



The
Australian *Guide to*
Healthy Eating

Background information for nutrition educators

AUSTRALIAN DIETARY GUIDELINES

The guidelines referred to in the *Australian Guide to Healthy Eating* were published in 1992 and 1995. A new edition of the *Dietary Guidelines for Australian Adults* and the *Dietary Guidelines for Children and Adolescents in Australia, incorporating the Infant Feeding Guidelines for Health Workers* was published in 2003. The *Dietary Guidelines for Older Australians* was published in 1999. Compared with the previous edition, the new edition of the guidelines focuses more on food groups and lifestyle patterns, moving away from specific nutrients.

Materials including a poster, booklet and brochure for the general public and nutrition educators are available by contacting the Population Health Publications Officer, Australian Department of Health and Ageing on toll free 1800 020 103 Ext 8654 or email: phd.publications@health.gov.au

The Australian dietary guidelines and Food for Health information can also be found on the internet at <http://www.health.gov.au/pubhlth/strateg/food/recommend.htm>

Dietary Guidelines for Australian Adults and for Children and Adolescents in Australia (2003)

Adults

Enjoy a wide variety of nutritious foods

- 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, cheeses and/or alternatives
reduced-fat varieties should be chosen, where possible

- Drink plenty of water

and take care to:

- Limit saturated fat and moderate total fat intake
- Choose foods low in salt
- Limit your alcohol intake if you choose to drink
- Consume only moderate amounts of sugars and foods containing added sugars

Prevent weight gain: be physically active and eat according to your energy needs

Care for your food: prepare and store it safely

Encourage and support breastfeeding

Children and Adolescents

Encourage and support breastfeeding

Children and adolescents need sufficient nutritious foods to grow and develop normally:

- Growth should be checked regularly for young children
- Physical activity is important for all children and adolescents

Enjoy a wide variety of nutritious foods

Children and adolescents should 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. Reduced-fat milks are not suitable for young children under 2 years, because of their high energy needs, but reduced-fat varieties should be encouraged for older children and adolescents

- Choose water as a drink. Alcohol is not recommended for children

and care should be taken to:

- Limit saturated fat and moderate total fat intake. Low-fat diets are not suitable for infants
- Choose foods low in salt
- Consume only moderate amounts of sugars and foods containing added sugars

Care for your child's food: prepare and store it safely

Background information for nutrition educators.

This book is part of a project undertaken for the Australian Government Department of Health and Ageing by the Children's Health Development Foundation, Women's and Children's Hospital (South Australia) and the Faculty of Health and Behavioural Sciences, Deakin University (Victoria).

Written by: Alison Smith, Elizabeth Kellett, and Yvonne Schmerlaib of the Children's Health Development Foundation.

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The development of *The Australian Guide to Healthy Eating* was funded by the Australian Government Department of Health and Ageing. The project was undertaken by the Children's Health Development Foundation of the Women's and Children's Hospital (South Australia) and the Faculty of Health and Behavioural Sciences, Deakin University. The project commenced in March 1995 and was monitored by a Steering Committee. The Steering Committee members are shown in Appendix 1.

The Five Food Groups was Australia's food selection guide from the 1940s until the early 1990s. The need for a review of this guide was brought about by increasing concern about diseases of over consumption (see Appendix 2). Four government funded reports provided the basis for the development of a new Australian food guide: the *Dietary guidelines for Australians* (1) the *Dietary guidelines for children and adolescents* (2) (these are described in Appendix 3); the *Recommended dietary intakes for use in Australia* (3) and, *the Role of polyunsaturated fats in the Australian diet* (4).

The Australian Guide to Healthy Eating is the third in a series of three linked projects. The first project was *The Core Food Groups* (5). This described a food group model which achieved the Recommended Dietary Intakes (RDIs) for Australians based on Australian food consumption data and the Dietary guidelines for Australians. The second project was *The Review of Food Selection Guides in Australia*, which described what consumers and nutrition professionals expected from a food selection guide (6).

Extensive consultation and testing were undertaken in the development of *The Australian Guide to Healthy Eating* and support materials. Firstly, 13 focussed discussion groups of 8-10 people were held to determine the messages received by consumers from poster designs which had been developed. Secondly, a randomly selected nationwide sample of 750 households took part in a survey to determine whether a circle or triangle shape was the most successful in transmitting the messages of the food guide poster to consumers. Thirdly, following consultation about the revised design with health and nutrition education professionals, food industry and other stakeholders, the poster was further revised and tested with another 4 focussed consumer discussion groups. Finally, this background information book for professionals was developed and a volunteer sample of 65 teachers, dietitians and other nutrition educators trialled the usefulness of the manual for their nutrition education work.

About this book

This book was written for people who educate others about eating for good health. These will include, amongst others:

- primary and high school health and classroom teachers, TAFE and university lecturers
- community educators including community health workers, community welfare workers, fitness leaders and community nurses
- health professionals including general practitioners, dietitians and nurses.

This book provides the background information needed to:

- understand the rationale used in developing the guide so that the graphic can be adapted to include the foods appropriate for different target groups
- make the best use of *The Australian Guide to Healthy Eating* materials for counselling, classroom teaching, community education, health promotion, menu evaluation and development
- explain how to develop a healthy eating pattern in three steps.

Educational materials

In addition to this book, the following educational materials are available:

- an A1 size full colour poster showing the Guide
- an A4 size version of the large poster described above
- an A5 size booklet which contains information about healthy eating for the general public
- a leaflet which contains brief information about healthy eating for the general public.

A food selection guide has been described as ‘*an educational and promotional tool which converts scientific knowledge of food composition and nutritional requirements for health into a practical guide for food selection*’ (7). *The Australian Guide to Healthy Eating* is a tool which can be used by health and education professionals and the food industry to promote good nutrition in their work. This will include such activities as the development of educational and public health programs, promotional messages, nutrition resources and healthy menus. It will also be used for patient and client counselling. It provides a basis for the development of consistent messages about healthy eating for the public.

The Australian Guide to Healthy Eating provides a conceptual framework for understanding the relationship between foods and nutrients. It is primarily concerned with physical health and its purpose is to provide information about the kinds of foods to choose each day. A population level approach to food guidance has been taken which is based on the food intakes and health problems of the population as a whole.

Enjoy a variety of foods every day

*Vegetables,
legumes*

Fruit

*Milk,
yoghurt,
cheese*

*Lean meat, fish,
poultry, eggs, nuts,
legumes*

*Bread,
cereals,
rice, pasta,
noodles*

Drink plenty of water

Choose these sometimes or in small amounts



Aim

The aim of *The Australian Guide to Healthy Eating* is to encourage the consumption of a variety of foods from each of the five food groups every day in proportions that are consistent with the Dietary Guidelines for Australians (1, 2). See Appendix 3.

Nutrition rationale

Foods are grouped together primarily on the basis of their nutrient similarity. The main distinguishing nutrients for each food group are shown in Table 1. Each food group also provides significant contributions of other dietary components (5). Hence, the grouping system is a simplification.

The five food groups are:

- Bread, cereals, rice, pasta, noodles
- Vegetables, legumes
- Fruit
- Milk, yoghurt, cheese
- Meat, fish, poultry, eggs, nuts, legumes.

Table 1: Nutritional characteristics of the five food groups

FOOD GROUP NAME	BREAD, CEREALS, RICE,PASTA, NOODLES	VEGETABLES, LEGUMES	FRUIT	MILK, YOGHURT, CHEESE	MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES
Main distinguishing nutrients	carbohydrate, iron, thiamin	vitamin A (beta-carotene)	vitamins, especially vitamin C	calcium, protein	protein, iron, zinc
Other significant dietary components	energy, protein, fat, fibre, magnesium, zinc, riboflavin, niacin equivalents, folate and sodium.	carbohydrate, fibre, magnesium, iron, vitamin C, folate and potassium.	carbohydrate, fibre, and folate	energy, fat, cholesterol, carbohydrate, magnesium, zinc, riboflavin, vitamin B12, sodium and potassium.	fat, cholesterol, niacin equivalents and vitamin B12.

The model on which the guide is based assumes that foods from each of the five food groups are eaten, in types and amounts not too dissimilar to the average intakes in Australia (see Appendix 4). The greater the foods eaten depart from this pattern, the greater the possibility that nutrient needs may not be met.

Visual and text messages on the guide

Enjoy a variety of foods every day

The message to enjoy a variety of foods every day emphasises the importance of the positive aspects of eating. This message also indicates that foods should be eaten from each food group every day. Eating healthy food should be an enjoyable experience.

Eating a wide variety of nutritious foods is important in three ways (1).

1. Eating from a variety of food groups every day, in the amounts recommended, is highly likely to result in a diet containing sufficient amounts of all nutrients essential for health. It is not necessary to eat from each food group at every meal.
2. Because the foods in each group vary in the amount of nutrients they provide, achieving nutritional adequacy also depends on eating a variety of food from within each group. For example, in the vegetables and legumes group, yellow vegetables contain significantly more vitamin A than do potatoes. Similarly, red meat is a better source of iron than the other foods in the meat, fish, poultry, eggs, nuts, legumes group. By selecting a variety of foods each day, over the week and at different times of the year, there is a much greater likelihood of obtaining sufficient quantities of all nutrients.
3. Eating a variety of foods of different biological origin is also believed to be beneficial to health. For example:
 - Dietary fibre is a non-nutrient dietary constituent which contributes to health. Dietary fibre from oats is beneficial in causing a modest reduction in blood cholesterol level, while dietary fibre from wheat foods prevents constipation and improves gut functioning.
 - Cruciferous vegetables (such as broccoli, cabbage, cauliflower, brussels sprouts and bok choy) are believed to contain components which have been associated with protection against some cancers.
 - Some saturated fats are known to raise blood cholesterol levels, high levels of which are a known risk factor for coronary heart disease. Choosing foods from a variety of biological sources (both animal and vegetable) ensures a variety of fats in the diet and a balance of the different types of fats.

The foods in the groups

The range of foods shown on the guide was chosen to represent the foods which are most commonly eaten in Australia, and no attempt has been made to represent all foods eaten. Australia is characterised by its cultural diversity. The foods shown on the guide are basic foodstuffs which would generally have their counterparts in different cultures. The guide as illustrated cannot be inclusive of all the cultures and ethnic groups in Australia. Information on how to classify other foods into the five food groups based on their nutritional value (8) is given on pages 10-14.

Foods illustrated on the guide were chosen to:

- reflect foods commonly consumed in Australia
- represent the range of foods within each food group
- be affordable
- reflect the nature of the food supply, including fresh, processed and packaged foods
- create the opportunity for shifts towards healthier eating (eg including both wholemeal products and white flour products)
- be consistent with a low fat, low saturated fat, low salt, high fibre and only moderate sugar intake.

Proportion of food groups in the diet

The foods that form the basis of a healthy diet are portrayed in a pie diagram where the size of each segment of the circle is a visual representation of the recommended proportion of the diet to choose from each group. Information using the guide to achieve a healthy eating pattern and total energy needs is contained in the section 'Putting it all together' beginning on page 17.

Water

Eight glasses of water a day are needed by adults for good health. More water is needed when being physically active and in hot weather. All fluids, other than alcohol, contribute to this fluid requirement. Water is the best drink to quench thirst.

The foods not in the circle

'Choose these sometimes or in small amounts' is the message which refers to those foods regarded as extra foods because they do not fit into the five main groups in the circle. They are not essential to provide the nutrients the body needs, but they are available for people to buy. They also contribute to the overall enjoyment of eating. Their inclusion on the Guide allows them to be considered in the context of selecting a healthy eating pattern.

Enjoy a variety of foods every day

*Vegetables,
legumes*

Fruit

*Milk,
yoghurt,
cheese*

*Bread,
cereals,
rice, pasta,
noodles*

*Lean meat, fish,
poultry, eggs, nuts,
legumes*



Drink plenty of water

Choose these sometimes or in small amounts



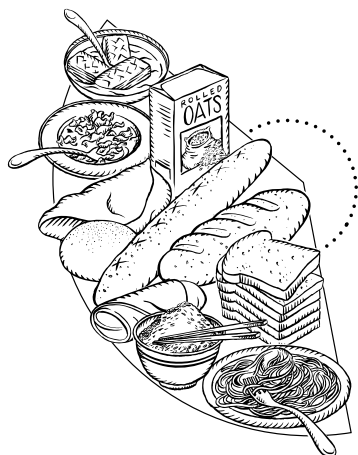
Adapting the Guide

A food selection guide has its limitations and cannot hope to address all the factors which determine food choice. It is acknowledged that the eating patterns of individuals and families are continually shaped and changed by a variety of personal, social and cultural influences. Food choices are made from among the foods obtainable through the food supply. They are also made within certain constraints like the household food budget, and the time and skills available to shop, prepare and cook food.

There are many groups in Australia with different eating styles and health problems for whom the guide as published may be less appropriate. Therefore, the guide has been designed to be flexible, so that people with specialist knowledge of the needs of different target groups can adapt the guide for their work. The black and white version on page 8 can be used to produce a guide which includes appropriate foods for use with different target groups. These might include children, adolescents, pregnant and lactating women, low income groups, families, non-English speaking groups, different cultural and ethnic groups, Aboriginal and Torres Strait Islander peoples, the elderly, elite athletes and sports people.

Suggested approach:

1. Describe the common food items eaten by the individual or group members.
2. Place the listed foods in one of *The Australian Guide to Healthy Eating* food groups based on their similarity to the foods listed on pages 10-14.
3. Tailor serve sizes to the individual or group, as described on page 23 under the heading “How to achieve a healthy eating pattern”. Base the eating pattern chosen on the eating habits of the individual or group for whom the guide is being adapted.



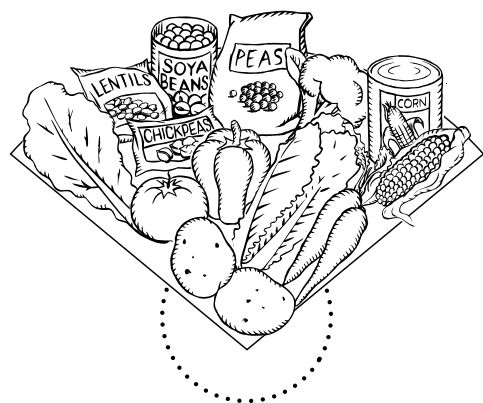
Bread, cereals, rice, pasta, noodles

Foods in this group come from grains like wheat, oats, rice, rye, barley, millet and corn. The grains can be eaten whole, ground into flour to make a variety of cereal foods like bread, pasta and noodles, or made into ready-to-eat breakfast cereals.

The nutrients provided by the foods in this group include carbohydrate, protein, fibre and a wide range of vitamins and minerals including folate, thiamin, riboflavin, niacin and iron. Wholemeal or wholegrain varieties provide more fibre, vitamins and minerals. Some foods in this group have fibre, vitamins and minerals added during processing.

Table 2: Foods belonging to the *BREAD, CEREALS, RICE, PASTA, NOODLES* group

	FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
	Breads (sliced and unsliced)	All types of bread including white, wholemeal, wholegrain, rye.
	Pita bread Lavash bread	All breads from European, Asian, Middle Eastern and other cultures.
	Wheat flake biscuit cereal	All wholegrain ready-to-eat breakfast cereals.
	Breakfast cereal flakes	Ready-to-eat cereals made from a variety of grains.
	Oats	Minimally processed cereals, wholegrain.
	Rice	All types of rice and other whole grains.
	Spaghetti or noodles	All pasta and noodles made from a variety of grains.








Vegetables, legumes

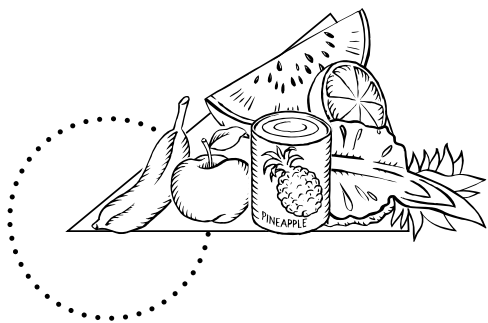
Vegetables come from many different parts of plants, including the leaves, roots, tubers, flowers, stems, seeds and shoots. Some vegetables like tomatoes and pumpkin are the fruit of the plant, but are included in this group because they are used as vegetables. Legumes are the seeds of plants from the Leguminosae family. These vegetables are eaten in the immature form as green peas and beans, and the mature form as dried peas, beans, lentils and chick peas. Legumes have not been commonly eaten in Australia, and inclusion of three varieties in this group enables educators to promote a wider use of these foods.

Vegetables and legumes are good sources of vitamins, minerals, dietary fibre and carbohydrate. Capsicum, broccoli, cauliflower, cabbage and tomatoes are high in vitamin C. Dark green and orange vegetables like spinach, broccoli, carrots and pumpkin are high in vitamin A. Green vegetables, dried peas, beans and lentils are good sources of folate. It has been suggested that a diet which includes vegetables rich in vitamins A and C, together with vegetables like broccoli, cauliflower, cabbage and brussels sprouts from the cruciferous family, can help to prevent certain types of cancer.

Mature dried peas, beans, lentils and chick peas are also included in the meat group as they are an excellent source of protein and iron.

Table 3: Foods belonging to the VEGETABLES, LEGUMES group

FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
 <p>SPINACH BOK CHOY BROCCOLI</p>	<p>Dark green leafy and cruciferous vegetables including: cabbage, Chinese cabbage, cauliflower, brussels sprouts, endives, green lettuce, silverbeet.</p>
 <p>CARROT</p>	<p>Orange vegetables including: pumpkin, sweet potato (orange variety).</p>
 <p>POTATO</p>	<p>Sweet potato, taro, yam.</p>
 <p>TOMATO CAPSICUM CORN PEAS</p>	<p>The range of available vegetables, including: alfalfa sprouts, asparagus, beans, beetroot, capsicum, celery, cucumber, eggplant, leek, lettuce, marrow, mushroom, onion, parsnip, radish, shallot, swede, turnip, zucchini.</p>
 <p>CHICK PEA SOY BEAN LENTILS</p>	<p>All legumes, including: kidney beans, black-eyed beans, blue pea, borlotti bean, broad bean, cannellini bean, haricot bean, Lima bean, mung bean, pinto bean, split pea.</p>
<p><i>Note:</i> All varieties of vegetables and legumes are included: fresh, frozen, canned and dried.</p>	




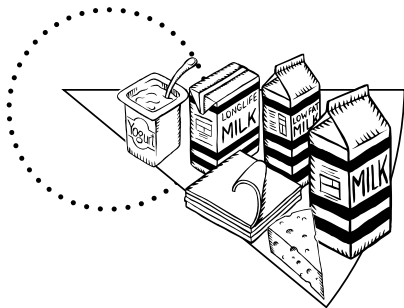
Fruit

A wide variety of fruit is available in Australia today. Fruit forms from the flower and contains the seeds of the plant. Fruit is sweet because of the sugars it contains.

Fruit is a good source of vitamins, including vitamin C and folate. It also provides carbohydrates, in particular natural sugars and fibre, especially in the edible skins. Juices belong to this same group, but they have a much lower fibre content than fresh fruit. Dried fruit also belongs in this group. It contains a concentrated form of sugar, so if eaten frequently or in large quantities it can contribute to dental caries.

Table 4: Foods belonging to the *FRUIT* group

FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
 <p>APPLE BANANA WATERMELON PINEAPPLE ORANGE</p>	<p>All fresh, canned and dried fruits, and fruit juices, including: apricot, avocado, berries, carambola (star fruit), cherry, cranberry, cumquat, currant, custard apple, date, feijoa, fig, gooseberry, grape, grape fruit, guava, honeydew melon, Kakadu plum, kiwi fruit, lemon, loquat, lychee, mandarin, mango, mulberry, nashi, nectarine, passionfruit, pawpaw, peach, pear, persimmon, plum, pomegranate, quandong, quince, rambutan, rockmelon, strawberry, tamarillo, tangelo.</p>



Milk, yoghurt, cheese

Milk, yoghurt and firm cheeses are the three important foods in this group. There is a choice of these foods available. Choices of milk and yoghurt can be made on the basis of fat content, type of sweetener and flavourings used. Milks can be fresh, dried, evaporated or longlife. Cheeses can also be reduced in fat.




The foods in this group are excellent sources of calcium; very few other foods in the Australian diet are such good sources of this important nutrient. These foods are also good sources of protein, riboflavin and vitamin B12.

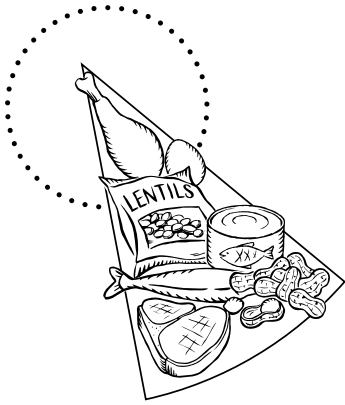
Milk, yoghurt and firm cheeses can increase the fat content of the diet if the full cream products are used. For most people, five years and over, the best choices are low fat milk, yoghurt and cheese. For children under five years of age, full cream varieties are recommended because low fat diets are not suitable. Some people with special needs, including the frail elderly and people who may need to regain weight after illness, will benefit from the full cream choices.

Some people follow a dairy food free or milk free diet because they think that milk makes mucous or they suspect a milk allergy. A link between dairy products and mucous has never been proven. Milk allergy is not common and should be diagnosed by a doctor. If milk is eliminated from the diet, it is best to discuss this with a dietitian to make sure there is enough calcium in the diet.

The importance of this group as a calcium source is supported by the Dietary guidelines for Australians (1) which recommend that Australians eat foods containing calcium.

Table 5: Foods belonging to the *MILK, YOGHURT, CHEESE* group

FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
 <p data-bbox="391 1574 667 1664"> CARTON OF MILK CARTON OF LOW FAT MILK CARTON OF LOGLIFE MILK </p>	<p data-bbox="746 1574 1337 1798"> All full cream milks, plain and flavoured. All reduced fat milks, plain and flavoured. All longlife milks, plain, flavoured, full cream and reduced fat. Powdered milk and evaporated milk, full cream and reduced fat. Soy milk (fortified with at least 100mg calcium per 100mL) is not of the same biological origin, but can be a substitute for milk. </p>
 <p data-bbox="391 1854 470 1877">CHEESE</p>	<p data-bbox="746 1854 1225 1877">All hard cheeses, full cream and reduced fat.</p>
 <p data-bbox="391 1977 486 2000">YOGHURT</p>	<p data-bbox="746 1977 1313 2067"> All yoghurts including full cream and reduced fat, plain and flavoured. All custards, full cream and reduced fat, plain and flavoured. (see ** page 19) </p>








Meat, fish, poultry, eggs, nuts, legumes

There is a wide variety of foods in this group. It consists of all kinds of meat, poultry, fish, eggs, nuts and nut pastes such as peanut butter, legumes, and some seeds such as sunflower and sesame seeds.

The foods in this group are a good source of protein, iron, niacin and vitamin B12. Within this group, red meats are particularly good sources of iron and zinc. The iron in animal foods is more easily absorbed by the body than the iron in vegetable foods. Vitamin C, found in fruit and vegetables, will assist the body to absorb iron from plant foods if eaten at the same time.

Red meat should be eaten 3-4 times a week or high iron replacement foods will be required. This is especially true for girls, women, vegetarians and athletes. Iron supplements will often be recommended by the doctor or midwife during pregnancy.

Table 6: Foods belonging to the *MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES* group

FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
 <p>LEAN RED MEAT</p>	Lean beef, lamb, pork, veal, kangaroo.
 <p>CHICKEN LEG</p>	Chicken, turkey, duck and all other poultry.
 <p>EGGS</p>	Eggs.
 <p>NUTS</p>	All nuts including almonds, peanuts, pine nuts, walnuts, peanut butter and nut spreads. Seeds including pumpkin, sesame, sunflower.
 <p>LEGUMES</p>	All legumes (dried and canned varieties) including chick peas, soya beans, lentils, kidney beans, baked beans.

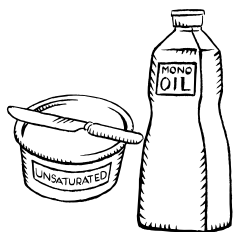


Extra foods

Some foods do not fit into the five food groups. They are not essential to provide the nutrients the body needs and some contain too much fat, salt and sugar. These foods are likely to contribute large amounts of energy. However, they can add to the enjoyment of eating a healthy diet. People who are very active or growing rapidly can eat more of them than people who are inactive or trying to lose weight. Examples include biscuits, cakes, desserts, pastries, soft drinks, high fat snack items such as crisps, pies, pasties, sausage rolls and other takeaways, lollies and chocolate.

Similarly alcoholic drinks are not essential to provide the nutrients the body needs. They should only be consumed sometimes, in small amounts or not at all. Alcohol is not recommended for children, pregnant or breastfeeding women (1,2).

Choose these foods sometimes, in small amounts or not at all. Most people can eat small amounts of extra foods as part of a healthy diet. A healthier alternative is to eat more food from the five food groups most of the time.



What about the fats and oils?






Margarine and oil also fit into this group of foods which should only be eaten sometimes or in small amounts. This can be achieved with these foods in the following ways:

- spread margarine thinly on bread and toast
- only use a small amount of oil or margarine in food preparation and cooking.

Unsaturated fats are a type of fat found in many oils and margarines. When included in a low fat diet they may have a positive benefit for health by lowering cholesterol levels in the blood. These fats are known as either 'polyunsaturated' or 'monounsaturated'. Sunflower, safflower, corn and soya bean oils are mainly polyunsaturated. Olive, peanut and canola oils are mainly monounsaturated.

Saturated fats are a type of fat that can increase the risk of heart disease and so are not recommended. They are found in large quantities in butter, lard and dripping. Saturated fats are also found in vegetable fats and hydrogenated vegetable oils which are often used in commercial foods. Foods that have these fats towards the top of the ingredients list on their label are likely to be high in saturated fat.

Table 7: EXTRA FOODS

FOODS SHOWN ON THE GUIDE	EXAMPLES OF FOODS OR TYPES OF FOOD WHICH CAN BE USED AS SUBSTITUTES
 <p>OIL (UNSATURATED)</p>	<p>All polyunsaturated oils including sunflower, safflower, grapeseed oils. All monounsaturated oils including canola and olive oils.</p>
 <p>MARGARINE (UNSATURATED)</p>	<p>All polyunsaturated and monounsaturated margarines.</p>
 <p>BISCUITS</p>	<p>All sweet biscuits, cakes, buns, sweet pastry items.</p>
 <p>PIES</p>	<p>All pies, pasties, sausage rolls and savoury pastry items.</p>
 <p>CHOCOLATE</p>	<p>Chocolate and carob bars, confectionery.</p>
 <p>HOT CHIPS</p>	<p>Deep fried take-away foods.</p>
 <p>CRISPS</p>	<p>Fried savoury snack items.</p>
 <p>ICECREAM</p>	<p>Ice creams and ice confections.</p>

Nutritional requirements

People's need for protein, vitamins and minerals varies depending on their age and sex and is altered when pregnant or breastfeeding (3). Table 8 shows the daily amounts of the five food groups needed to achieve at least 70% of the recommended dietary intakes (RDIs) for: protein, calcium, magnesium, iron, zinc, sodium, potassium, vitamin A (retinol and beta-carotene), vitamin B1 (thiamin), vitamin B2 (riboflavin), vitamin B3 (niacin), vitamin C (ascorbic acid), folate and vitamin B12 (pyridoxine).

Only about half of average daily energy needs and insufficient fibre is supplied by the amounts of foods. For pregnant and breastfeeding women, these food intake levels supply more than 50% of energy requirements. See Appendix 4 for an explanation of RDIs.

Table 8: Minimum number of daily sample serves needed to achieve at least 70% of the requirements for protein, vitamins and minerals, for children, adults and pregnant and breastfeeding women (5).

AGE GROUP (K) PROVIDED BY FOODS SHOWN	BREAD, CEREALS, RICE, PASTA, NOODLES	VEGETABLES, LEGUMES	FRUIT	MILK, YOGHURT, CHEESE	MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES	EXTRA FOODS
Children 4-7 years (3000k)	2	2	1	2	0.5	0
Children 8-11 years (4000k)	3	3	1	2	1	0
Adolescents 12-18 years (5000k)	3 ^a -4 ^b	4	2 ^a -3 ^b	2 ^c -2.5 ^d	1	0
Adults 19+ years (5000k)	4	5	2	2	1	0
Pregnant women (6000k)	4	5	4	2	1.5	0
Breastfeeding women (8000k)	6	7 ^a -8 ^b	5	2 ^a -3 ^b	2	0

^a lower end of range supplies adequate quantities of most nutrients

^b higher end of range is included to bring zinc (and magnesium and vitamin A for the 12-18 year age group only) requirements above the 70% RDI level

^c lower end of range applies to all girls in this age group, and boys aged 16-18 years

^d higher end of range applies only to boys aged 12-15 years, due to their higher calcium requirement.

What is a sample serve?

The meaning of a serve of food differs among people. For example, some people think of a serve of bread as two slices, others as one slice. Hence, the serving amounts used have been called sample serves to indicate that they are not necessarily related to how much people eat or how people think about amounts of food. These sample serves are very similar to those used in other Australian food selection guides (see Appendix 5). They refer to basic forms of the foods as described in Section 2.

Sample serves define equivalent foods within each group. A sample serve comprising 2 slices (60g) bread is equivalent to 1 $\frac{1}{3}$ cups (40g) ready to eat cereal flakes or 1 cup (180g) cooked rice, pasta and noodles. Sample serves do not define equivalent serves between food groups, ie a serve of bread is not comparable with a serve of vegetables.

(The size of the sample serve used here for the Bread, cereals, rice, pasta, noodles group is double the serve size in the *Core Food Groups* report. This has been used because consumer research conducted during the development of this food guide revealed many consumers think of two slices of bread as a serve. In addition, this size sample serve has an energy value of approximately 600kJ, which makes it a simple substitution for extra foods, which have also been listed as 600kJ sample serves.)

A sample serve of bread, cereal, rice, pasta, noodles:

2 slices (60g) bread, 1 medium bread roll
1 cup (180g) cooked rice, pasta, noodles
1 cup (230g) cooked porridge, 1 $\frac{1}{3}$ cups (40g) cereal flakes or ready to eat cereal,
 $\frac{1}{2}$ cup (65g) untoasted muesli
 $\frac{1}{3}$ cup (40g) flour

These amounts supply about 600 kJ.

A sample serve of vegetables, legumes:

$\frac{1}{2}$ cup (75g) cooked vegetables
 $\frac{1}{2}$ cup (75g) cooked dried beans, peas or lentils
1 cup salad vegetable
1 small potato

These amounts supply about 75 – 250 kJ.

A sample serve of fruit:

1 medium piece (150g) of fruit (apple, banana, orange, pear)
2 small pieces (150g) of fruit (apricots, kiwifruit, plums)
1 cup (150g) diced pieces or canned fruit
1 $\frac{1}{2}$ tablespoons sultanas, 4 dried apricot halves
 $\frac{1}{2}$ cup (125 mL) fruit juice

These amounts supply about 300 kJ.

A sample serve of milk, yoghurt or cheese:

- 1 cup (250 mL) fresh, longlife or reconstituted dried milk
- 1 cup (250mL) soy milk*
- ½ cup (125mL) evaporated milk
- 2 slices (40g) cheese
- 1 small carton (200g) yoghurt
- 1 cup (250 mL) custard**

These amounts supply about 375 – 730 kJ (custard, 1100 kJ)

A sample serve of meat, fish, poultry, eggs, nuts, legumes.

- 65-100g cooked meat, chicken eg: ½ cup of lean mince, 2 small chops, 2 slices of roast meat
- ½ cup (80g) cooked (dried) beans, lentils, chickpeas, split peas and canned beans
- 80-120g cooked fish fillet
- 2 small eggs
- ⅓ cup peanuts, almonds
- ¼ cup sunflower seeds, sesame seeds

These amounts supply about 600-850 kJ.

A sample serve of extra foods is based on the amount that supplies 600kJ.

Examples are:

- 1 (40g) doughnut
- 4 (35g) plain sweet biscuits
- 1 slice (40g) cake
- 25g (½ small bar) chocolate
- 2 tablespoons (40g) cream, mayonnaise
- 1 tablespoon (20g) butter, margarine, oil
- 200 mL wine (2 standard drinks)
- 600mL spirits (2 standard drinks)
- 600 mL light beer (approx. 1½ standard drinks)
- 400 mL regular beer (approx. 1½ standard drinks)
- 1 can (375mL) soft drink
- 1 small packet (30g) potato crisps
- ⅓ (60g) meat pie or pasty
- 12 (60g) hot chips
- 1½ scoops (50g scoop) icecream

* fortified with at least 100mg calcium/100mL

** Custard is higher in energy than the other foods listed in the Milk, yoghurt, cheese group.

Note: 2 scoops icecream (50g scoop) or 1 carton (200g) fromage frais provide about half the calcium of a sample serve but more kilojoules than the other foods listed in the Milk, yoghurt, cheese group.

Table 9: Number of daily sample serves needed to achieve a healthy diet for children, adolescents and adults.

	ENERGY NEED (KJ)	HEALTHY DIET EXAMPLE A OR B	BREAD, CEREALS, RICE, PASTA, NOODLES	VEG, LEGUMES	FRUIT	MILK, YOGHURT, CHEESE	MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES	EXTRA FOODS
CHILDREN 4-7 YRS	6400-	A	5-7	2	1	2	0.5	1-2
	8300	B	3-4	4	2	3	0.5-1	1-2
CHILDREN 8-11 YRS	7700-	A	6-9	3	1	2	1	1-2
	9800	B	4-6	4-5	1-2	3	1-1.5	1-2
ADOLESCENTS 12-18 YRS	8100-	A	5-11	4	3	3	1	1-3
	13500	B	4-7	5-9	3-4	3-5	1-2	1-3
WOMEN 19-60 YRS	7200-	A	4-9	5	2	2	1	0-2.5
	11300	B	4-6	4-7	2-3	2-3	1-1.5	0-2.5
PREGNANT WOMEN ^a	8100-		4-6	5-6	4	2	1.5	0-2.5
10900								
BREASTFEEDING WOMEN ^b	9200-		5-7	7	5	2	2	0-2.5
12300								
WOMEN 60+YRS	6500-	A	4-7	5	2	2	1	0-2
	9300	B	3-5	4-6	2-3	2-3	1- 1.5	0-2
MEN 19-60 YRS	9000-	A	6-12	5	2	2	1	0-3
	13700	B	5-7	6-8	3-4	2-4	1.5-2	0-3
MEN 60+YRS	7400-	A	4-9	5	2	2	1	0-2.5
	11000	B	4-6	4-7	2-3	2-3	1- 1.5	0-2.5

^a Pregnant women: intake averaged over 40 weeks. Patterns for A and B were very similar so they have been combined.

^b Breastfeeding women: intake during the first six months of breastfeeding, decreasing thereafter with the increasing establishment of solid food intake. Patterns for A and B were very similar so they have been combined.

Energy requirements

The total amount of food needed varies with age, sex, pregnancy and breastfeeding, and with body size and physical activity level. An individual's need for food energy is difficult to predict and is best determined by hunger.

Healthy diet patterns

There are many ways of eating a healthy diet. Using the sample serves already described in Table 8 on page 17, two examples of healthy diet patterns which also meet energy needs are shown in Table 9 on page 20. These are based on *The Australian Guide to Healthy Eating* and are consistent with current nutritional knowledge about healthy eating as described by the *Dietary guidelines for Australians* (1) and the *Dietary guidelines for children and adolescents* (2). These two examples were developed to allow for individual preference and cultural difference to be taken into account.

The example healthy diets were derived as follows:

1. An energy allowance was made from the extra foods. The amount was dependent on energy requirements, as shown in Table 10.

Table 10: Amounts of extra foods allowed for different energy intake levels.*

ENERGY REQUIREMENT (KJ)/DAY	NO. OF SAMPLE SERVES OF EXTRA FOODS ALLOWED (KJ IN BRACKETS)
0-6000	0 (0)
6001-7000	1 (600)
7001-10000	2 (1200)
10001-12500	2.5 (1500)
12501-15000	3 (1800)

*Adapted from *The development of a simple dietary assessment and education tool for use by individuals and nutrition educators* (8)

2. One teaspoon of margarine or oil was allowed for 60% of all bread, cereal, rice, pasta, noodles sample serves. This is additional to the margarine and oil which can be eaten as part of the extra foods allowance.

3. For each group, an energy requirement range was derived (3). The difference between this and the energy supplied by the minimum number of daily serves needed (Table 8) was calculated. This energy intake difference was then converted into five food groups serves in two ways:

Example A: Eat more bread, cereals, rice, pasta, noodles

All the energy intake difference is eaten as serves of bread, cereals, rice, pasta, noodles, with extra margarine or oil as explained above. This diet is similar to many Australians' eating patterns in terms of intakes of milk, fruit and vegetables. Also, many Australians are already eating large amounts of foods containing cereal but in high fat forms like pastries, cakes and biscuits.

Example B: Eat more from all the food groups.

The energy intake difference is eaten from all the food groups, in amounts proportional to the minimum number of daily serves needed (Table 8). This diet is similar to the way many Australians eat with a high consumption of animal foods. For many people eating this way would mean an increase in their intake of fruit and vegetables.

Nutritional composition of examples A and B

Modelling of examples A and B was done differently for children and adolescents than for adults, as higher contributions of energy intake from fat are recommended for those up to age 14 years. The *Dietary guidelines for children and adolescents* (2) recommend a gradual reduction in dietary fat intake, from a high level in breast milk, to the lower level needed in adulthood. Children and adolescents up to 14 years require a diet higher in fat to ensure adequate growth and nutrition. This is further outlined in Appendix 6.*

All modelling was done on the basis of:

- 75% fat-trimmed meat and 50% skinless, 50% lean plus skin chicken
- foods cooked or processed without addition of fat, sugar, salt
- 50% wholegrain, 50% white bread, with white rice, pasta, noodles with the addition of 2 teaspoons of polyunsaturated margarine to 60% of the bread, cereals, rice, pasta, noodles serves
- food groups made up of foods commonly consumed in Australia, as described in Appendix 4 (5).

In addition, the modelling for adults was done on the basis of:

- use of reduced fat milk for the milk, yoghurt, cheese serve (5)
- no inclusion of extra foods (ie, the lower end of the range of serves for extra foods in Table 9)
- the high end of the food intake ranges for groups where a range is indicated (a decision made by the project team).

The additional modelling for children and adolescents was done on the basis of:

- each sample serve of the milk, yoghurt, cheese group consisted of a 50:50 mixture of reduced fat milk and full cream cheese
- inclusion of one serve of extra foods for each age group, made up as 0.5 serves of oil, 0.25 serves of icecream, 0.25 serves of cake and,
- the low end of the food intake ranges.

Example A provided more carbohydrate, less protein, the same amount of fibre and more sodium than example B. It also had a higher content of polyunsaturated fat and a lower content of saturated fat (Appendix 6). Healthy eating patterns for pregnant and breastfeeding women were between the levels shown for examples A and B. Both examples were within most of the dietary recommendations, with these exceptions:

*The age ranges used in relation to fat intake are from the *Dietary guidelines for children and adolescents* (2). Different age ranges are used in Table 9, as these were taken from the *Core food groups report*. (5)

- Example A provided too much sodium for all age groups. This could be avoided by making lower salt choices within this group, as described on page 27.
- Both examples provided too much saturated fat for children 5-14 years. The levels recommended do not appear to be realistic to achieve within the current limitations of the food supply, when many of the foods children eat for snacks are high in saturated fat.
- The examples for adolescents aged over 15 years were higher than recommended for fat and saturated fat using the foods modelled for children. Adolescents would therefore have to choose foods more like those modelled for adults to achieve the lower fat and saturated fat intake levels.

While no extra foods were modelled for the adult diets, to keep within the recommendations, extra foods should also be chosen to be low to moderate in fat, saturated fat and salt content, as outlined on pages 26 - 28.

The food intake ranges

Food intake ranges for groups of people are given in Table 9. These ranges are necessary because each group encompasses a range of ages. In addition, males and females are grouped together in the figures for children and adolescents. Body size and physical activity levels also vary. The figures in the tables are based on average requirements and are meant to indicate the range of food intakes that people may need (3). In addition, some people will have both lower and higher energy requirements than shown in these figures.

The figures given in examples A and B for children and adolescents are based on boys and girls of different ages within the healthy weight range with light to moderate energy expenditure levels. The lower energy and food intake figures are based on the requirements for younger girls with light activity levels. The higher energy and food intake figures for children and adolescents are based on the requirements for older boys with moderate activity levels.

The figures given in examples A and B for adults are based on men and women of different ages within the healthy weight range, with sedentary to light energy expenditure levels. The lower level figures are based on the requirements for sedentary, smaller and older adults and the higher level figures are based on the requirements for larger and younger adults with light activity levels.

For example, the upper end of the intake range for adolescents 12-18 years of 13,500kJ is for an average weight 18 year old male with a moderate physical activity level, while the lower end of the range of 7,700kJ is for an average weight 12 year old female with a light physical activity level.

How to achieve a healthy eating pattern

1. Select the relevant target group from Table 9. (eg children 4-7 years).
2. Select the preferred diet pattern (example A or B).
3. Select the most number of sample serves from the food intake ranges given, according to physical activity level and body size. For people who are sedentary and/or of small to average body size, the smaller number is more likely to be appropriate. For people who are active and/or of average to large body size, the larger number is more likely to be appropriate.
4. Determine the healthy eating pattern of the individual or group.
5. Compare this with the present eating pattern. For those individuals who need to make changes, discuss which are most realistic to make and plan accordingly.

This process is also outlined in more detail in *The Australian Guide to Healthy Eating* consumer booklet.

How to lose excess body weight

Restrictive dieting is not recommended for children and adolescents. Individuals in this group have high nutritional needs. A healthy eating pattern and an active lifestyle are most beneficial to health, and maintenance of a healthy body weight.

For adults, if body weight is above that suggested in the healthy weight for height range (see Appendix 7) then food and energy intake can be reduced to lose weight. Follow these four steps to develop a healthy eating pattern for weight loss:

1. Start with the appropriate minimum number of daily sample serves needed to achieve requirements for protein, vitamins and minerals, shown in Table 8. This will provide on average about 50% of energy requirements. For some people this will be an appropriate weight loss diet, others will require more food. If more food is required, proceed to steps 2 and 3 as appropriate.
2. Intakes of the fruit, vegetables and legumes, and bread, cereals, rice, pasta and noodles groups should be increased to a maximum of the levels shown in example A or B, depending on personal preference. Hunger should determine intake levels of bread, cereals, rice, pasta, noodles as these are filling foods which are low in fat and provide energy.

Intake of foods from the meat, fish, poultry, eggs, nuts and legumes group and the milk, yoghurt, cheese group need not be increased above the minimum number of daily sample serves needed as these are the food groups which are generally higher in fat.

3. Intake of extra foods should be kept to a minimum, but need not be completely excluded. Their inclusion in the diet depends on personal preference.
4. Follow the guidelines on pages 26 - 29 to reduce fat and sugar intakes and increase fibre intake.

Once ideal body weight is attained, a healthy eating pattern can be followed as outlined in Table 9. It is also important to be active in daily life for maintenance of a healthy body weight (see Appendix 7).

Implications of examples A and B for dietary change

Using the current eating patterns of Australian men as an illustration, the implications for population level dietary change of examples A and B are shown in Table 11.

Table 11: Comparison between suggested and current eating patterns * of Australian men, aged 19-60 years, in sample serves.

	BREAD, CEREALS, RICE, PASTA, NOODLES	VEG, LEGUMES	FRUIT	MILK, YOGHURT, CHEESE	MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES	EXTRA FOODS
EXAMPLE A	7-12	5	2	2	1	0-3
EXAMPLE B	5-7	5-8	3-4	2-4	1-2	0-3
AVERAGE INTAKE OF MEN IN AUSTRALIA	3	4	1.6 ^a	2	2.2	about 6
^a figure includes intake of fruit juice						

*National dietary survey of adults: 1983. No.1. Foods consumed. (10)

In Table 11 it can be seen that, in order to eat a healthier diet, Australian men should eat less meat, more fruit and vegetables, more bread, cereals, rice, pasta and noodles and less extra foods to achieve a healthy eating pattern. This also applies generally to children, adolescents and women.

This is an example of converting population dietary intake information into food group serves and comparing eating patterns to those recommended. This illustrates how the food guide can be used to develop health promotion messages to promote healthy eating at a population level.

Replacement of extra foods with bread, cereals, rice, pasta, noodles could mean:

- replacing extra foods like cake, biscuits and lollies with bread rolls, fruit bread, plain bread, toast, rice cakes, crumpets and crispbreads with spreads like Vegemite™, Marmite™, honey, jam or just margarine.
- replacing large meat serves and fried food with larger serves of potato, pasta, noodles, rice and vegetables served with tomato based or vegetable based sauces.

Fat, salt, sugar and fibre

Although the five food group foods are high in nutrients, they can also be high in energy density and can provide too much fat, salt and sugar and not enough fibre if not chosen carefully. The guidelines below outline the most health promoting choices from within the five food groups.

Some extra foods are also better choices than others. For example, it is recommended that people eat monounsaturated and polyunsaturated margarines and oils rather than butter, lard, dripping and other animal fats.

How to eat a diet low in fat and, in particular, low in saturated fat

Low fat diets are not suitable for young children. For older children, adolescents and adults, a diet low in fat and in particular, low in saturated fat, is appropriate. See page 22 and also appendix 3.

Five food groups

Within the five food groups, saturated fat is mainly found in the meat, fish, poultry, eggs, nuts, legumes, and the milk, yoghurt and cheese groups. To reduce fat and saturated fat intake from these groups:

- Trim visible fat from meat.
- Remove chicken skin.
- Use reduced fat milk, yoghurt and cheese. Children under 5 years should use full fat milk products.
- Eat fish and legumes more often, because they are low in fat and saturated fat.
- Choose fresh meat rather than processed meats such as sausages, fritz, devon, fatty ham and corned beef.
- Use low fat cooking methods when preparing these foods.

Extra foods

- Choose polyunsaturated and monounsaturated margarines and oils such as:

sunflower oil	safflower oil
corn oil	soybean oil
olive oil	peanut oil
canola oil	oil based salad dressing.

- Limit those foods which contain high levels of saturated fats such as:
 - butter, cream, cream-based dressings, solid frying fats, cooking margarine
 - cakes, biscuits, pastries, chocolate, potato crisps and other high-fat snack products and takeaway foods to which saturated fat is added during processing or cooking. This is usually in the form of vegetable fat or hydrogenated vegetable oil (in baked foods) and palm oil (in fried foods).

Food labels

- Choose packaged foods which state they are (11):

reduced fat	lower fat	less fat
low fat	low in fat	fat free
low saturated fat	low in saturated fat	reduced saturated fat
reduced in saturated fat	less saturated fat	lower saturated fat

- Choose packaged foods which state they are (11):

reduced cholesterol	lower cholesterol	less cholesterol
low cholesterol	low in cholesterol	cholesterol free
no cholesterol		

How to choose low salt foods and use salt sparingly

Five food groups

- Balance the intake of higher salt foods with other foods from within the same food group which are lower in salt. These are shown in Table 12.

Table 12: Examples of higher and lower salt foods from the five food groups

FOOD GROUP	HIGHER SALT CHOICES	LOWER SALT CHOICES ^a
BREAD, CEREALS, RICE, PASTA, NOODLES	bread, higher salt breakfast cereals, higher salt crispbreads ^a	reduced salt breads, some breakfast cereals, some crispbreads, rice, pasta, noodles ^a
MILK, YOGHURT, CHEESE	cheese	milk and yoghurt, reduced salt cheeses
VEGETABLES, LEGUMES	canned vegetables and canned beans	fresh vegetables, no added salt canned vegetables
MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES	processed meats (like ham, corned beef, devon, fritz) canned fish, canned beans	fresh cooked meats, no added salt canned fish, no added salt canned beans

^a See page 29 for information about reading food labels

This is another example of the importance of choosing a **variety** of foods from within the food groups. In this case, no more than about 3 higher salt sample serves should be chosen each day to achieve the recommended intake of sodium. As the recommendation for sodium is independent of energy intake, this would be extremely difficult to achieve within the current food supply for those with high energy requirements.

Extra foods

- Limit those foods which contain high levels of salt such as salty snack foods like potato crisps, salty spreads like Vegemite™, Marmite™, savoury biscuits, salted flavourings like soy sauce, stock cubes.
- Avoid adding salt to foods at the table or during cooking.
- Use small amounts of oil rather than margarine for cooking.

Food labels

- Choose packaged foods which state they are (11):

low in salt/sodium	low salt/sodium	very low salt/sodium
very low in salt/sodium	reduced salt/sodium	reduced in salt/sodium
salt/sodium reduced	lightly salted	sodium free
no sodium	salt free	no salt

How to eat only a moderate amount of sugars and foods containing added sugars

Five food groups

- Within each food group choose mainly foods with little or no added sugar. Artificially sweetened products can also be used.
- Choose foods containing added sugars less often. This includes foods like fruit juice drinks, sweetened breakfast cereals, fruit canned in syrup, flavoured milks and flavoured yoghurts.

Extra foods

- Limit those foods which contain high levels of sugar including cordial, soft drink, flavoured mineral water, lollies, jam, honey, cakes and biscuits.
- Use only a moderate amount of sugar if sweetening drinks and foods.

Food labels

- Use packaged foods which state they are (11):

reduced sugar	lower sugar	less sugar
low sugar	low in sugar	sugar free
free of sugar	no sugar	no added sugar
unsweetened		

- When choosing sweetened foods, where possible choose the lower sugar alternative.

Quenching thirst

- Drink plain unsweetened water to quench thirst

How to maximise fibre intake

Five food groups

- Sample serves from the fruit group should be chosen as fresh or canned fruit. Fruit juice is low in fibre.
- Use wholegrain breads, breakfast cereals, brown rice and wholemeal pasta more often than white or more refined varieties.
- Eat edible skins on fruit and vegetables, where appropriate.
- Eat legumes, nuts and seeds.

Food labels

- Use packaged products which state they are (11):

high fibre	very high fibre	good source of fibre
excellent source of fibre	increased fibre	fibre increased
fibre enriched	more fibre	fibre added
added fibre		

Food labels

Comparing the nutritional content of packaged foods can be achieved by reading ingredient lists and nutrition information panels (12). This information can be used to choose between seemingly similar foods, such as different types of breakfast cereals, crispbread biscuits, canned fish, canned vegetables, yoghurts, pre-prepared lasagnes and pizzas.

A food label must show an ingredient list of the food. Ingredients (except water) must be listed by descending order of their proportion by weight in the food. If water is added, the label should state 'water added'. Additives are also listed as ingredients of a food, identified by a class name and chemical name or a code number. These include colours, flavours, antioxidants, preservatives, emulsifiers, vitamins and minerals.

Packaged foods which include a claim that the food has a certain nutritional property must display a nutrition information panel. This will state servings per pack and serving size and can be used to compare between different brands or types of similar food choices. A comparison of nutrition information panels from two breakfast cereal labels is shown in figure 1.

Figure 1: Examples of nutrition information panels from breakfast cereal labels.

CORNFLAKE-TYPE CEREAL			WHEATFLAKE-BISCUIT-TYPE CEREAL		
	PER 30G SERVE	PER 100G		PER 30G SERVE	PER 100G
ENERGY	455kj	1516kj	ENERGY	416kj	1390kj
PROTEIN	2.3g	7.5g	PROTEIN	3.2g	10.5g
FAT	0.4g	1.3g	FAT	0.4g	1.4g
CARBOHYDRATE			CARBOHYDRATE		
- TOTAL	25.1g	83.8g	- TOTAL	24.7g	82.4g
- SUGARS	2.0g	6.6g	- SUGARS	0.8g	2.5g
DIETARY FIBRE	1.0g	3.3g	DIETARY FIBRE	3.0g	10.1g
SODIUM	306mg	1020mg	SODIUM	84mg	280mg
POTASSIUM	25mg	84mg	POTASSIUM	102mg	340mg

It can be seen that the cornflake-type cereal contains more sugar and salt (sodium) and less fibre and potassium than the wheatflake cereal. Both cereals are low in fat and high in carbohydrate. Hence, both are healthy choices in that they are both cereal foods. Intake of cereal foods is consistent with the second dietary guideline to eat plenty of breads and cereals (see Appendix 3).

Mixed foods

Mixed foods and meals can be classified into the five food groups and extra foods, if their components are known. Examples are given in Table 13.

PUTTING IT ALL TOGETHER - MIXED FOODS

Table 13: Examples of classifying mixed foods

	BREAD, CEREALS, RICE, PASTA, NOODLES	VEGETABLES, LEGUMES	FRUIT	MILK, YOGHURT, CHEESE	MEAT, FISH, POULTRY, EGGS, NUTS, LEGUMES	EXTRA FOODS
	NUMBER OF SERVES					
BEEF SALAD SANDWICH BREAD 2 SLICES BEEF 1 SLICE 30 G TOMATO 3 SLICES (50 G) LETTUCE, CUCUMBER (1/4 cup) MARGARINE 1 TEASPOON <i>TOTAL SERVES:</i>	1 serve	1/2 serve 1/4 serve			1/3 serve	1/4 serve 1/4 serve
PIZZA (1/4 LARGE) FLOUR 1 CUP OIL 1 TABLESPOON CHEESE 20 G TOMATO 50 G MUSHROOM, CAPSICUM, ONION (20 G) PINEAPPLE 50 G HAM 25 G <i>TOTAL SERVES:</i>	1 1/2 serves	1/2 serve 1/4 serve		1/2 serve		1 serve
HAMBURGER WITH BUCKET HOT CHIPS BREAD ROLL, BUN BEEF PATTY FRIED 50 G TOMATO, LETTUCE, ONION (20 G) MAYONNAISE 1 TABLESPOON HOT CHIPS OIL 1 TABLESPOON <i>TOTAL SERVES:</i>	1 1/2 serves	3/4 serve	1/2 serve	1/2 serve	1/4 serve 1/4 serve	1 serve
HAMBURGER WITH BUCKET HOT CHIPS BREAD ROLL, BUN BEEF PATTY FRIED 50 G TOMATO, LETTUCE, ONION (20 G) MAYONNAISE 1 TABLESPOON HOT CHIPS OIL 1 TABLESPOON <i>TOTAL SERVES:</i>	2 serves	1/4 serve			1/2 serve	1/2 serve 2 serves 1 serve
STIR FRIED CHICKEN WITH RICE (ONE SERVING) CHICKEN 75 G BEANSPROUT, CELERY MUSHROOMS (75G) OIL 1/2 TABLESPOON BROCCOLI, ONION (75G) CORNFLOUR RICE STEAMED 1 CUP <i>TOTAL SERVES:</i>	2 serves	1/4 serve			1/2 serve	3 1/2 serves
STIR FRIED CHICKEN WITH RICE (ONE SERVING) CHICKEN 75 G BEANSPROUT, CELERY MUSHROOMS (75G) OIL 1/2 TABLESPOON BROCCOLI, ONION (75G) CORNFLOUR RICE STEAMED 1 CUP <i>TOTAL SERVES:</i>	NEGLIGIBLE 1 serve	1 serve 1 serve			1 serve	1/2 serve
STIR FRIED CHICKEN WITH RICE (ONE SERVING) CHICKEN 75 G BEANSPROUT, CELERY MUSHROOMS (75G) OIL 1/2 TABLESPOON BROCCOLI, ONION (75G) CORNFLOUR RICE STEAMED 1 CUP <i>TOTAL SERVES:</i>	1 serve	2 serves			1 serve	1/2 serve

1. National Health and Medical Research Council. Dietary guidelines for Australians. Canberra: Australian Government Publishing Service, 1992.
2. National Health and Medical Research Council. Dietary guidelines for children and adolescents. Canberra: Australian Government Publishing Service, 1995.
3. National Health and Medical Research Council. Recommended Dietary Intakes for use in Australia. Canberra: Australian Government Publishing Service, 1991.
4. National Health and Medical Research Council. The role of polyunsaturated fats in the Australian diet. Canberra: Australian Government Publishing Service, 1992.
5. Cashel K, Jeffreson S. The Core Food Groups. Canberra: National Health and Medical Research Council, 1992.
6. Baghurst K, Cobiac L, Record S, Powis G, Pender K. Review of food selection guides in Australia. Adelaide: CSIRO Division of Human Nutrition, 1994.
7. Pennington JAT. Considerations for a new food guide. *J Nutr Educ* 1981; 13:53-55.
8. Baghurst KI, Hertzler AA, Record SJ, Spurr C. The development of a simple dietary assessment and education tool for use by individuals and nutrition educators. *J Nutr Educ* 1992; 24:165-72.
9. Rogers J. What food is that? and how healthy is it? Sydney: Weldon Publishing, 1990
10. Commonwealth Department of Health. National dietary survey of adults: 1983. No 1. Foods consumed. Canberra: Australian Government Publishing Service, 1986.
11. National Food Authority. Code of practice: nutrient claims in food labels and in advertisements. Canberra: National Food Authority, 1995.
12. South Australian Health Commission. Guidelines on food labelling. Adelaide: South Australian Health Commission, 1996.
13. Commonwealth Department of Health. Towards better nutrition for Australians. Report of the Nutrition Taskforce of the Better Health Commission. Canberra: Australian Government Publishing Service, 1987.
14. Chief Health Officer. Physical Activity and Health. Sydney: NSW Department of Health, 1996.
15. US Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

Appendix 1: Project Steering Committee

Over the course of the project, the Steering Committee members were:

- Cecily Dignan, Nutrition Section, Commonwealth Department of Human Services and Health (Chairperson until January, 1996).
- Sue Jeffreson, Nutrition Section, Commonwealth Department of Health and Family Services, formerly Department of Human Services and Health (Chairperson after January, 1996).
- Mark Lawrence, Australia New Zealand Food Authority.
- Cheryl Rae, Dietitians Association of Australia.
- Stewart Truswell, Human Nutrition Unit, University of Sydney.
- Frances Warnock Food Industry Council of Australia until September, 1995.
- Stuart Spencer, Food Industry Council of Australia, after September, 1995.
- Bernadette Walsh, Australian Consumers Association.
- Colin Binns, School of Public Health, Curtin University of Technology.

Appendix 2: Components of food which may provide protection against diseases and conditions of public health importance (1)

DIETARY FACTOR	DISEASES AGAINST WHICH PROTECTION MAY BE PROVIDED OR FOR WHICH RISK MAY BE REDUCED
High intake of plant foods ^a , low fat and saturated fat intake, high dietary fibre intake	Heart attacks, angina (coronary heart disease), colon, bowel, breast and prostate cancers, overweight and obesity
High intake of plant foods, low salt intake	High blood pressure (hypertension), stroke (cerebrovascular disease)
High intake of plant foods	Adult-onset diabetes (non-insulin dependent diabetes), constipation, gastro-intestinal cancers including cancers of the colon, rectum, stomach, pancreas, oesophagus. Lung cancer and cancers of the breast, prostate, cervix and bladder
Low fat and saturated fat intake	Colo-rectal cancer
Low alcohol intake	Most cancers, liver cirrhosis, brain damage and foetal alcohol syndrome
Adequate to high calcium intake	Osteoporosis
Infrequent and low sugar intake	Tooth decay (dental caries)

^a Lack of plant foods results in a diet which is likely to be high in fat, saturated fat, sodium, cholesterol and energy density and low in fibre, complex carbohydrate, potassium, beta-carotene (the plant-derived form of vitamin A), vitamin C, vitamin E and other non-nutrient constituents of plant foods.

Appendix 3: The Dietary guidelines for Australians (1) and the Dietary guidelines for children and adolescents (2)

Adults

1. Enjoy a wide variety of nutritious foods.
2. Eat plenty of breads and cereals (preferably wholegrain), vegetables (including legumes) and fruits.
3. Eat a diet low in fat and, in particular, low in saturated fat.
4. Maintain a healthy body weight by balancing physical activity and food intake.
5. If you drink alcohol, limit your intake.
6. Eat only a moderate amount of sugars and foods containing added sugars.
7. Choose low salt foods and use salt sparingly.
8. Encourage and support breastfeeding.

Guidelines on specific nutrients

1. Eat foods containing calcium. This is particularly important for girls and women.
2. Eat foods containing iron. This applies particularly to girls, women, vegetarians and athletes.

Children and Adolescents

1. Encourage and support breastfeeding.
2. Children need appropriate food and physical activity to grow and develop normally. Growth should be checked regularly.
3. Enjoy a wide variety of nutritious foods.
4. Eat plenty of breads, cereals, vegetables (including legumes) and fruits.
5. Low fat diets are not suitable for young children. For older children, a diet low in fat and in particular, low in saturated fat, is appropriate.
6. Encourage water as a drink. Alcohol is not recommended for children.
7. Eat only a moderate amount of sugars and foods containing added sugars.
8. Choose low salt foods.

Guidelines on specific nutrients

1. Eat foods containing calcium.
2. Eat foods containing iron.

Appendix 4: The Core Food Groups as the basis for *The Australian Guide to Healthy Eating*

The purpose of developing the core food groups model (5) was to reflect the advances in nutrition knowledge, based on the RDIs (3), the Dietary guidelines for Australians (1) and new work carried out on the composition of Australian foods. The core food groups provide the essential nutrients for health, but not sufficient energy intake.

Recommended Dietary Intakes

The model which was developed for the core food groups (5) provided at least 70% of recommended dietary intakes (RDIs), but only about 50% of energy requirements. RDIs are estimates of human requirements for the various nutrients. The RDIs apply to group needs, whereas the nutritional requirements of most individuals are lower than the RDIs. In addition, the RDIs have safety margins due to the incompleteness of the information available about nutrient requirements (3). For these reasons, 70% of the RDI is often used as a basis for guidance about individual food intake.

The Australian Guide to Healthy Eating does not attempt to meet the RDI for iron in pregnancy. The iron RDI is set at a high level with the aim of creating an adequate supply for pregnancy but also to increase iron stores, as many menstruating women in Australia are at risk of consuming insufficient iron. As iron absorption is at a high level during the second and third trimesters of pregnancy, it is recommended that iron supplements be taken during this time.

The amounts of food suggested during pregnancy and lactation are based on the RDIs and may seem high. They were developed based on the best available knowledge of energy and nutrient requirements, but no comprehensive data is available on actual food and nutrient intakes of pregnant and breastfeeding women against which to compare the recommendations.

Core Food Groups Modelling

The development of the core food groups began with the previous food guide (the Five Food Groups). The modelling was based on foods within the groups which reflected the dietary intake profile of Australians as measured by the 1989-90 apparent consumption data. The 30g meat group serve was modelled as 10g beef and veal, 5g lamb and mutton, 4g pork, 6g poultry, 2g fresh/frozen fish, 1g tinned fish and 2g egg. The 150g fruit serve was modelled as 63g orange, 31g apple, 16g banana, 5g rockmelon, 5g watermelon, 15g pineapple, 11g pear and 4g apricot. The 75g vegetable group serve was modelled as 35g potato, 2g peas, 4g beans, 5g carrot, 15g tomato, 3g pumpkin, 2g cauliflower, 3g cabbage and 6g onion. The reference cereals group serve was modelled as 60% bread, 30% breakfast cereal and 10% rice/pasta/noodles.

Fruit and vegetables were grouped separately because of their differing nutrient profiles. For example, 75g of vegetables provided approximately 4 times more vitamin A, but two thirds less vitamin C and 30 per cent less folate than did 150g (an equivalent amount when considered as 'a serve') of fruit.

Fat spreads were initially included in the modelling process. However, the main contribution of this group was to vitamin A consumption, and vitamin A was also provided by fruit, vegetables and dairy products. Fruit, vegetables and dairy products also contributed significantly to other nutritional needs, particularly minerals and dietary fibre. Therefore, on this basis, butter and margarine were not included as a food group in *The Australian Guide to Healthy Eating*. Along with oil, they are shown with the extra foods.

Appendix 5: Comparison with other Australian food selection guides

Over the years since the first food guide was published in Australia after the Second World War, various food guides have been produced. The table below gives a comparison of some of these. This information was adapted from the *Core Food Groups report* (5).

Note:

In the table on page 37, under the Australian Guide to Healthy Eating, there is a figure of a minimum of 7 serves of cereals. For ease of comparison with the other food guides, in this table only, this serve is equivalent to one slice of bread. It should be noted that elsewhere in the information on the Food Guide, a sample serve of bread, cereals, rice, pasta, noodles is described as being equivalent to two slices of bread.

**Comparison of selected Australian food guides, adapted from
The Core Food Groups (5)**

ORGANISATION	COMMONWEALTH DEPARTMENT OF HEALTH AND FAMILY SERVICES	COMMONWEALTH DEPARTMENT OF HEALTH	CSIRO, ANTI-CANCER FOUNDATION	HEALTH DEVELOPMENT FOUNDATION/ VIC FOOD AND NUTRITION PROJECT	AUSTRALIAN NUTRITION FOUNDATION
NAME OF GUIDE	AUSTRALIAN GUIDE TO HEALTHY EATING	FIVE FOOD GROUPS	12345+	TARGET ON HEALTHY EATING	HEALTHY EATING PYRAMID
Minimum amounts for good health or total diet?	Minimum amounts for good health and total diet	Minimum amounts for good health	Total diet	Minimum amounts for good health	Total diet
Cereal serves	Minimum 7 for adults	4	5-12	4+	eat most
Fruit and veg serves	NI	4	NI	4+	eat most
Fruit serves	Minimum 2 for adults	NI	3	NI	NI
Veg serves	Minimum 5 for adults	NI	4	NI	NI
Meat group serves	Minimum 85g for adults	75-100g	60-100g	75-100g	eat moderately
Dairy group serves	Minimum 450mL for adults	450mL	600mL	300mL	eat moderately
Fat group serves	NI	1 Tablespoon	NI	1 Tablespoon	eat in small amounts
Extra foods category?	Yes, represented	No	Yes, 0-2 serves allowed	No	Yes, eat in small amounts
Shape	Circle	Varied	Triangle	Circle	Pyramid
Materials produced	A1 and A4 posters, consumer booklet and background information book	Posters, consumer booklets	Large and small poster, consumer booklet, scientific articles	Large simplified and more complex poster, educators' handbook	Poster, consumer pamphlets.
Main recommended uses	Basic nutrition education, adaptation for special groups, supporting teaching about Dietary Guidelines	Out of date	Basic nutrition education, information about healthy eating for individuals, analysing diets	School-based nutrition education. Out of date, will be revised	Dietary guidelines
Year of publication	1998	Several versions	1992	1987	Several versions

NI = Not included

Appendix 6: Nutrient composition of Examples A and B

Present mean percent contribution of dietary fat to total energy intake in Australia is about 35-37% of energy as fat (10). The Australian government has set a target of reducing this to 30% fat with 10% of energy as saturated fat (4) for adults and adolescents over 14 years, 35-40% for two to five year old children, and 35% with 10% of energy as saturated fat for five to 14 year old children (2).

There is no recommended fibre intake for children. The level recommended by the Better Health Commission Nutrition Taskforce was 25-30g per day for adults (13).

Recommended sodium intakes vary by age group (3).

The table below shows the percentage of energy provided by protein, fat and carbohydrate and the fibre and sodium contents of examples A and B when modelled as described on pages 21 - 23, together with the recommended intakes of fat, saturated fat, polyunsaturated and mono-unsaturated fats, fibre and sodium.

EXAMPLE	AGE (YEARS)	% ENERGY PROVIDED BY						FIBRE (G/ DAY)	SODIUM (MG/ DAY)
		PROTEIN	FAT	CARBO- HYDRATE	POLY- UNSATURATES	MONO- UNATURATES	SATURATES		
A	4-7	15	40	45	11	16	13	18	2200
B	4-7	21	37	42	7	14	16	19	1700
Rec ^a			35-40 ^b						460-1730
A	8-11	18	36	45	9	13	14	21	2700
B	8-11	20	38	42	9	14	15	18	2000
Rec ^a			35 ^c				≤10 ^c		600-2300
A	12-18	18	34	47	8	13	13	26	2400
B	12-18	19	35	46	8	13	14	25	2000
Rec ^a			30 ^d				≤10 ^d		900-2300
A	Adult	15-17	27	56-57	9-11	9	8-9	29-41	3100-4100
B	Adult	20-21	27	52-53	7-8	9	10-11	29-39	2100-2900
Rec ^a			≤30%		6-10		≤10	25-30	900-2300

^a Recommended intake

^b Recommendation for children 2-5 years (2)

^c Recommendation for children 5-14 years (2)

^d Recommendation for children 15 years and over (2)

Appendix 7: More information about the Dietary Guidelines for Australians not addressed by *The Australian Guide to Healthy Eating*

Adults: *If you drink alcohol, limit your intake.*

Children and adolescents: *Encourage water as a drink. Alcohol is not recommended for children.*

These guidelines are designed to decrease the average consumption of alcohol in Australia. The recommendations for safe and responsible levels of intake are 4 standard drinks a day for men (40g of absolute alcohol) with some alcohol free days each week; 2 standard drinks for women (20g absolute alcohol) with some alcohol free days each week. Alcohol is not recommended for children (1,2).

A standard alcoholic drink contains 8-10g of alcohol. Standard serves of common alcoholic beverages are shown in the table below. (Percentage alcohol figures are given in brackets).

DRINK	QUANTITY
Beer – light (2.9%)	475 mL
Beer – regular (4.9%)	2/3 can (285 mL)
Table wine (approx 10%)	1 wine glass (100 mL)
Fortified wines (sherry, port) (approx 20%)	1 sherry glass (60 mL)
Spirits, liqueurs (approx 40%)	1 nip (30 mL)

Alcoholic drinks are included in the dietary guidelines because they also contribute to nutrient intake: alcohol itself supplies 29 kJ/g, while alcoholic drinks also supply carbohydrates (mainly sugars). Alcoholic drinks are therefore high in energy (kJ) but low in significant nutrients like vitamins and minerals.

Adults; Children and Adolescents: *Encourage and support breastfeeding*

Breastfeeding is widely recognised as the most appropriate method for feeding infants, especially in the first 4-6 months when milk is the sole food source. Breast milk remains an important food for the first 12 months and beyond (2). Breast milk is most appropriate nutritionally, is hygienic and provides immunoglobulins and other anti-infective factors which help protect the infant against infection and disease (1).

Encouragement and support, as well as information, are crucial to ensuring that women who wish to, can breastfeed successfully. Hospitals, health centres, families, friends, social establishments and places of work are all important in providing this support. (1)

Adults: *Maintain a healthy body weight by balancing food intake and regular physical activity.*

Children and adolescents: *Children need appropriate food and physical activity to grow and develop normally. Growth should be checked regularly.*

Men and women of all ages benefit from a moderate amount of daily physical activity. The same moderate amount of activity can be obtained in longer sessions of moderately intense activities (such as 30 minutes of brisk walking) as in shorter sessions of more strenuous activities (such as 15-20 minutes of jogging, swimming or sport).

Additional health benefits can be gained through greater amounts of physical activity, up to a point. There are greater risks of injury with higher levels of physical activity (14, 15).

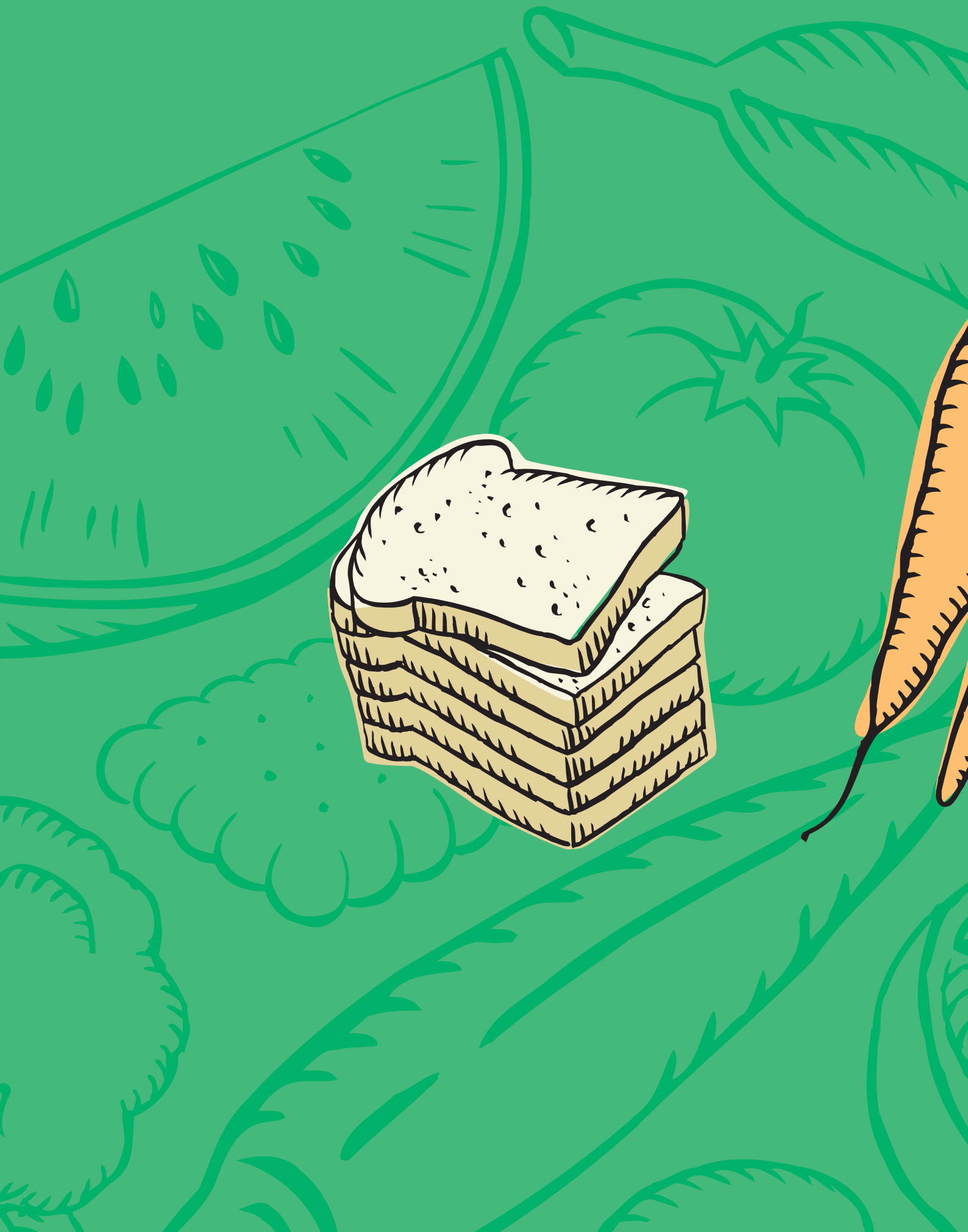
The important health benefits associated with physical activity can be gained through activity of moderate intensity - such as walking. This activity can be accumulated through bouts as short as 10 minutes, towards the recommended total of 30 minutes or more on most days.

The same guidelines are true for children and adolescents. Being physically active is a normal component of everyday activity for all children (2). Encouraging physical activity whether in play, sport, exercise or as part of daily activities is likely to lead to greater health, fitness and enjoyment of being physically active in adulthood.

The measure of appropriate weight for height for adults is body mass index (BMI). This can be calculated as weight (kg)/height (m)². The desirable body mass index range for adults is between 20 and 25 kg/m². Overweight is defined as a BMI between 25 and 30 kg/m², while obesity is defined as a BMI greater than 30kg/m². BMIs below 20 kg/m² are defined as underweight. The newest figures from the World Health Organisation are as follows: desirable or normal body mass index range for adults is a BMI between 18.5 and 24.99. Grade 1 overweight is defined as a BMI between 25 and 29.99. Grade 2 overweight is defined as a BMI between 30 and 39.99. Grade 3 overweight is defined as a BMI equal to or above 40.

This index is not appropriate for children. Children should be compared with reference growth charts which indicate the normal range for weight, height and weight-for-height by sex and age. This can be done by a general medical practitioner, dietitian or child health nurse.

Restrictive dieting is not recommended for children and adolescents, who have high nutritional needs. A healthy eating pattern and an active lifestyle are most beneficial to health.



Australian Government

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