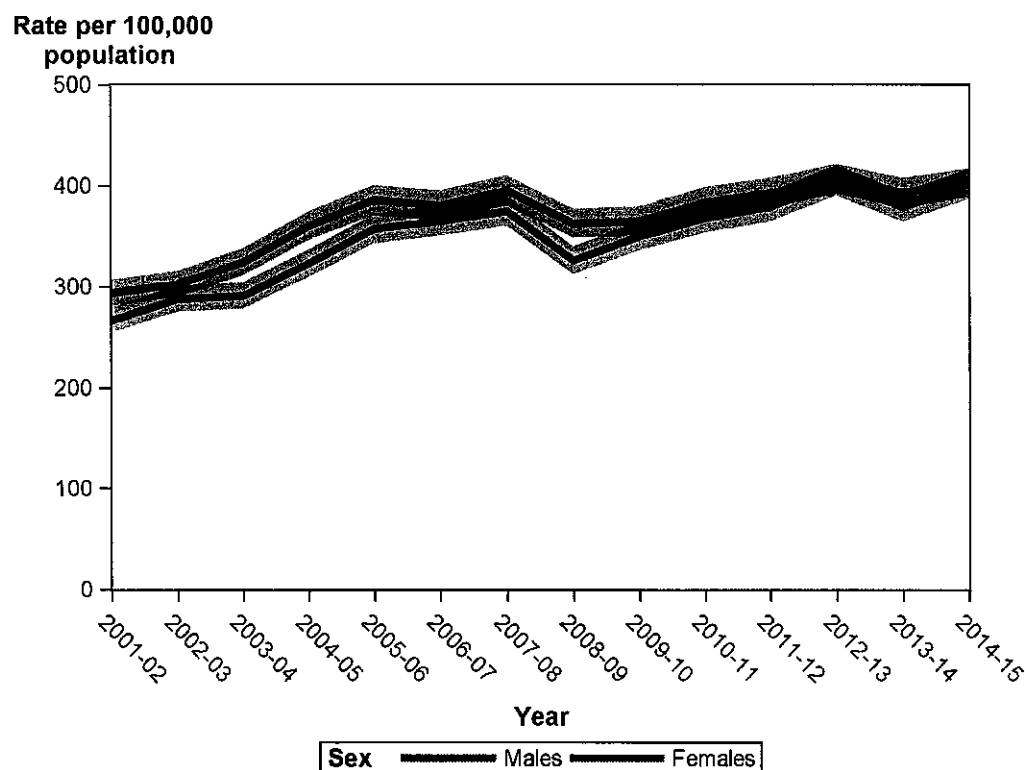
Health conditions associated with childhood overweight and obesity

Dental caries

In recent years, dental caries have been the most prevalent health problem and periodontal diseases the fifth most prevalent health problem in Australia – about 90% of all tooth loss is attributed to these two health problems. Major contributing factors to dental caries at childhood age are poor dietary and oral hygiene practices however, in recent decades, factors such as changes in diet, reduced sugar consumption, exposure to fluoride, and changes in disease management have contributed to improvements in oral health. It should be noted that oral health is affected by a complex interplay of social, environmental and economic factors that extend beyond risk behaviour.

Children may be admitted to hospital for dental caries as dental procedures may be difficult to perform in outpatient settings at this age. In 2014-15, the rate of hospitalisations for removal and restoration of teeth for dental caries among NSW children aged 0-14 years was 402.5 per 100,000 population. Rates were significantly higher for children aged 5-14 years (430.5 per 100,000 population) in comparison with children aged 0-4 years (343.5 per 100,000 population). Rates were also significantly higher for Aboriginal children aged 0-14 years (493.2 per 100,000 population) compared with non-Aboriginal children aged 0-14 years (385.8 per 100,000 population).

Figure 23. Removal and restoration of teeth for dental caries: total hospitalisations among children aged 0-14 years, by sex, NSW 2001-02 to 2014-15



Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

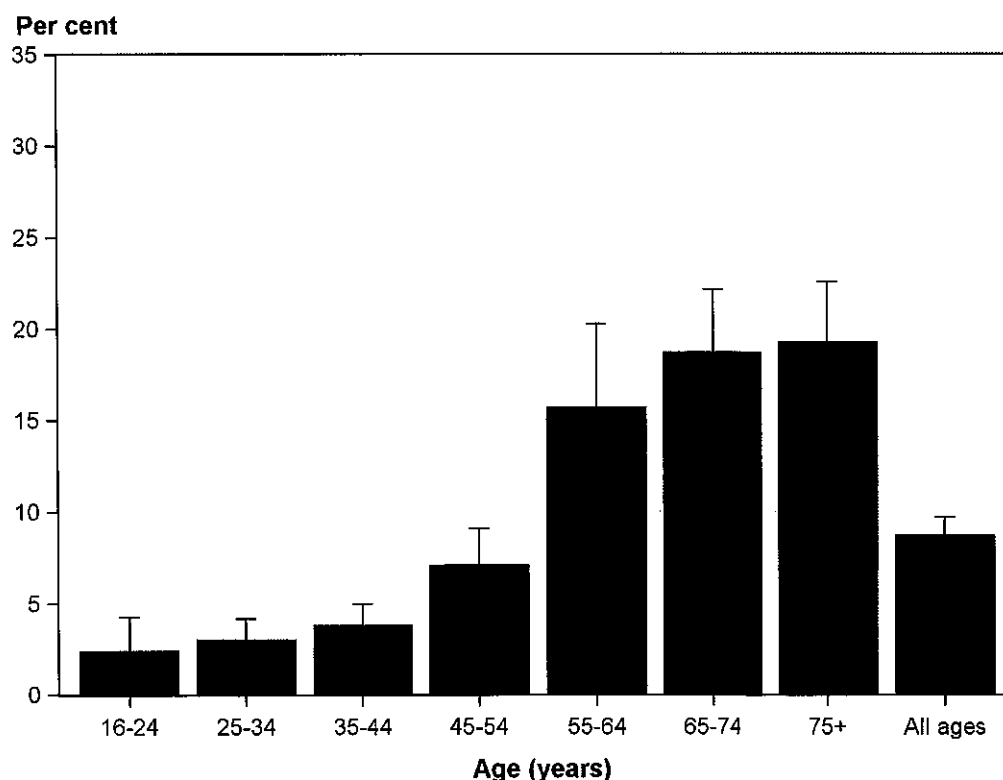
Diabetes and high blood glucose

Evidence shows that childhood overweight and obesity tend to track into adulthood, and children who remain overweight or obese as adults are at an increased risk of developing chronic diseases, including type 2 diabetes.

Type 2 diabetes accounts for up to 90% of all diabetes cases in the community, and primarily affects people older than 40 years. Several modifiable risk factors play a role in the onset of type 2 diabetes, including obesity, physical inactivity and poor nutrition, as do genetic predisposition and ageing.

In 2015, it was estimated that 8.7% of people in NSW aged 16 years and over were diabetic or had high blood glucose. Prevalence of diabetes or high blood glucose increased with age, from 2.4% among people aged 16-24 years to 7.1% among people aged 45-54 years, increasing significantly to 15.7% among people aged 55-64 years. It is likely that these figures (based on the Population Health Survey) are underestimates, given that there could be many people with diabetes in NSW who are unaware that they have it.

Figure 24. Diabetes or high blood glucose among persons aged 16 years and over, by age, NSW 2015



Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

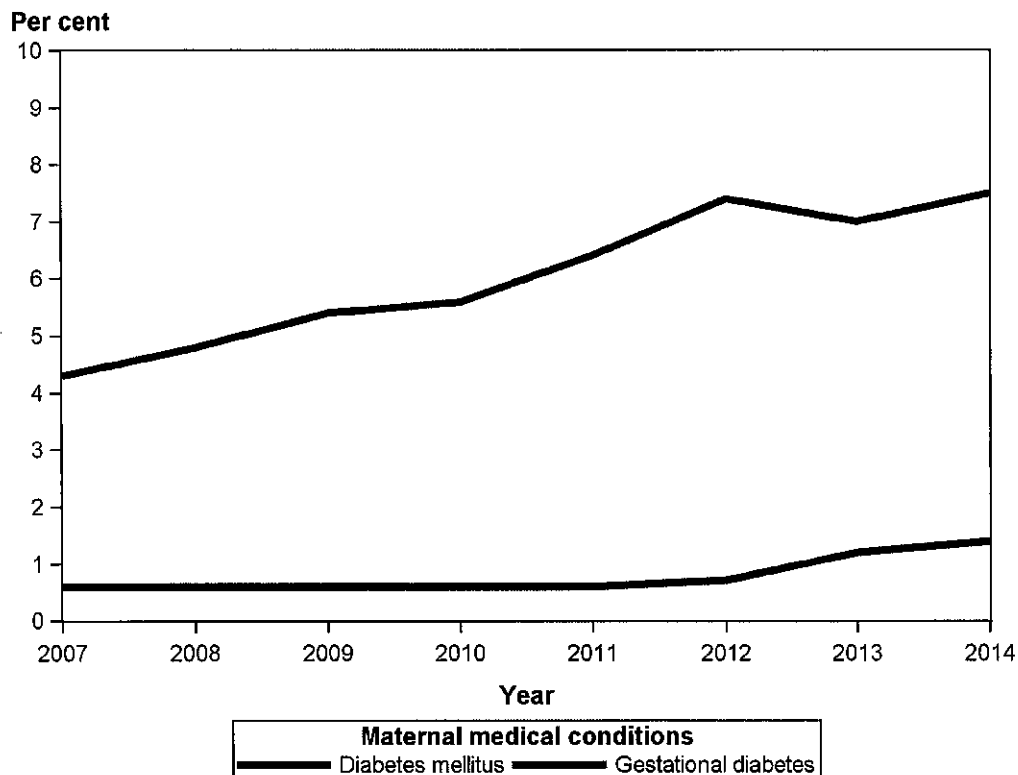
Maternal medical conditions

Gestational diabetes is a temporary form of diabetes that can develop, or can be initially diagnosed, during pregnancy, and usually resolves after the baby is born.¹⁹ While maternal blood glucose levels usually return to normal after birth, there is a greater risk of developing type 2 diabetes in the future for both mother and baby.²⁰ Emerging evidence suggests that there is an association between gestational diabetes and risk of childhood overweight and obesity.^{21,22}

For Figure 25, diabetes mellitus includes pre-existing or pre-gestational diabetes, and gestational diabetes includes diabetes diagnosed during the current pregnancy. Data include all mothers who gave birth (stillbirths and live births) in NSW regardless of place of permanent residence.

In 2014, 7.5% of mothers who gave birth in NSW had gestational diabetes – this represents a steady increase since 2007 (4.3%). In the same year, 1.4% of mothers giving birth had diabetes mellitus, which also represents an increase since 2007 (0.6%). Interpreting these trends, however, should be done with a degree of caution – variations in reported rates of gestational diabetes and diabetes mellitus may be related to changes over time and differences between hospitals in screening practices and management of abnormal glucose tolerance in pregnancy.

Figure 25. Maternal medical conditions, diabetes mellitus and gestational diabetes, NSW 2007 to 2014



Source: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

	<p>Public hospital data are recorded in terms of episodes of care. An 'episode of care' ends with the patient ending a period of stay in hospital (e.g. by discharge, transfer or death) or by becoming a different 'type' of patient within the same period of stay. For private hospitals, each CAPED record represents a complete hospital stay. CAPED records are counted based on the date of separation (discharge) from hospital. Data from interstate hospitals for the latest year may not yet be available when the data are analysed for this publication – an estimate is therefore made of interstate admissions for the latest year of hospitalisations based on interstate admissions in the preceding year.</p>
NSW Perinatal Data Collection	<p>The NSW Perinatal Data Collection (PDC), formerly the NSW Midwives Data Collection, is a population-based surveillance system covering all births in NSW public and private hospitals, as well as homebirths. The PDC is a statutory data collection under the NSW Public Health Act 2010.</p> <p>The PDC encompasses all live births, and stillbirths of at least 20 weeks gestation or at least 400 grams birth weight. Prior to 2006, the PDC encompassed all births of at least 20 weeks gestation or at least 400 grams birth weight. The data collection has operated since 1987 but continuously only since 1990. Data are reported by calendar year.</p>
NSW Household Travel Survey	<p>The NSW Household Travel Survey (HTS) is compiled by Transport Performance and Analytics, Transport for NSW. It is the largest and most comprehensive source of personal travel data for the Sydney Greater Metropolitan Area (GMA). This area includes the Sydney Greater Capital City Statistical Area, and the Illawarra and Lower Hunter regions. The HTS was first conducted in 1997-98 and has been running continuously since then.</p> <p>About 5,000 randomly selected households are approached each year to participate in the survey, of which 3,000 to 3,500 respond. Three or more years of data are pooled to produce reliable estimates of travel at a particular geographical level. Data are collected through face-to-face interviews, every day of the year. This collection method ensures high quality data, maximises response rates and ensures a good temporal spread. Field staff interview each householder on the details of trips made in a 24-hour period. Detailed socio-demographic information is also collected.</p>
National Cycling Participation Survey	<p>The National Cycling Participation Survey (NCPS) is a standardised survey that has been repeated biennially since March/April 2011, with minor changes to the survey structure between 2011 and 2013. The NCPS provides data on cycling participation at a national level and allows for estimates of participation for each state and territory, and the capital cities and non-capital areas within each state and territory.</p> <p>The survey is a telephone-based survey of residents of the study area, and includes coverage of mobile-only households. As cycling participation is greatest among children, it is critical that the survey have coverage of this group. Data on cycling participation of children under 15 years of age is obtained by asking an adult in the household to report on behalf of other household members, including children.</p>

Resources and Information

NSW Health: <https://www.health.nsw.gov.au/>

NSW Office of Preventive Health: <http://www.preventivehealth.net.au/>

Premier's Council for Active Living NSW: <http://www.pcal.nsw.gov.au/>

Australian Institute of Health and Welfare (Australian Government): <http://www.aihw.gov.au/>

Bicycle NSW: <https://bicyclensw.org.au/>

Healthy Kids Association: <https://healthy-kids.com.au/>

Plans and Strategies

NSW Premier's Priorities in Action: <https://www.nsw.gov.au/premiers-priorities>

NSW State Health Plan – Towards 2021:

<http://www.health.nsw.gov.au/statehealthplan/Publications/NSW-State-Health-Plan-Towards-2021.pdf>

NSW Rural Health Plan – Towards 2021: <http://www.health.nsw.gov.au/rural/Publications/rural-health-plan.pdf>

NSW Healthy Eating and Active Living Strategy 2013-2018:

<http://www.health.nsw.gov.au/health/Publications/nsw-healthy-eating-strategy.pdf>

Data Resources

Snapshot Childhood Overweight and Obesity – Healthy Children Initiative, June 2016 (NSW Ministry of Health): <http://www.health.nsw.gov.au/health/Publications/snapshot-child-obesity.pdf>

HealthStats NSW (NSW Ministry of Health): <http://www.healthstats.nsw.gov.au/>

Transport Performance and Analytics (Transport for NSW):

<http://www.bts.nsw.gov.au/Statistics/>

Australian Bureau of Statistics (Australian Government): <http://www.abs.gov.au/>

National Cycling Participation Survey (Australian Bicycle Council):

<http://www.bicyclecouncil.com.au/publication/national-cycling-participation-survey>

Resources and Information

Information and Guidelines

8700.com.au: <http://www.8700.com.au/>

A Healthy and Active Australia: <http://www.healthyactive.gov.au/>

Australian Dietary Guidelines: <https://www.eatforhealth.gov.au/>

Go for 2&5: <http://www.gofor2and5.com.au/>

Programs

Children's Active Travel: <http://www.healthykids.nsw.gov.au/campaigns-programs/childrens-active-travel.aspx>

Crunch&Sip®: <http://www.healthykids.nsw.gov.au/campaigns-programs/crunchsip.aspx>

Finish with the Right Stuff: <http://www.rightstuff.health.nsw.gov.au/>

Fresh for Kids: <http://www.freshforkids.com.au/>

Fresh Tastes @ School: <http://www.healthykids.nsw.gov.au/campaigns-programs/fresh-tastes-@-school.aspx>

Get Healthy Information and Coaching Service®: <http://www.gethealthynsw.com.au>

Go4Fun®: <http://www.go4fun.com.au/>

Healthy Beginnings (RCT): <http://www.healthybeginnings.net.au/>

Healthy Kids website: <http://www.healthykids.nsw.gov.au/>

Healthy Supported Playgroups: <http://www.preventivehealth.net.au/healthy-supported-playgroups.html>

Live Life Well @ School: <http://www.healthykids.nsw.gov.au/teachers-childcare/live-life-well-@-school.aspx>

Make Healthy Normal: <https://www.makehealthynormal.nsw.gov.au/>

Munch & Move: <http://www.healthykids.nsw.gov.au/teachers-childcare/munch-and-move.aspx>

NSW Premier's Sporting Challenge: <https://online.det.nsw.edu.au/psc/home.html>

YHunger: <https://www.healthykids.nsw.gov.au/campaigns-programs/yhunger.aspx>

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