School Aged Nutrition 4-11 years

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Section 9: School aged nutrition: 4 – 11 years

Aim: To provide children aged 4 to 11 years with ongoing education on healthy eating; and to provide children with many opportunities to choose healthy food options.

Key points

Table 1: Key points

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy eating is important as it provides the energy and nutrients needed for growth and development. The amount consumed by children will depend on their age, sex and level of physical activity.</td>
</tr>
<tr>
<td></td>
<td>Water should be the primary drink consumed by children.</td>
</tr>
<tr>
<td></td>
<td>Being physically active and limiting sedentary time has numerous health benefits. Active children are more likely to remain active into adulthood.</td>
</tr>
</tbody>
</table>

Overview

Children aged 4 to 11 years experience slow and steady growth prior to the onset of puberty. Their nutritional needs can be met by consuming a wide variety of nutritious foods, whilst gradually adjusting portion sizes to meet increasing energy needs for growth, development and physical activity.

After starting school, children begin to make some of their own lifestyle choices as they spend more time with friends, earn pocket money and access school canteens. This is a time when children are strongly influenced by peer pressure as well as information they receive from the media. It is important for parents and schools to provide consistent and healthy messages to help children adopt lifelong healthy eating and physical activity behaviours.¹

Recommendations for practice

Parents and carers can help children establish positive eating habits by offering a wide variety of foods, setting regular meal patterns and modelling healthy eating behaviours.¹

Encourage parents/carers to:

- Offer a wide variety of different foods from the five food groups each day¹ and allow children to determine when they are full.²
- Limit intake of foods high in saturated fat and replace high fat food containing predominately saturated fat (e.g. butter) with foods containing predominately polyunsaturated and monounsaturated fats (e.g. oils).¹
- Limit intake of foods and drinks containing added salt/sodium (including purchasing lower sodium options and not adding salt during cooking or at the table).¹
• Limit intake of foods and drinks containing added sugar such as confectionary, fruit juice, sports drinks, cordials and soft drinks.\(^1\)
• Provide a variety of snacks from the five food groups.\(^1\)
• Provide water as the main drink.\(^1\)
• Encourage children to help with food preparation and meal planning.\(^3\)
• Turn off the television and computer at mealtimes - make this family time\(^3\) and enjoy talking and sharing the day’s events.
• Allow their child to tell them when they are full at meal times.\(^2\)
• If there are concerns around a possible food allergy, seek advice from a medical professional
• Set family rules around limiting ‘screen time’.\(^4\)

Dietary guidelines for children

The Australian Dietary Guidelines provide the basis for a healthy diet. They highlight the types and quantities of foods, and lifestyle patterns that are vital for good nutrition and health.\(^1\) Parents with children aged between 4 and 11 years are encouraged to follow the Australian Dietary Guidelines, outlined below.

Guideline 1
To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.

• Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.

Guideline 2
Enjoy a wide variety of nutritious foods from these five food groups every day:

• Plenty of vegetables of different types and colours, and legumes/beans
• Fruit
• Grains (cereal) foods, mostly wholegrain and or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
• Lean meat and poultry, fish, eggs, tofu, nuts/seeds and legumes/beans
• Milks, yoghurts, cheeses and/or their alternatives. Reduced-fat varieties should be chosen, where possible.
• Drink plenty of water.

Guideline 3
Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.

• Limit intake of foods high in saturated fat and replace high fat foods which contain predominately saturated fats with foods containing predominately polyunsaturated and monounsaturated fats
Limit intake of foods and drinks containing added salt by choosing lower sodium options among similar foods and not adding salt to foods in cooking or at the table.

Limit intake of foods and drinks containing added sugars.

Guideline 4
Encourage, support and promote breastfeeding.

Guideline 5
Care for your food: prepare and store it safely.

Vitamin and mineral supplements are not necessary for healthy children if their dietary intake is adequate.

Energy and serves from the five food groups

The *Australian Guide to Healthy Eating* provides sample serves of recommended foods from the five food groups. A varied and nutritious diet is recommended for children. The amount and type of food varies with age, sex and level of physical activity.

Energy is measured in kilojoules (kJ). An individual’s energy requirement is difficult to predict and is best determined by hunger, and for most, this will fall within the ranges in Table 2.

**Table 2: Estimated Energy Requirements for children 4-11 years old who engage in a moderate level of physical activity.**

<table>
<thead>
<tr>
<th></th>
<th>4-8 years</th>
<th>8-11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>6600–8200 kJ</td>
<td>8800–9900 kJ</td>
</tr>
<tr>
<td>Girls</td>
<td>6100–7700 kJ</td>
<td>8200–9000 kJ</td>
</tr>
</tbody>
</table>

Recommended serves

Table 3 shows the recommended number of serves for children of average height with sedentary to moderate activity levels.
Table 3: Recommended serves of foods for children aged 4 - 8 and 9 - 11 years old.6

<table>
<thead>
<tr>
<th>Food group</th>
<th>Daily Serves 4-8 yrs old</th>
<th>Daily Serves 9 – 11 yrs old</th>
<th>Recommended serve size…</th>
<th>Approx. energy per Serve (kJ/serve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain (cereal) foods, mostly wholegrain and/or high fibre cereal varieties</td>
<td>4</td>
<td>4-5</td>
<td>1 slice (40g) of bread = 1/2 medium (40g) roll or flat bread = 1/2 cup (75-120g) cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa = 1/2 cup (120g) cooked porridge = 1/4 cup (30g) wheat cereal flakes = 3/4 cup (30g) muesli = 3 (35g) crispbreads = 1 (60g) crumpet = 1 small (35g) English muffin or scone</td>
<td>500</td>
</tr>
<tr>
<td>Vegetables and legumes/beans</td>
<td>4 1/2</td>
<td>5</td>
<td>1/2 cup cooked green or orange vegetables (for example, broccoli, spinach, carrots or pumpkin) = 1/2 cup cooked dried or canned beans, peas or lentils = 1 cup green leafy or raw salad vegetables = 1/2 cup sweet corn = 1/2 medium potato or other starchy vegetables (sweet potato, taro or cassava) = 1 medium tomato</td>
<td>100-350</td>
</tr>
<tr>
<td>Fruit</td>
<td>1 1/2</td>
<td>2</td>
<td>2 small apricots, kiwi fruits or plums = 1 medium apple, banana, orange or pear = 2 small apricots, kiwi fruits or plums = 1 cup diced or canned fruit (no added sugar) Or only occasionally: 125ml (1/2 cup) fruit juice (no added sugar) 30g dried fruit (for example, 4 dried apricot halves, 1/2 tablespoons of sultanas)</td>
<td>350</td>
</tr>
<tr>
<td>Milk, yoghurt, cheese and/or alternatives, mostly reduced fat</td>
<td>1 1/2 - 2</td>
<td>2 1/2 - 3</td>
<td>1 cup (250 ml) fresh, UHT long life, reconstituted powdered milk or buttermilk = 1/2 cup (120ml) evaporated milk = 2 slices (40g) or 4x3x2cm cube (40g) of hard cheese, such as cheddar = 1/2 cup (120g) ricotta cheese = 1/4 cup (200g) yoghurt = 1 cup (250ml) soy, rice or other cereal drink with at least 100mg of added calcium per 100ml</td>
<td>500-600</td>
</tr>
<tr>
<td>Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans</td>
<td>1 1/2</td>
<td>2 1/2</td>
<td>65g cooked lean meat such as beef, lamb, veal, pork, goat or kangaroo (about 90-100g raw) = 80g cooked lean poultry such as chicken or turkey (100g raw) = 100g cooked fish fillet (about 115g raw) or one small can of fish = 2 large (120g) eggs = 1 cup (150g) cooked or canned legumes/beans such as lentils, chick peas or split peas = 170g tofu = 30g nuts, seeds, peanut or almond butter or tahini or other nut or seed paste</td>
<td>500-600</td>
</tr>
<tr>
<td>Unsaturated spreads and oils</td>
<td>1</td>
<td>1</td>
<td>10g polyunsaturated spread = 10g monounsaturated spread = 7g monounsaturated or polyunsaturated oil, for example olive, canola or sunflower oil</td>
<td>250</td>
</tr>
</tbody>
</table>
Additional serves for more active, taller or older children

For older, taller or more active children in each age and sex group, additional serves of foods from the five food groups and/or unsaturated spreads and oils and/or discretionary food choices may be consumed to meet energy requirements.\(^1\) It is important to note that only half of Western Australian children aged 5-15 meet the physical activity recommendations, thus it is unlikely children will require additional energy.\(^7\)

The number of additional serves is outlined in table 4 and examples of discretionary choices and unsaturated spread and oils are listed in table 5. Discretionary foods and drinks are high in saturated fat and/or sugars or salt and can contribute many kilojoules and displace other more nutritious foods from the diet. Research shows nearly 41% of Australian children's kilojoule intake is from discretionary choices.\(^6\)

Table 4: Approximate additional serves for older, taller or more active children.\(^5\)

<table>
<thead>
<tr>
<th></th>
<th>4-8 years</th>
<th>9-11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>0-2½</td>
<td>0-3</td>
</tr>
<tr>
<td>Girls</td>
<td>0-1</td>
<td>0-3</td>
</tr>
</tbody>
</table>

Table 5: Examples of discretionary choices\(^6\)

<table>
<thead>
<tr>
<th>Discretionary choices (foods which should only be consumed sometimes and in small amounts)</th>
<th>Recommended serve size</th>
<th>Approximate per Serve (kJ/serve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 2 scoops (75g) ice-cream</td>
<td></td>
<td>500-600</td>
</tr>
<tr>
<td>= 2 slices (50-60g) processed meats, salami or mettwurst</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1½ thick or 2 thin (50-70g) regular sausages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= ½ snack-size packet (30g) salty crackers or crisps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 2-3 (35g) sweet plain biscuits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1 (40g) doughnut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1 slice (40g) plain cake/small cake-type muffin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 5-6 (40g) sugar confectionary/small lollies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1 tblsp (60g) jam or honey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= ½ bar (25g) chocolate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 2 tblsp (60g) cream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1 tblsp (20g) butter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1 can (375ml) soft drink (sugar-sweetened)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= ¼ pie or pastie (60g) commercial meat pie or pastie (individual size)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 12 (60g) fried hot chips</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Drinks for children

Adequate fluid intake is essential for life and important in preventing dehydration. Mild dehydration, defined as a fluid loss of 1-2% of body weight, has been linked to reduced cognitive performance in children. Children are known to be at a greater risk of dehydration than adults, and in Australia, young children are at particular risk of dehydration due to:

- greater water losses from the skin in the warmer climate.\(^1\)
- increased fluid losses through bouts of fever and diarrhoea\(^6\) and
- younger children relying more heavily on carers to provide them with fluids.\(^6\)

Children’s fluid requirements depend on their body size and activity levels.\(^1\) Children who are very physically active are more prone to dehydration, thus fluids lost through perspiration need to be promptly replaced.

The most appropriate fluids to quench a child’s thirst are water and milk.\(^1\)

Research has shown that ‘sugar-sweetened drinks (sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks) are the largest source of sugars in the Australian diet, with consumption highest in adolescents and children’. There is also recent evidence indicating ‘that it is probable that consumption of sugar-sweetened drinks (soft drinks) is associated with increased risk of weight gain in adults and children’.\(^1\)

Water

Water is essential for good health and children should be encouraged to choose water as their main drink. Fluoridated tap water helps to protect the teeth from decay and beginning a water drinking routine at a young age will instil good practice for later life.\(^9\) In Western Australia all drinking water service providers must comply with the Australian Drinking Water Guidelines to ensure safe drinking water.\(^10\)

Milk

Milk is a healthy drink for children, providing important nutrients such as calcium, protein, riboflavin and vitamin B\(_{12}\).\(^6\) Calcium is important for skeletal growth and in the attainment of peak bone mass.

- Reduced-fat milks are suitable for children after 2 years of age.\(^1\)
- Calcium fortified soy milk can be used as an alternative to cow’s milk under health professional supervision, as long as other sources of protein and vitamin B12 are included in the diet.\(^1\)
- Sweetened flavoured milk provides nutrients, however can be energy dense, thus plain milk is recommended.\(^1\)

Fruit Juice

Fruit juice (100%) is only recommended occasionally as it is a concentrated source of sugar. It can contribute valuable nutrients and fluid to a child’s diet.\(^1\)
Whole fruit should always be recommended as an alternative to fruit juice due to the low fibre content and high energy density of fruit juice.\(^1\)

If fruit juice is consumed in excessive quantities, it can displace other nutritious foods from the diet and can lead to problems such as obesity and dental caries.\(^1\)

**Caffeinated drinks**

Caffeine is found in beverages such as energy drinks, coffee, soft drinks and some foods. For children, the primary source of caffeine is soft drinks.\(^{11}\) Caffeine provides no nutritional benefit\(^{12}\) and there is no recognised health-based guidance value, such as an acceptable daily intake.\(^{13}\)

The effects of caffeine on children and adolescents are largely unknown as most research has been in adult populations. In 2000, the Food Standard Australia and New Zealand (FSANZ) Expert Working Group analysed the available literature and concluded that there was evidence of increased anxiety levels in children at doses of about 3 mg of caffeine per kilogram of bodyweight per day, which equates to approximately 2 cans of cola (95mg) for children aged 5-12 years.\(^{12}\) Other research has shown that excess consumption of caffeine can result in tachycardia, arrhythmia, hypertension, hyperactivity, anxiety and increased blood sugar concentrations as many energy drinks, specialty coffee drinks, and other drinks that contain large amounts of caffeine often also contain large amounts of sugar.\(^{12}\)

The *Australia New Zealand Food Standards Code* restricts how much caffeine can be added to cola-type soft drinks and energy drinks. They also require labeling of energy drinks advising that the product is not suitable for young children, pregnant or lactating women and individuals sensitive to caffeine.\(^{13}\)

**Soft drinks**

The Australian Dietary Guidelines classifies soft drinks as ‘discretionary choices’ as they have little nutritional value and contain large amounts of sugar. Research suggests that soft drink consumption:

- is associated with increased risk of dental caries in children\(^1\)
- can lead to the displacement of healthier food and beverage choices\(^{11}\)
- is associated with increased risk of weight gain\(^1\)
- is associated with bone fractures, low bone density, osteoporosis and hypocalcaemia.\(^{11}\)

Diet soft drinks are often promoted as a healthy alternative; however they retain many of the components of regular soft drinks which have been associated with negative effects such as high levels of acidity. There is also some public concern surrounding the use of artificial sweeteners. The two sweeteners used in Australia for diet soft drinks are aspartame and acesulfame potassium. Rigorous toxicological studies have shown they are safe for consumption by humans (including children). Research undertaken by FSANZ in 2003 showed that the daily exposure of the population to all intense or artificial sweeteners is below acceptable daily intake.\(^{11}\)
Energy drinks

Energy drinks are considered to be unsuitable for children, mainly due to their high caffeine content.\(^1\) Energy drinks are sugary soft drinks with added “energy-boosting” ingredients. The main active ingredient in energy drinks is caffeine, often in addition to other substances such as taurine, riboflavin, pyridoxine, nicotinamide, other B vitamins, and various herbal derivatives. Energy drinks provide a significant amount of caffeine; sometimes up to five cups of coffee in one drink. These drinks are currently the fastest growing sector of the beverage market and 31% of 12-17 year olds have reported regular consumption of such drinks.\(^{14}\) The increasing consumption of energy drinks by school-aged children is a concerning trend given that the effect of caffeine on children is understudied and poorly understood.

Current literature indicates that caffeinated sugary drinks are linked to sleep dysfunction, overweight and obesity, and dental caries in children.\(^{14}\) There are also concerns regarding potential caffeine intoxication and a growing body of literature that suggests caffeine use in adolescents and young adults is associated with impulsivity, sensation seeking, and risk taking behaviours.\(^{15}\) In children and adolescents, energy drink consumption may be driven by peer pressure or a desire to enhance sports performance. Consumption of energy drinks should be discouraged.

Sports drinks

Sports drinks are flavoured beverages that often contain carbohydrates, minerals, electrolytes (e.g. sodium, potassium, calcium, magnesium) and sometimes vitamins and other nutrients. Sports drinks have a role in the diet of young athletes who are engaged in prolonged vigorous sports activity (primarily to rehydrate and replenish carbohydrates, electrolytes and water loss during exercise). Most children do not participate in such high levels of activity and therefore sports drinks are unnecessary. Routine intake of sports drinks can increase overall daily energy intake without significant additional nutrient value, thus leading to a greater risk of overweight and obesity. In addition, most sports drinks have a low pH (3-4) and often contain citric acid, both of which have demineralizing effects on the enamel of teeth.\(^{16}\)

Healthy eating habits

Meal times

Sitting down to eat as a family is a great chance to spend time together. Families are encouraged to relax and eat together at mealtimes, even if only a few times during the week or at weekends. Parents are also encouraged to let their children help with meal preparation and food shopping.\(^2\) Children who grow up in families that enjoy a variety of nutritious foods from the five food groups are more likely to make their own healthy choices as they get older.\(^3\)

During family mealtimes, parents are encouraged to:

- avoid distractions such as television, radio or the telephone
- encourage talking and sharing of daytime activities
allow their child to decide when they are full and not to argue about food

discuss some simple nutrition messages such as ‘milk helps keep your teeth and bones strong’.2

Breakfast

Breakfast is the most important meal of the day as it influences how much energy children have for physical activity, their concentration, memory and learning at school.

Encourage parents to provide an adequate and suitable breakfast for their child and to be good role models by eating breakfast too. Breakfast foods should be high in carbohydrates and fibre (such as breads and cereals) and include as many food groups as possible. For example, have an egg on toast with a glass of milk and a piece of fruit, or a bowl of cereal and milk followed by an English muffin topped with fresh fruit.

Whole grain cereals such as wheat biscuits and oats (porridge) are nutritious breakfast foods that are high in fibre and low in sodium and sugar. High sugar cereals are often marketed towards children but should be limited. Some cereals also contain high amounts of sodium so label reading is encouraged.

If children don’t feel hungry at breakfast time, parents can provide less at dinner (for example leave out a potato or reduce the portion size) so their child wakes up feeling hungry. Alternatively, parents can provide a small breakfast (e.g. a piece of fruit) until the body adapts to eating in the mornings.

Research shows that:

- Children who consume breakfast are more likely to have higher nutrient intakes and healthy diets. In addition, higher breakfast frequency has been associated with higher daily nutrient intakes stated as a percentage of nutrient intake recommendation.17
- Breakfast consumption is commonly associated with higher intakes of some nutrients, particularly vitamin A, vitamin C, riboflavin, calcium, zinc, iron and fibre. 17
- Children who eat breakfast make better food choices, such as more fruits, vegetables, dairy products, or high-fibre/low-fat foods and may be less likely to consume high-fat or unhealthy snacks.17
- Eating breakfast more often may help children maintain a healthy weight. 17

Snacks

Young children have small stomachs and cannot consume a wide variety of foods in just three main meals. They often need to top up their energy between meals and this can be done with healthy snacks. Most commercial snack foods are high in fat, sugar and/or salt, provide few nutrients and are high in energy.

Encourage parents to:

- Offer children a variety of healthy snacks from the five food groups e.g. yoghurt, milk, fruit, vegetables.1
- Avoid giving snacks close to meal times as this may discourage children from eating their main meal.\textsuperscript{18}
- Save discretionary choices for special occasions.\textsuperscript{3} This includes soft drinks and other sugary drinks, as they make children feel full and may therefore take the place of a healthier snack.\textsuperscript{18}
- Always have healthy snacks available at home to eliminate the temptation of choosing unhealthy snacks.\textsuperscript{18}
- Avoid using foods as treats or rewards.\textsuperscript{18}

School

One third of a child’s dietary intake is consumed at school\textsuperscript{20} with the majority of this food being supplied from the home.\textsuperscript{21} Thus it is important that parents provide children with foods that are nutritious.\textsuperscript{22}

- Children who eat well during the school day are more likely to get the nutrients they need for healthy development.\textsuperscript{22}
- Children find it difficult to concentrate if they are hungry or thirsty.\textsuperscript{22}
- Children consuming large amounts of sometimes (or ‘junk’) foods such as potato crisps and lollies are compromising their ability to learn, concentrate and behave appropriately at school.\textsuperscript{22}

Encourage parents to:

- Seek out lunchbox ideas that are based on the Australian Dietary Guidelines.
- Pack enough food to cover morning recess, lunch and any other after school activities.
- Choose or prepare foods that are easy and convenient to eat especially if the child has missing teeth, difficulty swallowing large foods and/or prefers to run off and play than to sit down to eat (therefore requiring small bite sized pieces of food).
- Carefully pack lunchbox foods so that they are easily unwrapped or opened, appetising and safe to eat. Younger children may benefit from practising opening containers or packets at home before commencing school.
- Avoid packing foods such as chocolates, lollies, fruit straps, cereal or muesli bars, sweet biscuits, packets of chips and other high fat, high sugar treats.
- Always include a cold pack or frozen water bottle in the lunch box or bag to keep foods cool and safe, even in winter.
- Consider the time allowed for children to eat their lunch before going out to play; 10-15 minutes is a short time for young children to eat a sandwich plus a whole piece of fruit (which often ends up uneaten) so consider small, easily eaten pieces of fruit such as mandarins, grapes, strawberries, bananas or cut up melon.
- Provide water instead of sugary drinks such as cordials, soft drinks, flavoured waters, sports drinks or juices.\textsuperscript{22}
More information on fussy eating can be found in the Toddler chapter of this CAN Manual.

Physical activity
Being active every day is an important part of maintaining good health. Evidence shows that higher levels of physical activity in children are associated with multiple health benefits including cardiometabolic health; adiposity (including the prevention of unhealthy weight gain); musculoskeletal health; mental health; and cardiorespiratory fitness.\textsuperscript{23} Research also shows that active children are more likely to remain physically active throughout adolescence and into adulthood.\textsuperscript{1}

An equally important component of the National guidelines relates to reducing sedentary activity. Research has shown that lower levels of sedentary behaviour are associated with multiple health benefits.\textsuperscript{24} Recommendations for children’s physical activity and sedentary behaviour can be found in table 6.

Table 6: Australia’s Physical Activity and Sedentary Behaviour Guidelines for Children.\textsuperscript{25}

<table>
<thead>
<tr>
<th>Children 0-5 Years</th>
<th>Children 5-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Activity</strong></td>
<td><strong>Physical Activity</strong></td>
</tr>
<tr>
<td>● Pre-schoolers (3 to 5 years) should be physically active every day for at least three hours, spread throughout the day.</td>
<td>● Children aged 5–12 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day.</td>
</tr>
<tr>
<td></td>
<td>● Children’s physical activity should include a variety of aerobic activities, including some vigorous intensity activity.</td>
</tr>
<tr>
<td></td>
<td>● On at least three days per week, children should engage in activities that strengthen muscle and bone.</td>
</tr>
<tr>
<td></td>
<td>● To achieve additional health benefits, children should engage in more activity – up to several hours per day.</td>
</tr>
<tr>
<td><strong>Sedentary Behaviour</strong></td>
<td><strong>Sedentary Behaviour</strong></td>
</tr>
<tr>
<td>● Children 2 to 5 years of age, sitting and watching television and the use of other electronic media (DVDs, computer and other electronic games) should be limited to less than one hour per day.</td>
<td>● Children aged 5-12 years should minimise the time they spend being sedentary every day. To achieve this:</td>
</tr>
<tr>
<td>● Infants, toddlers and pre-schoolers (all children birth to 5 years) should not be sedentary, restrained, or kept inactive, for more than one hour at a time, with the exception of sleeping.</td>
<td>○ Limit use of electronic media for entertainment (e.g. television, seated electronic games and computer use) to no more than two hours a day – lower levels are associated with reduced health risks.</td>
</tr>
<tr>
<td></td>
<td>○ Break up long periods of sitting as often as possible.</td>
</tr>
</tbody>
</table>
NB: These guidelines apply to all children aged 5 to 12 years irrespective of cultural background, gender, socioeconomic status, and ability.

Many children are not meeting the recommendations for physical activity and sedentary behaviour. The Health and Wellbeing of Western Australian Children 2011 report identified that just over 50% of 5-8 years old and almost 40% of 9-15 years olds met the physical activity. In addition, approximately 40% of WA children aged 5–15 spent on average, two or more hours a day on sedentary pursuits (watching television, videos or using a computer). Team sports, throwing/kicking a ball in the park, walking/playing with the dog, helping with the gardening or washing the car, walking or riding to school/shops etc. and using a skipping rope are all great ideas to help get children more active.

**Dietary considerations**

**Iron**

Iron deficiency is the most common nutritional deficiency in childhood. Iron is an important dietary mineral that is vital for brain development and various bodily functions. Iron forms part of haemoglobin in red blood cells and helps to transport oxygen in the blood. The iron component of enzymes is necessary for the production of energy from glucose, which is the main fuel for the brain and the rest of the body. Iron in foods come in two forms: haem (from animal sources) and non-haem (mainly from plant sources). The haem form of iron is more easily absorbed by the body than non-haem iron. The presence of vitamin C can increase the absorption of non-haem iron when consumed in the same meal. Consumption of meat, fish and poultry can also increase non-haem iron absorption from plant foods consumed at the same time. The best sources of iron in foods are shown in Table 7 below.

<table>
<thead>
<tr>
<th>Iron recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The current Australian recommended dietary intake of iron for children aged 4-8 years is 10mg/day and for children aged 9-13 years is 8mg/day. Note: Girls who menstruate earlier than 13 years are recommended to consume 15mg/day.</td>
</tr>
</tbody>
</table>
Table 7: Iron content of foods\textsuperscript{5}

<table>
<thead>
<tr>
<th>Food</th>
<th>Iron (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kangaroo 100 grams</td>
<td>4.1</td>
</tr>
<tr>
<td>Breakfast cereal (iron fortified) 1 cup</td>
<td>3.0</td>
</tr>
<tr>
<td>Lean beef (cooked) 100 g</td>
<td>2.0-3.0</td>
</tr>
<tr>
<td>Lean lamb (cooked) 100 g</td>
<td>2.0 - 2.5</td>
</tr>
<tr>
<td>Legumes – cooked ½ cup</td>
<td>2.0 -2.5</td>
</tr>
<tr>
<td>Baked beans (small can 130g)</td>
<td>1.66</td>
</tr>
<tr>
<td>Salmon (canned or grilled) 100 g</td>
<td>1.1 - 1.3</td>
</tr>
<tr>
<td>Tuna (canned in water) 100 g</td>
<td>1.0 -1.3</td>
</tr>
<tr>
<td>Egg – large 65-70g</td>
<td>1.0</td>
</tr>
<tr>
<td>Lean pork (cooked) 100 g</td>
<td>0.6 – 1.0</td>
</tr>
<tr>
<td>Skinless chicken breast (cooked no skin)100g</td>
<td>0.4 - 0.9</td>
</tr>
</tbody>
</table>

NB: Other sources of iron can be found in the WA Women’s Health and Family Services pamphlet ‘High Iron Foods’.

Iron deficiency

The most likely cause for iron deficiency in childhood is an inadequate amount of iron in the diet, coupled with the extra requirements for growth. Children may be at risk of iron deficiency in the following situations:

- **Vegetarian household**: even though meat foods are the richest and most absorbable sources of iron, a well-planned vegetarian diet can adequately supply enough iron throughout childhood. This requires using the appropriate sources of non-haem (plant) iron. Good sources of non-haem iron include breakfast cereals fortified with iron, wholegrain breads and cereals, legumes, peas and beans. Eating foods containing vitamin C in the same meal (e.g. citrus fruit) can significantly improve non-haem iron absorption.\textsuperscript{27,28} See Vegetarianism section in this chapter.

- **‘Milkaholics’**: those drinking an excessive amount of cow’s or other milks (more than 500 ml/day) can lead to iron deficiency as milk is a poor source of iron and can reduce a child’s appetite for other foods.\textsuperscript{27}

- **Tea drinkers**: tannins in tea inhibit iron absorption.\textsuperscript{27,28}

*Treatment of iron deficiency anaemia*

Parents should be encouraged to seek a diagnosis of iron deficiency anaemia from a medical practitioner.

Dietary modification is the main treatment of iron deficiency in children, with an emphasis on iron-rich food sources, especially sources of haem iron (such as red
meat, chicken and fish) consumed with foods high in vitamin C. High consumption of absorption inhibitors should be avoided (such as tea, coffee or fibre).\textsuperscript{21}

Iron supplements should only be given if recommended by a medical practitioner. They should be stored out of reach of children because of the risk of accidental overdose, which can be fatal.\textsuperscript{21}

**Fibre and constipation**

Dietary fibre is the part of plant food which cannot be digested by the stomach or intestines and it is essential for laxation and proper gut function. Fibre also plays a role in stabilising blood glucose levels and cholesterol.\textsuperscript{5} It is important to drink plenty of fluid with high fibre foods.\textsuperscript{29,30}

### Fibre recommendations

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dietary Fibre Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 4–8 years</td>
<td>18 g/day</td>
</tr>
<tr>
<td>Boys 9-13 years</td>
<td>24 g/day</td>
</tr>
<tr>
<td>Girls 9-13 years</td>
<td>20 g/day</td>
</tr>
</tbody>
</table>

**Signs of constipation**

- Constipation is not just reduced frequency of bowel actions, but also refers to how hard the stool/faeces is when it is passed.
- Constipation is often accompanied by pain upon defecation. Children may also have regular abdominal pain and bloating.
- Faecal soiling is often secondary to constipation and may occur during spontaneous relaxation of the sphincters precipitated by rectal distension.\textsuperscript{31}

**Causes of constipation**

Factors contributing to childhood constipation may include:

- inadequate fibre through solid foods (sometimes caused by drinking too much milk) - see Table 8 for fibre content of some foods
- a tear in the skin next to the anus caused by straining; the child may then try to delay elimination because of pain experienced on defecation
- the child ignoring the urge to go to the toilet as they are busy playing
- the child holding back when they are being toilet trained
- inadequate fluid intake
- inadequate exercise.\textsuperscript{32}
Table 8: Fibre content of selected foods.29

<table>
<thead>
<tr>
<th>Sources of fibre</th>
<th>Fibre (g)</th>
<th>Sources of fibre</th>
<th>Fibre (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baked beans, 220g</td>
<td>10.5</td>
<td>Apple, 1 medium</td>
<td>3.0</td>
</tr>
<tr>
<td>Wholemeal pasta, 1 cup</td>
<td>8.5</td>
<td>Brown rice, 1 cup</td>
<td>3.0</td>
</tr>
<tr>
<td>Mango, 1 medium</td>
<td>5.0</td>
<td>Dried apricot, 6 small</td>
<td>2.5</td>
</tr>
<tr>
<td>Corn on cob</td>
<td>5.0</td>
<td>Banana, 1 small</td>
<td>2.5</td>
</tr>
<tr>
<td>Prune, 6 medium</td>
<td>4.5</td>
<td>Wholemeal bread, 1 slice</td>
<td>2.0</td>
</tr>
<tr>
<td>Peas, ½ cup</td>
<td>4.5</td>
<td>Shredded wheatmeal, 2 biscuits</td>
<td>2.0</td>
</tr>
<tr>
<td>Strawberries, ½ punnet</td>
<td>4.5</td>
<td>Peanut paste, 20g</td>
<td>2.0</td>
</tr>
<tr>
<td>Porridge, ½ cup</td>
<td>4.0</td>
<td>High-fibre white bread</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Treating constipation**

Suggestions for parents and caregivers to improve their child’s diet include:

- offer more wholegrain or wholemeal breads, rice and cereals
- offer more fresh fruits, dried fruits and vegetables
- provide and encourage water as a drink.31

Note: Fibre intake should be increased gradually.

Parents also need to:

- Encourage their child to exercise or be active every day.
- Establish a regular toilet routine. This ‘bowel training’ will require some encouragement to help get the child used to going to the toilet at a similar time every day. Toilet training usually happens between 18 months and 3 years of age. Night time training can take an additional few years.
- Try to solve the problem quickly as it may worsen and take longer to treat if the child remains constipated for any great length of time.
- See a medical practitioner if constipation is a long term problem.32

**Calcium**

Calcium is vital for achieving and maintaining peak bone mass and preventing osteoporosis, a condition where bones become weak and break easily. In Australia, osteoporosis is a major public health problem.5 Adequate intake of calcium rich foods in childhood is the key to providing the bone with density and strength assisting with osteoporosis prevention.33
Calcium recommendation

The current Australian recommended dietary intake of calcium for children aged 4 – 8 years is 700mg/day and for children aged 9-11 years is 1000mg/day. The best sources of calcium are cow’s milk, yoghurt, custard, cheese and calcium-fortified soy beverage. Other calcium sources include legumes, some vegetables, fortified soy products and breakfast cereals. See Table 9 for specific high calcium food sources.

Table 9: Calcium content of selected foods.

<table>
<thead>
<tr>
<th>Best sources of calcium</th>
<th>Calcium (mg)</th>
<th>Other calcium sources</th>
<th>Calcium (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain yoghurt* 200g serve (1 small tub)</td>
<td>437</td>
<td>Sardines, canned in water with bones, 100g</td>
<td>540</td>
</tr>
<tr>
<td>Cheese, cheddar, reduced fat*, 40g</td>
<td>380</td>
<td>Salmon, canned in water with bones (100g)</td>
<td>310</td>
</tr>
<tr>
<td>Reduced fat milk (2%) 1 cup (250ml)*</td>
<td>313</td>
<td>Dark green leafy vegetables, cooked 1 cup</td>
<td>138</td>
</tr>
<tr>
<td>Custard, reduced fat*, 250ml</td>
<td>338</td>
<td>Dried figs, 3</td>
<td>114</td>
</tr>
<tr>
<td>Skim milk powder*, ¼ cup</td>
<td>312</td>
<td>Almonds 20 raw</td>
<td>60</td>
</tr>
<tr>
<td>Soy beverage calcium-fortified, 1 cup (250ml)</td>
<td>312</td>
<td>Legumes cooked, ½ cup</td>
<td>43-65</td>
</tr>
<tr>
<td>Full cream milk* (4%) 1 cup (250ml)</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Reduced fat milk products are not suitable for children 2 years and under, unless on medical advice.

Lactose intolerance is a condition where the body cannot properly digest the natural sugar (lactose) found in milk and milk products. True lactose intolerance is commonly seen in people of Asian or Aboriginal and Torres Strait Islander descent; the prevalence in Caucasian people is relatively low. Lactose free or calcium-fortified soy products may need to be used for children diagnosed with lactose intolerance, although small amounts of milk or milk products may be tolerated.
Food allergies and food intolerance

Food allergy

Around 85% of children with allergy to cow’s milk, egg, soy and wheat will outgrow their allergy sometime in childhood. Allergies to peanut, tree nuts, sesame, fish and shellfish tend to persist into adulthood.35

IgE-mediated food allergy

IgE mediated reactions are usually of rapid onset and, in children, usually occur within 30 minutes of ingestion of the causative food. The reactions result from the release of histamine and other inflammatory mediators which are released from mast cells when allergens bind to IgE antibodies on the mast cells.35

Symptoms are classed as mild to moderate, or as anaphylaxis which is severe and requires immediate treatment with adrenaline and emergency medical aid:

Mild to moderate symptoms include:

- swelling of lips, face, eyes
- hives or welts
- tingling mouth
- abdominal pain, vomiting
- eczema or rashes.35

Anaphylaxis is defined by any one of the following which may occur in isolation or in conjunction with the mild to moderate symptoms listed above.

- difficult/noisy breathing
- swelling of tongue
- swelling/tightness in throat
- difficulty talking and/or hoarse voice
- wheeze or persistent cough
- persistent dizziness or collapse
- pale and floppy in young children.35

Parents/carers of children with anaphylaxis are encouraged to register the allergy and children should wear a MedicAlert® bracelet and carry an EpiPen or Anapen. EpiPens or Anapens should be easily accessible and stored away from heat.

In the school environment, staff (including canteen and relief staff) need to be informed about the specific health needs of the child. It is recommended that a Health Care Authorisation be filled out with the school principal, involving specialist medical advice and a medical emergency response in case of an allergic reaction.

Parents of children who suffer from allergies and anaphylaxis are usually aware of ways to minimise the risk of a reaction, however, they are strongly advised to always seek specialist advice and diagnosis of the condition.
Health professionals are encouraged to:

- Make parents aware of the importance of receiving proper diagnosis of a food allergy, anaphylaxis and intolerance.
- Attend training or be informed about the use of an EpiPen or Anapen.
- Seek further information from health professionals.

**Non IgE-mediated food allergy**

Non IgE mediated food allergy usually results in symptoms 2-24 hours after ingestion. These reactions are the result of an immune response that results in delayed inflammation in the skin or gastrointestinal tract. Symptoms include delayed eczema; delayed vomiting and diarrhoea; loose, frequent bowel actions, blood or mucus in stools; irritability and unsettledness in infants and include conditions such as eczema, proctocolitis, food protein induced enteropathy and food protein induced enterocolitis (FPIES), a condition characterised by profuse vomiting 2-4 hours after ingestion of the causative food and resulting in hypovolemic shock. Some allergic syndromes are classified as 'mixed IgE and non IgE mediated' and include oesinophilic oesophagitis and eczema. For more information refer to the ASCIA Health Professional Information Paper: Nutritional Management of Food Allergy (2013) for further details on symptoms and causative foods for the various allergic syndromes.

For more information refer to the ASCIA Health Professional Information Paper: Nutritional Management of Food Allergy (2013) for further details on symptoms and causative foods for the various allergic syndromes.


**Food intolerance**

Food intolerance and food allergy are commonly confused due to similarity and overlapping in some symptoms. It is important to note that the symptoms of food intolerance are not a result of an immune mediated reaction.

Most food intolerances are:

- Metabolic – such as lactose intolerance which is the result of an enzyme deficiency and can cause bloating and diarrhoea.
- Pharmacological – reactions to components in food such as caffeine, monosodium glutamate and naturally occurring food chemicals such as salicylates and amines.
- Reactions to toxins in foods (such as scombroid fish toxin).
- The result of an unclear reaction, such as reactions to sulphite preservative.

The exception to this is coeliac disease, which is an immune mediated intolerance to the dietary protein gluten. There are no reliable skin or blood tests to diagnose food intolerance (apart from coeliac disease). It is therefore imperative that diagnosis of food allergy and risk of anaphylaxis is medically confirmed for an infant or young child before proceeding to investigate whether symptoms are due to a possible food intolerance.
Diagnosis

If a child has symptoms suggestive of an adverse food reaction, the child should be referred via medical practitioner to a specialist paediatric allergist or immunologist for diagnosis.

Diagnosis of IgE mediated food allergy involves taking a detailed medical and dietary history, which is used in conjunction with validated allergy tests, including skin testing and Serum Specific IgE testing (formerly known as RAST). These tests are usually positive for IgE mediated food allergy. It should be noted that only allergists and immunologists qualified to interpret these tests to inform the diagnosis of food allergy.

Non IgE mediated food allergy is diagnosed by exclusion of IgE mediated diagnosis, and dietary elimination with or without an oral food challenge to confirm the diagnosis. Elimination diets should only be undertaken with the supervision of the child’s medical practitioner and an accredited practicing dietitian, to ensure nutritional adequacy of the diet and appropriate feeding development.

Food intolerances are also diagnosed by elimination and challenge and should be supervised by a medical practitioner and dietitian. As highly restrictive diets can adversely affect nutritional status and affect feeding development, it is important to exclude the presence of true food allergy or other underlying medical conditions that could be responsible for symptoms in the infant or child, prior to conducting exclusion diets for the investigation of food intolerance.

There are a number of tests conducted by alternative health practitioners that claim to diagnose food allergy. These include IgG testing, Vega testing and cytotoxic testing. More information on unorthodox allergy tests can be found at the ASCIA website.35

Management of diagnosed food allergy

Food allergies are managed by complete avoidance of single or multiple food allergens that cause reactions. Families with allergic children need relevant health professionals to provide individualised advice and support regarding:

- emergency action plans
- environmental controls
- allergen avoidance education
- ensuring the child’s diet is nutritionally adequate for growth and developmental needs, and
- monitoring/optimising treatment of asthma and eczema.35

All children with suspected or diagnosed food allergy should be referred to a paediatric allergist or immunologist for accurate diagnosis, and appropriate follow up of their condition.35
Food additives

A food additive is any substance not normally consumed as a food in itself and not normally used as an ingredient of food, but which is intentionally added to a food to achieve a technological function. Many substances used as additives also occur naturally, such as vitamin C or ascorbic acid (300) in fruit, or lecithin (322), which is present in egg yolks, soya beans, peanuts and maize.

Food additives play an important part in the food supply, ensuring that food is safe and meets the needs of consumers. They can be used to:

- improve the taste or appearance of a processed food
- improve the keeping quality or stability of a food
- preserve food to extend its storage life.

Safety assessments are carried out by Food Standards Australia and New Zealand (FSANZ) before an additive can be used in foods. Additives must meet the following criteria before being allowed for use in foods.

- The food additive must be safe.
- Good technological reason for the use of the food additive must exist.

Adverse reactions to food additives occur in a small proportion of the population. Intolerances can be to natural or synthetic sources. The labeling of food products helps people who are sensitive to some food additives to avoid them.

What to do with concerns about food additives and health

Parents should be encouraged to have their children properly diagnosed of any food intolerance or allergy to avoid restricting their diets unnecessarily. Unwarranted restrictive diets place their child’s nutritional intake at risk and may also impact on their child’s psychological response to normal eating.

To reduce the intake of additives, parents should limit children’s intake of discretionary food items (as these products are likely to have additives such as colours or flavours) and encourage eating from the five food groups.

Overweight and obesity

Nationally, the prevalence of overweight and obesity in children aged 5-17 years increased from 21% in 1995 to 25% in 2007-08 and then remained relatively stable to 2011-12 (25.7%), with 17.7% overweight and 7.6% obese. In 2011, 19% of Western Australian children aged 5–15 were classified as overweight or obese, based on crude measures undertaken by parents and then converted to BMI.

The WA Health and Wellbeing Surveillance Study (HWSS) collected information on parent’s perceptions of their child’s weight (for children 5-15), with few parents identifying their child as overweight. This data is in contrast to the high rates previously mentioned sourced from reliable population studies, and supports the anecdotal evidence often discussed among Community Health Policy and Clinical staff of parents’ inaccurate perceptions of healthy child weight.
The National Health and Medical Research Council recommends the classification of child overweight and obesity according to the US Centre for Diseases Control and Prevention (CDC) BMI-for-age percentile for children between the age of 2 and 18 years\(^1\) (Refer to Appendices for Growth Charts). The BMI percentile is not a diagnostic tool but indicates the relative position of the child in relation to others in the same stage of development. Furthermore, there are a number of considerations that should be taken into account when interpreting the BMI-for-age percentile such as unusual height for age, early or late onset of puberty, unusual body fat distribution, highly developed muscles and ethnic differences.

**Table 10: BMI percentile range and corresponding BMI-for-Age weight status category.\(^{19}\)**

<table>
<thead>
<tr>
<th>Percentile range</th>
<th>BMI-for-age weight status category</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt;5^{th}) percentile</td>
<td>Underweight</td>
</tr>
<tr>
<td>5(^{th}) percentile to (&lt;85^{th}) percentile</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>85(^{th}) to (&lt;95^{th}) percentile</td>
<td>Overweight</td>
</tr>
<tr>
<td>(\geq 95^{th}) percentile</td>
<td>Very overweight (Obese)</td>
</tr>
</tbody>
</table>

Overweight children are more likely to become overweight adults, with an increased risk of chronic diseases and early mortality.\(^{1}\)

**Consequences of childhood obesity**

Obesity in childhood and adolescence is associated with a number of serious health consequences for physical and mental health, both in the short term (for the child or adolescent with obesity) and the long term (for the adult who had obesity as a child). Long-term complications of childhood obesity include type 2 diabetes, hypertension, hyperlipidaemia, accelerated growth and bone maturation and other orthopaedic disorders, polycystic ovaries, pancreatitis and fatty liver, sleep apnoea and respiratory problems.\(^{19}\)

Obesity in childhood is also associated with several social-emotional problems including poor self-esteem, poorer cognitive development and lower educational attainment in some people, with increased risk of mental health problems in later life.\(^{19}\)

**Management of overweight or obese children**

A weight loss diet is rarely prescribed for an overweight child as it can bring more harm than benefit, however if required, should only be done so under the careful management of a paediatric specialist. Weight maintenance is a healthy approach to assisting a child back to a healthy weight range, with the notion being to allow them to ‘grow’ into their weight rather than weight-loss. The most successful approaches combine healthy eating strategies (for example reducing intake of sugar sweetened beverages and high fat/salt snacks), increased physical activity, and decreased sedentary time.\(^{1}\)
Encourage parents to:

- limit the amount of take away meals their family consumes
- reduce the amount of packaged foods consumed, instead opting to consume mainly plant based foods (such as fruit, vegetables, legumes and whole grain cereals)
- set family rules around limiting ‘screen time’ (time spent in front of the television, computer and electronic games)
- support children in sporting activities or active play.

Refer to a medical practitioner or an accredited practising dietitian for further assistance. More information can also be found in the Overweight and Obesity chapter of this CAN Manual.

Related policies, procedures and guidelines

The following can be read in conjunction with this document.

<table>
<thead>
<tr>
<th>3.4.1 Growth in childhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.3 Overweight and obesity</td>
</tr>
<tr>
<td>4.3.4 Promoting healthy eating in schools</td>
</tr>
<tr>
<td>4.5.4.1 Brief intervention for adolescent overweight and obesity</td>
</tr>
<tr>
<td>4.4.2.2.3 Overweight and obesity in primary school aged children</td>
</tr>
<tr>
<td>6.6.1.3.6 Conducting a weight assessment - school aged children</td>
</tr>
<tr>
<td>CAN manual chapter on Overweight and Obesity</td>
</tr>
</tbody>
</table>

References


Professional resources

- Australasian Society of Clinical Immunology and Allergy – www.allergy.org.au For health professional e-training; Health professional information papers; position statements, Dietary avoidance information for consumers

- Allergy Down Under - resources for health professionals on food allergy, food intolerance and coeliac disease - http://allergy.net.au/


- Diabetes WA www.diabeteswa.com.au

- Dietitians Association of Australia
  The largest professional nutrition organisation in Australia www.daa.asn.au

- Heart Foundation www.heartfoundation.org.au

- National Health and Medical Research Council (NHMRC)

- Nutrition Australia
www.nutritionaustralia.org

- The Gut Foundation
  http://www.gut.nsw.edu.au/

- The Parent’s Jury
  http://www.parentsjury.org.au/key-concerns/healthy-eating-for-kids

- WA School Canteen Association
  Assists schools in establishing and maintaining healthy, profitable school canteens.
  http://www.waschoolcanteens.org.au/

- Women’s Health and Family Services (WA) - www.whfs.org.au
  Nutrition resources – High Iron and High Calcium pamphlets (2013)

- Department of Education – Healthy food and drinks -
  http://det.wa.edu.au/healthyfoodanddrink/detcms/portal/

- CDC Growth Charts - http://www.cdc.gov/growthcharts/clinical_charts.htm

**Online training resources**

- Better Health Company - *Talking with Parents about Children’s Weight*
  This free resource aims to enhance participant knowledge and understanding of child overweight and obesity and equip them with the necessary skills to raise and have a meaningful discussion about child overweight and obesity with parents. Website: http://www.talkingaboutweight.org/

**Resources for families**

- Good Food for Kids- Book containing healthy food ideas for children aged 5-12 years, written by Anne Hillis and Penelope Stone.

- Food for Kids – The right start to healthy eating for pre primary and primary school children (WA Department of Health, 2005). Pamphlet obtained by local Community Health Service or HealthInfo 1300 518 963

- Better Health Channel - Downloadable fact sheets A- Z topics
  www.betterhealth.vic.gov.au


- Better Health – information and resources - www.goforyourlife.vic.gov.au

- Healthy Kids- NSW Health - www.healthykids.nsw.gov.au


- Raising Children – Healthy eating and physical activity for school aged children
  www.raisingchildren.net.au/school_age/school_age.html
- Make your Move – Sit Less – Be Active for Life! – A resource for Families
- Department of Education - Healthy food and drink
- Nature Play WA - Resources for parents and families to encourage kids to get active outdoors - http://www.natureplaywa.org.au/resources

**Lunch box resources**