

**Report on the
2006
ACT YEAR 6
Physical Activity and Nutrition
Survey
(ACTPANS)**

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FOREWORD

Physical activity and nutrition are key components to young people's healthy development and wellbeing. Children who are not sufficiently physically active and who do not have a proper diet are at risk of becoming overweight or obese. Childhood overweight and obesity is now emerging as a serious health issue in western industrialised nations and Australia is no exception.

In 2004, ACT Health was granted ACT government funding to develop surveillance initiatives that would give information on the patterns and trends in childhood overweight and obesity, physical activity and nutrition in the ACT.

The ACT Year 6 Physical Activity and Nutrition Survey (ACTPANS) is a key component of these surveillance initiatives, providing for the first time information on a range of healthy weight priority areas as they relate to older primary school age children in the ACT.

Results from the ACTPANS reveal that although the majority of Year 6 children are sufficiently physically active on most days they are not meeting national guidelines. However, a high percentage of children are involved in some form of organised sport, with soccer, swimming and dance being most popular. In addition, results indicate that the majority of children are meeting national guidelines in regards to the number of hours spent each day using electronic media such as television, video games and computing.

Year 6 children's nutrition patterns suggest that most children have a generally well balanced diet and eat regular meals. However, energy dense foods such as sweets, chocolates and chips feature prominently in many children's diets, with boys showing greater preferences for these foods than girls.

The ACTPANS reveals that one-quarter of Year 6 children in the ACT are either overweight or obese, with boys (29.1%) showing a greater tendency towards unhealthy weight than girls (22.5%). The survey also shows that children who are overweight or obese are more likely to rate themselves poorly on a number of psycho-social outcomes including self-esteem, body image and being teased or bullied when compared to children who are normal weight.

In addition, findings indicate that children who are overweight or obese are more likely than normal weight children to report watching more than the recommended hours of television; to be more influenced by fast-food advertising; as well as to eat food from a fast-food outlet on a daily basis.

More detailed findings can be found in this report. The results from the ACTPANS will help inform initiatives targeting childhood overweight and obesity and will guide future policy and programs aimed at promoting physical activity, good nutrition and healthy weight in children.



Katy Gallagher MLA

Minister for Health

KEY FINDINGS

The key findings of the ACT Year 6 Physical Activity and Nutrition Survey are as follows.

Physical activity

General physical activity

- Around one in five Year 6 children reported to be moderately to vigorously physically active for at least 60 minutes every day, indicating only a minority of children are meeting the national guidelines.
- However, more than two-thirds of all children reported to be moderately to vigorously physically active for at least 60 minutes on a minimum of four days during a week with boys reporting a higher average (4.8 days) than girls (4.3 days).

Physical activity at school

- Children reported participating in physical education (PE) or sport classes on an average of 3 times a week.
- Around 40% of children reported being moderately to vigorously physically active at school outside of class-time (lunch-time and recess) for no more than 1 hour a week.

Physical activity outside of school

- Fifty-eight percent of children reported to be physically active outside of school for no more than 3 hours in a week.
- Approximately three-quarters of children reported to be involved in an organised sport during the current school term.
- Soccer, swimming and dance were the most popular forms of organised sports that children reported participating in.
- Close to one-third of all children reported walking or riding a bike to or from school every day.
- Around 50% of girls and 40% of boys reported to never ride or walk to or from school.

Sedentary activity

- Nearly two-thirds of all children are meeting the national guidelines of using electronic media no more than 2 hours a day during weekdays.
- Around 43% of boys and 55% of girls reported to either watch TV or use a computer for no more than 2 hours each day on the weekend.

Attitudes to physical activity

- Around three-quarters of children either agreed or strongly agreed with the statement "I do a lot of physical activity".
- Twenty-seven percent of boys either agreed or strongly agreed with the statement "I prefer to watch television or play on the computer" [than be physically active].
- Twenty-three percent of girls either agreed or strongly agreed with the statement "I look funny when I am physically active".

Nutrition

General food intake

- Around 20% of boys and girls reported eating pasta, rice or noodles at least 4 times a week with half of these reporting to eat this food everyday.

- Close to three-quarter of boys and girls reported eating bread and bread rolls at least 4 times a week with 50% of girls and 40% of boys reporting to eat this food every day.
- Around 41% of boys and 37% of girls reported eating red meat at least 4 times a week with less than 10% reporting to do this every day.
- Approximately 40% of children reported eating chicken duck or turkey between 1 and 3 times a week and less than 6% reporting to eat this food every day.
- Nearly two-thirds of all children (62.9%) reported eating fish less than once a week or never eating fish.
- Nearly 60% of boys and girls reported drinking fruit juice at least 4 times a week with half of these reporting to do this every day.
- Close to half of all boys and 42% of girls reported drinking milk every day. Around one-third of all children reported drinking milk on 3 days or less in a usual week.
- Nearly three-quarters of boys and girls drank water on an average of five times a day.
- More than three-quarters of boys and girls reported to eat at least 2 serves of fruit in a usual day.
- Forty-one percent of boys and girls reported eating at least 4 serves of vegetables in a usual day.

Consumption of “extra foods” (energy dense)

- The most popular “extra foods” for boys and girls were energy bars, crisps/salty snacks and confectionary.
- Close to 70% of boys and 61% of girls reported eating “extra foods” at least 4 times a week. One-third of all boys and one-quarter of all girls reported eating at least one “extra food” every day.
- Around 50% of boys and 40% of girls reported drinking sugary soft-drinks at least once a week. Approximately 8% of boys and 4% of girls reported drinking sugary soft-drinks every day.
- Thirty-percent of boys and 20% of girls reported eating food from a fast-food outlet at least once a week. Less than 2% of all children reported to do this every day.

Meal patterns

- Less than 12% of boys and girls reported eating breakfast 3 times or less in a week and around 80% of children reported eating breakfast every day.
- More than three-quarters of children reported eating lunch every day and around 2% of children reported eating lunch less than once a week or not at all.
- Nearly every child reported eating dinner every day, with less than 5% reporting not eating dinner every day.

Children’s eating environments

- Nine in ten children agreed with the statements: “In my home vegetables are usually served with dinner”; “In my home fruit is available at any time”; and, “My parents insist that I eat something for breakfast”.
- Around one in three children agreed with the statement “On school nights in my family we eat dinner in front of the TV”.

Attitudes to food

- In general, boys were less likely to agree with statements indicating preferences for healthy foods than girls.
- Boys were also more likely than girls to agree with statements indicating preferences for soft-drink and fast-food.

BMI status and psychosocial outcomes

BMI status

- Slightly more than one-quarter (25.8%) of all children were categorised as being either overweight or obese.
- Boys were more likely to be categorised as having an unhealthy weight than girls with 29.1% of boys being overweight (22.5%) or obese (6.6%), compared to 22.7% of girls (overweight=18.6%, obese=4.1%).

Self-rated health

- Children who were overweight or obese were more than twice as likely to describe their health as fair or poor (29%) compared to children who were normal weight (12.1%).

Self-esteem

- Close to 86% of normal weight children either agreed or strongly agreed with the statement "I feel good about myself", compared to 72% of overweight or obese children.

Body image

- Children who were overweight or obese (24.9%) were over 4 times more likely to be unhappy or extremely unhappy with their weight compared to children who were normal weight (5.6%).
- Results indicate a mismatch between children's perceptions and the reality of their weight status. Almost one-half of children who were overweight or obese described themselves as being either normal (37.3%) or slightly underweight/underweight (9.1%).

Teasing and bullying

- One-third of overweight or obese children reported that they are sometimes teased about their weight, compared to 11.7% of normal weight children.
- Overall, children who were overweight or obese were around 30% more likely to report that they had been bullied at school than children who were normal weight.

BMI status and characteristics related to physical activity and nutrition

- Children who were overweight or obese were:
- 25% more likely than normal weight children to watch more than 2hrs of TV on weekdays (overweight/obese=39.1%, normal=30.7%) and weekends (overweight/obese=54.2%, normal=43%);
- around 30% more likely than normal weight children to use the computer more than 2hrs on weekends (overweight/obese=24%, normal=18.5%);
- between 20% and 80% more likely than normal weight children to agree or strongly agree with the statements:
 - "I prefer to watch TV or the computer than be physically active" (overweight/obese=27.5%, normal=20%);
 - "I look funny when I am physically active" (overweight/obese=32.2%, normal 22.1%);
 - "I don't think I am good at physical activity" (overweight/obese=25.1%, normal=15.7%);
 - "I don't like how being physically active makes me feel" (overweight=21%, normal=15.2%); and
 - "Other kids make fun of me when I am physically active" (overweight/obese=11.7%, normal=5.1%);

- about 20% more likely than children who were normal weight to have agreed or strongly agreed with the statement “Soft-drink is usually available at home” (overweight/obese=32.8%, normal=27.6%).
- more than twice as likely than normal weight children to report that they eat food from a fast-food outlet everyday (overweight/obese=3.1%, normal=1.3%);
- around 40% to 50% more likely than normal weight children to agree or strongly agree with the statement “I choose soft-drinks with the best TV ads” (overweight/obese=17.4%, normal=12.1%) and “I choose fast-food outlets with the coolest TV ads” (overweight/obese=12.9%, normal=8%).

1. INTRODUCTION

Physical activity and proper nutrition play a key part in young people's physical, social and mental development and wellbeing. A physically active lifestyle in children brings benefits such as strengthening of bones and joints;¹ cardio-vascular fitness;² healthy lifestyle behaviours that continue into adulthood;³ as well as gains in social and emotional development.⁴ Similarly, optimal nutrition in children is necessary for brain development, strong bones and healthy body functioning, and sets the stage for healthy eating in adulthood.⁵

Children who are not sufficiently physically active and do not have a balanced, well-proportioned diet are at risk of becoming overweight and obese. Increases in childhood overweight and obesity are now emerging as a serious global public health issue with the World Health Organisation (WHO) describing this increase as an epidemic in some countries.⁶ In the United States the number of overweight children has doubled and the number of overweight adolescents has trebled in the last two decades.⁷ A similar pattern is emerging in Australia. The National Health and Medical Research Council (NHMRC) estimates that between 20% and 25% of Australian children are now overweight or obese⁸, an increase from 1985, where 10% to 12% were estimated as overweight or obese.⁹ The 2003 Western Australia Child and Adolescent Physical Activity and Nutrition Survey (CAPANS)¹⁰ found 23.1% of males and 30.5% of females aged 7 to 15 years were overweight or obese. Results from the NSW School Children's Physical activity and Nutrition Survey (SPANS) estimate that 31.6% of boys and 23.4% of girls in Year 6 (in NSW) are now overweight or obese.

In response to the alarming increase in childhood obesity and also the absence of reliable ACT data, ACT health was granted funding in the 2004-05 ACT Government budget for the purpose of developing surveillance of prevalence and trends in childhood obesity in the ACT. A project officer was appointed to manage the development of the project and the ACT Child Healthy Weight Surveillance Technical Reference Group was established to provide technical expertise in the development of the project. The group consisted of members with expertise in the fields of population health surveillance, nutrition, physical activity and health promotion (see Appendix A).

Findings from a scoping study recommended as a first priority, that information be collected on physical activity, nutrition and weight status in children of primary school age. This was due to the lack of data on children of this age group. The study further recommended the development of a self-report survey targeting Year 6 children within ACT primary schools.

In 2006, the ACT Year 6 Physical Activity and Nutrition Survey (ACTPANS) was administered throughout primary schools within the ACT. The ACTPANS provides, for the first time, information on a range of healthy weight priority areas in ACT Year 6 children, including weight status, participation in physical activity, eating patterns and environments, attitudes and psychosocial outcomes.

This report presents the results of this survey.

2. SURVEY METHODS

2.1. Sampling framework

Target population

The target population was all children enrolled in Year 6 classes in ACT primary schools.

Sampling Procedures

The sample design involved a stratified random sampling procedure. Schools were stratified by school type i.e. independent, Catholic and government, in order to ensure sufficient representation of children from different socio-economic backgrounds in the final sample. Schools were then randomly selected from within each school stratum. Within each school, all Year 6 children were invited to participate in the study.

In total, 37 schools were invited to participate in the survey. Thirty-five of these opted to participate in the survey and two declined. Two replacement schools were then randomly selected, invited to participate and agreed to participate in the survey.

Sample size and response rate

The criterion used for sample size calculations was that the sample would yield relative standard error of less than 25% for all BMI classifications. The sample size estimation included adjustment for clustering within schools. This increased the sample size by a factor of 1.3, which in turn yielded a sample size estimation of approximately 1,000.

A participation rate of 80% was sought. The final sample for participation in the questionnaire component of the survey was 1,172 students. The number of children who participated in the height and weight measure component was 1,149. This disparity was due to height and weight measures and questionnaire administration taking place on different days. This could not be avoided due to the logistic difficulties of arranging these two events to occur on the same day within schools. In total, 1,311 children either participated in the height and weight measures or the questionnaire. With a total of 1,370 students invited to participate in the survey a participation rate of 83% for completing both components and 95% for completing at least one component was achieved.

Ethics approval and consent

Prior to a primary approach to schools and parents, ethics approval to conduct the survey was sought from and granted by ACT Health, ACT Department of Education and Training and the Catholic Education Office ethics committees.

A letter from the ACT Health Chief Health Officer was then sent to principals of schools selected for the survey explaining the study and seeking permission to conduct the survey within their school. Principals were requested to sign a consent form prior to participation in the study and give the name of a contact teacher who would be responsible for further liaison and organisation of the survey within the school.

Once permission to conduct the survey within the school had been given, a class list of Year 6 was requested.

A passive consent letter, signed by the Chief Health Officer was sent home to parents. This letter requested that parent's who did not want their child to participate should return a slip at the bottom of the letter (see [Appendix B](#)).

2.2. Survey development

Height and weight measures

Data collection on Year 6 children coincided with the Year 6 immunisation program that operates throughout ACT primary schools each year. Registered nurses employed by ACT Health collected physical measures of children's height and weight. Measurements were performed in a private area by nursing staff either before or after the class had received their immunisations.

ACTPANS questionnaire

The questionnaire collected information on general nutrition and physical activity behaviours, risk factors, environments, attitudes and psycho-social outcomes associated with overweight and obesity in children.

In order to develop a suitable data collection instrument, key focus areas were identified that would inform child healthy weight indicators including the immediate behavioural risk factors and outcomes associated with child healthy weight.

Key focus areas, identified through a literature review, were selected based on the strength of their association with overweight and obesity. These focus areas were:

- eating patterns and environments;
- food intake levels;
- physical activity and sedentary behaviour;
- attitudes to physical activity and weight; and
- psycho-social well-being.

These areas incorporate known risk factors associated with weight status in children. Included in these areas are: eating patterns and food intake levels; physical activity patterns and levels; TV viewing, video and other sedentary behaviours; psycho-social factors; motivators and barriers to physical activity.

The selection of appropriate measurements for each of these areas was guided by:

- the availability of a previously validated and reliable survey instrument for use on children of 11-12 years;
- the availability of a survey instrument that would provide information on compliance with national guidelines where feasible; and
- survey budget and time constraints.

The final instrument, where possible, incorporated questions from previously validated surveys including:

- the NSW Schools Physical Activity and Nutrition Survey (SPANS) Year 6 Module¹¹;
- the Health Behaviours in School-aged Children (HBSC): A World Health Organisation Cross-National Study questionnaire 2001-02¹²;
- the Children's Leisure Activities Study Survey (CLASS)¹³;
- the Sentinel Site for Obesity Prevention Grade 5 and 6 Child Survey.¹⁴

Demographic characteristics were also included in the questionnaire. These were: age, sex, postcode, suburb, Indigenous status, country of birth and non-English speaking background.

In those cases where a previously validated question did not exist, questions were developed in consultation with relevant experts.

The final ACTPANS questionnaire is presented at [Appendix C](#).

Field test of questionnaire

A field test was conducted on 30 Year 6 students to test the survey process, acceptability and validity of the questionnaire in its entirety. Students were assessed on how long it took them to respond to each question. Students were questioned as to how easy they found each item and what they understood the questions to be asking. This process resulted in some modifications to the instructions that preceded several questions but no modification to the questions themselves.

Procedure for administrating the ACTPANS questionnaire

A project officer was recruited to administer the questionnaire in schools. The project officer was a retired primary school principal with a strong background and reputation in teaching and building rapport with primary school children. School liaison and survey administration was managed by the project officer.

The Year 6 survey was administered during scheduled class-time and took approximately 45 minutes to complete. This time included an introduction to the survey and instructions on how to respond.

Upon completion of the questionnaire, children were each given a small gift consisting of a pencil, eraser and some stickers as a show of gratitude for their participation. These gifts all featured information on healthy fruit and vegetables from the Go for 2 & 5 campaign – an Australian Government, State and Territory health initiative (see www.gofor2and5.com.au for more information).

2.3. Data entry and analysis

Data entry

Codes were developed for all questions and data was entered manually into an SPSS spreadsheet. Data was checked for accuracy using a number of cross-checking methods. Outliers were removed where applicable.

Analysis

Data was weighted to the general population on the basis of sex and school type distribution and analysis was undertaken using SPSS and Excel. As this survey provides baseline data there were no analyses undertaken showing comparisons over time. Physical activity and nutrition data was analysed by sex and BMI status. Significance testing of differences between sex and differences between weight status was achieved using chi square testing.

3. SURVEY RESULTS

3.1. Sample demographics

A total of 1,311 children participated in the ACTPANS during May and June 2006. The survey was administered over two different dates within each school - one date for the questionnaire and another date for the height and weight measure. As a result, not all students were able to participate in both activities. This resulted in a total of 162 students participating in only one activity and 1,149 participating in both activities.

Table 1 presents information on the demographic profile of children who participated in the survey as well as comparative data relating to the general population.

Table 1: Sex and age characteristics of survey participants

| <i>Characteristic</i> | Sample % | ^(a)Population % |
|--------------------------------------|-----------------|-----------------------------------|
| Sex | | |
| Male | 49.8 | 50.8 |
| Female | 50.2 | 49.2 |
| Total | 100.0 | 100.0 |
| Age years | | |
| 10 years | 1.9 | - |
| 11 years | 79.3 | - |
| 12 years | 18.5 | - |
| 13 years | 0.3 | - |
| Total | 100.0 | - |
| School type | | |
| Catholic | 26.5 | 26.9 |
| Independent | 12.2 | 12.2 |
| Public | 61.3 | 60.9 |
| Total | 100.0 | 100.0 |
| Main language spoken at home | | |
| English | 88.3 | ^(b) 87.5 |
| Non -English | 11.7 | 12.5 |
| Total | 100.0 | 100.0 |
| Country of birth | | |
| Australia | 81.9 | ^(b) 81.9 |
| Other | 10.8 | 11.7 |
| Not stated | 7.2 | 6.5 |
| Total | 100.0 | 100.0 |
| Indigenous status | | |
| Aboriginal or Torres Strait Islander | 3.7 | 1.6 |
| No | 93.1 | 94.9 |
| Don't Know | 3.2 | 3.5 |
| Total | 100.0 | 100.0 |
| Area of residence | | |
| Inner North | 7.5 | ^(c) 9.0 |
| Inner South | 6.5 | 5.0 |
| Woden | 7.2 | 9.0 |
| Belconnen | 31.7 | 25.0 |
| Weston | 2.2 | 6.0 |
| Tuggeranong | 37.7 | 34.0 |
| Gungahlin | 7.5 | 11.0 |
| Total | 100.0 | 100.0 |
| NSW | 2.1 | - |
| Not stated | 2.5 | - |

^(a) ABS Census, 2001

^(b) Percent relates to total population

^(c) Percent relates to all children aged 0-14 years

It can be seen that equal proportions of boys and girls participated in the survey with the most common age being 11 years. The proportion of students in each school type reflects the pattern seen in the wider population. There was, however, some variation between the sample and population in regards to area of residence, with a slight under-representation of children from Weston and Gungahlin and slight over-representation of children from Belconnen. Children's status in regards to country of birth and English spoken at home were similar to the population. However, there was a slight over-representation of indigenous children seen in the sample.

3.2. Physical Activity

Physical activity in young people includes formal and informal involvement in sports and play, physical education classes in school, active transport such as walking or cycling to school, and other activities that increase the heart rate.

The Australian Government Physical Activity Recommendations for children and young people state that:

- Children and young people should participate in at least 60 minutes (and up to several hours) of moderate to vigorous intensity physical activity every day.
- Children and young people should not spend more than 2 hours a day using electronic media for entertainment (eg computer games, internet, TV), particularly during daylight hours.¹⁵

Physical activity is not an easy concept to measure, particularly in relation to children. This is due to the difficulty in accurately gauging levels of intensity, duration and frequency of physical activity. Often children's physical activity manifests itself in spontaneous play, which tends to be unplanned with a stop start quality about it.¹⁶ It has been argued that this sporadic nature of play makes it difficult for children to be as consciously aware of their level of exertion as might be the case with planned physical activity which in turn may have implications for accurate recall of a child's involvements in physical activity.¹⁶

Employing direct measures of physical activity such as pedometers/accelerometers, heart rate monitoring and more sophisticated measures such as double-labelled water assessment can be used to help avoid the problems with recall accuracy. However the expense and inconvenience in using these measures do not justify their use in large scale epidemiological surveys.¹⁷

For this reason self-report measures with demonstrated reasonable levels of validity were assessed for their suitability for use in the ACTPANS. This assessment resulted in several questions being selected. These questions include the Moderate to Vigorously Physical Activity screening instrument (MPVA) as a measure of general physical activity levels. The MPVA is used in the WHO Health Behaviours in School Children's (HBSC) survey that is conducted in 35 countries every 4 years.¹⁸ This instrument was selected on the basis that it yields acceptable validity and reliability ratings¹⁹ and is also able to inform on the number of children who meet the Australian guidelines. Two other questions adapted from the MPVA were used to measure physical activity outside and inside of school.

Questions were also included to measure active transport and involvement in organised sport. They were developed in collaboration with the Centre for Physical Activity and Nutrition at Deakin University. Questions measuring attitudes to physical activity were also included. These questions were adapted from the Children's Leisure Activities Study Survey (CLASS).²⁰

Questions measuring sedentary activity were selected from the HBSC survey. These questions have been correlated with the MPVA questions on general physical activity levels.¹⁸

The following sections present findings from the ACTPANS in relation to children's participation in physical activity. Information is included on children's general physical activity levels - both in school and outside of school; involvement in organised sport; active transport; and, levels of sedentary activity. Information is also included on children's attitudes toward physical activity.

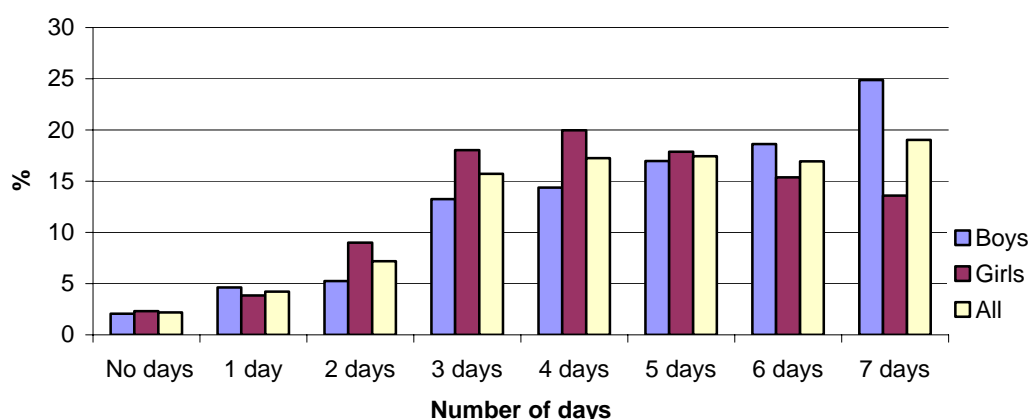
General physical activity

The Australian Government recommendations state that children and young people should participate in at least 60 minutes (and up to several hours) of moderate to vigorous intensity physical activity every day.

Figure 1 shows the percentage of boys and girls who were moderately to vigorously physically active for at least 60 minutes each day by the number of days in a week. It can be seen that around one in five (19%) children reported to be moderately to vigorously physically active for at least 60 minutes everyday and thus are meeting the Australian Government physical activity guidelines. Boys (24.9%) were more likely than girls (13.6%) to report being moderately to vigorously physically active for at least 60 minutes every day with this difference being statistically significant ($p < .01$).

More than two-thirds of children reported to be moderately to vigorously physically active for at least 60 minutes on 4 days or more in a week with boys (74.8%) more likely to report this level of activity than girls (66.8%) with this difference also being statistically significant ($p < .01$). The mean number of days that children reported to be moderately to vigorously physically active for at least 60 minutes a day was 4.8 days per week for boys and 4.3 days for girls.

Figure 1: Percentage of children who were moderately to vigorously physically active for at least 60 minutes each day by the number of days a week, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Physical activity at school

Schools provide many opportunities for young people to engage in physical activity and can play an important role in motivating young people to stay active.

PE and sport classes

An appropriately designed and delivered PE curriculum in school can enhance overall physical activity and improve skills and abilities.²¹ Findings from the ACTPANS revealed that children reported to participate in physical education or sport classes during class-time on an average of 3 times a week. There was no difference between girls and boys in children's participation.

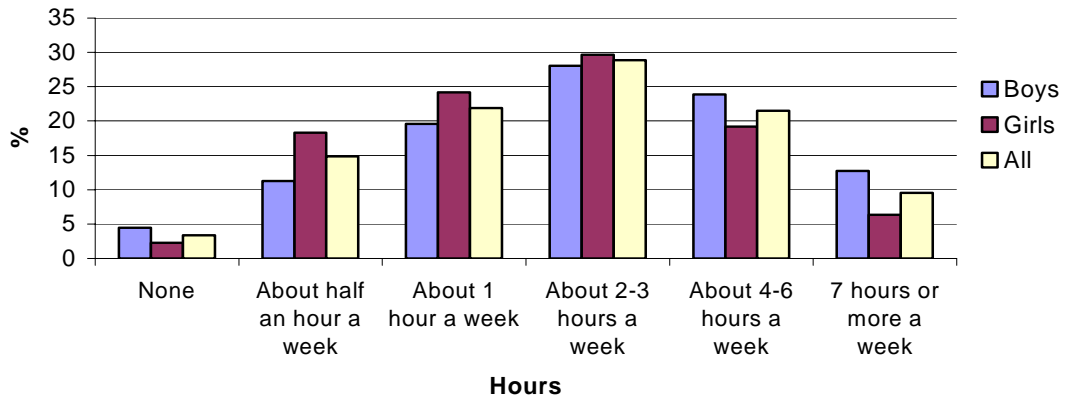
Physical activity at school in free-time

Children were asked to report how many hours in a week they were moderately to vigorously physically active at school in their free time. Free time excludes class-time activities such as PE and sports class and includes play and sports at recess and lunchtimes.

Figure 2 shows the number of hours children were moderately to vigorously physically active at school in a usual week, not including class-time, for boys and girls. Nearly one-third (31.1%) of all children reported to be physically active at school during their free time for 4 hours or more in

a week with boys (36.1%) more likely to report this than girls (26.1%). A larger proportion (40.1%) of children reported to be physically active for 1 hour or less in a week with girls (44.7%) more likely to report this level of activity than boys (35.3%). These differences were found to be statistically significant ($p < .01$).

Figure 2: Number of hours physically active at school in a week - excluding class-time, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

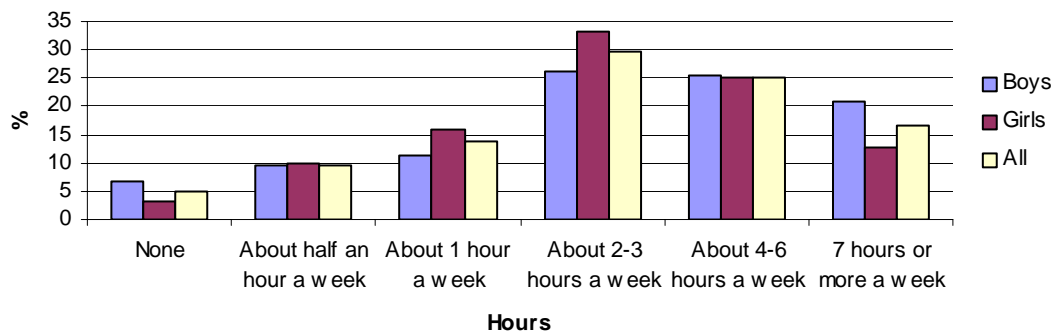
Physical activity outside of school

Active play and involvement in organised sport as well as active transport are key components of a physically active lifestyle in children. This section investigates these three components.

Children were asked to report how many hours they spent being moderately to vigorously physically active outside of school in a week. This included time spent playing outside, and involvement in sports training and games.

Figure 3 shows 58.1% of children were physically active outside of school for no more than 3 hours in a week with girls more likely to show this level of activity (62.3%) and than boys (53.7%). Over one-quarter (28.3%) of children reported to be physically active for 1 hour or less a week. Forty-one percent of children reported to be physically active outside of school-time for at least 4 hours or more in a week with boys (46.3%) more likely to report this than girls (37.8%).

Figure 3: Hours spent being moderately to vigorously physically active outside of school in a week, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Organised sport

Involvement in organised sport is popular among young people, bestowing additional benefits such as sporting and team building skills, social connectedness and motor skill development. Children were asked to report what organised sport they had been involved in during the current school term. Involvement included all training, games and matches.

Around three-quarters of all children reported (girls=77%, boys=74.4%) participating in an organised sport during the current school term.

Table 2 presents the top 10 organised sports children participated in during the current school term. Overall, soccer, swimming and dance were the most popular forms of organised sports, with soccer ranking first for boys (26.8%) and second for girls (21.4%). For boys, soccer was twice as popular than any other sport. For girls, dance, soccer and swimming were similarly popular.

Table 2: Top 10 organised sports children participated in during the current school term, by sex

| Boys | % | Girls | % |
|--------------|------|--------------|------|
| Soccer | 26.8 | Dance | 22.7 |
| Swimming | 13.7 | Soccer | 21.4 |
| Rugby league | 13.3 | Swimming | 19.1 |
| Tennis | 12.2 | Netball | 16.4 |
| Rugby union | 10.8 | Running | 13.5 |
| Running | 10.7 | Basketball | 8.9 |
| Played AFL | 9.9 | Tennis | 7.6 |
| Cycling | 9.2 | Horse-riding | 6.7 |
| Martial arts | 7.5 | Cycling | 5.7 |
| Basketball | 5.9 | Martial arts | 5.7 |

Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

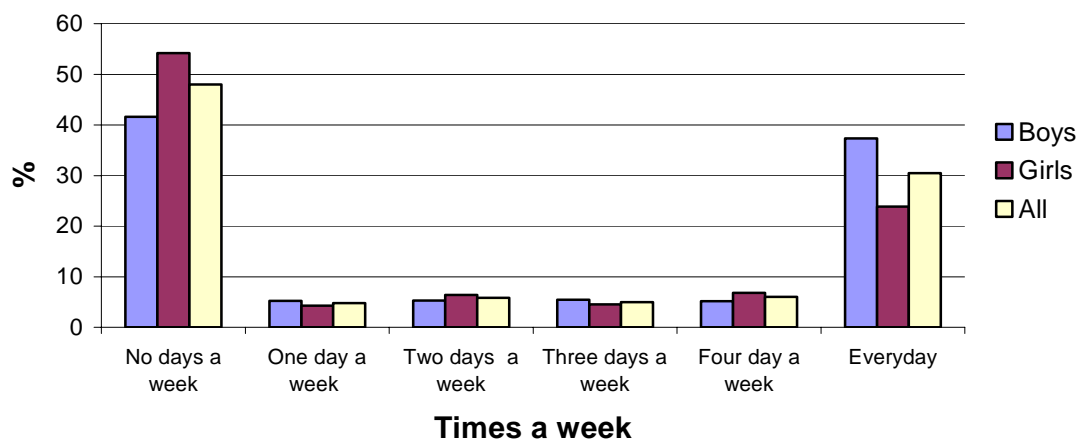
On average, in a typical week during the school term, children participated in up to two different types of organised sports. Boys devoted slightly more time to involvement in an organised sport reporting a participation rate of 2.7 times a week on average (girls=2.3 times a week).

Active transport

Active transport is an ideal way of increasing incidental physical activity and involves modes of travel such as walking and riding a bicycle. Children were asked what mode of transport they used to and from school in a typical week and how often they used each mode of transport. Figure 4 and Figure 5 present findings on the proportion of children who rode or walked to and from school.

Figure 4 shows that overall, 30% of children reported that they either walked or rode their bike to school everyday with nearly 50% doing so at least once a week. Nearly one half of all children reported to neither walk nor ride their bike to school during a typical week. On average, girls were 25% less likely than boys to travel this way to school on any number of days during a week. Differences between boys and girls were statistically significant ($p < .01$).

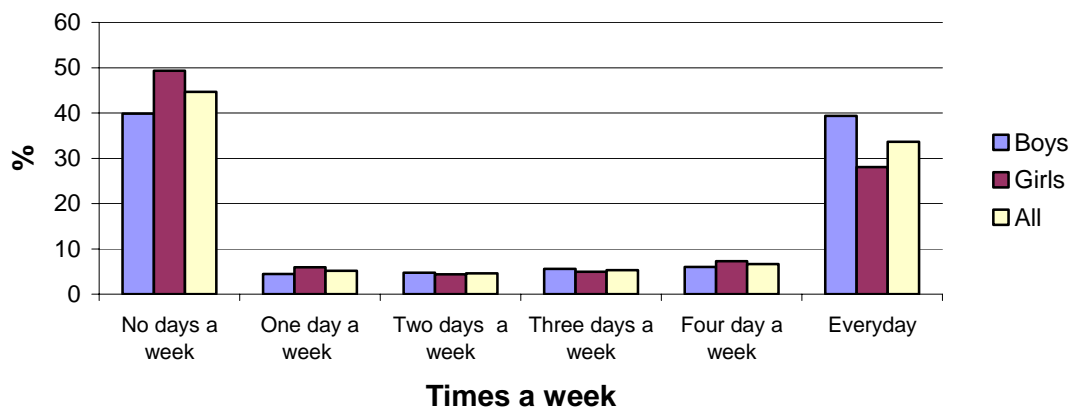
Figure 4: Walking or riding from home to school, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 5 shows that one-third of children either walked or rode their bike home from school every day and around 50% used these modes of transport at least one day in a typical week. As with transport to school, boys were on average 25% more likely to travel this way from school than girls. Around 40% of boys and 50% of girls reported never travelling this way home from school during a typical week. These differences were statistically significant ($p < .01$).

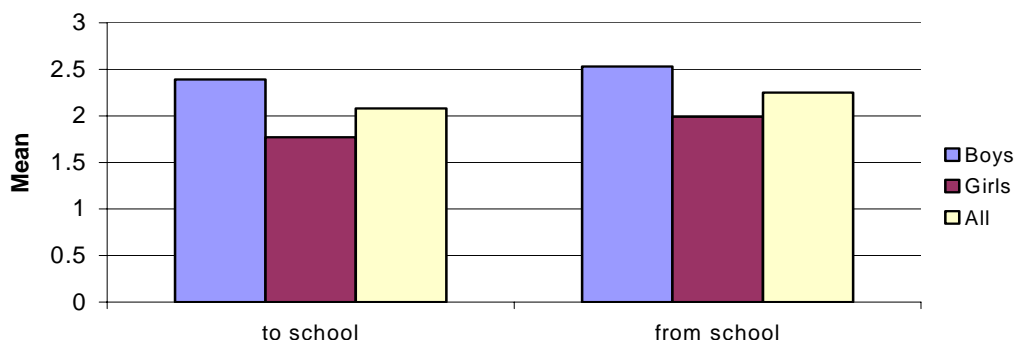
Figure 5: Walking or riding home from school, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 6 shows that the average number of days in a week that children walked or rode their bike to school in a week was 2.4 for boys, 1.8 days for girls and just over 2.0 days for all children. The average number of days that children walked or rode their bike home from school was 2.5 for boys, 2.0 for girls and 2.3 for all children.

Figure 6: Average number of days a week children walked or rode their bike to and from school, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Sedentary activity

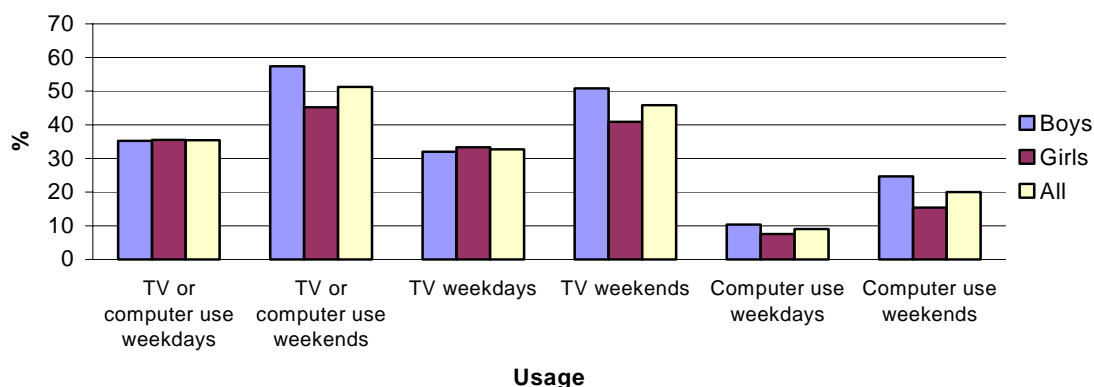
Sedentary activity is linked to obesity in children and adolescents.^{22 23 24} It is, however, unclear what the mechanism behind this link is. Being sedentary may mean less time to spend being physically active and may also lead to poor eating habits in terms of both the quantity and type of food consumed. In addition, sedentary behaviours involving TV viewing can lead to constant exposure to junk food advertising which in turn may influence children's food preferences.

The Australian Government Physical Activity Recommendations state that children and young people should not spend more than 2 hours a day using electronic media for entertainment e.g. computer games, internet, TV, particularly during daylight hours.

Figure 7 shows that slightly more than one-third of all ACT children spent time using electronic media (defined by TV viewing and computer use) for more than 2 hours each day on weekdays with little difference between boys (35.3%) and girls (35.5%). This means that nearly two-thirds of all children were found to be meeting the guidelines during weekdays.

More than half of all children reported these activities for more than 2 hours a day on weekends with boys (57.4%) more likely to report this than girls (45.2%) ($p < .01$). Overall, television viewing was more popular with children than using the computer for more than 2 hours a day on weekdays (TV=32% and computer=10.3%) and weekends (TV=45.8% and computer=20.2%). Less than 5% of all children reported no TV viewing at all on weekdays or weekends. Around 26% of all children reported no computer use on weekdays and 16.4% reported no computer use on weekends.

Figure 7: Children's reported sedentary activity of greater than two hours a day, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Attitudes to physical activity

Investigating children's attitudes to physical activity may provide insights for understanding the issues associated with supporting and encouraging children's involvement in physical activity. In the ACTPANS, children were presented with a number of statements describing attitudes to physical activity. They were required to nominate how much they agreed or disagreed with these statements.

Children were asked how much they agreed with the statement "I do a lot of physical activity". Responses indicated that more than three-quarters of children either agreed or strongly agreed with this statement (boys=79.3, girls=73.9%). Less than 10% of all children either disagreed or strongly disagreed.

Table 3 presents statements containing attitudes that may represent potential barriers to physical activity for children.

It can be seen that for boys, agreement with the statement "I prefer to watch television or play on the computer" (27.4%) was more common than other statements. This was followed by agreement with the statements "I look funny when I am physically active" (19%) and "I don't have anyone to be physically active with" (18%).

For girls, agreement with the statement "I look funny when I am physically active" (22.8%) was more common than other statements. This was followed by agreement with the statements "I don't have anyone to be physically active with" (18.5%) and "I don't think I am very good at physical activity" (18.3%).

In general there was little difference between boys and girls in their agreement with these statements with the exception of the statement "I prefer to watch television or play on the computer" (Boys=27.4%, Girls=15.6%). This difference was found to be statistically significant ($p < .01$).

Table 3: Attitudes to physical activity by boys and girls who agreed or strongly agree with statements

| | Boys | Girls | All |
|---|------|-------|------|
| I prefer to watch television or computer [than be physically active] | 27.4 | 15.6 | 21.4 |
| I look funny when I am physically active | 19.0 | 22.9 | 21.0 |
| I don't have anyone to be physically active with | 18.8 | 18.1 | 18.4 |
| I don't think I am good at physical activity | 16.5 | 18.3 | 17.4 |
| I don't like how being physically active makes me feel | 14.8 | 17.6 | 16.2 |
| I'm scared I might get hurt if I played a sport | 8.7 | 10.3 | 9.5 |
| Don't have enough time to be physically active | 9.3 | 8.4 | 8.9 |
| There are no parks or sport grounds near where I live | 10.0 | 5.9 | 7.9 |
| I don't like physical activity | 7.7 | 6.5 | 7.1 |
| I don't have proper clothing to be physically active | 8.4 | 5.7 | 7.1 |
| Other kids make fun of me when I am physically active | 8.0 | 5.7 | 6.9 |
| I have an injury that prevents me from being physically active | 6.6 | 5.6 | 6.1 |
| I have a health problem that prevents me from being physically active | 4.9 | 5.2 | 5.1 |

Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Physical activity: summary and discussion

Summary

In summary, findings in relation to Year 6 boys and girls reported physical activity are as follows.

General physical activity

- Around one in five Year 6 children (19%) reported to be moderately to vigorously physically active for at least 60 minutes every day.

Physical activity at school

- Children reported participating in physical education (PE) or sport classes during class-time at school on an average of 3 times a week.
- Around 40% of children reported being moderately to vigorously physically active at school outside of class-time (lunch-time and recess) for no more than 1 hour a week.

Physical activity outside of school

- Around 58% of children reported to be physically active outside of school for no more than 3 hours in a week.
- Approximately three-quarters of children reported to be involved in an organised sport during the current school term.
- Soccer, swimming and dance were the most popular forms of organised sports that children reported participating in.
- Close to one-third of all children reported walking or riding a bike to or from school every day.
- Around 50% of girls and 40% of boys reported to never ride or walk to or from school.

Sedentary activity

- Nearly two-thirds of all children are meeting national guidelines of using electronic media no more than 2 hours a day during weekdays.
- Around 43% of boys and 55% of girls reported to either watch TV or use a computer for no more than 2 hours each day on the weekend.

Attitudes to physical activity

- Around three-quarters of children either agreed or strongly agreed with the statement "I do a lot of physical activity".
- Twenty-seven percent of boys either agreed or strongly agreed with the statement "I prefer to watch television or play on the computer" [than be physically active].
- Twenty-three percent of girls either agreed or strongly agreed with the statement "I look funny when I am physically active".

Discussion

General physical activity

The findings in relation to general physical activity show that one in five children reported to be moderately to vigorously physically active for at least 60 minutes every day. This indicates that only a minority of children are meeting the national guidelines for physical activity. In interpreting this, it is important to note that although most children reported to not be moderately to vigorously physically active for a minimum of 60 minutes every day in a week, children may well have spent longer than 60 minutes on the days they reported to be physically active at the minimum level. Likewise, children may have been moderately physically active for some period every day, however they may have been unable to achieve a minimum level of 60 minutes each day.

Although only a small proportion of children met the national guidelines, the majority of children were physically active at a sufficient level on most days in a week. More than two-thirds of all children reported to be moderately to vigorously physically active for at least 60 minutes on a minimum of four days during a week with boys reporting a higher average (4.8 days) than girls (4.3 days). These findings compare favourably with the findings from studies using the same methodology (MVPA¹⁹). Results from the most recent WHO Health Behaviours in School Children report (2001/02 HBSC¹⁸) indicates that the average level across 35 participating countries was 4.2 days for boys and 3.8 days for girls. The greater physical activity levels seen in boys is consistent with findings from similar studies.^{25 26}

Physical activity in school

Findings in relation to children's physical activity at school during their free time indicate that two-thirds of children are moderately to vigorously physically active for a maximum of 2-3 hours in a week with the majority of these children being active for an hour or less. As schools generally allow around 5 to 6 hours of playtime during the week, these findings indicate that most children spend less than half their free-time being physically active, a finding not surprising given that playtime at school is also spent eating snacks and lunch and involvement in activities such as going to the library. As with general physical activity there is a distinct sex difference in physical activity levels at school with girls being less moderately to vigorously active than boys.

The average number of PE or sport classes children participated in during school time was three classes a week, indicating that on most days during class children are spending some period of that time being physically active.

Physical activity outside of school

The finding that more than half of all children reporting to be moderately to vigorously physically active outside of school for 3 hours or less in a week indicate that a large proportion of children generally spend a small portion of their time outside of school being moderately to vigorously physically active.

However, three-quarters of ACT Year 6 children reported to participate in at least one organised sport during the school term indicating that most children are engaged in some form of formalised physical activity outside of school. This figure compares favourably to national results that indicate that between 63% and 70% of Australian children aged 9 to 14 years are involved in an organised sport.²⁷

ACT children also reported to be involved in an organised sport on an average of 2.7 times a week for boys and 2.3 times a week for girls. This finding when viewed in the context of children's reported physical activity levels outside of school suggests that children are spending a large portion of their physical activity outside of school being involved in organised sport and perhaps less time being involved in informal physical activity such as active play.

Active transport

The findings in relation to active transport indicate an even split between children who either walked or rode their bike to or from school at least one day a week and those that did not at all. This finding is similar to those found in the WA CAPANS where 50% of primary and secondary school children reported no active transport.¹⁰ Interestingly, unlike this study, the CAPANS found no difference in active transport between boys and girls.

Sedentary activity

Sedentary levels in relation to TV viewing and computer use on weekdays show that nearly two-thirds of children are meeting the national guidelines of watching television or using the computer for no more than two hours each day. This finding compares favourably to the WA CAPANS where only 38% of 12 year old boys and 30% of 12 year old girls reported to watch no more than two hours television during the day.¹⁰

3.3. Nutrition

The NHMRC Dietary Guidelines²⁸ state that children and adolescents need sufficient nutritious foods to grow and develop normally. This means they should enjoy a wide variety of nutritious foods and be encouraged to:

- eat plenty of vegetables, legumes and fruits;
- eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain;
- include lean meat, fish, poultry and/or alternatives;
- include milks, yoghurts, cheese and/or alternatives;
- choose water as a drink;
- not drink alcohol as it is not recommended for children; and
- take care to;
 - limit saturated fat and moderate total fat intake;
 - not use low-fat diets for infants;
 - choose foods low in salt; and
 - consume only moderate amounts of sugars and foods containing added sugars.

A balanced diet, coupled with regular exercise is central to a healthy lifestyle in children. The ratio between energy intake and expenditure also plays a key role in healthy living. When energy intake exceeds energy expenditure, the development of overweight and obesity can follow.²⁹ Dietary factors that promote excessive energy intake can often lead to excessive weight gain.³⁰ Research has delineated several dietary factors that promote excessive energy intake in children. These include, food habits such as:

- fruit and vegetable intake,²⁸
- frequency and quantity of consumption of energy dense foods,³¹
- portion size,³²
- the frequency of fast food restaurant visits,³³
- meal patterns;³⁴
- home food environments; and³⁵
- food preferences.³⁶

The following sections include findings from the survey related to these factors as well as food intake in general. Due to measurement difficulties, information on portion size was not collected in this survey.

General food intake

This section looks at children's patterns of consumption in relation to general food intake.

The types of foods investigated in the ACTPANS are by no means representative of the complete diet of survey participants. Examining total dietary intake is best achieved using a food diary or a 24 hours dietary recall, methods which tend to be costly and time-consuming. Instead, the ACTPANS used a food frequency questionnaire to investigate food habits, a method that is cost efficient and yields reliable findings on indicator foods. Most of the questions used in the ACTPANS to measure foods habits were adapted from the NSW Schools Physical Activity and Nutrition Survey (SPANS).³⁷ Foods investigated in the SPANS were selected on the basis of having a known association with obesity and/or overall health status.³⁷ These foods include, fruits, vegetables, bread, rice and pasta, meat, chicken, fish, confectionary, milk, fruit juice, hot chips, potato crisps and salty snacks.

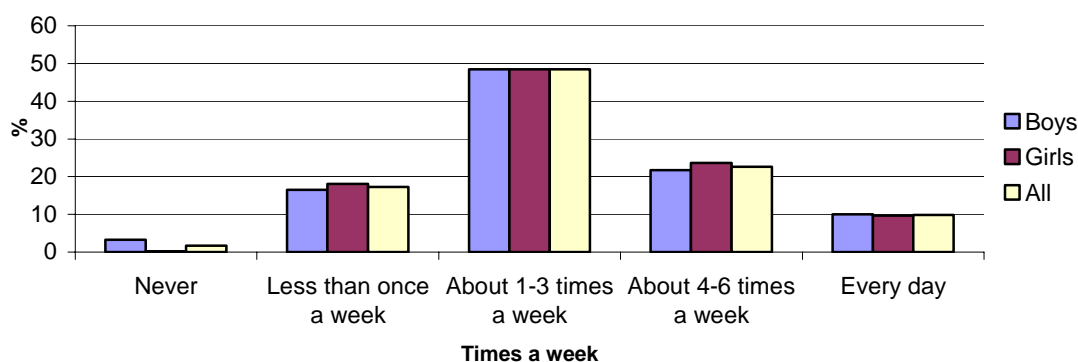
The ACTPANS investigated several additional food items, selected on the basis of their high energy density and popularity with children. These food items include, pies and sausage rolls, pastries, cakes and biscuits, energy bars, ice-creams, soft-drinks and fast foods items.

Bread, pasta, rice and noodle consumption

Bread, pasta, rice and noodles tend to be nutrient dense and provide much of the carbohydrate requirements of children. The Australian Guide to Healthy Eating recommends that these foods form the main part of the diet of children aged 8-11 years.³⁸

Figure 8 shows reported consumption of pasta, rice and noodles by sex. Boys and girls generally consumed these foods items on a similar number of occasions in a usual week. Close to half of all boys and girls reported consuming these foods between 1 and 3 times a week. Overall, around 8 in 10 children reported to eat pasta, rice or noodles at least once a week with 10% consuming this food every day.

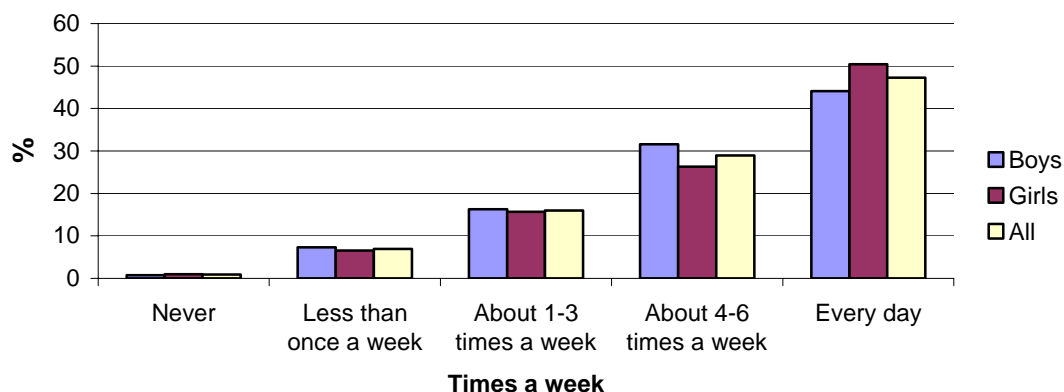
Figure 8: Usual consumption of pasta, rice and noodle, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 9 shows children’s consumption of bread and bread rolls. Although girls (50.4%) were more likely than boys (44%) to report eating bread everyday ($p < .05$) boys (76%) and girls (77%) were equally likely to eat bread or bread rolls at least 4 times a week. Less than 1% of all children reported to never consume these foods.

Figure 9: Usual consumption of bread and bread rolls, by sex



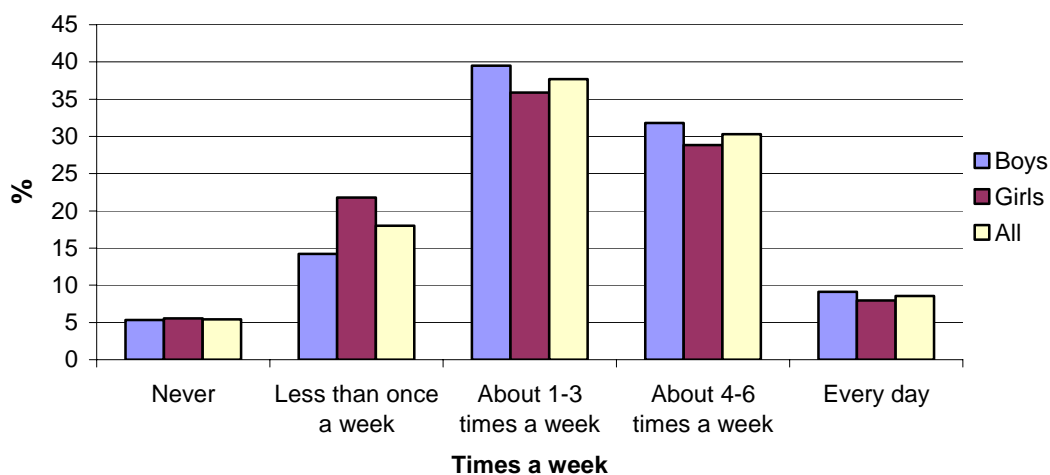
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Meat, fish and poultry consumption

Meat, fish and poultry contribute important nutrients in an Australian diet, including, protein, iron, zinc and vitamin B12²⁸. Fish, in particular, contributes valuable Omega-3 DHA 'docosahexaenoic acid', an essential fatty acid implicated in healthy brain development, healthy weight and cardiovascular health.^{39 40 41}

Figure 10 shows the usual consumption of red meat for boys and girls. In general, boys and girls reported eating red meat on a similar number of occasions in a usual week. Around 35% of girls and 40% of boys reported eating red meat about 1-3 times a week. Less than 1 in 10 children (boys=9.1%, girls=7.9%) reported eating red meat everyday. Overall, around 41% of boys and 37% of girls reported to eat meat at least 4 times a week.

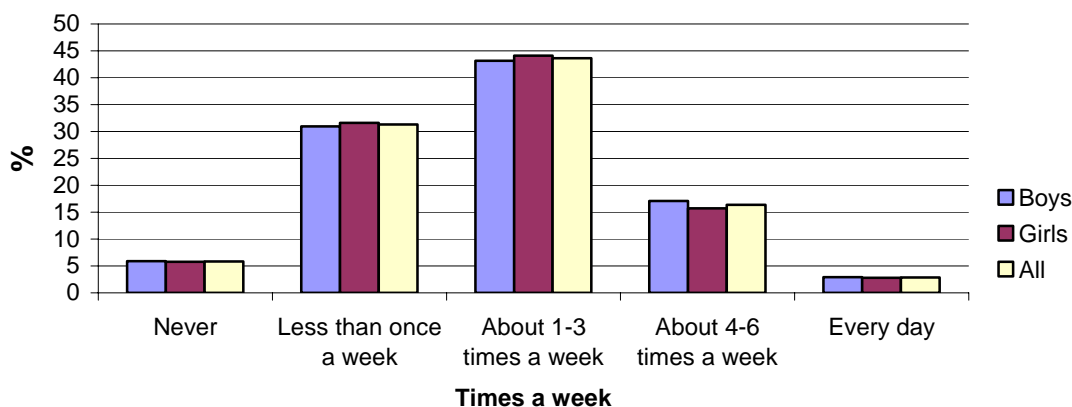
Figure 10: Usual consumption of red meat, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 11 shows the usual consumption of chicken, duck or turkey. Boys and girls tended to eat these meats on a similar number of occasions in a usual week. Around 40% of boys and girls reported eating chicken, duck or turkey about 1-3 times a week. Less than 6% of children reported to eat these foods every day. Overall, around 20% of children reported eating chicken, duck or turkey more than 3 times a week.

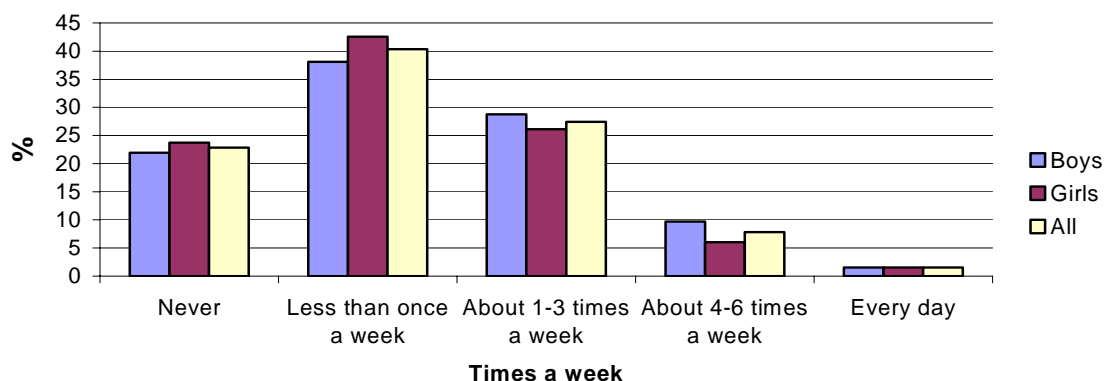
Figure 11: Usual consumption of chicken, duck or turkey, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 12 shows the usual consumption of fish for boys and girls. As with red and white meat consumption there was little difference between boys and girls in their patterns of eating fish. Two-thirds of all children (62.9%) reported eating fish less than once a week or never eating fish. Less than 2%* of boys and girls reported to eat fish every day. Around 29% of boys and 26% of girls reported to eat fish between one and three times a week. Overall, 90.6% of children reported eating fish no more than three times a week.

Figure 12: Usual consumption of fish, by sex



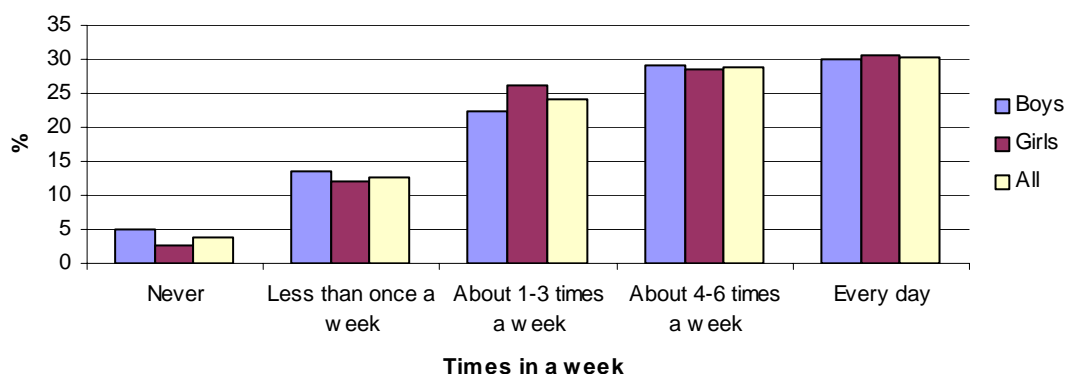
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Fruit juice consumption

Fruit juice can represent a good source of vitamin C and is popular among children. However, it is high in sugar and can lead to excess energy intake if consumed in large quantities. Presented below are findings related to children’s fruit juice consumption. Distinctions between 100% fruit juice and non-pure fruit juice were not investigated given difficulties in children’s ability to identify the difference.

Figure 13 shows that 59.2% of boys and girls reported drinking fruit juice at least 4 times a week with half of these children reporting to do this everyday. Of those reporting to drink fruit juice everyday the average consumption was approximately 2.5 times per day. There was little difference between boys and girls in their pattern of fruit juice consumption.

Figure 13: Usual consumption of fruit juice, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

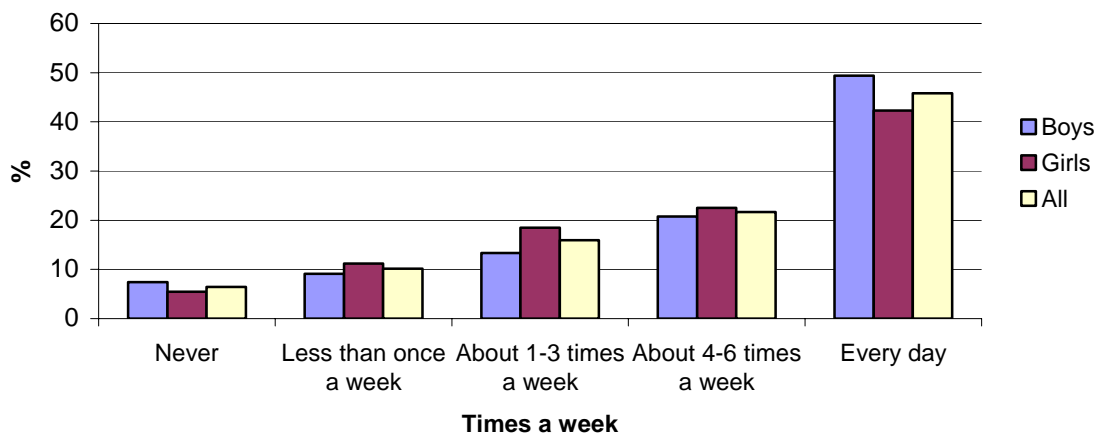
* This percentage yields a relative standard error of more than 25% and thus should be interpreted with caution.

Milk consumption

Milk is a major source of key nutrients, including calcium, vitamin A, riboflavin, vitamin B and zinc. Milk also provides around 20% of the saturated fat intake of children and 14% of adolescents. The NHMRC therefore recommend children over two years of age consume mainly low-fat milk products.²⁸ Presented below are the findings related to children's milk consumption. As it is difficult for children to identify the fat content in the milk they consume, information on fat content was not collected.

Figure 14 shows that boys were more likely to consume milk than girls. Close to half of all boys (49.4%) compared to 42% of girls reported drinking milk everyday. This difference was found to be statistically significant ($p < .05$). Around one-third of all children (32.5%) drank milk on 3 days or less in a usual week and 7.4% of boys and 5.6% of girls reported never drinking milk.

Figure 14: Usual consumption of milk, including soy milk, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

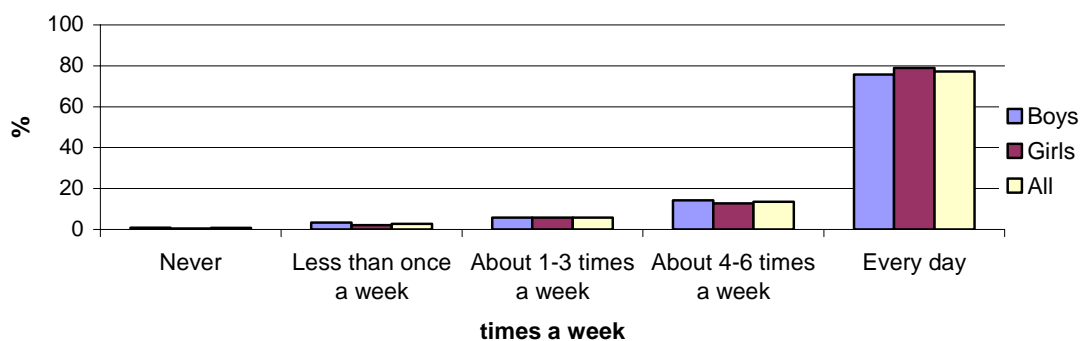
Water consumption

Adequate fluid intake is essential for maintaining a healthy body. To avoid excessive sugars and fats the NHMRC recommend that children drink water as their main source of fluid intake.²⁸

Figure 15 shows usual consumption of water for boys and girls. Around three-quarters (77.2%) of boys and girls reported drinking water every day. However, one child in ten (11.2%) reported to drinking water no more than three times a week with 1%* reporting to never drink water. Children who drank water everyday reported doing this around 5 times a day on average.

* This percentage yields a relative standard error of more than 25% and thus should be interpreted with caution.

Figure 15: Usual consumption of water, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Fruit and vegetable consumption

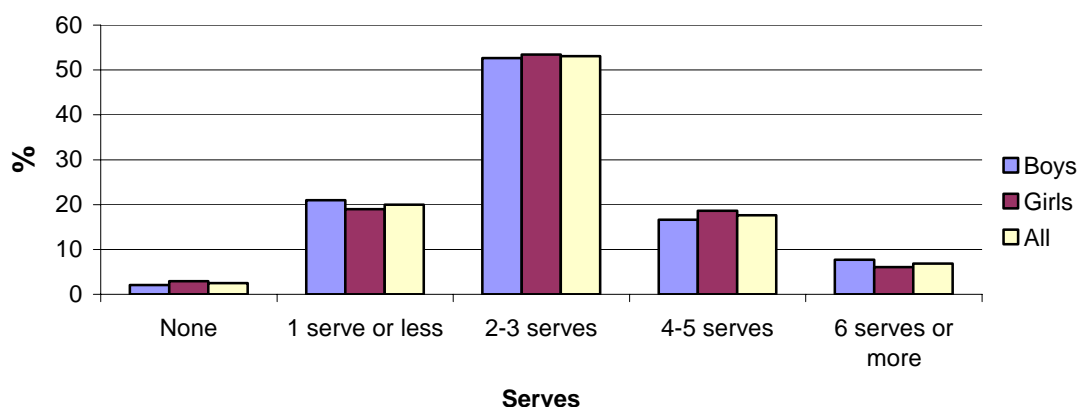
Eating fruit and vegetables is key to a healthy diet. Research indicates that a diet high in fruit and vegetables provides protection against a range of chronic diseases including cardiovascular disease, cancer, stroke, cataracts and macular degeneration, and Type 2 diabetes.²⁸ In addition, due to their high water and fibre content, incorporating fruit and vegetables in the diet can reduce energy density, promote satiety, and decrease energy intake.²⁸

The Australian Guide to Healthy Eating (AGHE) recommends a minimum number of serves of fruit and vegetables for people to consume each day in order to maintain a healthy diet.⁴² In regards to fruit, children aged 11 and 12 years are recommended to consume 2 and 3 serves of fruit a day respectively. In regards to vegetables, children aged 11 and 12 years are recommended to consume 3 and 4 serves of vegetables each day respectively.

Figure 16 and Figure 17 show the number of serves children reported to eat each day. Although the response categories do not match up with the recommended number of serves, they give a general indication of the proportion of young people complying with the guidelines.

Figure 16 shows the number of serves of fruit that children reported to consume in a usual day. In general, over three-quarters (77.5%) of children reported eating at least 2-3 serves of fruit in a usual day. Around 1 in 5 children (22.5%) reported eating 1 serve or less each day.

Figure 16: Daily serves of fruit consumed by sex

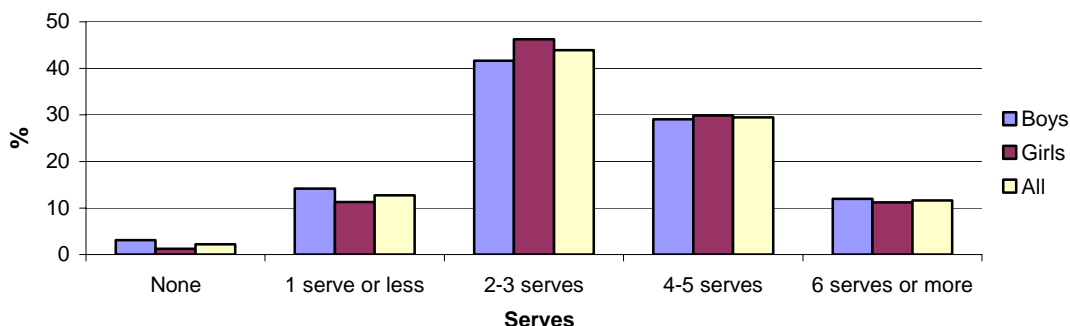


Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 17 shows the number of serves of vegetables that children reported eating in a usual day. In general, 41.1% of boys and girls reported eating 4 serves of vegetables or more in a

usual day with boys and girls showing similar patterns in their vegetable consumption. Close to 3% of boys and 1.2% of girls reported not eating vegetables at all. The most common response category for vegetable consumption was 2-3 serves a day (boys=41.6%, girls=46.2%).

Figure 17: Daily serves of vegetables consumed, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

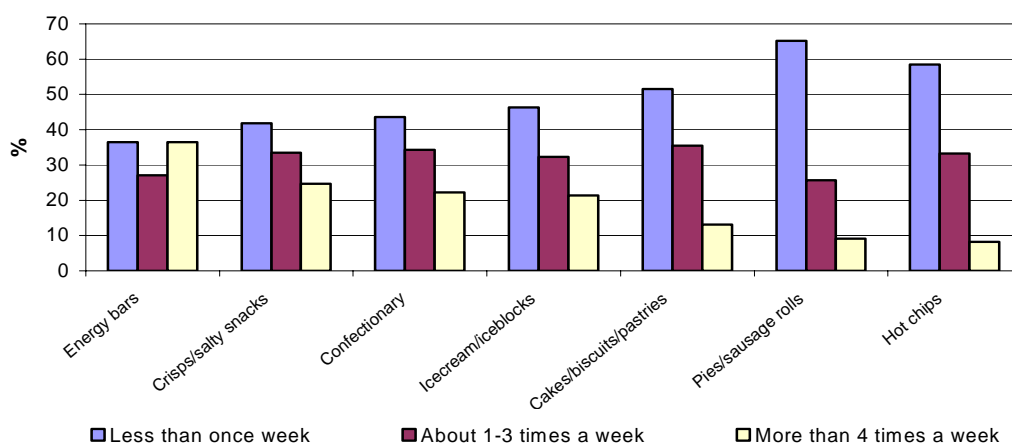
Extra food consumption

The Australian Guide to Healthy Eating describes foods that do not fit into a main food group as “extra foods”. Extra foods tend to be foods that are non-essential for providing the nutrients required in a healthy diet. These foods also tend to be energy dense with high fat, salt or sugar content.⁴³

This section looks at several “extra” foods that are popular among children.

Figure 18 shows the usual consumption of extra foods by Year 6 children. The most popular extra food for children were energy bars. Nearly two-thirds (63.5%) of all children reported eating energy bars at least once a week and 36.5% reported eating this food at least 4 times a week. Although less popular than other extra foods, around one-third (33.2%) of children reported eating hot chips between 1 and 3 times a week. Nearly one-quarter (24.7%) of children reported eating crisps or salty snacks at least once a week. Almost two-thirds (65.2%) of children reported eating pies and sausage rolls less than once a week.

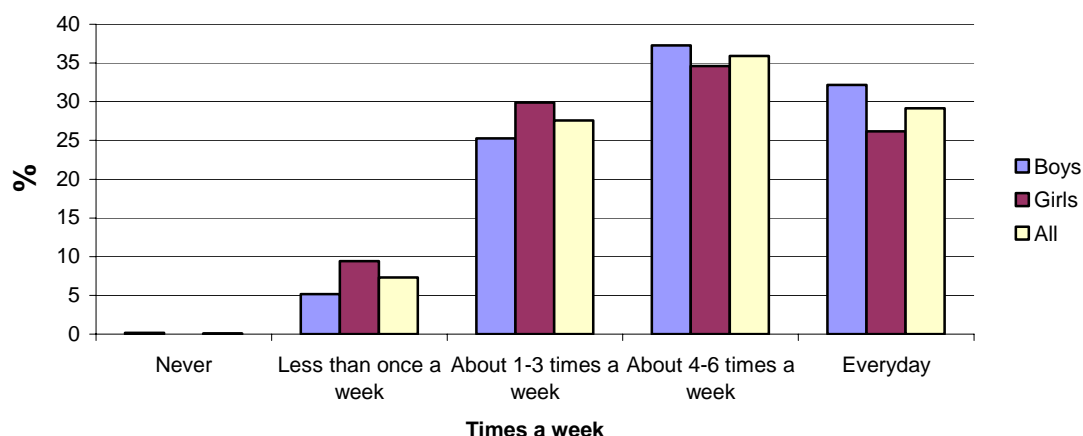
Figure 18: Usual consumption of extra foods, by food types



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 19 shows the usual consumption of at least one extra food in a usual week by sex. It can be seen that consumption of extra foods on a regular basis was more popular for boys than girls. Close to 70% of boys and 61% of girls reported to eat extra foods at least 4 times a week. This included about one-third of all boys and 25% of all girls eating these foods everyday. These differences were found to be statistically significant ($p < .01$).

Figure 19: Usual consumption of extra foods, by sex



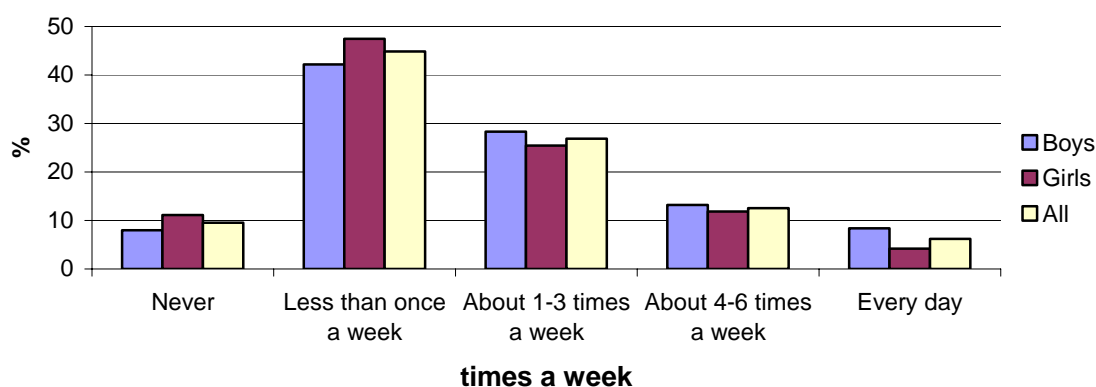
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Soft-drink consumption

Sugary soft-drinks tend to be low in nutrients, high in sugar, and provide low satiety when consumed. Consumption of sugary soft-drinks is also associated with overweight and obesity as well as dental caries in young children.^{44 45} Findings on children’s soft-drink consumption are presented below.

Figure 20 shows overall, boys were more likely to drink sugary soft-drinks than girls. Close to one-half (49.8%) of all boys reported drinking sugary soft-drink at least once a week compared to 41.2% of girls ($p < .01$). Around twice the proportion of boys (8.4%) reported to do this every day, when compared to girls (4.2%). This difference was found to be statistically significant ($p < .05$). Nearly one in ten (9.5%) children reported never drinking sugary soft-drinks.

Figure 20: Usual consumption of coke and other sugary soft-drinks by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

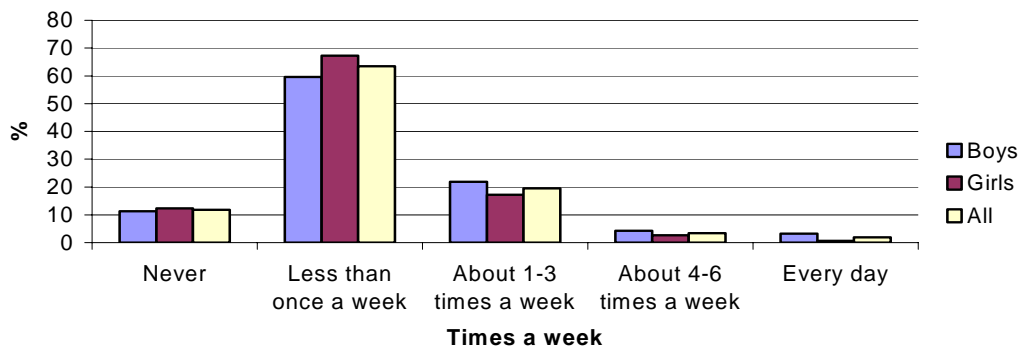
Fast-food consumption

Fast-food is a growing phenomenon in many developed countries with figures indicating that consumption by children has increased by 300% over the last two decades.⁴⁶ Fast-foods tend to be energy dense with high sugar and fat content. Current dietary guidelines recommend limiting the consumption of these types of foods.⁴⁷

Figure 21 shows the usual consumption of fast-food for boys and girls. Overall, boys were more likely to consume food from a fast-food outlet than girls. Thirty percent of boys compared to 20% of girls reported eating food from a fast food outlet at least once a week with this difference

being statistically significant. Less than 7% of children reported doing this more than 4 times in a week, with around 2%* reporting this every day. Around three-quarters of children reported eating foods from a fast-food outlet no more than once a week (boys=71%, girls=80%).

Figure 21: Usual consumption of fast-food by sex



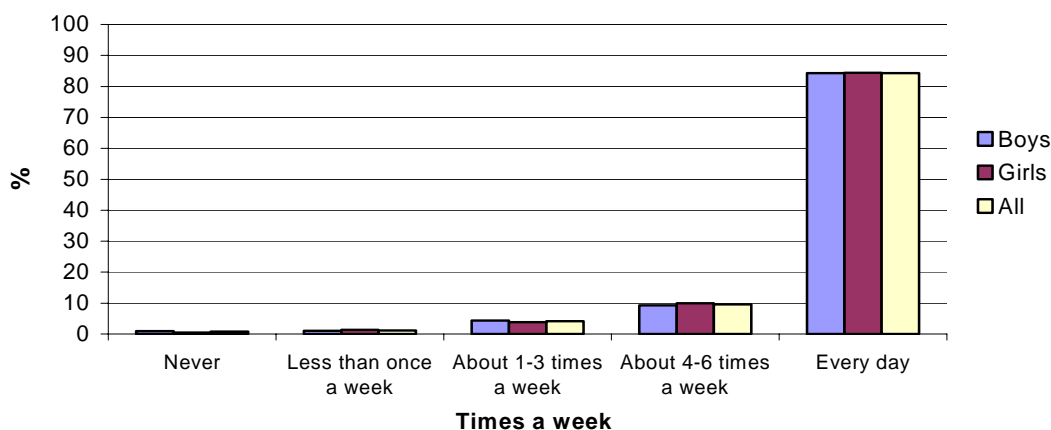
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Meal patterns

Eating regular meals is important for ensuring children maintain a well balanced diet and healthy weight.^{48 49} Questions used in the ACTPANS to measure meal patterns were adapted from the NSW SPANS. Presented below are findings related to children’s consumption of breakfast, lunch and dinner.

Figure 22 shows the usual consumption of food for breakfast in a usual week for boys and girls. Overall, there was little difference between boys and girls in their regularity of eating breakfast. Around 8 in 10 (79.6%) children reported eating breakfast everyday. Less than 12% of children reported eating breakfast no more than 3 times a week.

Figure 22: Usual consumption of breakfast by sex



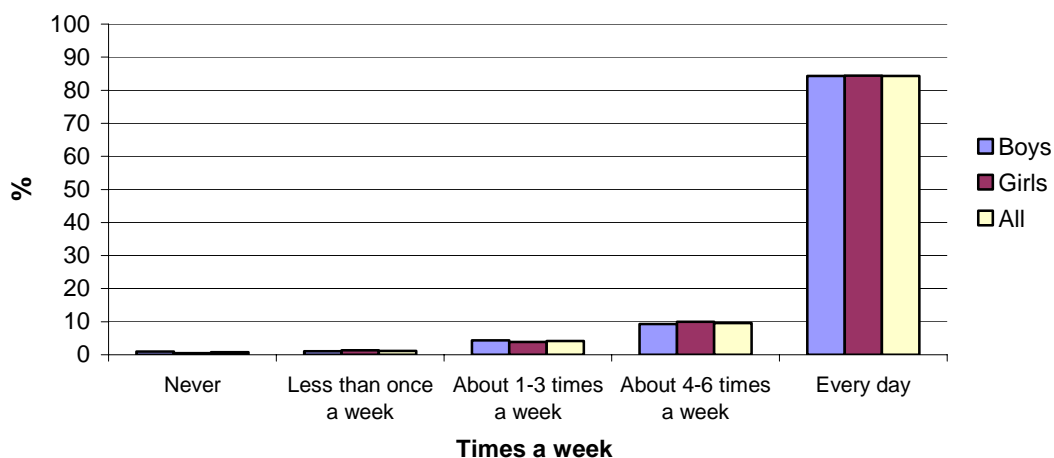
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 23 shows the usual consumption of food for lunch for boys and girls. As with breakfast there was little difference between boys and girls in their regularity of eating lunch. Eighty-five percent of children reported eating lunch every day. Less than 16% reported eating lunch no

* This percentage yields a relative standard error of more than 25% and thus should be interpreted with caution.

more than 6 times in a week. Around 2%* of all children reported eating lunch less than once a week or not at all.

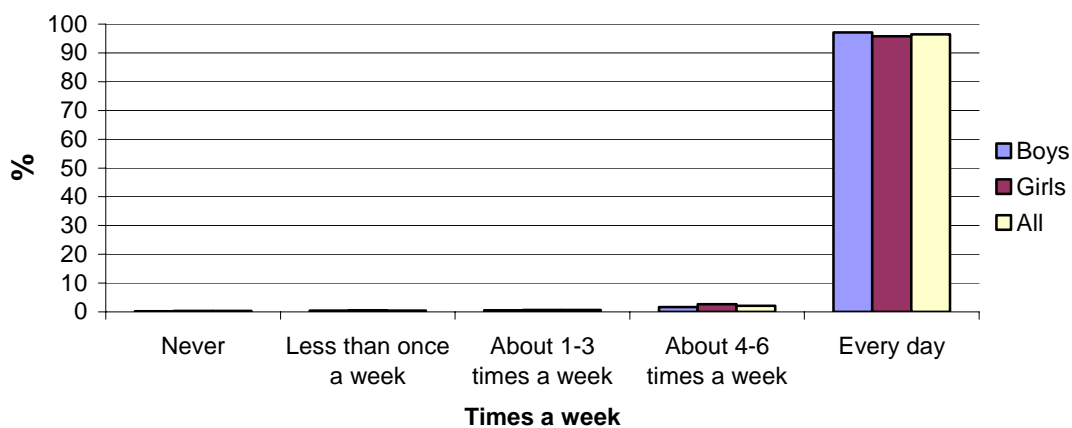
Figure 23: Usual consumption of food for lunch by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 24 shows the usual consumption of food for dinner for boys and girls. Nearly every child (96.4%) reported eating dinner every day. Less than 5%* of boys and girls reported not eating dinner every day. There was no difference between boys and girls in their regularity of eating dinner.

Figure 24: Usual consumption of dinner, by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Children’s eating environments

Children’s eating environments are determined by the availability of foods and the composition of diet as well as patterns and behaviours around eating. Parents and caregivers influence the eating environment in which children’s preferences and intake patterns develop. Having healthy or unhealthy foods readily available in the home may increase the likelihood that these foods will be consumed. In addition, behaviours such as eating around the table and eating three meals a day may also influence the type and quantity of food that children consume.

Presented below are findings in relation to several questions that investigate children’s eating environments. These questions were adapted from the NSW SPANS.¹¹

Table 4: Children’s eating environments – the percentage of children who strongly agreed or agreed with the following statements, by sex

| | Boys | Girls | All |
|--|------|-------|------|
| In my home fruit is available at any time | 92.1 | 93.7 | 92.9 |
| In my home vegetables are usually served with dinner | 91.7 | 93.4 | 92.5 |
| Soft-drinks are usually available in my home | 30.6 | 26.2 | 28.4 |
| I never eat food from a fast food outlet | 16.0 | 15.4 | 15.7 |
| I go to fast food outlets with my family | 57.4 | 51.9 | 54.6 |
| My parent insists that I eat something for breakfast | 90.8 | 91.9 | 91.4 |
| I help prepare meals for my family | 58.3 | 69.7 | 64.0 |
| On school nights in my family we eat dinner in front of TV | 32.6 | 28.2 | 30.4 |
| On weekends in my family, we eat dinner in front of the TV | 39.5 | 36.1 | 37.8 |

Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Table 4 shows that overall, the statements children were most likely to agree with are “In my home vegetables are usually served with dinner”, “In my home fruit is available at any time” and “My parents insist that I eat something for breakfast” with over 90% of children agreeing with these statements.

Table 4 also shows that over one in four children (28.4%) agree with the statement “Soft-drinks are usually available in my home”. In addition, more than half of all children agreed with the statement “I go to fast food outlets with my family”.

Finally, Table 4 shows that boys (58.3%) were less likely than girls (69.7%) to agree with the statement “I help prepare meals for my family”. This difference was found to be statistically significant ($p < .01$). Around one in three children agreed with the statement “On school nights in my family we eat dinner in front of the TV”. A slightly larger proportion of boys (39.4%) and girls (36.1%) reported to eat dinner in front of the TV on weekends when compared to school days. There were no statistically significant differences between boys and girls in regards to these statements.

Attitudes to food

Attitudes which may indicate likes and dislikes to food can reflect important barriers and motivations to the types of food children consume and the frequency in which they are consumed.

Presented below are selected questions that investigate children’s attitudes to fruit and vegetables, soft-drinks and fast-food.

Table 5: Attitudes to selected foods by boys and girls who agreed or strongly agree with statements

| | Boys | Girls | All |
|--|------|-------|------|
| Eating vegetables makes me feel healthy | 78.4 | 84.2 | 81.3 |
| I enjoy the taste of many vegetables | 62.7 | 71.0 | 66.8 |
| Eating fruit makes me feel healthy | 83.4 | 88.2 | 85.8 |
| I enjoy the taste of most fruit | 90.5 | 91.5 | 91.0 |
| I usually choose soft-drinks instead of water or milk | 26.3 | 22.3 | 24.3 |
| I choose soft-drinks with the best TV ads | 16.9 | 8.7 | 12.8 |
| I go to fast food outlets because I like the taste of the food | 61.5 | 53.4 | 57.4 |
| At fast food outlets if I can upsize I usually do | 30.2 | 13.6 | 21.9 |
| I choose the fast food outlet with the coolest TV ads | 11.1 | 6.9 | 9.0 |

Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Table 5 shows in general, that boys were less likely to agree with statements indicating preferences for healthy foods than girls. Instead, boys were more likely than girls to agree with statements indicating preferences for soft-drink and fast food.

It can be seen that girls (88.2%) were more likely than boys (83.4%) to agree with the statement “Eating fruit makes me feel healthy” with this difference being statistically significant ($p < .01$). In addition, girls (84.2%) were more likely to agree with the statement “Eating vegetables makes me feel healthy” than boys (78.4%). This difference was also statistically significant ($p < .01$). There was no difference between boys and girls in their agreement with the statement “I enjoy the taste of most fruit” (girls=91.5%, boys=90.5%). However, girls (71%) were more likely to agree with the statement “I enjoy the taste of many vegetables” than boys (62.7%) with this difference also being statistically significant ($p < .05$).

Table 5 also shows that boys and girls were almost equally likely to agree with the statement “I usually choose soft-drinks over milk or water”, however boys (18.3%) were more likely than girls (11.4%) to agree with the statement ‘I choose soft-drinks with the best TV ads. This difference was found to be statistically significant ($p < .01$).

In regards to fast food attitudes Table 5 shows that 61.5% of boys and 53.4% of girls agreed with the statement “I go to fast food outlets because I like the taste of the food” with boys significantly more likely to agree with this than girls ($p < .01$). In addition, boys were more than twice as likely than girls to agree with the statement “At fast-food outlets if I can upsize I usually do” ($p < .01$). Boys were also more likely than girls to agree with the statement “I choose the fast-food outlet with the coolest ads” with this differences being statistically significant ($p < .05$).

Food habits: summary and discussion

Summary

In summary, findings in relation to Year 6 boys and girls reported food habits are as follows.

General food intake

- Around 20% of boys and girls reported eating pasta, rice or noodles at least 4 times a week with half of these reporting to eat this food everyday.
- Close to three-quarter of boys and girls reported eating bread and bread rolls at least 4 times a week with 50.4% of girls and 40% of boys reporting to eat this food every day.
- Around 41% of boys and 37% of girls reported eating red meat at least 4 times a week with less than 10% reporting to do this every day.
- Approximately 40% of children reported eating chicken duck or turkey between 1 and 3 times a week and less than 6% reporting to eat this food every day.
- Around two-thirds of all children (62.9%) reported eating fish less than once a week or never eating fish.
- Nearly 60% of boys and girls reported drinking fruit juice at least 4 times a week with half of these reporting to do this every day.
- Close to half of all boys and 42% of girls reported drinking milk every day. Around one-third of all children reported drinking milk on 3 days or less in a usual week.
- Nearly three-quarters of boys and girls drank water on average five times a day.
- More than three-quarters of boys and girls reported to eat at least 2 serves of fruit in a usual day.
- Forty-one percent of boys and girls reported eating at least 4 serves of vegetables in a usual day.

Consumption of energy dense foods

- The most popular extra food (energy dense) for boys and girls were energy bars, crisps/salty snacks and confectionary.
- Close to 70% of boys and 61% of girls reported eating “extra foods” at least 4 times a week. One-third of all boys and one-quarter of all girls reported eating at least one “extra food” every day.
- Around 50% of boys and 40% of girls reported drinking sugary soft-drinks at least once a week. Approximately 8% of boys and 4% of girls reported drinking sugary soft-drinks every day.
- Thirty percent of boys and 20% of girls reported eating food from a fast food outlet at least once a week. Less than 2% of all children reported to do this every day.

Meal patterns

- Less than 12% of boys and girls reported eating breakfast 3 times or less in a week and around 80% of children reported eating breakfast every day.
- More than three-quarters of children reported eating lunch every day and around 2% of children reported eating lunch less than once a week or not at all.
- Nearly every child reported eating dinner every day, with less than 5% reporting not eating dinner every day.

Children's eating environments

- Nine in ten children agreed with the statements: “In my home vegetables are usually served with dinner”; “In my home fruit is available at any time”; and, “My parents insist that I eat something for breakfast”.

- Around one in three children agreed with the statement “On school nights in my family we eat dinner in front of the TV”.

Attitudes to food

- In general boys were less likely to agree with statements indicating preferences for healthy foods than girls.
- Boys were also more likely than girls to agree with statements indicating preferences for soft-drink and fast food.

Discussion

Food habits

The findings in relation to general food consumption indicate that children eat a varied diet of meats, breads, grains, dairy, fruit and vegetables. Foods that children reported to eat more frequently were fruit and vegetables, bread, milk and fruit juice, followed by pasta and rice, red meat and chicken. Less common was the consumption of fish. Comparison with results on general food consumption in the NSW SPANS¹¹ indicate similar patterns of consumption with regard to most of these foods. The main exception is the consumption of vegetables where the ACTPANS found that Year 6 children were twice as likely to eat four serves or more of vegetables each day compared to children in the NSW SPANS.¹¹

The consumption of extra foods proved to be popular with most children reporting to consume them on a regular basis. Less common was children’s reported consumption of soft-drink and fast-food. Around half reported drinking soft-drink less than once a week and around 80% reported to consume fast-food less than once a week. Although children did not report eating food from a fast-food outlet on a regular basis, comparisons with results from the NSW SPANS¹¹ indicate children in NSW were less likely to eat food from a from fast-food outlet (boys=19.8%, girls=10.3%, > 1 times a week) than children in the ACT (boys=29%,girls=20%, > 1 times a week). It should be noted however that this difference has not been tested for statistical significance. Also, the NSW sample included a greater proportion of children from rural areas than the ACT, increasing the likelihood that more children in the NSW SPANS had less access to fast-food outlets compared to children in the ACT.

Meal patterns

Children’s reported patterns of meal consumption indicate that most children ate three regular meals a day. Consumption of food at breakfast and lunch was slightly less common than other meal-times. Similar patterns of consumption were found in the NSW SPANS.¹¹

Eating environments

In general, both supportive and unsupportive eating environments were evident in children’s responses. Nearly all children reported having ready access to fruit and vegetables in their home as well as having parents who make sure they have something for breakfast.

Around one-third of all children reported less healthy environments, where soft-drinks are usually available at home and dinner is regularly eaten in front of the TV. These results compare favourably however with the results from NSW SPANS where it was found around 40% of children agreed that soft-drinks are usually available in their home. In addition nearly double the proportion of children in the NSW SPANS (60%) agreed that they ate dinner in front of the TV on school nights and weekends, than children in the ACTPANS (30.4%).¹¹

Attitudes to food

In general, most children agreed with statements indicating healthy attitudes towards food. Boys however showed a greater tendency than girls to agree with statements indicating less healthy attitudes toward food and a lesser tendency to agree with statements indicating healthy attitudes towards food. This sex differentiation was also found in the NSW SPANS.¹¹

3.4. BMI status, psychosocial outcomes and behavioural associates

Obesity and overweight in children are risk factors for a number of serious health conditions. These include: asthma, sleep apnoea, fatty liver disease, type 2 diabetes, hypertension and dyslipidaemia.⁸ Overweight and obese children are also more likely to show more immediate health outcomes such as tiredness, breathlessness on exertion and heat intolerance.⁸ In addition, these children can suffer from poor self-esteem⁵⁰ and body image,⁵¹ and are more likely to be teased and bullied.⁵²

The burden of poor health associated with overweight and obesity in childhood escalates in adulthood with dramatically increased risk of heart disease, diabetes, certain cancers and a host of other conditions. With the current epidemic of childhood obesity predicted to travel into adulthood there is concern that the gains in life-expectancy seen over the last 200 years will soon reverse as a direct consequence of overweight and obesity.⁵³

This section presents findings in relation to children's BMI status as well as comparisons with several psycho-social indicators such as self-rated health, body image, self-esteem, experiences of bullying and teasing. In addition, comparisons are made between children's BMI status and behaviours related to physical activity and nutrition.

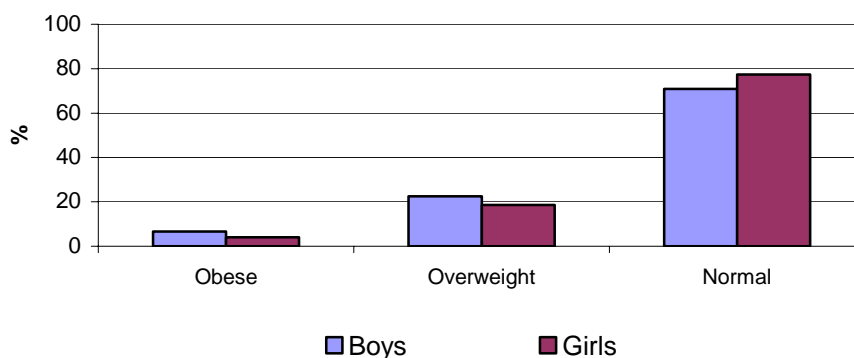
BMI status

The NHMRC recommends Body Mass Index (BMI) as a reasonable and easily determined measure of overweight and obesity in children and adolescents and should be used as the standard measure of persons aged 2 to 18 years in Australia in population health surveillance.⁸ BMI is determined by dividing a person's weight measure in kilograms by height in metres². Children's BMI scores are compared to an age by sex reference chart to obtain the equivalent BMI value used for adults.⁵⁴

As part of the ACTPANS study, children's heights and weights were measured by ACT Health child health nurses who recorded these measurements using calibrated scales.

Figure 25 shows the BMI status for boys and girls. It can be seen that overall, one-quarter (25.8%) of all children were categorised as having an unhealthy weight. Results show that 20.5% of children were overweight and 5.3% were obese. Boys were more likely to be categorised as having an unhealthy weight than girls with 29.1% of boys being overweight (22.5%) or obese (6.6%), compared to 22.7% of girls who were classified as overweight (18.6%) or obese (4.1%). This difference was found to be statistically significant ($p < .05$).

Figure 25: BMI status by sex



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

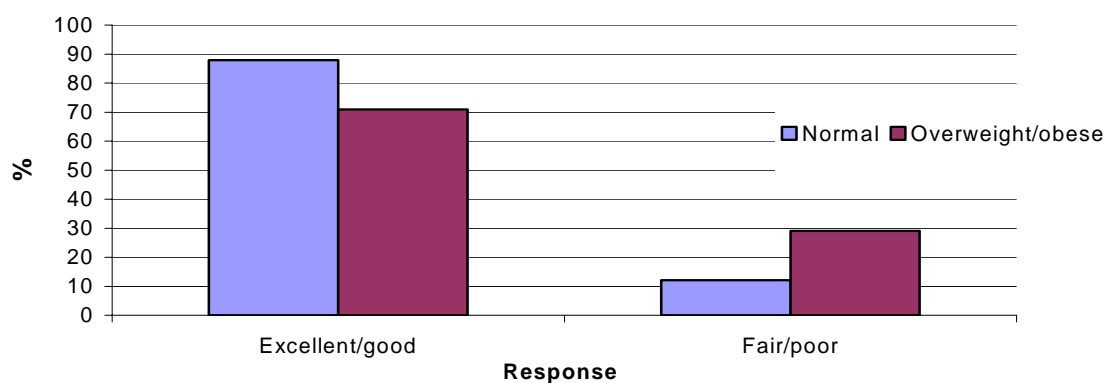
BMI status, self-rated health and psycho-social outcomes

Self-rated health

Evidence shows that children who are overweight or obese are at greater risk of developing a number of serious health conditions.³¹ Although the ACTPANS did not collect specific information on children's physical health, children were asked to rate their own health. Self-rated health is not necessarily indicative of the presence or absence of disease, but more so, children's perceptions of their own health, including what they might physically feel and also what they think conforms to societal norms around good health.

Figure 26 shows children's responses to the question "Would you say your health is....". It can be seen that children who were overweight or obese were more than twice as likely to describe their health as fair or poor (29%) than children who were of normal weight (12.1%). This leaves close to 9 out of 10 normal weight children who described their health as excellent or good (87.9%), compared to 71% of overweight or obese children. These differences were all found to be statistically significant ($p < .01$).

Figure 26: Children's response to the question "Would you say your health is....?", by BMI status



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Psycho-social outcomes

It has been proposed that western industrialised society's fixation on physical appearance and the 'thin is beautiful' ideal influences not only how people judge themselves and their own bodies but also how people perceive and act towards one another.⁵⁵ Research indicates that there are immediate negative psychological and social consequences for children who are overweight or obese.

Studies suggest there is an association between weight and self-esteem with this association being stronger for older children than younger ones.^{50 56} In addition, research indicates that being overweight or obese leads to poor body image⁵¹ and also represents an attractive target for bullying and teasing.⁵² Studies into the impacts of bullying and teasing of obese children indicate that the social development of these children may be hindered leading to short-term and long-term psychological and social outcomes. Long-term outcomes may include a decreased likelihood of marrying and also attainments of lower education and income levels compared to normal weight individuals.⁵⁷

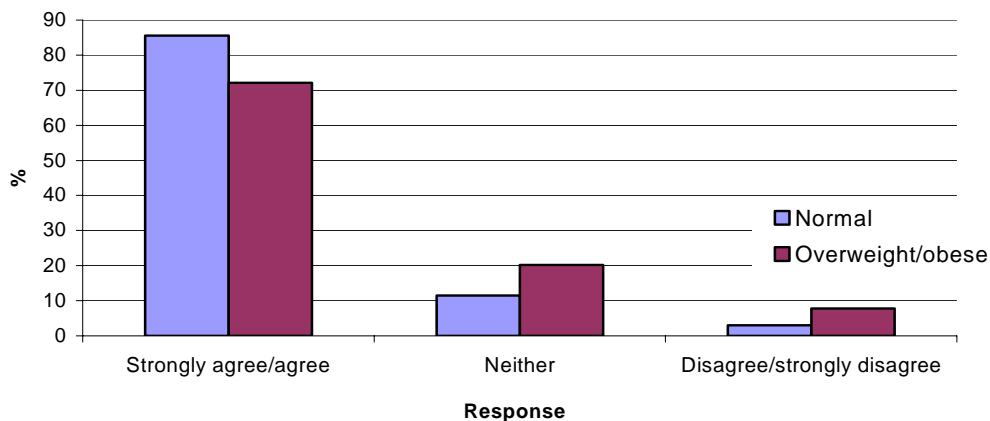
Several questions were included in the ACTPANS that investigate psychosocial outcomes for children including self-esteem, body image, bullying and teasing. These questions were adapted from a survey instrument developed by the Sentinel Site for Obesity Prevention Grade 5 and 6 Child Survey.¹⁴

Self-esteem

Self-esteem is a difficult concept to measure as it can vary across different domains such as home, school, peers, and sport. The ACTPANS included one question as a general measure of self-esteem which asked children whether they felt good about themselves.

Figure 27 shows children's agreement with the statement "I feel good about myself". Overall these results reveal that children who were overweight or obese showed a lesser tendency to agree with the statement "I feel good about myself" than children who were normal weight. It can be seen that children who were overweight or obese were around 20% less likely to agree with this statement than children who were a normal weight. Close to 86% of normal weight children either agreed or strongly agreed with this statement, compared to 72% of overweight or obese children. This difference was found to be statistically significant ($p < .01$). However, the proportion of overweight or obese children (20.2%) who neither agreed nor disagreed with this statement was nearly twice the proportion of normal weight children (11.4%) and this was also statistically significant. In addition, children who were overweight or obese (7.8%) were twice as likely to disagree or strongly disagree with this statement than children who were normal weight (2.9%). This difference was also statistically significant.

Figure 27: Children's agreement with the statement "I feel good about myself", by BMI status



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

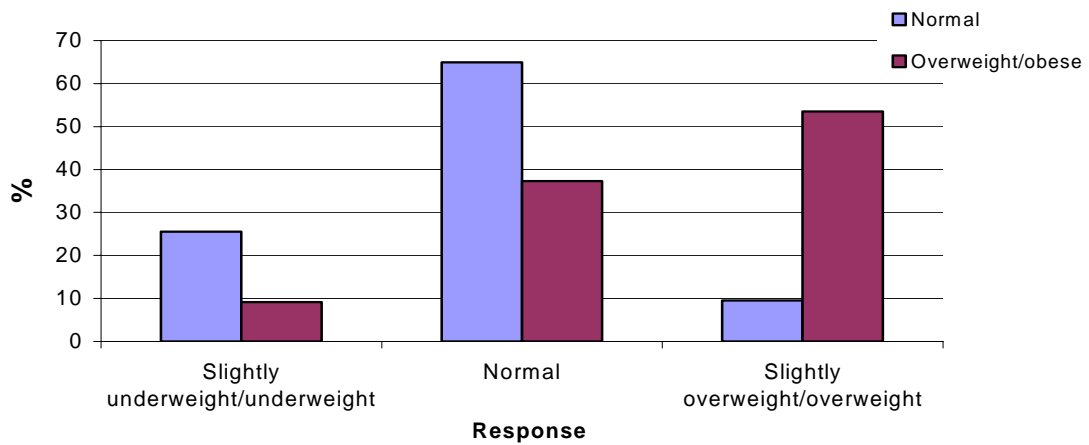
Body image

As a measure of body image children were asked about their perception of their weight status. Children were also asked about how happy they were with their weight.

Figure 28 shows children's responses to the question "How would you describe your weight status?". In general these results indicate a mismatch between children's perceptions and the reality of their weight status. It can be seen that almost one-half of children who were overweight or obese describe themselves as being either normal weight (37.3%) or slightly underweight/underweight (9.1%). There was less of a mismatch for children who were normal weight with less than 10% describing themselves as slightly overweight/overweight and 25.5% describing themselves as slightly underweight/underweight.

* This percentage yields a relative standard error of greater than 25% and thus should be interpreted with caution.

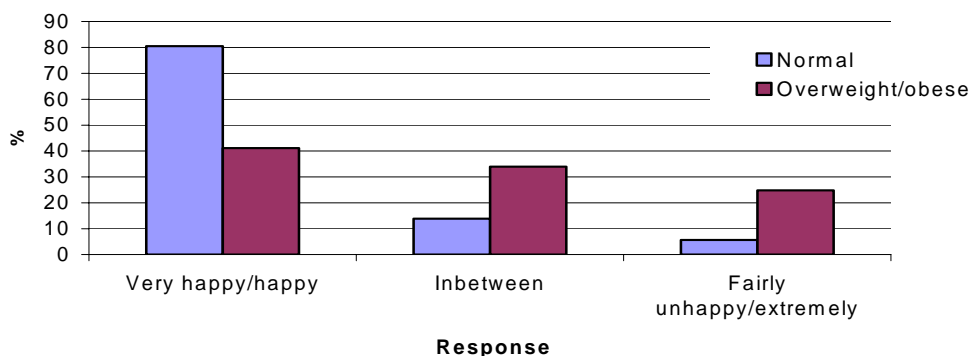
Figure 28: Children's response to the question "How would you describe your weight?" by BMI status



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 29 shows children's responses to the question "Are you happy about your weight?". It can be seen that in general, overweight or obese children were more than 4 times likely to be unhappy with their weight compared to normal weight children. Around 1 in 4 children who were overweight or obese (24.9%) responded that they were either fairly unhappy or extremely unhappy with their weight. This compares to 5.6% of normal weight children, with this difference being statistically significant ($p < .01$). In addition, children who were overweight or obese (41.2%) were less likely to be happy or extremely happy with their weight when compared to children who were normal weight (70.3%). This difference was also found to be statistically significant ($p < .01$). However, close to one-third of children who were overweight or obese (34.2%) were "in-between" in response to the question of how happy they were with their weight. This compares to 1 in 5 normal weight children who responded this way. This difference was found to be statistically significant ($p < .01$).

Figure 29: Children's response to the question "Are you happy about your weight?", by BMI status



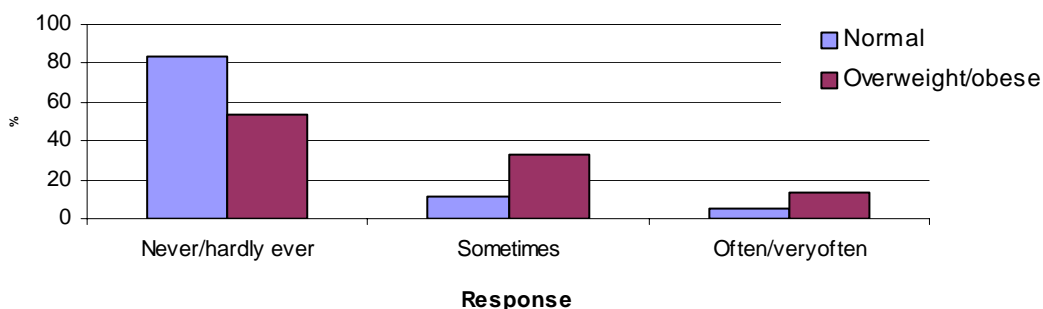
Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Teasing and bullying

Children who are overweight or obese risk stigmatisation which in turn can lead to them being victims of teasing and bullying. Children were asked whether they were teased about their weight and also how often they had been bullied.

Figure 30 shows children’s responses to the question “Have you ever been teased about your weight?”. Around 13% of children who were overweight or obese responded that they are teased about their weight often or very often. This compares to less than half this proportion of normal weight children (5.1%) with this difference being statistically significant ($p < .01$). One-third of overweight or obese children (33%) reported that they are teased about their weight sometimes compared to 11.7% of normal weight children. This difference was also statistically significant ($p < .01$).

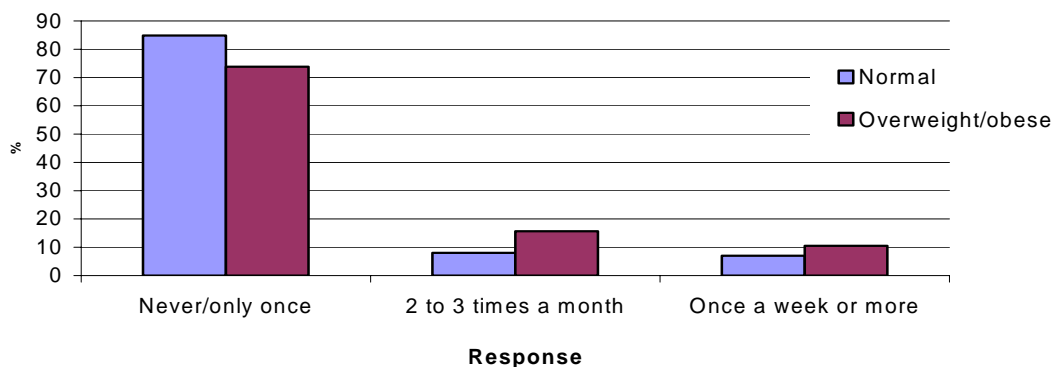
Figure 30: Children’s response to the question “Have you ever been teased about your weight?”, by BMI Status



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

Figure 31 shows children’s responses to the question “Have you ever been bullied at school?”. Overall children who were overweight or obese were around 30% more likely to report that they had been bullied at school compared to children who were normal weight. Overweight or obese children (15.6%) were twice as likely to report that they have been bullied at school about 2 to 3 times a month compared to normal weight children (8.7%), with this difference being statistically significant ($p < .05$). Children who were overweight or obese were also less likely (74.9%) to report never or only once been bullied at school than normal weight children (84.8%). This difference was also statistically significant ($p < .01$).

Figure 31: Children’s response to the question “Have you ever been bullied at school?”, by BMI status



Source: ACTPANS, 2006 Confidentialised Unit Record File, ACT

* This percentage yields a relative standard error of greater than 25% and thus should be interpreted with caution.

BMI status and characteristics related to physical activity, and nutrition

Children's BMI status is directly influenced by their physical activity levels and eating patterns. This section investigates differences between children who are overweight or obese and children who are normal weight in regards to their physical activity and nutrition behaviours and attitudes.

BMI status and physical activity

Table 6 shows selected physical activity characteristics for children according to their BMI status. It can be seen that children who were overweight or obese were 25% more likely than normal weight children to watch TV on weekdays for more than two hours each day (overweight/obese=39.1% and normal weight=30.1%) as well as on weekends (overweight/obese=54.2% and normal weight=43%). In addition, children who were overweight or obese were around 30% more likely than normal weight children to use the computer for more than two hours each day on weekends (overweight/obese=24% and normal weight=18.5%). Chi-square testing for statistical significant indicate that these differences were statistically significant ($p < .05$). Differences between BMI status in regards to other characteristics were not statistically significant.

Table 6: Selected physical activity characteristics by BMI status

| Physical activity and small screen use | Normal weight | Overweight or obese | P |
|--|---------------|---------------------|-----------|
| Moderate to vigorous physical activity for minimum of 60 mins every day | 23.0 | 24.0 | NS |
| Moderate to vigorous physical activity at school for 3 hours or less in a week | 67.3 | 73.0 | NS |
| Attendance of 2hrs or less PE classes in a week | 46.4 | 51.6 | NS |
| Never walks or rides bike to school | 44.9 | 48.7 | NS |
| Moderate to vigorous physical activity outside of school for 3 hours or less in a week | 57.7 | 59.4 | NS |
| Not involved in an organised sport during the school term | 30.2 | 32.6 | NS |
| TV viewing for more than 2 hrs a day weeknights | 30.7 | 39.1 | $p < .01$ |
| Using a computer for more than 2 hrs a day weeknights | 8.3 | 10.5 | NS |
| TV viewing for more than 2 hrs a day weekends | 43.0 | 54.2 | $p < .01$ |
| Using a computer for more than 2 hrs a day weekends | 18.5 | 24.0 | $p < .05$ |

Note: P denotes chi-square values. NS denotes values that are greater than .05 and therefore values that are not statistically significant.

BMI status and attitudes to physical activity

Table 7 presents differences between children's attitudes to physical activity on the basis of their BMI status. It can be seen that children who were overweight or obese were between 20% and 80% more likely to agree or strongly agree with the following statements: "I prefer to watch TV or use the computer" (overweight=27.5%, normal=20%); "I look funny when I am physically active" (overweight=32.2%, normal=22.1%); "I don't think I am good at physical activity" (overweight=25.1%, normal=15.7%), "I don't like how being physically active makes me feel" (overweight=21%, normal=15.2%); "Other kids make fun of me when I am physically active" (overweight=11.7%, normal=5.1%). These differences were found to be statistically significant ($p < .05$). Differences in regards to other statements were not statistically significant.

Table 7: Attitudes to physical activity by BMI status for children who agreed or strongly agreed with the following statements

| | Normal weight | Overweight or obese | P |
|---|---------------|---------------------|-------|
| I prefer to watch TV or computer | 20.0 | 27.5 | p<.01 |
| I look funny when I am physically active | 22.1 | 32.2 | p<.01 |
| I don't have anyone to be physically active with | 17.4 | 20.8 | NS |
| I don't think I am good at physical activity | 15.7 | 25.1 | p<.01 |
| I don't like how being physically active makes me feel | 15.2 | 21.0 | p<.05 |
| I'm scared I might get hurt if I played a sport | 9.3 | 9.6 | NS |
| Don't have enough time to be physically active | 7.9 | 10.9 | NS |
| There are no parks or sport grounds near where I live | 7.0 | 9.7 | NS |
| I don't like physical activity | 6.2 | 9.0 | NS |
| I don't have proper clothing to be physically active | 6.5 | 9.2 | NS |
| Other kids make fun of me when I am physically active | 5.1 | 11.7 | p<.01 |
| I have an injury that prevents me from being physically active | 5.5 | 7.5 | NS |
| I have a health problem that prevents me from being physically active | 4.8 | 6.0 | NS |

Note: P denotes chi-square values. NS denotes values that are greater than .05 and therefore values that are not statistically significant.

BMI status and nutrition characteristics

Table 8 shows children's food intake on the basis of BMI status. It can be seen that in general there was little difference between children of different BMI status in regards to food intake characteristics. However, there was a statistically significant difference in regards to fast-food consumption everyday. Although the prevalence of eating fast food everyday was generally low, children who were overweight or obese (3.1%) were more than twice as likely to report this than children who were normal weight (1.3%) (p<.05).

Table 8: Food intake characteristics by BMI status

| | Normal weight | Overweight or obese | P |
|--|---------------|---------------------|-------|
| <i>Foods eaten everyday</i> | | | |
| Bread or bread rolls | 48.2 | 47.4 | NS |
| Pasta, rice or noodles | 10.6 | 7.2 | NS |
| Red meat | 7.6 | 11.2 | NS |
| Chicken | 2.8 | 3.9 | NS |
| Fish | 1.9 | 1.3 | NS |
| Fruit juice | 30.5 | 30.4 | NS |
| Milk | 46.0 | 44.3 | NS |
| Cakes and biscuits | 3.2 | 3.2 | NS |
| Pies | 2.2 | 1.0 | NS |
| Chocolates and lollies | 8.6 | 6.2 | NS |
| Hot chips | 1.9 | 2.0 | NS |
| Crisps | 9.1 | 7.0 | NS |
| Energy bars | 13.8 | 14.1 | NS |
| Ice-cream | 6.2 | 6.9 | NS |
| Fast-food | 1.3 | 3.1 | p<.05 |
| Sugary soft-drinks | 6.1 | 5.9 | NS |
| <i>Eaten more than 3-4 times a day</i> | | | |
| Fruit | 24.48 | 24.59 | NS |
| Vegetables | 41.43 | 39.28 | NS |

Note: P denotes chi-square values. NS denotes values that are greater than .05 and therefore values that are not statistically significant.

BMI status, eating environments and attitudes

Table 9 presents children’s eating environment characteristics in relation to their BMI status. It can be seen that children’s eating environment characteristics are similar between children of different BMI status. However children who were overweight or obese (32.8%) were about 20% more likely than children who were normal weight (27.6%) to have agreed or strongly agreed with the statement “Soft-drink is usually available at home”, with this difference being statistically significant ($p<.05$)

Table 9: Eating environment characteristics, percent who agreed or strongly agreed by BMI status

| | Normal weight | Overweight or obese | P |
|--|---------------|---------------------|---------|
| In my home fruit is available at any time | 94.7 | 94.3 | NS |
| In my home vegetables are usually served with dinner | 93.2 | 93.8 | NS |
| Soft-drinks are usually available in my home | 27.6 | 32.8 | $p<.05$ |
| I never eat food from a fast food outlet | 16.0 | 16.9 | NS |
| I go to fast food outlets with my family | 55.7 | 57.2 | NS |
| My parent insists that I eat something for breakfast | 93.2 | 92.8 | NS |
| I help prepare meals for my family | 65.4 | 70.1 | NS |
| On school nights in my family we eat dinner in front of TV | 30.6 | 31.5 | NS |
| On weekends in my family, we eat dinner in front of the TV | 39.9 | 36.2 | NS |

Note: P denotes chi-square values. NS denotes values that are greater than .05 and therefore values that are not statistically significant.

Table 10 shows associations between children’s attitudes to selected foods and their BMI status. It can be seen that children of different BMI status are similar in regards to attitudes to these foods. However, children who were overweight or obese were around 40% to 50% more likely than children who were normal weight to agree or strongly agree with the statements “I choose soft-drinks with the best TV ads” (overweight/obese=17.4%, normal=12.1%) and “I choose fast-foods with the coolest TV ads” (overweight/obese=12.9%, normal=8%) ($p<.05$).

Table 10: Attitudes to selected foods, by BMI status

| | Normal weight | Overweight or obese | P |
|--|---------------|---------------------|---------|
| Eating vegetables makes me feel healthy | 86.5 | 87.6 | NS |
| I enjoy the taste of many vegetables | 68.6 | 69.6 | NS |
| Eating fruit makes me feel healthy | 88.5 | 91.0 | NS |
| I enjoy the taste of most fruit | 92.5 | 89.5 | NS |
| I usually choose soft drinks instead of water or milk | 25.9 | 26.7 | NS |
| I choose soft-drinks with the best TV ads | 12.1 | 17.4 | $p<.05$ |
| I go to fast food outlets because I like the taste of the food | 58.8 | 61.8 | NS |
| At fast food outlets if I can upsize I usually do | 21.5 | 25.7 | NS |
| I choose the fast food outlet with the coolest TV ads | 8.0 | 12.9 | $p<.05$ |

Note: NS denotes chi-square values greater than .05 and therefore values that are not statistically significant.

BMI status, psychosocial outcomes and behavioural associates: summary and discussion

Summary

In summary, findings in relation to children's BMI status, psychosocial outcomes and behavioural associates are as follows.

BMI status

- Slightly more than one-quarter (25.8%) of all children were categorised as being overweight or obese.
- Boys were more likely to be categorised as having an unhealthy weight than girls with 29.1% of boys being overweight (22.5%) or obese (6.6%), compared to 22.7% of girls (overweight=18.6%, obese=4.1%).

Self-rated health

- Children who were overweight or obese were more than twice as likely to describe their health as fair or poor (29%) compared to children who were normal weight (12.1%).

Self-esteem

- Close to 86% of normal weight children either agreed or strongly agreed with the statement "I feel good about myself", compared to 72% of overweight or obese children.

Body image

- Children who were overweight or obese (41.2%) were less likely to be happy or extremely happy with their weight compared to children who were normal weight (70.3%).
- Results indicate a mismatch between children's perceptions and the reality of their weight status. Almost one-half of children who were overweight or obese describe themselves as being either normal (37.3%) or slightly underweight or underweight (9.1%).

Teasing and bullying

- One-third (33%) of overweight or obese children reported that they are sometimes teased about their weight, compared to 11.7% of normal weight children.
- Overall children who were overweight or obese were around 30% more likely to report that they had been bullied at school than children who were normal weight.

BMI status and characteristics related to physical activity and nutrition

Children who were overweight or obese were:

- 25% more likely than normal weight children to watch more than 2hrs of TV on weekdays (overweight/obese=39.1%, normal=30.7%) and weekends (overweight/obese=54.2%, normal=43%);
- around 30% more likely than normal weight children to use the computer more than 2hrs on weekends (overweight/obese=24%, normal=18.5%);
- between 20% and 80% more likely than normal weight children to agree or strongly agree with the statements:
 - "I prefer to watch TV or the computer than be physically active" (overweight/obese=27.5%, normal=20%);
 - "I look funny when I am physically active" (overweight/obese=32.2%, normal 22.1%);
 - "I don't think I am good at physical activity" (overweight/obese=25.1%, normal=15.7%);

- “I don’t like how being physically active makes me feel” (overweight=21%, normal=15.2%); and
- “Other kids make fun of me when I am physically active” (overweight/obese=11.7%, normal=5.1%);
- about 20% more likely than children who were normal weight to have agreed or strongly agreed with the statement “Soft-drink is usually available at home” (overweight/obese=32.8%, normal=27.6%).
- more than twice as likely than normal weight children to report that they eat food from a fast-food outlet every day (overweight/obese=3.1%, normal=1.3%);
- around 40% to 50% more likely than normal weight children to agree or strongly agree with the statement “I choose soft-drinks with the best TV ads” (overweight/obese=17.4%, normal=12.1%) and “I choose fast-food outlets with the coolest TV ads” (overweight/obese=12.9%, normal=8%).

Discussion

BMI status

The ACTPANS revealed that one in four children were either overweight or obese with the prevalence being greater in boys than girls.

The overall rate of overweight and obesity is similar to other State based survey findings. For example, although the tendency towards overweight and obesity was greater in girls than boys, the WA CAPANS revealed that 21.7% of males and 27.8% of females aged 7 to 15 years living in WA were either overweight or obese.¹⁰ The results from the NSW SPANS found that the rate of overweight and obesity for children in NSW Kindergarten to Year 10 students was 25% for boys and 23.3% for girls.¹¹

The NSW SPANS also found a variation over age and sex. The rate of overweight and obesity increased between younger primary school age to older primary school age children. In addition, kindergarten girls (20.7%) were more likely than kindergarten boys (15%), to be overweight or obese with this pattern reversing in older children. For children in Year 6 the rate of overweight and obesity for boys was 31.6% and 23.4% for girls.¹¹

This pattern is also evident in the ACT. Results from unpublished data from the Kindergarten Screening Program show that in 2004 the rate of overweight and obesity for kindergarten boys was 15.7% and for kindergarten girls, 17.8%.⁵⁸ Comparison with the results from the ACTPANS indicate the rate of overweight and obesity in boys nearly doubled between kindergarten and Year 6 and the rate in girls increased by a quarter.

It should be noted that these comparisons are not based on longitudinal data and thus no conclusions can be drawn about increases over age in an individual. However, it can be concluded that children in Year 6 today are more likely to be overweight or obese than children in Kindergarten today and for boys this difference is quite dramatic. It will be interesting to observe these differences in several years time.

BMI, self-rated health, and psycho-social outcomes

Consistent with the findings from previous research, the ACTPANS found that children who were overweight or obese rated themselves more poorly on all measures of psycho-social outcomes and self-rated health included in the survey. Overweight and obese children were less likely than normal weight children to: rate themselves as healthy; to report feeling good about themselves; to be happy with their weight; to accurately describe their weight status; and were more likely to be teased and bullied.

In regards to self-rated health, although the ACTPANS found that children who are overweight or obese were more likely to rate their health as fair/poor it is unclear as to whether this rating is based on a physical feeling of ill-health or instead an understanding of a disparity between what they might believe constitutes good health (e.g. healthy weight) and the belief that they fall short

of this concept. Whatever the reason, the proportion of children who were overweight or obese (29%) who rated their health as fair/poor is sizeable. Similar results have been found in other studies. For example, Swallen et. al.⁵⁹ found that overweight and obese adolescents had significantly poorer self-rated health than normal weight children (overweight odds ratio=2.17, obese odds ratio=4.49). The study also found that adolescents were more likely to have functional limitations associated with their weight.

In regards to perceptions of weight status, results indicate that a sizeable proportion of children who are overweight or obese do not perceive their weight status to be in this weight category. Close to half of children who were overweight or obese perceived their weight status to be slimmer than what it actually was. There are few studies that investigate children's perceptions of their weight but there is research investigating parent perceptions of children's weight status. Findings from these studies consistently show that parents have a tendency to perceive their overweight children as being normal weight. One study found 70% of parents of preschool children who were overweight or obese, thought their child's weight was no different to their peers.⁶⁰

Interestingly, despite there being a large proportion of overweight or obese children who rated their weight to be slimmer than what it was, one in four children who were overweight or obese stated that they were unhappy/very unhappy with their weight. These findings indicate that at least some children who are overweight or obese think their weight is normal yet at the same time they are unhappy with their weight. However, it is unclear from this survey what the mechanism underlying this phenomenon might be. The link between body dissatisfaction and weight status has been demonstrated in other research. For instance, Franklin et. al. found that one-third of obese boys and 63% of obese girls rated themselves low in competency in the domain of physical appearance.⁵⁶

Although children who were overweight or obese rated themselves more poorly on all measures of psych-social outcomes when compared to their slimmer counterparts, their ratings on how good they felt about themselves were more similar to normal weight children. Children who were overweight or obese were around 15% less likely than normal weight children to agree with the statement "I feel good about myself". Although some studies^{61, 62} have failed to find a link between weight status and self-esteem in children, others have found an association. For example, Strauss et. al.⁵⁰ found rates for low global self-esteem ranged between 17% and 37% in obese children aged 13 to 14 years compared to rates of 8% to 9% in non-obese children of the same age. Although the ACTPANS is not directly comparable to Strauss' study, given the different methodology, this survey supports a weak link between obesity and low self-esteem.

In relation to bullying and teasing, the ACTPANS found that children who are overweight or obese are more than twice as likely than normal weight children to be teased about their weight and around 25% more likely to be bullied. This association is consistent with the findings from Janssen et. al who found that the likelihood of children being verbally and physically bullied was double for obese boys aged 11-12 years and obese girls aged 13 and above compared to their slimmer counterparts. This study also found this association increased with BMI status.⁵⁵

BMI status and characteristics related to physical activity, and nutrition

The ACTPANS revealed several associations between BMI status and characteristics related to physical activity, and nutrition. These characteristics included television viewing, weekend computer use and daily fast food outlet visits, with overweight and obesity more strongly linked than normal weight to the greater pursuit of these activities. Children who were overweight or obese were also more likely than normal weight children to agree with several statements related to children's attitudes to physical activity, TV junk food advertising and availability of soft-drink at home. Interestingly, there were no associations found between children's BMI status and involvement in, or levels of, physical activity. In addition there were no associations found between BMI status and general food intake, and eating patterns.

Findings in relation to TV viewing are consistent with previous research showing positive associations between hours of TV viewing with children's BMI scores.^{22,23} Studies have also shown that a reduction in children's TV viewing can lead to a reduction in children's adiposity, this indicating a direct link between TV viewing and children's weight status.^{63,64} Although the mechanism underlying this link is not well understood it seems the link is not necessarily related to decreases in levels of physical activity. This is suggested by the finding in the ACTPANS of no association between BMI status and levels of physical activity. Previous research also supports the finding of TV viewing having an effect on BMI independent of physical activity levels.²³

Other mechanisms that might account for the link between BMI status and TV viewing is snacking and exposure to junk food advertising. Research indicates that TV viewing encourages casual snacking in children and can influence children's food preferences through advertising.⁶⁵ Studies assessing advertising content during children's TV viewing times indicate that a large portion of advertising content is about food which chiefly concern either sugary cereals or products from fast-food outlets.^{66 67} The finding in the ACTPANS that children who were overweight or obese were more likely than normal weight children to agree with the statements "I choose soft-drinks with the best ads" and "I choose fast-food outlets with the coolest ads" lends support to the contention that junk food advertising on television influences children's food preferences and through this, children's BMI.

Although there was no link found between general physical activity levels and BMI status, associations were found in regards to statements reflecting attitudes towards physical activity and BMI status. These findings might serve to help understand some of the barriers to being engaged in physical activity faced by children who are overweight or obese.

The lack of association found between children's general food intake and BMI status was not surprising given that the study did not measure food quantities and thus no real indication could be gained on the energy intake levels of children. This lack of association may also be due to a possible under-reporting of general intakes by some children. For example, previous research indicates that children who are obese, either voluntarily or involuntarily, under-report their general food-intake.^{68 69}

Of interest was the finding that children who were overweight or obese were more likely than normal weight children to report soft-drink availability in their home. Given there was no difference between children of different weight status and their reported soft-drink consumption, it is unclear what the underlying mechanism might be with soft-drink availability in the home. Some research has failed to find a link with soft-drink consumption and weight status,⁷⁰ however other research indicates that the link might not necessarily be related to greater consumption of soft-drink, but instead other dietary and lifestyle behaviours associated with overweight and obesity.⁷¹ Perhaps the greater availability of soft-drink reported in homes of children who were overweight or obese in the ACTPANS is indicative of other factors that impact on dietary intake or energy expenditure that might exist within the homes of children who were overweight or obese.

4. APPENDIX A

The ACT Child Healthy Weight Surveillance Reference Group

Membership

| | |
|-------------------|---|
| Ann Bounds | Dept. of Education |
| Ronis Chapman | Health Promotions Unit, ACT Health |
| Kirsty Douglas | Academic Unit of General Practice & Community Health |
| Sharon Friel | National Centre for Epidemiology & Population Health, ANU |
| Alison Graham | Child, Youth and Women's Health Program |
| Dale Inabinet | Sport and Recreation ACT |
| Kathy May | Child, Youth and Women's Health Program |
| Alanna Williamson | Health Promotions Unit, ACT Health |
| Cathy Baker | Population Health Research Centre |

Terms of Reference

Context

The *ACT Healthy Weight Surveillance & Monitoring Sub-Committee*:

- is a sub-committee of the ACT Government Healthy Weight Coordination Group, and
- acts as a reference / advisory group to the project officer employed by the Population Health Research Centre

Aims

The ACT Healthy Weight Surveillance & Monitoring Sub-Committee aims to:

- provide accurate and evidence-based advice to the ACT Government Healthy Weight Coordination Group, and other key forums as required
- provide inter-sectoral advice to the Population Health Research Centre (PHRC) in its development of a healthy weight surveillance and monitoring system for the ACT
- facilitate the coordination of data collection regarding healthy weight issues (eg. physical activity, nutrition, overweight & obesity etc) across ACT government to ensure a consistent surveillance and monitoring system
- improve ACT government's use and uptake of healthy weight & related data to inform policy & project development, and the delivery of services
- identify the gaps in current healthy weight and related data collections

recommend and advocate on priorities for improved surveillance both locally and nationally

5. APPENDIX B



Dear Year 6 Parents,

Your child's class has been chosen to take part in the ACT Year 6 Physical Activity and Nutrition Survey conducted by ACT Health. Your child's participation in this survey will be used to provide much needed information on physical activity, nutrition and related health outcomes of ACT children.

Your child's participation in this study will involve responding to a short written questionnaire during class time. This survey will be administered by an ACT Department of Education and Training accredited teacher. As part of the study, ACT Health child nurses will be taking height and weight measures of your child in a private and confidential setting during Year 6 immunisations to be held over the coming weeks. This survey has been approved by the ACT Health Human Research Ethics Committee and **all information collected will be confidential.**

Your child's participation in the survey is very important. The results of the survey will help authorities in planning and developing services that best meet the nutritional and physical activity needs of our children.

If you do not wish for your child to participate in the survey, please complete the form below and return it to your child's teacher by May 5th. If you do not return the form by May 5th we will assume that you are happy for your children to be included in the survey. If your child does not wish to participate she/he will be given an opportunity to withdraw at the time of the survey.

If you have any queries about the survey please call the ACT Year 6 Physical Activity and Nutrition Survey Project Officer on 6207 4037.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Paul Dugdale', written in a cursive style.

Dr Paul Dugdale

Chief Health Officer

Please fill out this form and return it to your child's teacher if you **DO NOT** want your child to participate in the survey.

I DO NOT AGREE to let my child participate in the ACT Year 6 Physical Activity and Nutrition Survey.

Student's name (please print) _____

Your Name: (please print) _____

Signed: _____ Date: _____



2006
ACT Year 6
Physical Activity and Nutrition
Survey



ID number:

Thank you for helping us with this survey. Your answers will help us to find out more about the way young people live in the ACT.

Your answers will be looked at by the survey team and no one else. They will not be seen by your teachers or parents. There is no need to write your name on the questionnaire.

The following questions will be looking at different things about you and the things you do. Please read each question carefully and answer it as best you can. Please put your hand up at any time you have a question and the instructor will be happy to help you.

For each question there are a number of different answers you can mark. For most answers there will be a set of circles like this , which you should mark with a tick, like this .

ABOUT YOU



1. How old did you turn on your last birthday? _____

2. What is the date of your birthday? _____
Day/month/Year

3. Are you a boy or girl?

Boy Girl

4. Do you speak another language at home more than you speak English?

No, we speak English mostly

Yes, we speak _____

5. In what country were you born? _____

6. Are you an Aboriginal person?

Yes No Don't know

7. Are you a Torres Strait Islander person?

Yes No Don't know

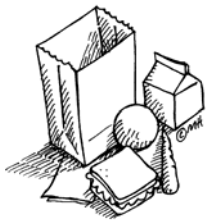
8. What suburb do you live in? _____

(If you live in two suburbs write them both down)

THE FOODS YOU EAT

9. How often do you usually do the following (Please put a tick in one circle on each row)

| | Never | Less than once a week | About 1-3 times a week | About 4-6 times a week | Every day |
|--|-----------------------|-----------------------|------------------------|------------------------|-----------------------|
| 9a Have something to drink for breakfast? (e.g. juice, tea, coffee, cordial, milk, soft-drink or water) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9b Have something to eat for breakfast? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9c Have something to drink for lunch? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9d Have something to eat for lunch? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9e Have something to drink for dinner? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9f Have something to eat for dinner? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



THE FOODS YOU EAT

10. How often do you usually do the following...(Please put a tick in one circle on each row)

| | Never | Less than once a week | About 1-3 times a week | About 4-6 times a week | Every day | If every day, how many times each day? (write number) |
|---|-----------------------|-----------------------|------------------------|------------------------|-----------------------|--|
| 10a Drink fruit juice? (e.g. orange, apple, pineapple, grapefruit, tomato) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10b Eat pasta, rice or noodles? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10c Eat hot chips, french fries, wedges or fried potatoes? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10d Eat potato chips or other salty snacks? (e.g. Twisties, Burger Rings, Corn Chips or pop corn) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10e Eat chicken, including turkey or duck? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10f Eat fish, including canned fish? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10g Eat 'red' meat including lamb, beef, pork, goat, minced meat? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10h Eat energy or fruit bars? (e.g. muesli bars, LCMs, roll-ups, K-time bars) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10i Eat chocolate, candy bars, lollies or gum? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10j Eat ice-cream or icy-poles? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10k Drink milk? (including soy milk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10l Eat bread or bread rolls? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10m Drink Coke or other sugary soft drink? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10n Eat pies or sausage rolls? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10o Eat cakes, biscuits, sweet pastries or donuts? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10p Eat food from a fast food outlet (e.g. McDonalds, KFC, Pizza, Hungry Jacks)? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 10q Drink water? (e.g. from a drinking fountain, glass, cup or bottle) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

THE FOODS YOU EAT

11. How many serves of vegetables do you usually eat each day? (Please tick one circle only)

[a serve = ½ cup of cooked vegetables or 1 cup of salad]

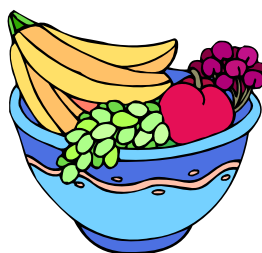
| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | 1 serve or less | 2-3 serves | 4-5 serves | 6 serves or more |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



12. How many serves of fruit do you usually eat each day? (Please tick one circle only)

[a serve = an apple, or banana, or orange, or two mandarins, or a cup of diced fruit, or fruit salad]

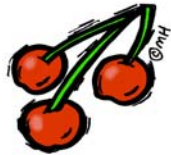
| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | 1 serve or less | 2-3 serves | 4-5 serves | 6 serves or more |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



THE FOODS YOU EAT

13. How much do you agree with the following statements? (Please tick one circle only on each row)

| | Strongly agree | Agree | Neither | Disagree | Strongly disagree | Don't know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 13a Eating vegetables makes me feel healthy | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13b I enjoy the taste of many vegetables | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13c In my home, vegetables are usually served with dinner | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13d Eating fruit makes me feel healthy | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13e I enjoy the taste of most fruit | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13f In my home, fruit is available to eat at any time | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



14. How much do you agree with the following statements? (Please tick one circle only on each row)

| | Strongly agree | Agree | Neither | Disagree | Strongly disagree | Don't know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 14a I usually choose soft drinks instead of water or milk | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14b Soft drinks are usually available in my home | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14c I choose the soft drink with the best TV adverts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



THE FOODS YOU EAT

15. How much do you agree with the following statements? (Please tick one circle only on each row)

| | Strongly agree | Agree | Neither | Disagree | Strongly disagree | Don't know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 15a I never eat food from a fast food outlet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15b I go to fast food outlets because I like the taste of the food | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15c At fast food outlets if I can 'upsized' I usually do | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15d I go to fast food outlets with my family | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15e I choose the fast food outlet with the coolest TV adverts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



16. How much do you agree with the following statements? (Please tick one circle only on each row)

| | Strongly agree | Agree | Neither | Disagree | Strongly disagree | Don't know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 16a My parent/carer insist that I eat something for breakfast before school | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16b I help prepare meals for my family | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16c On school nights in my family, we eat dinner in front of the TV | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16d On weekends in my family, we eat dinner in front of the TV | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



YOUR PHYSICAL ACTIVITY

Physical activity is an activity that increases your heart rate and makes you get out of breath some of the time.

Physical activity can be done in sports, school activities, playing with friends, or walking to school.

Some examples of physical activity are running, brisk walking, biking, roller-blading, dancing, skateboarding, swimming, soccer, basketball, football, surfing and many other activities including nearly all sports.

17. Over the past 7 days on how many days were you physically active for a total of at least 60 minutes per day?

| 0 days | 1 | 2 | 3 | 4 | 5 | 6 | 7 days |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

18. Over a typical week on how many days are you physically active for a total of at least 60 minutes per day?

| 0 days | 1 | 2 | 3 | 4 | 5 | 6 | 7 days |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



YOUR PHYSICAL ACTIVITY

When you are at school

19. When you are AT SCHOOL, how OFTEN do you usually exercise so much that you get out of breath or sweat? (Including physical activity during PE classes, recess and lunchtime, NOT before or after school)

Please tick one circle only

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| Every day | 4-5 times a week | 2-3 times a week | Once a week | Once a month | Less than once a month | Never |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



20. When you are AT SCHOOL, how many HOURS A WEEK do you usually exercise so much that you get out of breath or sweat? (Including physical activity during PE classes, recess and lunchtime, NOT before or after school)

(Please tick one circle only)

| | | | | | |
|-----------------------|---------------------------|-----------------------|------------------------|------------------------|------------------------|
| None | About half an hour a week | About 1 hour a week | About 2-3 hours a week | About 4-6 hours a week | 7 hours or more a week |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

21. About how many times a week do you participate in a PE class at school

Physical Education class at school

_____ times per week

YOUR PHYSICAL ACTIVITY

Outside of School

22. OUTSIDE SCHOOL HOURS: Over a typical week in the current school term which of the following ORGANISED sporting activities – including training, games and matches – do you usually do? (please put a *tick* in as many of the circles that are appropriate. Please write the number of times a week you do this activity.)

Activity/sport

- | | | | |
|------|-----------------------|------------------------------------|----------------------|
| 22a | <input type="radio"/> | Australian Rules Football | _____ times per week |
| 22b | <input type="radio"/> | Baseball | _____ times per week |
| 22c | <input type="radio"/> | Basketball | _____ times per week |
| 22d | <input type="radio"/> | Cricket | _____ times per week |
| 22e | <input type="radio"/> | Cycling | _____ times per week |
| 22f | <input type="radio"/> | Dancing (ballet/jazz)/Calisthenics | _____ times per week |
| 22g | <input type="radio"/> | Golf | _____ times per week |
| 22h | <input type="radio"/> | Gymnastics | _____ times per week |
| 22i | <input type="radio"/> | Hockey | _____ times per week |
| 22j | <input type="radio"/> | Horse-riding /equestrian events | _____ times per week |
| 22k | <input type="radio"/> | Ice or snow sports | _____ times per week |
| 22l | <input type="radio"/> | Little athletics | _____ times per week |
| 22m | <input type="radio"/> | Martial arts | _____ times per week |
| 22n | <input type="radio"/> | Netball | _____ times per week |
| 22o | <input type="radio"/> | Sailing | _____ times per week |
| 22p | <input type="radio"/> | Soccer | _____ times per week |
| 22q | <input type="radio"/> | Softball | _____ times per week |
| 22r | <input type="radio"/> | Squash | _____ times per week |
| 22s | <input type="radio"/> | Swimming | _____ times per week |
| 22t | <input type="radio"/> | Rowing | _____ times per week |
| 22u | <input type="radio"/> | Rollersports | _____ times per week |
| 22v | <input type="radio"/> | Rugby league | _____ times per week |
| 22w | <input type="radio"/> | Rugby union | _____ times per week |
| 22x | <input type="radio"/> | Running or jogging | _____ times per week |
| 22y | <input type="radio"/> | Ten-pin bowling | _____ times per week |
| 22z | <input type="radio"/> | Volleyball | _____ times per week |
| 22zz | <input type="radio"/> | Waterpolo | _____ times per week |

Other sport classes (Please specify below)

22za _____ times per week

22zb _____ times per week



YOUR PHYSICAL ACTIVITY

Outside of School

23. **OUTSIDE SCHOOL HOURS**: How **OFTEN** do you usually exercise so much that you get out of breath or sweat?

Please tick one circle only

| Every day | 4-6 times a week | 2-3 times a week | Once a week | Once a month | Less than once a month | Never |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



24. **OUTSIDE SCHOOL HOURS**: How many **HOURS A WEEK** do you usually exercise so much that you get out of breath or sweat?

Please tick one circle only

| None | About half an hour a week | About 1 hour a week | About 2-3 hours a week | About 4-6 hours a week | 7 hours or more a week |
|-----------------------|---------------------------|-----------------------|------------------------|------------------------|------------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



YOUR PHYSICAL ACTIVITY

25. Over a typical week in the current school term, how many times do you go to and from school in the following ways?

(Write the number of times you travel to and from school)

| Getting <u>to</u> school | Getting <u>from</u> school |
|---|---|
| TIMES PER WEEK | TIMES PER WEEK |
| _____ Walk to school | _____ Walk to school |
| _____ Bicycle to school | _____ Bicycle to school |
| _____ Catch the bus to school | _____ Catch the bus to school |
| _____ Ride in a car with mum or dad to school | _____ Ride in a car with mum or dad to school |
| _____ Ride in a car with someone else to school | _____ Ride in a car with someone else to school |
| _____ Combination of two or more of the above | _____ Combination of two or more of the above |
| Total 5 | Total 5 |
| Other (explain) _____ | Other (explain) _____ |



26. About how many hours a day do you usually watch television (including videos and DVD's) in your free time?

Please tick one circle for weekdays and one circle for weekend

| <i>Weekdays</i> | <i>Weekend</i> (Saturday and Sunday) |
|--|--|
| 1) None at all <input type="radio"/> | 1) None at all <input type="radio"/> |
| 2) About half an hour a day <input type="radio"/> | 2) About half an hour a day <input type="radio"/> |
| 3) About 1 hour a day <input type="radio"/> | 3) About 1 hour a day <input type="radio"/> |
| 4) About 2 hours a day <input type="radio"/> | 4) About 2 hours a day <input type="radio"/> |
| 5) About 3 hours a day <input type="radio"/> | 5) About 3 hours a day <input type="radio"/> |
| 6) About 4 hours a day <input type="radio"/> | 6) About 4 hours a day <input type="radio"/> |
| 7) About 5 hours a day <input type="radio"/> | 7) About 5 hours a day <input type="radio"/> |
| 8) About 6 hours a day <input type="radio"/> | 8) About 6 hours a day <input type="radio"/> |
| 9) About 7 hours or more a day <input type="radio"/> | 9) About 7 hours or more a day <input type="radio"/> |



27. About how many hours a day do you usually spend doing school homework out of school hours?

Please tick one circle for weekdays and one circle for weekend

| <i>Weekdays</i> | <i>Weekend</i> <i>(Saturday and Sunday)</i> |
|--|--|
| 1) None at all <input type="radio"/> | 1) None at all <input type="radio"/> |
| 2) About half an hour a day <input type="radio"/> | 2) About half an hour a day <input type="radio"/> |
| 3) About 1 hour a day <input type="radio"/> | 3) About 1 hour a day <input type="radio"/> |
| 4) About 2 hours a day <input type="radio"/> | 4) About 2 hours a day <input type="radio"/> |
| 5) About 3 hours a day <input type="radio"/> | 5) About 3 hours a day <input type="radio"/> |
| 6) About 4 hours a day <input type="radio"/> | 6) About 4 hours a day <input type="radio"/> |
| 7) About 5 hours a day <input type="radio"/> | 7) About 5 hours a day <input type="radio"/> |
| 8) About 6 hours a day <input type="radio"/> | 8) About 6 hours a day <input type="radio"/> |
| 9) About 7 hours or more a day <input type="radio"/> | 9) About 7 hours or more a day <input type="radio"/> |



28. About how many hours a day do you usually use a computer (for playing games, emailing, chatting or surfing the internet) in your free time? excluding school related work)

Please tick one circle for weekdays and one circle for weekend

| <i>Weekdays</i> | <i>Weekend</i> (Saturday and Sunday) |
|--|--|
| 1) None at all <input type="radio"/> | 1) None at all <input type="radio"/> |
| 2) About half an hour a day <input type="radio"/> | 2) About half an hour a day <input type="radio"/> |
| 3) About 1 hour a day <input type="radio"/> | 3) About 1 hour a day <input type="radio"/> |
| 4) About 2 hours a day <input type="radio"/> | 4) About 2 hours a day <input type="radio"/> |
| 5) About 3 hours a day <input type="radio"/> | 5) About 3 hours a day <input type="radio"/> |
| 6) About 4 hours a day <input type="radio"/> | 6) About 4 hours a day <input type="radio"/> |
| 7) About 5 hours a day <input type="radio"/> | 7) About 5 hours a day <input type="radio"/> |
| 8) About 6 hours a day <input type="radio"/> | 8) About 6 hours a day <input type="radio"/> |
| 9) About 7 hours or more a day <input type="radio"/> | 9) About 7 hours or more a day <input type="radio"/> |



YOUR PHYSICAL ACTIVITY

29. How much do you agree with the following statements? (Please tick one circle only on each line)

| | Strongly agree | Agree | Neither | Disagree | Strongly disagree | Don't know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 29a I do a lot of physical activity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29b I look funny when I am physically active | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29c I don't have enough time for physical activity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29d I prefer to watch TV or play electronic games | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29e I don't have anyone to be physically active with | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29f I don't like physical activity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29g There are no parks, or sports grounds near where I live | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29h Other kids make fun of me when I am physically active | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29i I don't think I am very good at physical activity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29j I have a health problem that prevents me from being physically active | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29k I have an injury that prevents me from being physically active | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29l I am scared that I might get hurt if I played sport (eg. football, netball) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29m I don't have proper clothing or shoes to play sport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29n I don't like how being active physically makes me feel (eg. hot, sweaty, out of breath) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

YOUR HEALTH AND WELLBEING

Would you say your health is...(Please tick one circle only)

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Excellent | Good | Fair | Poor | Don't know |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

31. How strongly do you agree with the following statement? (Please tick one circle only)

“I feel good about myself”

| | | | | |
|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|
| Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

32. How happy are you with your weight? (Please tick one circle only)

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Extremely happy | Fairly happy | In between | Fairly unhappy | Extremely unhappy |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

33. Do you think that you are...(Please tick one circle only)

| | | | | |
|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
| Underweight | Slightly underweight | About the right weight | Slightly overweight | Overweight |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

34. Have you ever been teased about your weight? (Please tick one circle only)

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Hardly ever | Sometimes | Quite often | Very often |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

35. How often have you been bullied at school in the past couple of months?...(Please tick one circle only)

| | | | | |
|-----------------------|------------------------------------|-----------------------|-----------------------|-----------------------|
| Never | It has only happened once or twice | 2 or 3 times a month | About once a week | Several times a week |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



THE END

THANK YOU!!

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