



Australian Bureau of Statistics

4364.0.55.007 - Australian Health Survey: Nutrition First Results – Food and Nutrients, 2011-12

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ABOUT THIS PUBLICATION

This publication is the first release of Nutrition results from the 2011-13 Australian Health Survey. It presents national level information on consumption of selected foods and nutrients. Information is presented with selected population characteristics (age and sex).

Explanatory Notes provide information about the survey design and methodology, the quality and interpretation of results, and information about the range of publications and other data services available or planned.

ACKNOWLEDGEMENTS

ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act 1905*.

Jonathan Palmer
Acting Australian Statistician

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Key Findings

This publication is the first release of nutrition data from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS). It presents results from a 24-hour dietary recall of food, beverages and dietary supplements, as well as some general information on dietary behaviours. Future releases will focus on usual intakes of nutrients including comparisons against nutrient reference values where relevant.

FOOD CONSUMPTION

In 2011-12, Australians aged 2 years and over consumed an estimated 3.1 kilograms of foods and beverages (including water) per day, made up from a wide variety of foods across the major food groups.

- On the day before interview, almost all people (97%) reported consuming foods from the **Cereals and cereal products** or **Cereal-based products and dishes** groups. Regular bread and bread rolls was the most commonly eaten type of **Cereal and cereal product**, being consumed by 66% of people. Ready to eat breakfast cereals were eaten by 36% of the population.
- More than eight out of ten people (85%) consumed from the **Milk products and dishes** group on the day prior to interview, with foods in this group providing an average 11% of the population's energy intake. Around two-thirds (68%) of people consumed Dairy milk, while almost one-third (32%) had Cheese.
- **Meat, poultry and game products and dishes** were consumed by around seven out of ten (69%) people on the day prior to interview, providing 14% of total energy intakes. Chicken was the most commonly consumed meat within this category with 31% either eating a piece of chicken or eating chicken as part of mixed dish. Beef was consumed by 20% (either alone or in a mixed dish). Ham was the most commonly consumed processed meat, being consumed by 12% of the population.
- **Vegetable products and dishes** were consumed by three-quarters (75%) of the population, with Potatoes making up around one-quarter (by weight) of all vegetables consumed. Based on people's self-reported usual consumption of vegetables, just 6.8% of the population met the recommended usual intake of vegetables.
- **Fruit products and dishes** were consumed by six out of ten people (60%) overall on the day before interview. Based on self-reported usual serves of fruit eaten per day, just over half (54%) met the recommendations for usual serves of fruit.
- The most popular beverages consumed were water (consumed by 87% of the population), coffee (46%), tea (38%) soft drinks and flavoured mineral waters (29%) and **Alcoholic beverages** (25%).
- Just over one-third (35%) of total energy consumed was from 'discretionary foods', that is foods considered to be of little nutritional value and which tend to be high in saturated fats, sugars, salt and/or alcohol. The proportion of energy from discretionary foods was highest among the 14-18 year olds (41%). The particular food groups contributing most of the energy from discretionary foods were: **Alcoholic beverages** (4.8% of energy), Cakes, muffins scones and cake-type desserts (3.4%), **Confectionery and cereal/nut/fruit/seed bars** (2.8%), Pastries (2.6%), Sweet biscuits and Savoury biscuits (2.5%) and Soft drinks and flavoured mineral waters (1.9%).

ENERGY AND NUTRIENTS

The average energy intake was 9,655 kilojoules (kJ) for males and 7,402 kJ for females. Energy intakes were lowest among the toddler aged children who averaged 5,951 kJ and were highest

among 19-30 year old males (11,004 kJ). Female energy intakes were highest among the 14-18 year olds (8,114 kJ).

- Carbohydrate contributed the largest proportion of total energy, supplying 45% on average with the balance of energy coming from fat (31%), protein (18%), alcohol (3.4%) and dietary fibre (2.2%).
- Within carbohydrates, starch contributed 24% and sugars contributed 20% of energy. The major source of total sugars (natural and added) in the diets were: Fruit (providing 16% of sugars), Soft drinks and flavoured mineral waters (9.7%), Dairy milk (8.1%), Fruit and vegetable juices and drinks (7.5%), Sugar, honey and syrups (6.5%), Cakes, muffins, scones, cake-type desserts (5.8%).
- The average daily intake of sodium from food was just over 2,404 mg (equivalent to around one teaspoon of table salt). This amount includes sodium naturally present in foods as well as sodium added during processing, but excludes the 'discretionary salt' added by consumers in home prepared foods or 'at the table'. In addition to sodium from food, 64% of Australians reported that they add salt very often or occasionally either during meal preparation or at the table, therefore the true average intake is likely to be significantly higher.

DIETARY SUPPLEMENTS

In 2011-12, 29% of Australians reported taking at least one dietary supplement on the day prior to interview. Females were more likely than males to have had a dietary supplement (33% and 24% respectively), with the highest proportion of consumers in the older age groups. Multivitamin and/or multimineral supplements were the most commonly taken dietary supplements, being consumed by around 16% of the population with Fish oil supplements taken by around 12% of the population.

DIETING

In 2011-12, over 2.3 million Australians (13%) aged 15 years and over reported that they were on a diet to lose weight or for some other health reason. This included 15% of females and 11% of males. Being on a diet was most prevalent among 51-70 year olds where 19% of females and 15% of males were on some kind of diet.

FOOD AVOIDANCE

In 2011-12, 17% of Australians aged 2 years or over (or 3.7 million people) reported avoiding a food type due to allergy or intolerance and 7% (1.6 million) avoided particular foods for cultural, religious or ethical reasons.

- The most common type of food intolerance reported was Cow's milk/Dairy (4.5%), followed by Gluten (2.5%), Shellfish (2.0%) and Peanuts (1.4%).
- Pork was the most commonly avoided food type (3.9%) for cultural, religious or ethical reasons, while 2.1% specified avoiding all meat.

UNDER-REPORTING

In order to assist in the interpretation of data from the 2011-12 NNPAS and particularly in comparisons with the 1995 National Nutrition Survey, there are a few key points that should be noted.

- It is likely that under-reporting is present in both surveys.
- There appears to be an increase in the level under-reporting for males between 1995 and 2011-12, especially for males aged 9 - 50.

- The level of under-reporting by female respondents also appears to have increased, but to a lesser extent than for males.

See Appendix 1 for an overview of the major food groups and the Glossary for other definitions.

About the National Nutrition and Physical Activity Survey

The 2011–13 Australian Health Survey (AHS) is the largest and most comprehensive health survey ever conducted in Australia. The survey, conducted throughout Australia, collected a range of information about health related issues, including health status, risk factors, health service usage and medications. In 2011–13, the AHS incorporated the National Nutrition and Physical Activity Survey (NNPAS). It involved the collection of detailed physical activity information using self-reported and pedometer collection methods, along with detailed information on dietary intake and foods consumed from over 12,000 participants across Australia. The nutrition component is the first national nutrition survey of adults and children (aged 2 years and over) conducted in over 15 years.

The AHS sample included Aboriginal and Torres Strait Islander people where they were randomly selected in the general population. The AHS also included an additional representative sample of Aboriginal and Torres Strait Islander people. The National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) will provide nutrition and physical activity results for Aboriginal and Torres Strait Islander people at the population level and provides an opportunity to compare results with the non-Indigenous population. Results for the NATSINPAS will be released in the first half of 2015.

Information for the nutrition component of the NNPAS was gathered using a 24-hour dietary recall on all foods and beverages consumed on the day prior to the interview. Where possible, at least 8 days after the first interview, respondents were contacted to participate in a second 24-hour dietary recall via telephone interview. This publication is the first release of information from the nutrition component of the NNPAS. It presents results from the first interview, with information on food, beverages and dietary supplements, as well as some general information on dietary behaviours.

The NNPAS has been made possible by additional funding from the Australian Government Department of Health and Ageing as well as the National Heart Foundation of Australia, and the contributions of these two organisations to improving health information in Australia through quality statistics are greatly valued.

The 2011–13 AHS, and particularly the NNPAS component, was developed with the assistance of several advisory groups and expert panels. Members of these groups were drawn from Commonwealth and state/territory government agencies, non-government organisations, relevant academic institutions and clinicians. The valuable contributions made by members of these groups are greatly appreciated.

Food Standards Australia New Zealand (FSANZ) was contracted to provide advice throughout the survey development, processing and collection phases of the 2011-12 NNPAS and to provide a nutrient database for the coding of foods and supplements consumed. The ABS would like to acknowledge and thank FSANZ for providing their support, advice and expertise to the 2011-12 NNPAS.

The ABS gratefully acknowledges and thanks the Agricultural Research Service of the USDA for giving permission to adapt and use their Dietary Intake Data System including the AMPM for collecting dietary intake information as well as other processing systems and associated materials.

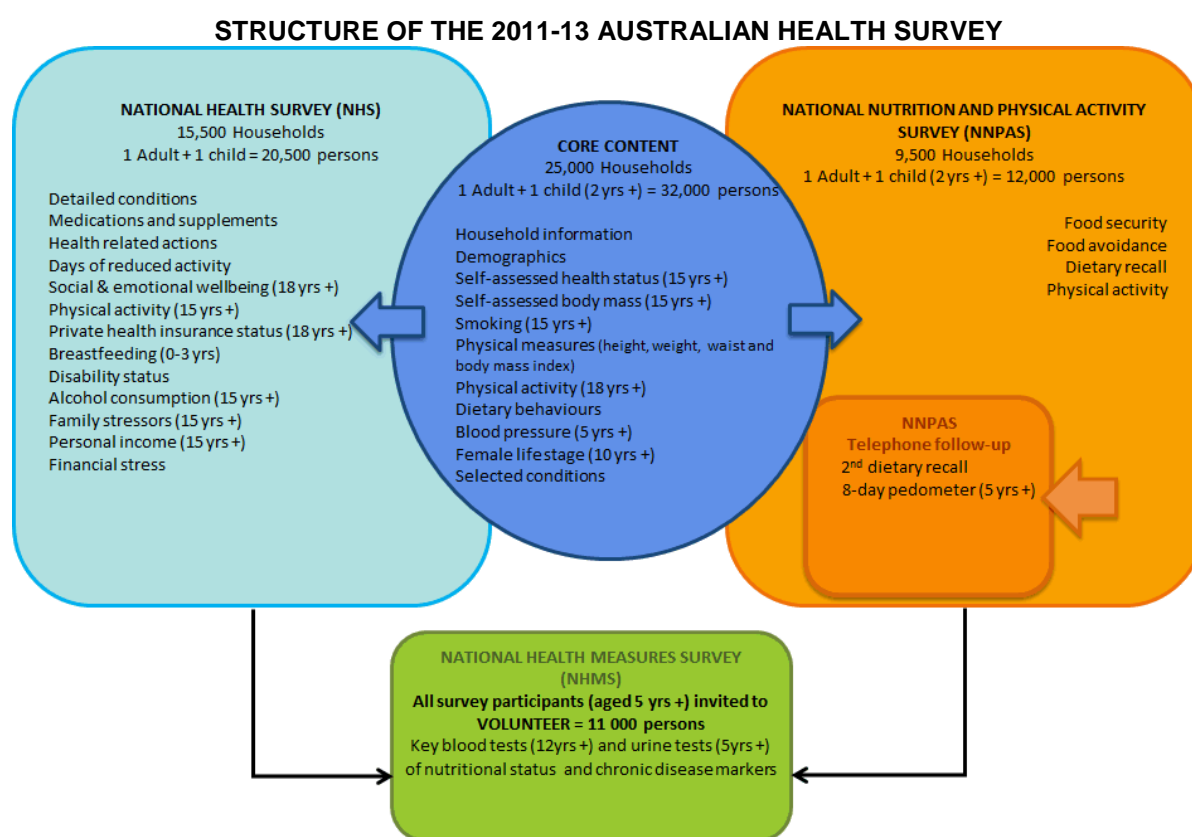
Finally, the success of the 2011–13 AHS was dependent on the very high level of cooperation received from the Australian public. Their continued cooperation is very much appreciated; without it, the range of statistics published by the ABS would not be possible. Information received by the ABS is

treated in strict confidence as required by the Census and Statistics Act 1905.

The Structure of the Australian Health Survey

This publication is one of several ABS releases of results from the 2011-13 Australian Health Survey (AHS). The AHS is the largest, most comprehensive health survey ever conducted in Australia. It combines the existing ABS National Health Survey (NHS) and the National Aboriginal and Torres Strait Islander Health Survey together with two new elements - a National Nutrition and Physical Activity Survey (NNPAS) and a National Health Measures Survey (NHMS).

The following diagram shows how the various elements combine to provide comprehensive health information for the overall Australian population. The content for each component survey is listed along with the ages of respondents for which topics were collected.



As shown in the above diagram, the AHS is made up of 3 components:

- the National Health Survey (NHS)
- the National Nutrition and Physical Activity Survey (NNPAS)
- the National Health Measures Survey (NHMS).

All people selected in the AHS were selected in either the NHS or the NNPAS, however data items in the core were common to both surveys and therefore information for these data items is available for all persons in the AHS. All people were then invited to participate in the voluntary NHMS.

As indicated in the diagram, 20,500 people participated in the NHS, answering questions about items

such as detailed health conditions, health risk factors and medications as well as all items in the core content. For the NHS component (those items collected only in the NHS and not the core), the sample size is similar to that of previous National Health Surveys and therefore the results are comparable. However for those items collected in the core, the sample size (32, 000 people) is approximately 1.5 times that in the past and therefore the estimates for core items such as smoking and Body Mass Index are expected to be more accurate in particular at finer disaggregations than in previous surveys.

INFORMATION FOR ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

The AHS does not exclude Aboriginal and Torres Strait Islander people where they are randomly selected in the general population sample. However, the AHS also includes an additional representative sample of around 13,000 Aboriginal and Torres Strait Islander people for which first results were released in November 2013. This is a separate collection of Aboriginal and Torres Strait Islander people living in remote and non-remote areas, including discrete communities. The structure is the same as outlined above, comprised of the National Aboriginal and Torres Strait Islander Health Survey component, the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity component and the National Aboriginal and Torres Strait Islander Health Measures Survey component.

For more information on future releases see Release schedule.

Release Schedule

RELEASED PRODUCTS

Australian Health Survey

Results from the Australian Health Survey (AHS) are being released progressively. The first results, released in October 2012, contained information on health risk factors (such as alcohol consumption, tobacco smoking and Body Mass Index); long-term health conditions; mental health and wellbeing and physical activity from the National Health Survey (NHS) sample. See Australian Health Survey: First Results for more information.

Results from Australian Health Survey: Health Service Usage and Health Related Actions were released in March 2013 and presented information from the NHS on general use of health services and actions people take for their health, as well as specific actions people take for particular long-term health conditions.

Updated results for some data items based on the AHS core sample (approximately 32,000 people from the NHS and National Nutrition Physical Activity Survey (NNPAS)) were released in June 2013 in Australian Health Survey: Updated Results.

Physical activity results from the NNPAS were released in July 2013 in Australian Health Survey: Physical Activity.

The first results from the National Health Measures Survey (NHMS) were released in August 2013 in Australian Health Survey: Biomedical Results for Chronic Diseases and presented information on biomarkers of chronic disease, including cardiovascular disease, diabetes and chronic kidney function. Nutrient biomarkers were released in December 2013 in Australian Health Survey: Biomedical Results for Nutrients, with vitamin D added in April 2014.

This publication presents a selection of results from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS), with the focus on Foods and Nutrients consumed and selected dietary behaviours.

Australian Aboriginal and Torres Strait Islander Health Survey

The first results for the Aboriginal and Torres Strait Islander population were released in November 2013 and contained information on health risk factors, long-term health conditions and use of health services using data from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). See Australian Aboriginal and Torres Strait Islander Health Survey: First Results.

FUTURE RELEASES

Further releases from the Australian Health Survey and Australian Aboriginal and Torres Strait Islander Health Survey are planned for 2014 and the first half of 2015.

The following tables contains details of published and upcoming publications and microdata products.

2011-12 AUSTRALIAN HEALTH SURVEY, Release schedule

Publications/Microdata	Date	Description
Australian Health Survey: First Results (cat. no. 4364.0.55.001)	Released 29 October 2012	Focus on long-term health conditions and health risk factors from NHS.
Australian Health Survey: Health Service Usage and Health Related Actions (cat. no. 4364.0.55.002)	Released 26 March 2013	Focus on health service usage, health related actions and medication use from NHS.
Australian Health Survey: Updated Results (cat. no. 4364.0.55.003)	Released 7 June 2013	Focus on key items from the core based on the full AHS sample. Includes new estimates for those indicators published in the AHS First Results publication.
Australian Health Survey: Physical Activity (cat. no. 4364.0.55.004)	Released 19 July 2013	Focus on physical activity, sedentary behaviour and pedometer steps data from NNPAS.
Australian Health Survey: Biomedical Results for Chronic Diseases (cat. no. 4364.0.55.005)	Released 5 August 2013	Focus on high level results for chronic diseases from the biomedical measures collected in the NHMS.
Microdata: Australian Health Survey, National Health Survey, 2011-12 (cat. no. 4324.0.55.001)	Released 24 September 2013	TableBuilder release for NHS.
Australian Health Survey: Biomedical Results for Nutrients (cat. no. 4364.0.55.006)	Released 11 December 2013	Focus on high level results for nutrients from the biomedical measures collected in the NHMS. Vitamin D data was added to this publication on 15 April 2014.
Microdata: Australian Health Survey, Nutrition and Physical activity, 2011-12 (cat. no. 4324.0.55.002)	Released 18 December 2013	TableBuilder release for NNPAS. Focus on physical activity.
Microdata: Australian Health Survey, Core Content - Risk Factors and Selected Health Conditions, 2011-12 (cat. no. 4324.0.55.003)	Released 30 April 2014	TableBuilder release for the core content based on the full AHS sample. Includes biomedical measures collected in the NHMS.
Australian Health Survey: Nutrition First Results - Foods and Nutrients (cat. no. 4364.0.55.007)	Released 9 May 2014	Focus on high level results from the nutrition component of NNPAS including foods and nutrients consumed and selected dietary behaviours.
Microdata: Australian Health Survey, Nutrition and Physical	June 2014	Basic CURF release for NNPAS. Focus on nutrition.

activity, 2011-12 (cat. no. 4324.0.55.002)

Microdata: Australian Health Survey, National Health Survey, 2011-12 (cat. no. 4324.0.55.001)

Microdata: Australian Health Survey, Nutrition and Physical activity, 2011-12 (cat. no. 4324.0.55.002)

Microdata: Australian Health Survey, Core Content - Risk Factors and Selected Health Conditions, 2011-12 (cat. no. 4324.0.55.003)

Australian Health Survey: Nutrition - Usual Intakes (cat. no. 4364.0.55.008)

Second half 2014 Expanded CURF release for NHS. Includes biomedical measures collected in the NHMS. Also, TableBuilder will be updated to include data from the NHMS.

Second half 2014 Expanded CURF release for NNPAS. Includes both physical activity and nutrition data, and includes biomedical measures collected in the NHMS. Also, TableBuilder will be updated to include data from the nutrition component and the NHMS.

Second half 2014 Expanded CURF release for the combined NHS and NNPAS core content. Includes biomedical data collected in the NHMS.

Late 2014 Focus on usual intakes of selected nutrients including comparisons with Nutrient Reference Values where relevant.

2012-13 AUSTRALIAN ABORIGINAL AND TORRES STRAIGHT ISLANDER HEALTH SURVEY, Release schedule

Publications/Microdata	Date	Description
Australian Aboriginal and Torres Strait Islander Health Survey: First Results (cat. no. 4727.0.55.001)	Released 27 November 2013	Focus on long-term health conditions and health risk factors.
Australian Aboriginal and Torres Strait Islander Health Survey: Updated Results (cat. no. 4727.0.55.006)	6 June 2014	Focus on key items from the core based on the full AATSIHS sample. Includes new estimates for some indicators published in the AATSIHS First Results publication.
Microdata: Australian Aboriginal and Torres Strait Islander Health Survey, Detailed Conditions and Other Health Data, 2012-13	August 2014	TableBuilder release for NATSIHS. This release will not include data on remote or child physical activity collected as part of NATSIHS or data from the NATSIHMS.
Australian Aboriginal and Torres Strait Islander Health Survey: Biomedical data (cat. no. 4727.0.55.003)	Second half 2014	Focus on high level results for chronic disease and nutrients from the biomedical measures collected in the NATSIHMS.
Australian Aboriginal and Torres Strait Islander Health Survey: Physical Activity (cat. no. 4727.0.55.004)	Second half 2014	Focus on physical activity, sedentary behaviour and pedometer steps data from NATSIHS and NATSINPAS as applicable.
Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition (cat. no. 4727.0.55.005)	First half 2015	Focus on high level results from the nutrition component of NATSINPAS.
Microdata: Australian Aboriginal and Torres Strait Islander Health Survey, Detailed Conditions and Other Health Data, 2012-13	First half 2015	Expanded CURF product release for the NATSIHS. Includes biomedical data collected in the NATSIHMS. Also, TableBuilder will be updated to include additional physical activity data from NATSIHS and biomedical data from the NATSIHMS.
Microdata: Australian Aboriginal and Torres Strait Islander Health Survey, Nutrition and Physical activity, 2012-13	First half 2015	TableBuilder and Expanded CURF product release from the NATSINPAS. Includes biomedical data collected in the NATSIHMS.

Foods Consumed

FOOD GROUPS

Food and beverages reported by respondents in the National Nutrition and Physical Activity Survey (NNPAS) were collected and coded at a detailed level, but for output purposes are categorised within a food classification with major, sub-major, and minor group levels. At the broadest level (the Major group) there are 24 groups. These groups were designed to categorise foods that share a major component or common feature. Because many foods are in fact mixtures of different ingredients, the food groups will not exclusively contain the main food of that group. For example, a beef and vegetable casserole will belong within the major group of **Meat, poultry and game products and dishes**, yet will contain vegetables and sauce or gravy.

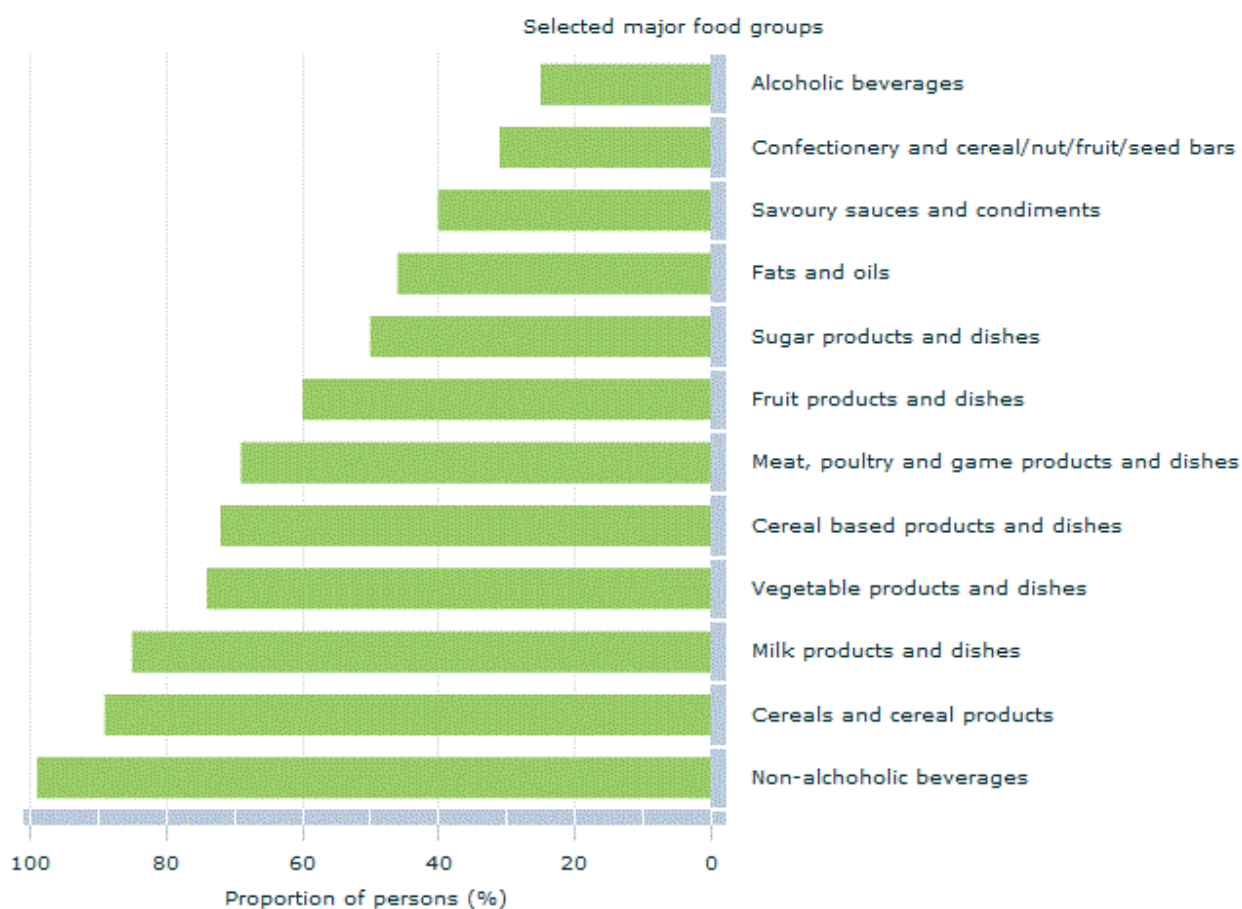
Cereal-based products and dishes is a particular example of a Major group where there may be a significant proportion of other (non-cereal) ingredients in the foods. While the common feature of this food group is cereal, the foods belonging to this group are very diverse and includes biscuits, cakes, pastries, mixed pasta or rice dishes, burgers, pizza and tacos. The **Cereal-based products and dishes** should not be confused with **Cereal and cereal products** which contains more basic foods such as bread, plain rice, plain pasta, breakfast cereals, oats and other grains.

For more information see Appendix 1: Example foods in Major food groups and the Nutrition section of the AHS Users' Guide.

In 2011-12, Australians aged 2 years and over consumed an estimated average of 3.1 kilograms of foods and beverages per day, made up from a wide variety of foods across the major food groups. In the day before interview, a majority of respondents in the AHS reported consuming **Cereals and cereal products** (90%), **Milk products and dishes** (85%), **Vegetable products and dishes** (75%), **Cereal-based products and dishes** (72%), **Meat, poultry and game products and dishes** (69%) and **Fruit products and dishes** (60%). In addition, 87% of people reported drinking plain water

(including municipal and bottled water) see Table 4.1.

Persons aged 2 years & over - Consumption from selected major food groups(a), 2011-12



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Footnote(s): (a) Most commonly consumed major food groups on the day prior to interview. See Appendix 1 for examples of foods in major food groups.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Statistics presented in this publication on foods consumed include:

- the proportion of a population consuming food from a food group
- the average (mean) amount consumed by a population (including non consumers)
- the median amount consumed by a population (which excludes non consumers).

Non-alcoholic beverages

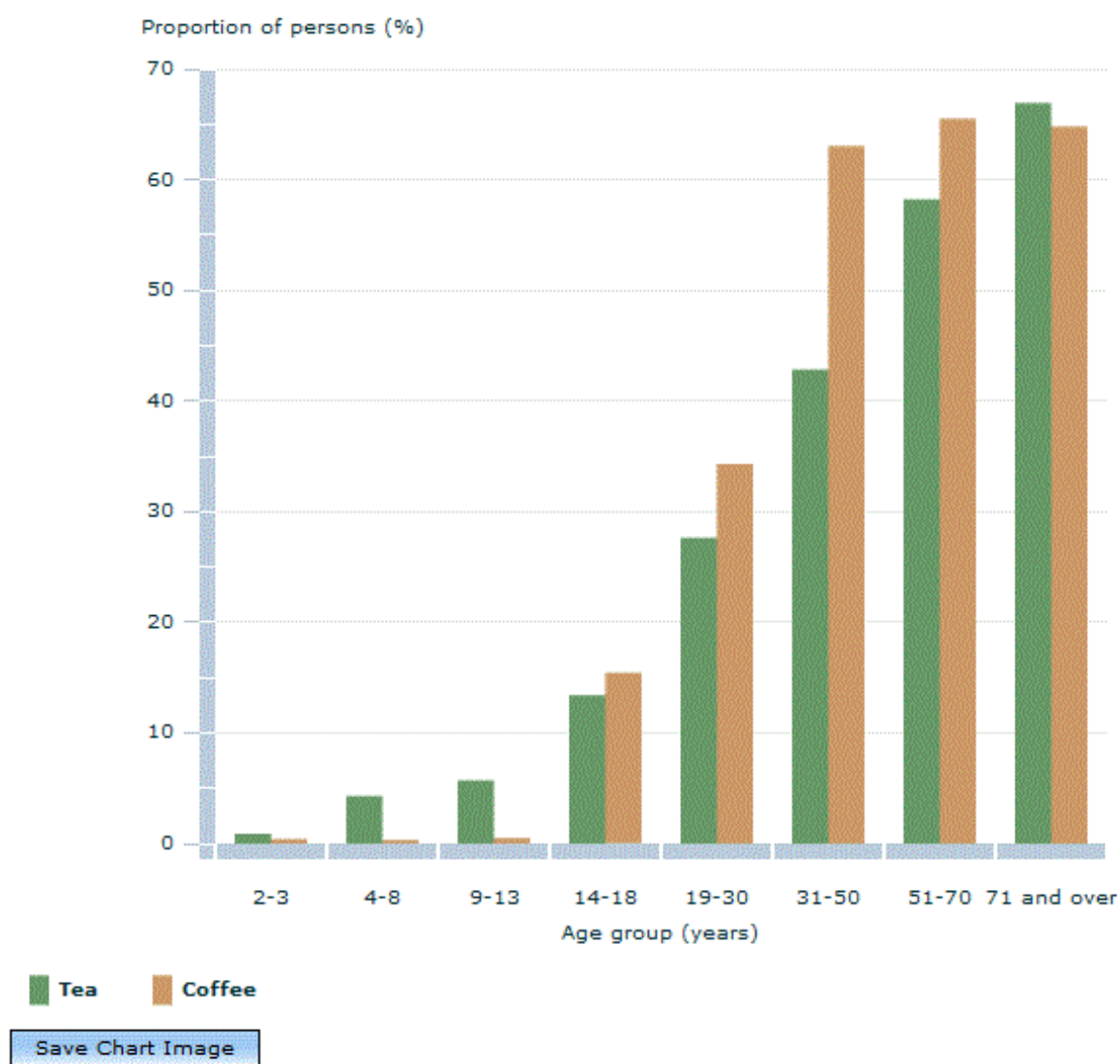
The **Non-alcoholic beverages** food group includes tea, coffee, juices, cordials, soft drinks, energy drinks and water.

Almost nine out of ten people reported drinking plain water, including eight out of ten who consumed domestic water (including tap, tank/rain water), and one in ten who drank packaged water including mineral water see Table 4.3. The median amount of drinking water drunk by water consumers was one litre (1,000 grams) per day see Table 6.3.

COFFEE AND TEA

Coffee (including coffee substitutes) was consumed by nearly half the population (46%), while tea was consumed by 38% of people. However, consumption of each beverage type was closely associated with age. For example, coffee was consumed by around one in twenty (4.5%) children aged 2 to 18 years, one in three (34%) people aged 19-30 years and two in three (66%) of the population aged 51-70 years see Table 4.1. Among those who consumed coffee, the median amount of daily consumption was 330 mls (equivalent to a large mug), while the median daily amount of tea consumed by tea drinkers was 400 mls (around two small cups) see Table 6.1. Of the 16.3 million coffees consumed on an average day in 2011-12, around two-thirds were made from instant coffee powder, with one-third from ground coffee.

Persons aged 2 years & over - Coffee & tea consumption(a), 2011-12



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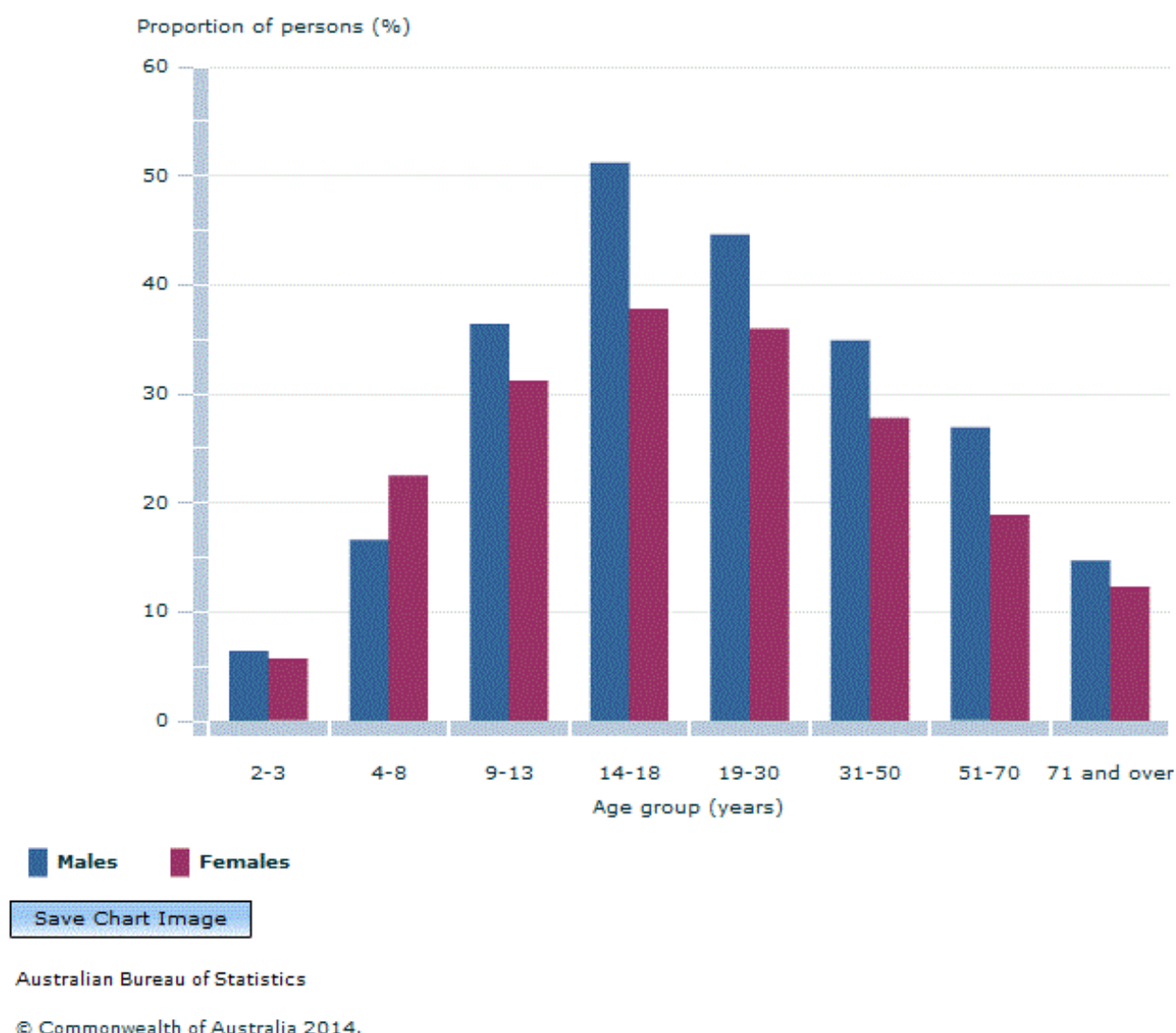
Footnote(s): (a) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

SOFT DRINKS AND FLAVOURED MINERAL WATERS

Soft drinks (including flavoured mineral waters) were consumed by 29% of the population. The level of consumption peaked among 14 to 18 year-olds, with 51% of males and 38% of females in this age group consuming a soft drink on the day prior to interview see Table 4.1. Almost one-third (32%) of all soft drink consumed was intense (artificially) sweetened, with 29% of males and 37% of the females who consumed soft drink consuming an intense-sweetened variety see Table 5.3. Among the population who did report consuming soft drink, the median daily amount consumed was the equivalent of a regular can (375 mls) see Table 6.1.

Persons aged 2 years & over - Soft drink consumption(a)(b), 2011-12



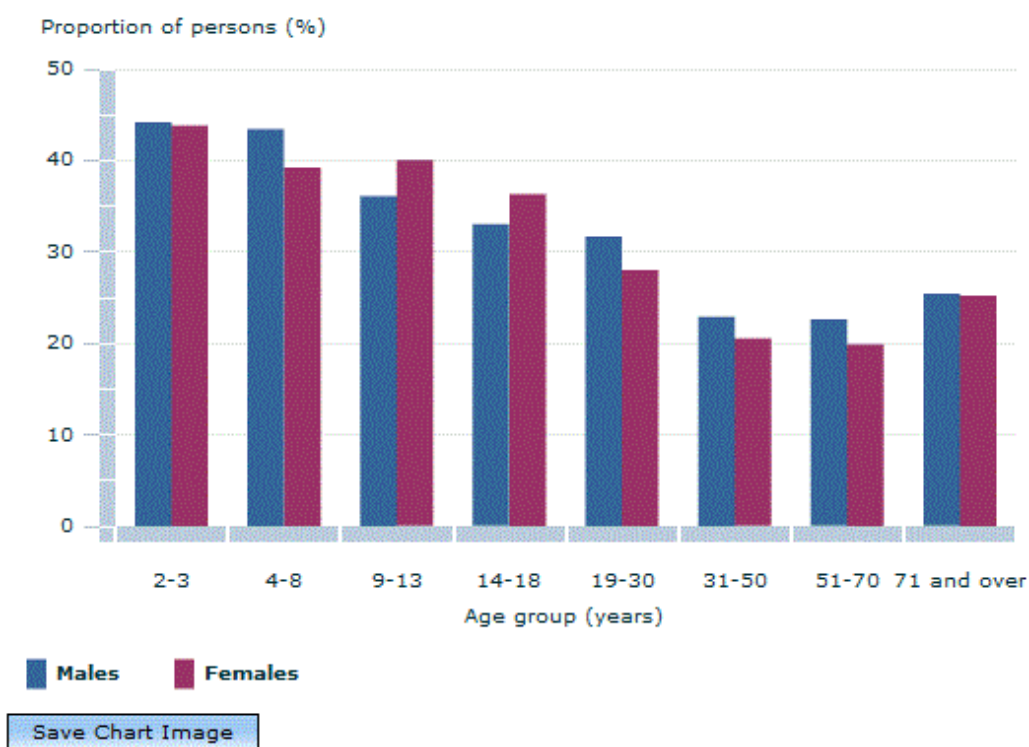
Footnote(s): (a) Includes flavoured mineral waters. (b) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

FRUIT AND VEGETABLE JUICES AND DRINKS

Overall, just over one-quarter (27%) of the population consumed Fruit and vegetable juices and drinks on the day prior to interview see Table 4.1. The overwhelming majority (95%) of these beverages were made from fruit (rather than vegetable or a fruit and vegetable blend) see Table 5.3. Prevalence of consumption of Fruit and vegetable juices and drinks was highest among the 2-3 year olds with 44% having consumed juice or fruit drink on the day prior to interview. The proportion consuming these products declined with increasing age until the 51-70 years group (21%), but was slightly higher again among the 71 years and over group (25%) see Table 4.1. The median daily amount of Fruit and vegetable juices and drinks consumed was 283 mls see Table 6.1.

Persons aged 2 years & over - Average fruit & vegetable juices & drinks consumption(a)(b), 2011-12



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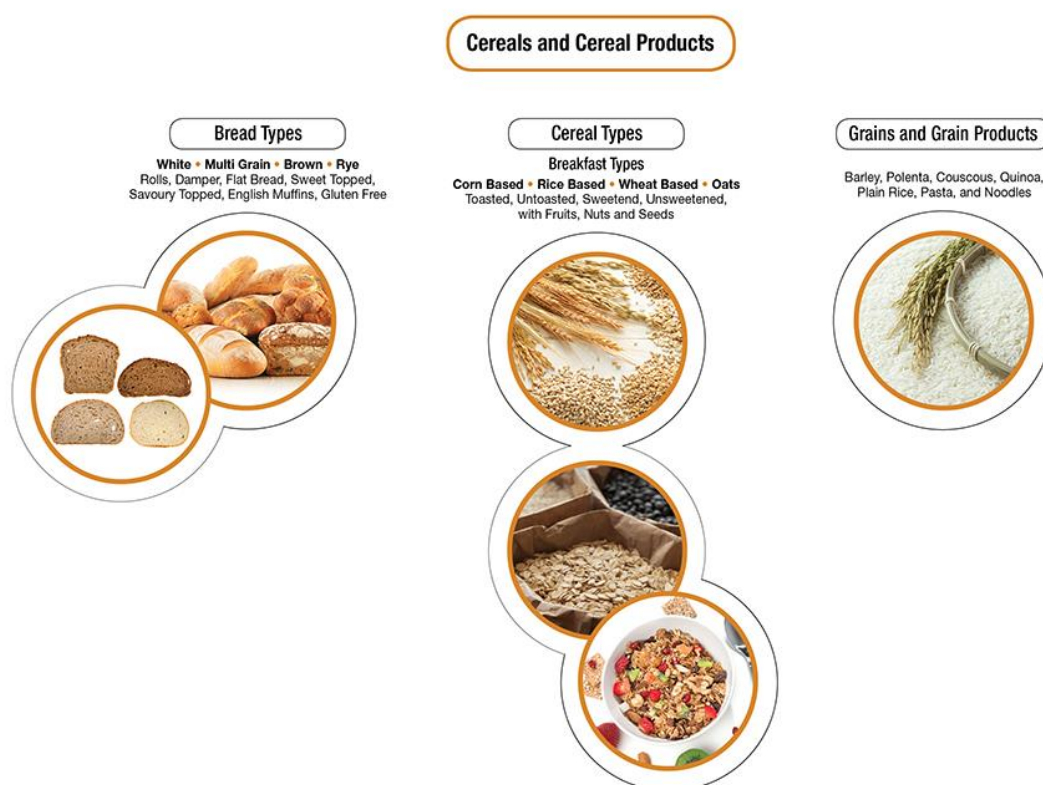
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Footnote(s): (a) Fruit and/or vegetable juices and drinks include 'drinks' containing 100% juice or added water, flavours and sweeteners. (b) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Cereals and cereal products

The **Cereals and Cereal Products** food group includes grains, flours, bread and bread rolls, breakfast cereals, plain pasta, noodles and rice.

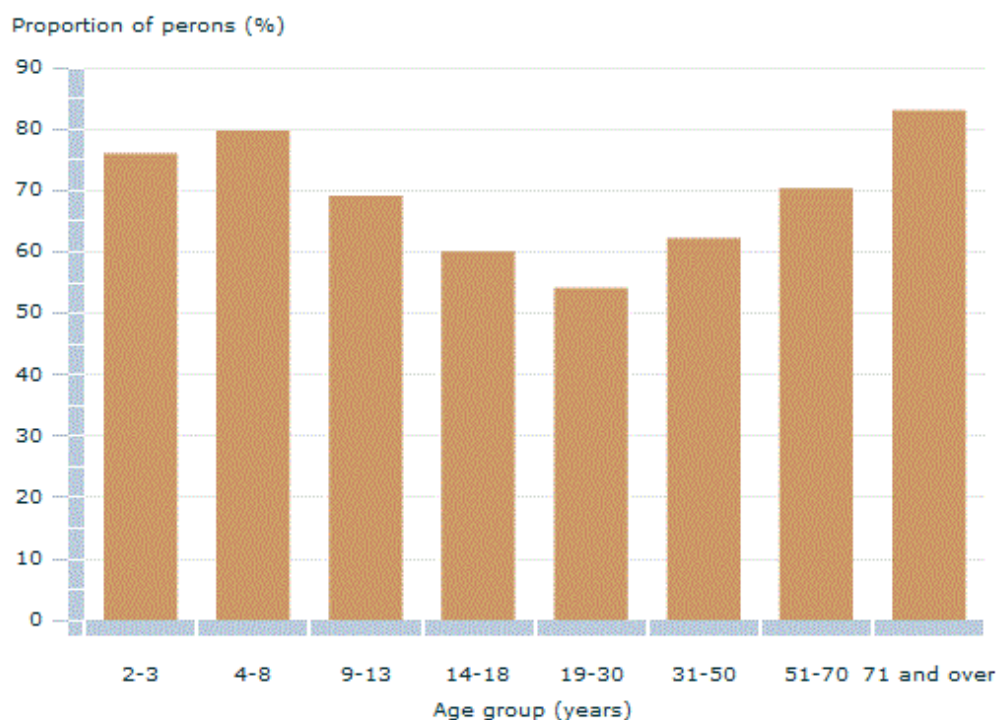


Around nine out of ten people reported eating foods from the **Cereals and cereal products** group in the day prior to interview see Table 4.1. This category provided 18% of people's daily energy on average with the majority coming from bread, breakfast cereals and rice see Table 4.1.

BREAD

Within the **Cereal and cereal products** group, Regular breads, and bread rolls (plain/unfilled/untopped varieties) were the products most commonly consumed with 66% of people consuming regular bread, and 13% consuming English-style muffins, flat breads, savoury and sweet breads. Older people (aged 71 years and over) were most likely to eat regular bread with 83% consuming it on the day prior to interview, followed by children aged 4 to 8 years (80%) and 2 to 3 years (76%). Young adults aged 19-30 years were least likely (54%) to consume regular bread see Table 4.1. Among the consumers of regular bread, the median amount consumed on a day was 72 grams (around 2 average slices), with males consuming more than females see Table 6.1.

Persons aged 2 years & over - Regular breads consumption(a)(b), 2011-12



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Footnote(s): (a) Includes bread rolls (plain/unfilled/untopped varieties). (b) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

White bread was the most popular in the Regular breads, and bread rolls category, making up 58% of bread consumed (by weight), with mixed grain and wholemeal varieties accounting for 18% each see Table 5.3. Around half (49%) of all bread in this category was consumed in sandwiches or rolls, with another 29% eaten as toast.

BREAKFAST CEREALS

Breakfast cereals, ready to eat were consumed by 36% of the population, with a further 7% eating porridge. Children aged 2-3 years were most prevalent consumers of Breakfast cereals (54%), followed by 4-8 year olds (52%) and the 71 years and over group (50%) see Table 4.1. Male consumers ate a median daily amount of 51 grams of Breakfast cereals, ready to eat, while females ate a median amount of 35 grams which is equivalent to around one metric cup of breakfast cereal flakes see Table 6.1.

Milk products and dishes

The **Milk products and dishes** food group includes milk, yoghurt, cream, cheese, custards, ice cream, milk shakes, smoothies and dishes where milk is the major component e.g. cheesecake, rice pudding and crème brûlée. Note that some milk that is consumed as part of a beverage is not in **Milk products and dishes** but is included in the Major group **Non-alcoholic beverages**, for example, cafe-style coffees.

More than eight out of ten people consumed from the **Milk products and dishes** group on the day prior to interview see Table 4.1, with foods in this group providing an average 11% of the population's energy intake see Table 8.1.

DAIRY MILK

Dairy milk (cow, sheep and goat) was consumed by 68% of the population see Table 4.1, with the average daily consumption of milk being 148 mls. A further 27 mls of milk was consumed on average from Flavoured milks and milkshakes.¹ Over half (58%) of Dairy milk consumed from **Milk products and dishes** was full fat, with a further 31% being reduced fat and 11% skim see Table 5.3. More than half (58%) of Dairy milk was consumed as an addition to cereal, with just under a one-quarter (23%) combined with other ingredients as a part of a beverage (such as milk added to tea) and 18% was consumed alone.²

CHEESE

Cheese was consumed by 32% of the population, with the highest prevalence of consumption among children aged 2-3 years (43%) and 4-8 years (39%) see Table 4.1. The majority of cheese consumed³ was of the hard, ripened variety (67%), with 22% being processed cheese, 10% being cream/cottage cheese and 3% being the surface-ripened cheese (such as camembert or brie). Just 15% of all cheese consumed was classed as reduced fat see Table 5.3.

ICE CREAM

Frozen milk products were consumed by 15% of the population, with Ice cream making up 91% of this category see Table 4.3. Children aged 9-13 and 4-8 years were most likely to consume frozen milk products (27% and 21% respectively) see Table 4.1.

YOGHURT

Overall, yoghurt was consumed by 16% of the population, but consumption was twice as high among 2-3 year olds (36%), and females (20%) were more likely than males (13%) to consume yoghurt see Table 4.1. Around three-quarters (76%) of the yoghurt consumed was flavoured or had added fruit, with natural yoghurt making up 21%. Reduced fat, skim and non-fat yoghurts made up just under half (46%) of all yoghurts consumed see Table 5.3.

ENDNOTES

1. The group Dairy milk (cow, sheep and goat), excludes the milk consumed as a beverage within the Major group **Non-alcoholic beverages**. For example, cafe-style coffees are estimated to have contributed another 36 grams of milk. [Back](#)

2. Not available from published tables. Derived from combination codes. See Glossary. [Back](#)

3. Proportions calculated excluding Cheese not further defined. [Back](#)

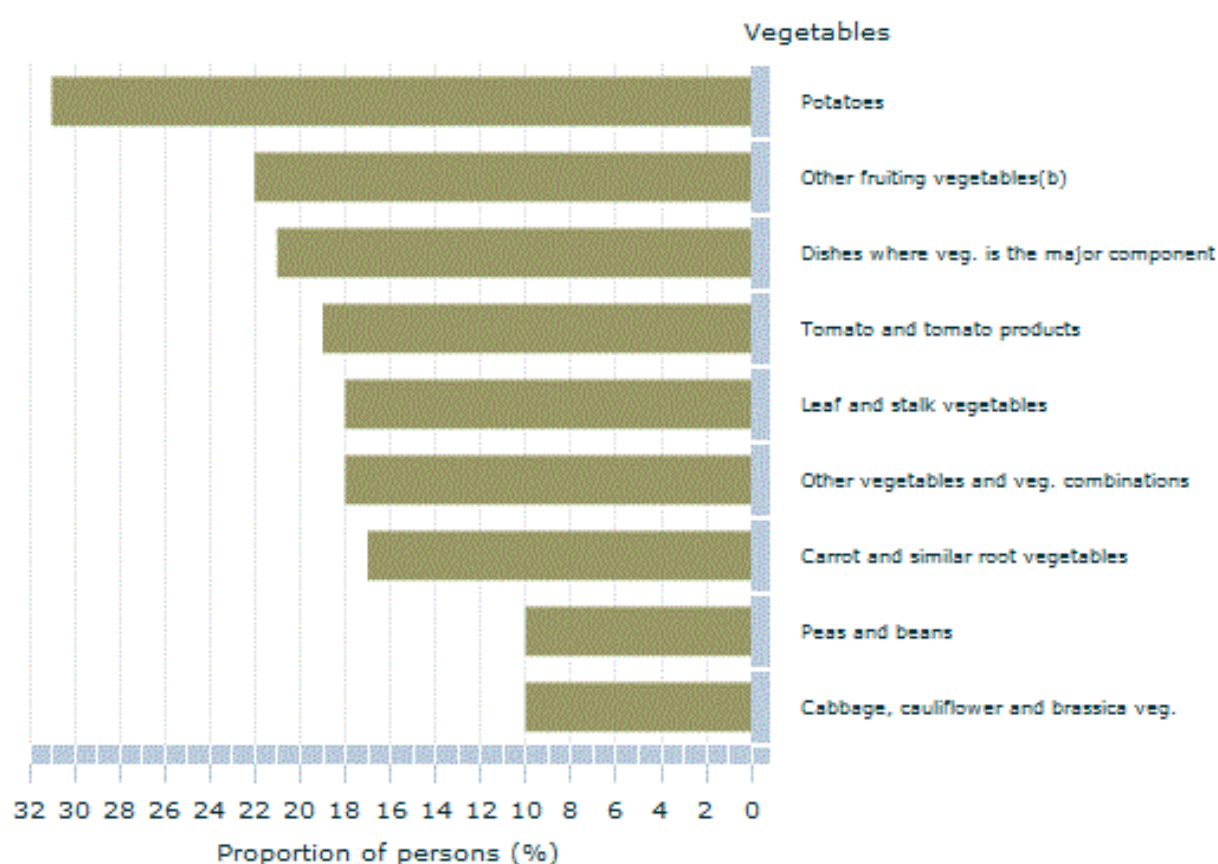
Vegetable products and dishes

The **Vegetable products and dishes** food group includes vegetables and dishes where vegetable is the major component. e.g. zucchini slice and potato bake.

In 2011-12, three-quarters of people consumed **Vegetable products and dishes** on the day prior to interview. The largest contributing sub-major group was Potatoes (consumed by 31%) see Table 4.1 and Table 4.3. Around half (52%) of all potatoes consumed were boiled, baked, roasted, fried or grilled, with 32% eaten as chips, fries, wedges or similar products and the remainder (16%) eaten in mixed dishes such as mashed potato or potato bake see Table 5.3.

Dishes where vegetables are the major component were consumed by 22% of people see Table 4.1. This was mostly comprised of Salads (73%) and Vegetable and sauce dishes such as vegetable casseroles and curries (23%) see Table 5.3.

Persons aged 2 years & over - Vegetable consumption(a), 2011-12



Save Chart Image

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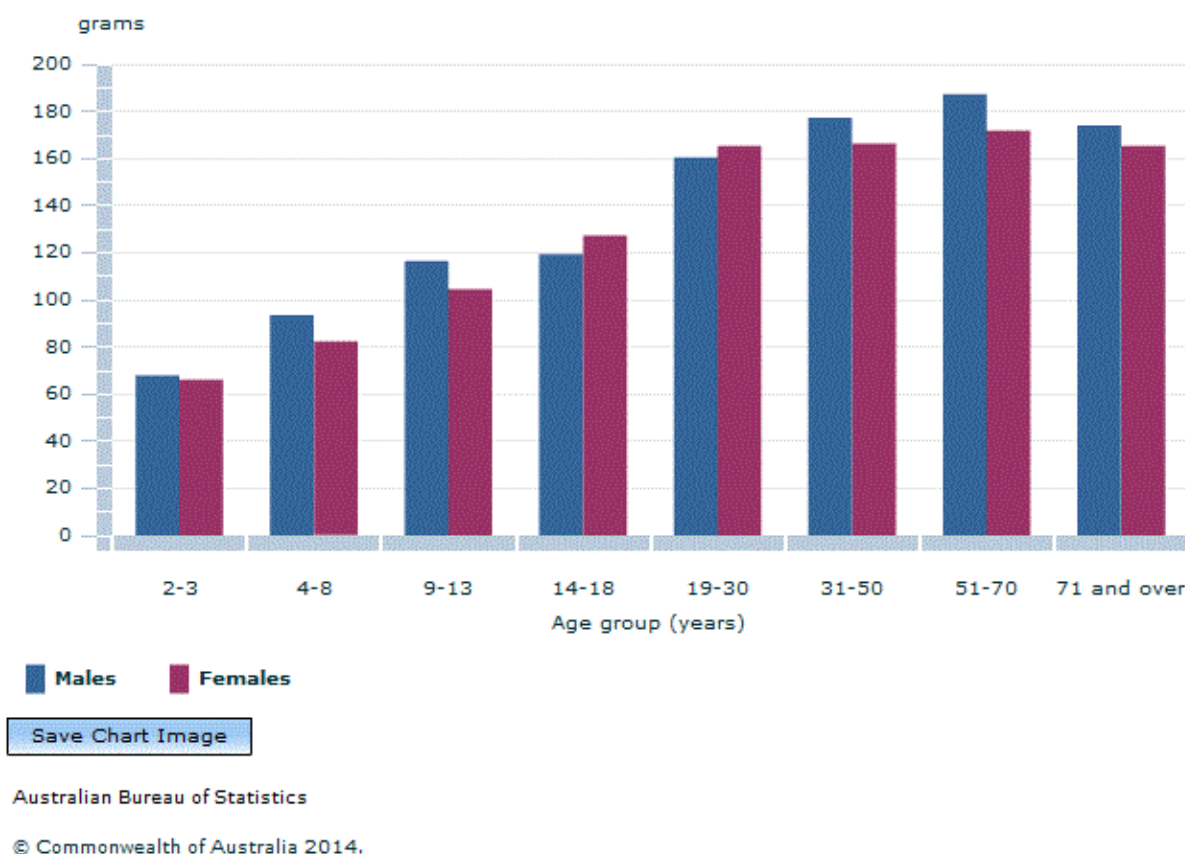
Footnote(s): (a) On the day prior to interview. (b) Includes mushrooms, cucumber, sweetcorn, pumpkin, avocado, capsicum and zucchini.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Apart from potatoes and the vegetables consumed in salads and mixed dishes, the most popularly consumed vegetables were tomatoes (consumed by 18%), leaf vegetables (mainly lettuce) (17%) and carrots (14%) see Table 4.3.

The average amount of vegetables consumed was 156 grams per day, but consumption varied with age group. For example, young people aged 14 to 18 years consumed an average of 123 grams per day while people aged 51-70 consumed an average 179 grams per day see Table 5.1.

Persons aged 2 years & over - Average daily vegetable consumption(a), 2011-12



Footnote(s): (a) on the day prior to interview

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

The greater average vegetable intake among adults compared with teenagers is explained by the higher intake of non-potato vegetables in the older age group. For example, people aged 51-70 years consumed an average 134 grams of non-potato vegetables, twice as much as the 14-18 year olds (67 grams) see Table 5.1.

'USUAL' SERVES OF VEGETABLES

In addition to collecting information about the foods actually consumed on the previous day, the 2011-12 AHS also asked people the usual number of serves of vegetables consumed in a day (where a serve is equivalent to half a cup of cooked vegetables, half a medium potato or 1 cup of salad vegetables). The Australian Dietary Guidelines recommend a minimum number of servings per day based on individuals' age and sex.

Recommended usual intake of vegetables

The National Health and Medical Research Council (NHMRC) 2013 *Australian Dietary Guidelines* recommend a minimum number of serves of vegetables and legumes/beans each day, depending on age and sex, to ensure good nutrition and health. The table below outlines the recommended number of serves for children, adolescents and adults. A serve is approximately half a cup of cooked vegetables or legumes/beans or one cup of salad vegetables - equivalent to around 75 grams.*

RECOMMENDED DAILY SERVES OF VEGETABLES, by age

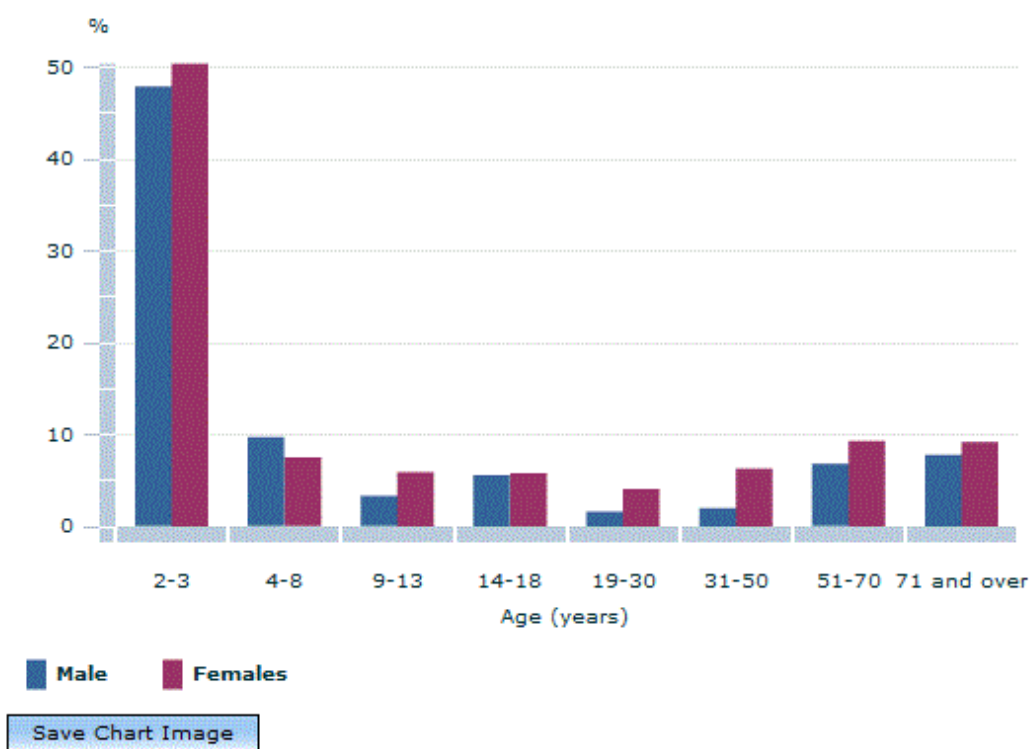
Age	Vegetables for males	Vegetables for females
2-3 years	2.5	2.5
4-8 years	4.5	4.5
9-11 years	5	5
12-13 years	5.5	5
14-18 years	5.5	5
19-50 years	6	5**
51-70 years	5.5	5
70+ years	5	5

*Note, while the 2013 *Australian Dietary Guidelines* include servings of legumes and beans in the recommendations for vegetable intake, the AHS only collected serves of vegetables (excluding legumes).

**Note, the recommended usual intake of vegetables for breastfeeding women is 7.5 serves and pregnant women is 5 serves, however these population groups have not been separated from the nutrient data output for this data item.

Overall, just 6.8% of the population met the recommended usual intake of vegetables.¹ Children aged 2-3 years (where the recommended number of serves is two and a half serves) were most likely to meet that with 49% usually eating 2 serves. Least likely to eat the recommended number of serves of vegetables were 19-30 year old males where just 1.6% usually ate 6 or more serves per day.

Persons aged 2 years & over - Met recommended vegetable serves, based on usual serves as reported in AHS(a)(b)(c)



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Footnote(s): (a) Based on Usual serves of vegetables from Australian Health Survey: Updated Results, 2011-12 (b) According to the NHMRC Australian Dietary Guidelines, 2013. (c) See endnote 1

Source(s): Australian Health Survey: Updated Results, 2011-12

ENDNOTES

1. The AHS questionnaire was developed prior to the release of the 2013 Australian Dietary Guidelines and consequently the units used in the AHS (whole serves) do not allow strict comparability with the guidelines (in which some age/sex groups use half serves). The data presented have been derived by rounding the recommendation down to the whole number of serves, it is therefore likely that proportions who would meet the recommendation in particular categories are overestimates. Back

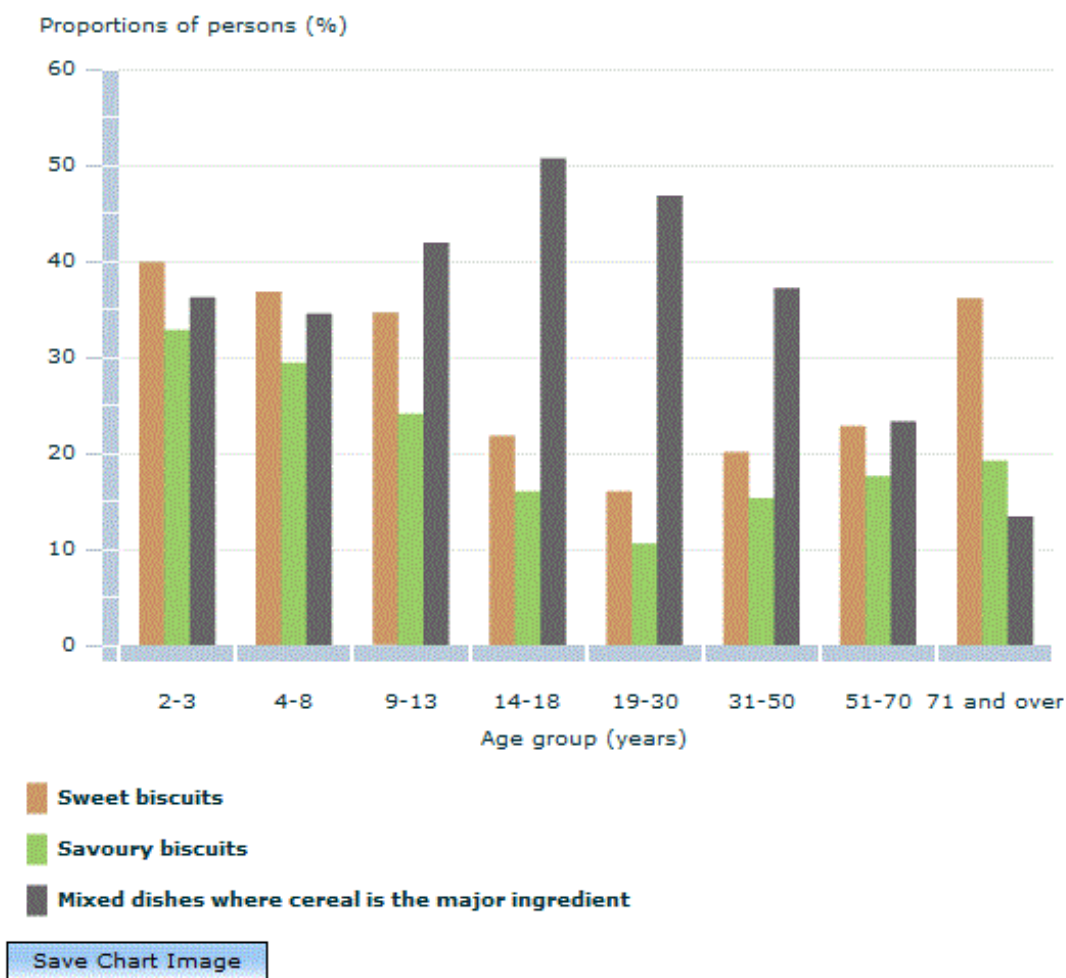
Cereal based products and dishes

The **Cereal based products and dishes** food group includes biscuits, cakes, pastries, pies, dumplings, pizza, hamburgers, hot dogs, and pasta and rice mixed dishes.



Seven out of ten people consumed **Cereal based products and dishes** ¹ on the day prior to interview, and on average, foods in this group provided 20% of the total energy intake see Table 7.1. The largest contributing sub-major group was Mixed dishes where cereal is the major ingredient which was consumed by 35% of the population. The foods in this group included Savoury pasta/noodle dishes ² (consumed by 14%), Burgers (7%), Pizza (6%) and commercially prepared Sandwiches and filled rolls (5%) see Table 4.3. The peak age groups consuming Mixed dishes where cereal is the major ingredient were the 14-18 year olds and 19-30 year olds, where around half (51% and 47% respectively) consumed from this group. Older people were least likely to consume a mixed dish where cereal is the major ingredient with 23% of 51-70 year olds and 13% of people aged 71 years and over having at least one of these foods see Table 4.1.

Persons aged 2 years & over - Selected cereal based products & dishes consumers(a), 2011-12



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Footnote(s): (a) on the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

BISCUITS

Sweet biscuits were consumed by 24% of the population, while Savoury biscuits were consumed by 17%. Consumption of both biscuit types was more frequent among children and older adults. Among children aged 2-3 years, 40% consumed a sweet biscuit and 33% consumed a savoury biscuit. The prevalence of biscuit consumption declined progressively in older children and young adults, with people aged 19-30 years least likely to consume a sweet (16%) or savoury (11%) biscuit. In subsequent age groups, consumption increased, with 36% of the oldest adults having a sweet biscuit and 19% having a savoury biscuit see Table 4.1.

CAKES, MUFFINS, SCONES AND CAKE-TYPE DESSERTS

Cakes, muffins, scones and cake-type desserts were consumed by 16% of the population on the day prior to interview. Children aged 4-8 years were most likely to consume Cakes, muffins, scones and

cake-type desserts (22%), with a similar proportion being consumed by 9-13 year olds and 71 years and over (20%) see Table 4.1.

PASTRIES

Pastries were consumed by 14% of the population, with the majority of this consumption coming from savoury pastry products (pies, rolls and envelopes). These products were consumed by around 10% of the population see Table 4.1.

ENDNOTES

1. **Cereal based products and dishes** differs from **Cereal and Cereal products** in that the former very often have a more substantial content of non-cereal ingredients and are often consumed without additions (e.g. burgers, pizza, pasta and sauce), while the latter are primarily basic cereal ingredients and would often be combined with other foods during consumption (e.g. bread, breakfast cereal, rice). Back
2. The actual proportion consuming any pasta/noodles would be higher, with 6.9% of people who consumed Pasta and pasta products (without sauce) from the **Cereals and cereal products** major group and 3.7% consuming meat dishes with added pasta noodles or rice within the **Meat, poultry and game products and dishes** major group. However, there would be some overlap of consumers within these groups. Back

Meat, poultry and game products and dishes

The **Meat, poultry and games products and dishes** food group includes beef, sheep, pork, poultry, sausages, processed meat (e.g. salami) and mixed dishes where meat or poultry is the major component e.g. casseroles, curried sausages and chicken stir-fry.

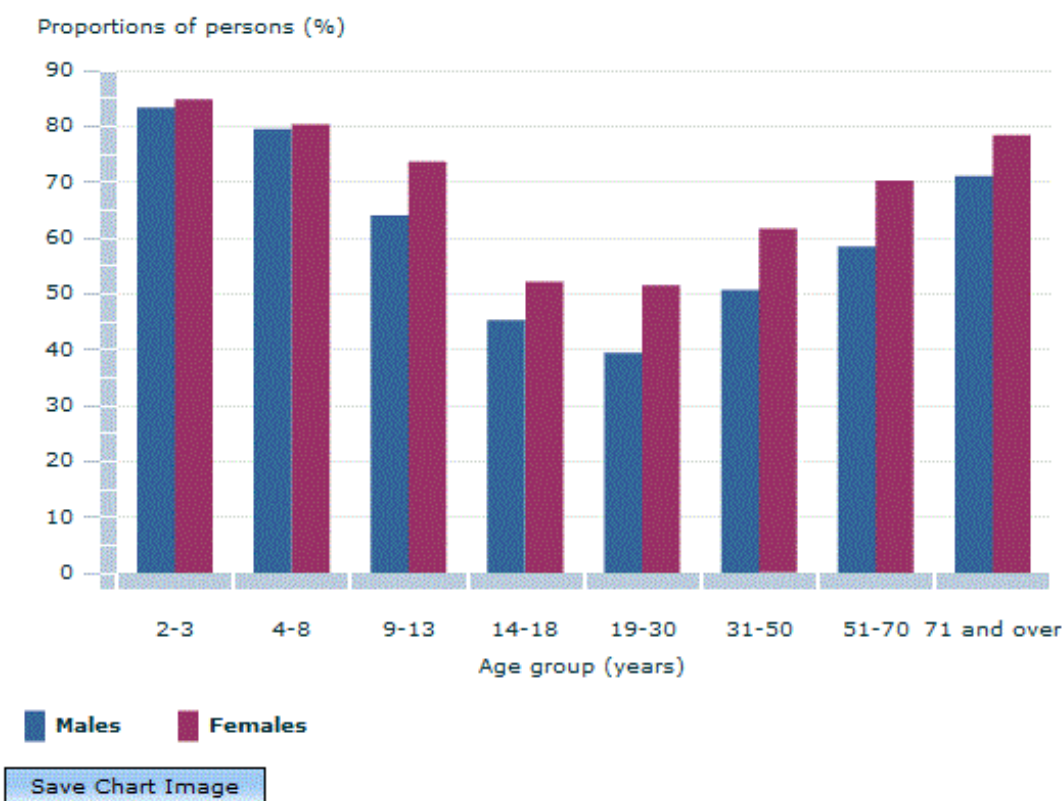
Around seven out of ten people consumed a food from the **Meat, poultry and game products and dishes** group on the day prior to interview, providing 14% of total energy intakes see Table 7.1. Males were slightly more likely than females to consume from this group (72% and 66% respectively) see Table 4.1. Chicken was the most commonly consumed meat within this category with 17% eating a piece of chicken with another 14% eating chicken as part of mixed dish. Beef (without other ingredients) was consumed by 12%, with a further 9% eating beef as part of a mixed dish. Processed meat was consumed by 22% of the population, with ham the most popular processed meat being consumed by 12% of people. Sausages were consumed by 7% of the population, while lamb and bacon were each consumed by 5% of people see Table 4.1.

Fruit products and dishes

The **Fruit products and dishes** food group includes fresh, dried and preserved fruit as well as mixed dishes where fruit is the major component such as apple crumble.

While fruit was consumed by six out of ten people overall in the day before interview, the proportion of consumers varied considerably across age groups and by sex. Teenage and young adult males were the least likely to eat fruit with 45% of 14-18 year olds and 39% of 19-30 year olds reporting any fruit consumption the previous day, while children aged 2-3 and 4-8 years had the highest rate of fruit consumption with 84% and 80% respectively. Females were more likely to consume fruit beyond the 4-8 years group, contributing to the overall higher rate of fruit consumption among females (65%) than males (55%) see Table 4.1.

Persons aged 2 years & over - Fruit consumption(a), 2011-12



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Footnote(s): (a) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

While the proportion of fruit consumers was higher among females, the difference in the average amount consumed was not statistically significantly different (145 grams for males and 147 grams among females) indicating relatively higher consumption among the males who did consume see Table 5.1. The median amount of fruit consumed by male consumers was 202 grams, while for females it was 176 grams see Table 6.1.

Apples were the most commonly consumed fruit type with 23% of people consuming apple on the day before interview. Bananas were the second most popular (18% of people consuming), followed by mandarins (7.8%), oranges (6.8%) berry fruit (6.1%) and peaches and nectarines (4.7%) see Table 4.3.

'Usual' serves of fruit

In addition to collecting information about the foods actually consumed on the previous day, the AHS also asked respondents the usual number of serves of fruit consumed in a day (where a serve is equivalent to one medium piece or two small pieces of fruit or one cup of diced fruit pieces or one quarter of a cup of sultanas or four dried apricot halves). The Australian Dietary Guidelines recommend one serve of fruit for 2-3 year olds, one-and-a-half serves for 4-8 year olds¹, and two serves for everyone aged 9 years and over. Overall, just over half (54%) of Australians consumed the

recommended serves of fruit with females (58%) more likely than males (50%) to meet the recommendation.

Recommended usual intake of fruit

The National Health and Medical Research Council (NHMRC) 2013 *Australian Dietary Guidelines* recommend a minimum number of serves of fruit each day, depending on age and sex, to ensure good nutrition and health. The table below outlines the recommended number of serves for children, adolescents and adults. Although the 2013 Australian Dietary Guidelines specify that fruit should mostly be eaten fresh and raw, other forms of fruit can count towards the daily serves occasionally. A serve is approximately 150 grams of fresh fruit, 125 ml of fruit juice (no added sugar) or 30 grams of dried fruit.*

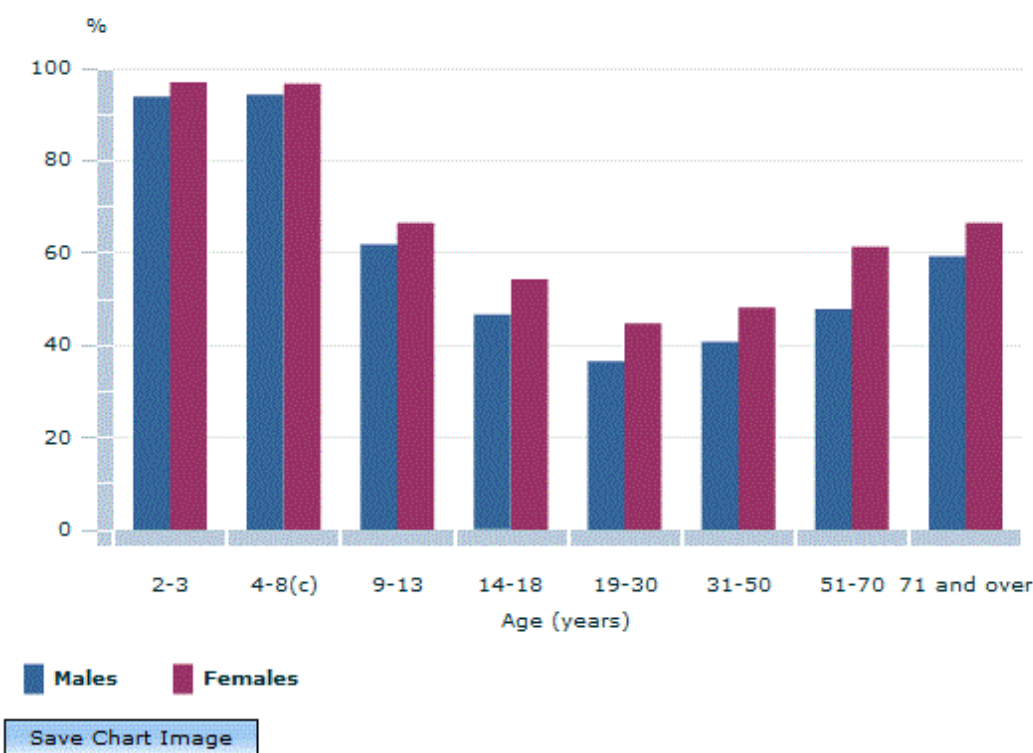
RECOMMENDED DAILY SERVES OF FRUIT, by age

Age	Fruit (serves)
2-3 years	1
4-8 years	1.5
9-11 years	2
12-13 years	2
14-18 years	2
19-50 years	2
51-70 years	2
70+ years	2

*Note, while the NHMRC 2013 *Australian Dietary Guidelines* allow fruit juice to be used occasionally as one of the daily serves of fruit, the AHS only collected usual serves of fruit (excluding juice).

The age-sex pattern of the proportion who met the recommended number of serves reflects the same pattern of **Fruit products and dishes** consumption. This suggests that unlike vegetable consumption, many of the people who ate fruit reported eating a usual number of serves that met the recommendation.

Persons aged 2 years & over - Met recommended usual daily intake of fruit consumption(a)(b), 2011-12



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Footnote(s): (a) Based on Usual serves of fruit from Australian Health Survey: Updated Results, 2011-12. (b) According to the NHMRC Australian Dietary Guidelines, 2013. (c) See Endnote 2.

Source(s): Australian Health Survey: Updated Results, 2011-12

ENDNOTES

1. NHMRC 2013, *Australian Dietary Guidelines*, Canberra: National Health and Medical Research Council, <https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n55_australian_dietary_guidelines_130530.pdf>, Last accessed 30/04/2013. Back
2. Although the AHS collected whole serves which does not allow strict comparability for the 4-8 year olds, rounding the recommendation down to the one serve provides an indication of the proportion who would meet the recommendation.

Sugar products and dishes

The **Sugar products and dishes** food group includes sugar, honey, syrups, jam, chocolate spreads and sauces and dishes and products other than confectionery where sugar is the major component e.g. pavlova and meringue.

Although only contributing 2% of total energy intakes on average, **Sugar products and dishes** were consumed by half (50%) of the population on the day before interview in 2011-12. This included 36% who had sugar, 9% who had honey and sugar syrups and 8% who had jams and preserves, sugar sweetened. Males were more likely to have been **Sugar products and dishes** consumers than

females (52% compared with 48% respectively), but the gap was mainly evident among the 51-70 years and 71 years and over age groups. People aged 71 years and over had the highest rates of consumption of **Sugar products and dishes**, this was due to 50% using sugar, honey and syrups and 19% using jam and lemon spreads, chocolate spreads and sauces see Table 4.1. Of the average 7.5 grams of sugar, honey and syrups that were reported per person per day, 60% was added to beverages and 20% added to cereals.

Persons aged 2 years & over - Sugar products & dishes consumption(a), 2011-12



Footnote(s): (a) On the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

While not part of the **Sugar products and dishes** group, intense (or artificial) sweeteners were added to foods and beverages by 4% of the population. The highest prevalence of consumption was among the 71 years and over population at 11%, followed by the 51-70 year olds at 6.7% see Table 4.1.

Fats and oils

The **Fats and Oils** food group includes butters, dairy blends, margarines and other fats, such as animal-based fats.

Fats and oils were consumed by 46% of the population¹, and was mostly made up of the 27% who had margarine and table spreads and the 15% who had butter. The majority (86%) of fats and oils consumed were reported as an addition to sandwiches or on bread/baked products, with a further 9% added to vegetables or salads. The age pattern of consumption followed a similar relative distribution as for Regular breads, and bread rolls, reflecting the close pairing of these foods see Table 4.1.

ENDNOTES

1. Where people consumed oils and fats with cooked dishes, the oil or fat would be included in that dish rather than reported separately. Back

Confectionery and cereal, nut, fruit, seed bars

The **Confectionery and cereal/nut/fruit/seed bars** food group includes chocolate, fruit, nut and seed bars and muesli or cereal style bars.

Confectionery and cereal/nut/fruit/seed bars were consumed by 32% of the population, although almost half of children aged 4 to 8 years (49%) and 9 to 13 years (48%) were consumers on the day before interview. Chocolate and chocolate-based confectionery was overall the most popular type of confectionery with 17% of people consuming. Other confectionery (mainly consisting of lollies) were consumed by 11% of the population, but children aged less than 14 years were the most likely consumers with 17-18% consuming. Children in this age group were also most likely to consume Muesli or cereal style bars, with 16% of both 4-8 year olds and 9-13 year olds consuming muesli bars see Table 4.1.

Alcoholic beverages

The **Alcoholic beverages** food group includes beers, wines, spirits, cider and other alcoholic beverages.

Alcohol was consumed by almost one in three people (32%) aged 19 years and over on the day before interview and contributed 6% of the total energy intake for this population see Table 4.1 and Table 7.1. Among the alcohol consumers, 16% of their daily energy intake was provided by alcoholic beverage (includes energy from the carbohydrate content in addition to the ethanol content). The most commonly consumed alcoholic drinks were Wines (13%) and Beers (11%), with Spirits (excluding pre-mixed) being consumed by 2.1% see Table 4.1.

Energy and Nutrients

Energy and nutrient intakes in this publication are derived only from foods and beverages from the first 24-hour recall day. The nutrients from supplements are excluded from this analysis. No adjustment has been made to include information from the second 24-hour recall day to calculate usual intakes, which will be the focus of the Australian Health Survey: Usual Nutrient Intakes publication (scheduled for release in late 2014).

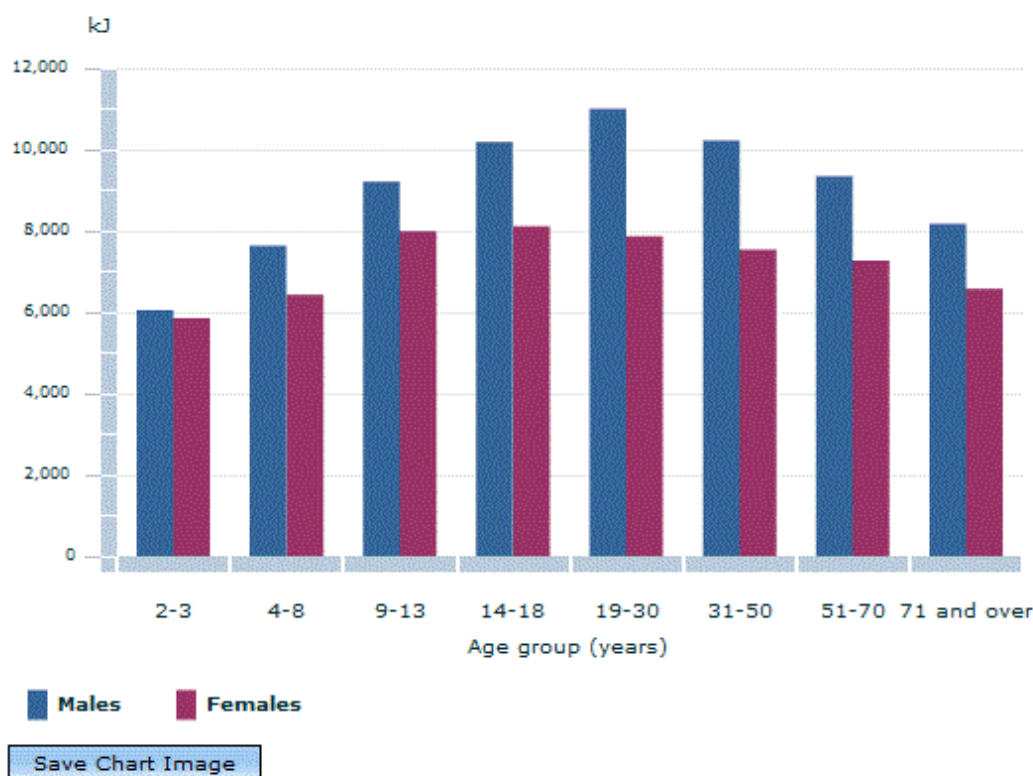
Energy

Dietary energy is required by the body for metabolic processes, physiological functions, muscular activity, heat production and growth and development.¹ Energy requirements vary with age, sex, body size and physical activity, so the amount of energy consumed would be expected to vary considerably throughout the population. On the day prior to interview, the average energy intake was 9,655 kilojoules (kJ) for males and 7,402 kJ for females see Table 1.1. However, this is likely to be an under-estimate due to the inherent under-reporting bias associated with dietary surveys. It is difficult, from the available data, to accurately estimate the amount of under-reporting that has occurred and therefore how much energy and nutrients might be missing from the intakes reported by respondents. One method is to estimate the mean amount of energy required for each individual to achieve an EI:BMR ratio of 1.55 (i.e. the conservative minimum energy requirement for a normally active but sedentary population). Using this method, it is estimated that the average energy intakes may be understated by as much as 17% in males and 21% in females. The factor most closely associated

with under-reporting was BMI, where people who were overweight or obese were most likely to have lower than expected energy intakes. For more information see Under-reporting in Nutrition Surveys in the AHS Users' Guide.

Energy intakes were lowest among the toddler aged children who averaged 5,951 kJ and were highest among 19-30 year old males (11,004 kJ). Female energy intakes were highest among the 14-18 year olds (8,114 kJ).

Persons aged 2 years & over - Mean daily energy intake(a), 2011-12



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Footnote(s): (a) on the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

The leading sub-major food groups contributing energy were Mixed dishes where cereal is the major ingredient (9.9%), Regular breads, and bread rolls (7.7%), Beef, sheep and pork (including mixed dishes) (5.7%), Poultry (including in mixed dishes) (5.4%), Dairy milk (4.3%), Breakfast cereals ready to eat (3.7%) and Cakes, muffins, scones, cake-type desserts (3.5%) see Table 8.1.

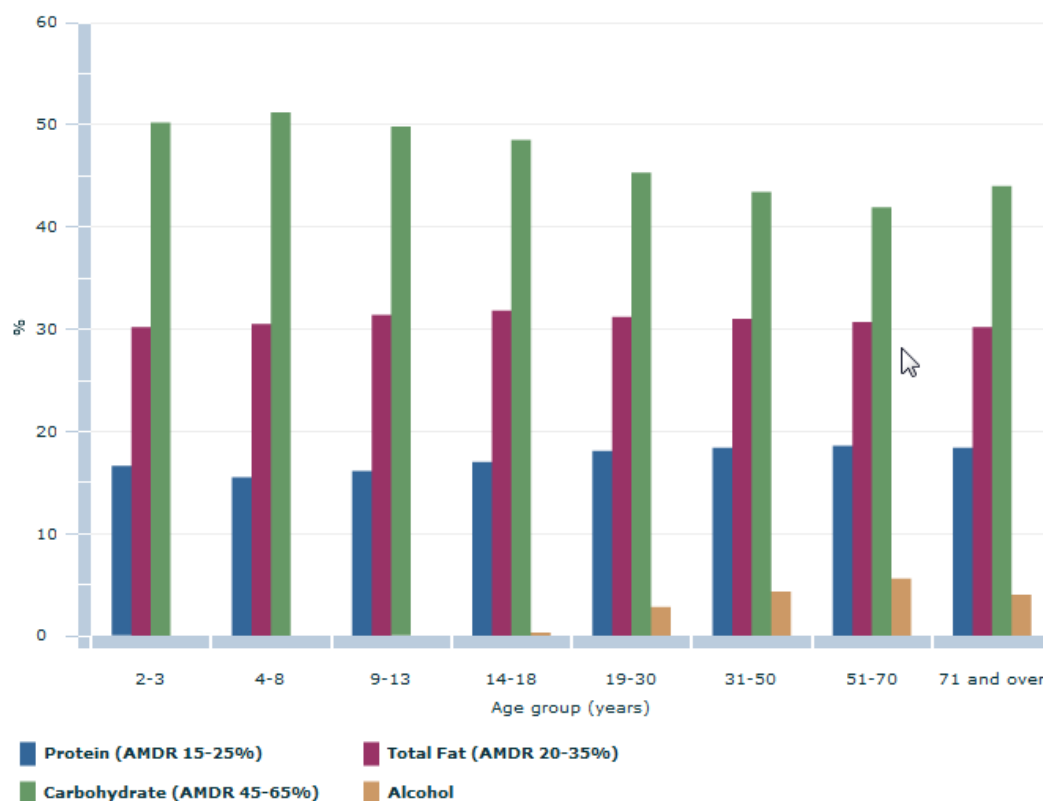
ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council <<http://www.nrv.gov.au/dietary-energy>>, Last accessed 02/05/2014. Back

Macronutrients

Dietary energy is derived from the macronutrient content of foods. The energy yielding macronutrients are: protein, fat, carbohydrate and alcohol with small amounts of additional energy provided by dietary fibre and organic acids. Imbalances in the proportion of energy derived from macronutrients are associated with increased risk of chronic diseases. There is however, a wide range in which the macronutrient balance is considered acceptable for managing chronic disease risk. Reference ranges known as Acceptable Macronutrient Distribution Ranges (AMDR) form part of the recommendations for optimising diets to lower chronic disease risk while ensuring adequate micronutrient status.¹

Persons aged 2 years & over - Average macronutrient contribution to energy(a), 2011-12



Save Chart Image

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Footnote(s): (a) Proportions will not add to 100% due to excluding energy from fibre and other components. See User Guide - Energy conversion factors

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Overall, the average proportion of energy from protein, fat, and carbohydrate of the population (based on a single 24-hour recall) was within the bounds of the AMDR. Carbohydrate contributed the largest proportion to the population's energy intake with 45%, a level similar to that in 1995, but still at the lower end of the recommended intake range (45% to 65%). Based on a single day's intake it is not possible to estimate the proportion who would have usual intakes that were below the AMDR². However, some age groups (31-50 years, 51-70 years and 71 years and over) had averages that were below the lower end of the range indicating that a considerable proportion may have a

carbohydrate contribution of less than 45% of energy. The lowest was 42% among the 51-70 year olds. While this population was within the AMDR for protein and fat, their proportion of energy from alcohol (5.6%) was high relative to other age groups see Table 2.1.

The balance of macronutrients shifted across age groups, with children tending to have a greater proportion of energy coming from carbohydrate and less from protein than progressively older age groups. Between the age of 4-8 years and 51-70 years, the carbohydrate contribution to energy declined from 51% to 42%, while protein increased from 16% to 19% see Table 2.1. The dietary patterns responsible for this shift are seen in the different proportion of food types contributing to energy intake. For example, the children aged 4-8 years had a higher proportion of their energy coming from the carbohydrate-rich Regular bread, and bread rolls (9.8%) and Mixed dishes where cereal is the major ingredient (8.6%) than the 51-70 year olds (8.5% and 6.4% respectively). In contrast, the 4-8 year olds had a lower proportion of energy coming from Beef, sheep and pork (including mixed dishes) at 2.6% compared with 7.2% among the 51-70 year olds see Table 8.1

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council <<http://www.nrv.gov.au/chronic-disease/macronutrient-balance>>, Last accessed 02/05/2014.

2. Please refer to Glossary for definitions.

Carbohydrate

Carbohydrates are the major source of energy for the body and are an important source of fuel for brain cells. The two major types of carbohydrates are sugars and starch (complex carbohydrates). The latter are found in many foods including starchy vegetables such as sweet potatoes, potatoes, peas and corn. Grain foods such as wheat, oats and rice are also an important source of complex carbohydrates. Sugars include natural sugar which is found in foods such as fruit and milk products as well as the added sugar in a range of processed foods.¹

The average amount of carbohydrate intake consumed per person per day was 229 grams see Table 1.1. Carbohydrate contributed 45% of total energy intakes, with Total starch contributing 24% of energy and Total sugars contributing 20% of energy see Table 2.1. The leading sub-major food groups contributing to Total starch were: Regular breads, and bread rolls (providing 21% of starch), Mixed dishes where cereal is the major ingredient (16%), Flours and other cereal grains and starches (mainly rice) (10%), Breakfast cereals, ready to eat (9%), and Potatoes (7%) see Table 10.11. Total sugars includes those sugars naturally present in foods such as in fruit and milk as well as the sugars added to processed foods and beverages. The food groups contributing the greatest amounts of sugars were: **Fruit products and dishes** (15.6%), Soft drinks, and flavoured mineral waters (providing 9.7% of sugars), Dairy milk (8.1%), Fruit and vegetable juices, and drinks (7.5%), Sugar, honey and syrups (6.5%), Cakes, muffins, scones and cake-type desserts (5.8%) see Table 10.9.

ENDNOTES

1. National Health and Medical Research Council 2013 *Australian Dietary Guidelines*. Canberra: National Health and Medical Research Council, <https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n55_australian_dietary_guidelines_130530.pdf>, Last accessed 30/04/2014. Back

Protein

Both animal and plant foods provide protein including, for example, meat, poultry, fish and seafood, eggs, tofu, legumes, beans, nuts and seeds. Proteins consumed in the diet are broken down and their constituent amino acids may be used in synthesizing new proteins for the body or used as a source of energy.¹ Protein contributed an average of 18% of dietary energy, which was significantly higher than the average contribution in 1995 (16%) see Table 2.1. The major food sources of protein included:

Beef, sheep and pork (15%, including Mixed dishes where beef, sheep, pork is the major component), Poultry (13%), including Mixed dishes where poultry or feathered game is the major component), Mixed dishes where cereal is the major ingredient (12%), Regular breads, and bread rolls (7.4%), Dairy milk (6.1%) and Fish and seafood products and dishes (5.7%) see Table 10.3.

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <<http://www.nrv.gov.au/nutrients/protein>>, Last accessed 30/04/2014. Back

Fat

Fat has the highest energy density of the macronutrients. In addition to being a concentrated form of energy, fats help the body absorb fat-soluble vitamins, such as vitamin A. Dietary fats may be saturated, monounsaturated, or polyunsaturated, depending on their chemical structure. In general, saturated fats are found in animal-based foods, while monounsaturated and polyunsaturated fats are found in plant-based foods, although there are some exceptions.¹

Fat contributed an average 31% of the population's dietary energy intake. Saturated fat (including trans fatty acids) contributed an average 12% of energy, while monounsaturated fat also contributed 12% and polyunsaturated fat contributed 4.7%. Between 1995 and 2011-12, the contribution of saturated fat declined by around one percentage point, which although small was statistically significant see Table 2.1.

Linoleic acid is a particular type of polyunsaturated fatty acid associated with blood lipid profiles seen as having a lower risk of coronary heart disease. It is found in vegetable oils (such as safflower, grapeseed and sunflower) as well as nuts and seeds.¹ Linoleic acid contributed 3.9% of energy, just below the lower bound of the AMDR (4-10%). Alpha-linolenic acid (ALA) is a plant-based omega-3 polyunsaturated fatty acid which is considered a small but important component of dietary intake in relation to helping reduce coronary heart disease risk. It is found in vegetable oils such as canola and linseed or flaxseed, nuts, and seeds. The average contribution of ALA to total dietary energy was 0.6% which is within the AMDR (0.4-1%) The leading food sources for Total Fat include Mixed dishes where cereal is the major ingredient (11%), Beef, sheep and pork (8.0% including mixed dishes), Poultry (7.4% including mixed dishes), Dairy milk (5.0%) and Cakes, muffins, scones and cake-type desserts (4.2%) see Table 10.5.

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council < <http://www.nrv.gov.au/nutrients/fats-total-fat-fatty-acids>>, Last accessed 30/04/2014. Back

Alcohol

Pure alcohol is a relatively energy rich macronutrient, second only to fat in energy density, although it is nutrient poor. In 2011-12, alcohol contributed an average of 3.4% to the population's total energy intake, but this ranged from 0% among children aged less than 14 years to 6.6% among males aged 51-70 years see Table 2.1. There is no AMDR for alcohol, however, the general recommendation is that alcohol should form less than 5% of energy intakes.¹ Around one-quarter of Australians (5.4 million people) consumed some alcoholic beverage on the day prior to interview, and for this population, the average contribution of alcohol to energy was 13%.

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and*

Selected Micronutrients

The vitamins and minerals presented in Table 1.1 and Table 3.1 are based on Day 1 intakes from foods only, (that is, not adjusted for usual intakes and exclusive of any amounts taken from dietary supplements). Although the data are presented alongside Nutrient Reference Values (NRVs) such as Estimated Average Requirements, (EARs), these are for context only and do not indicate the levels of nutrient deficiency/excess intake of the population group in relation to that NRV.

In order to make assessments about the proportion of the population who are at risk of inadequate intakes over the longer term, it is necessary to consider not only the mean or median intake but also the distribution of longer-term 'usual' intake in the population. Such an analysis requires estimates of usual intake distributions (i.e. percentiles) to be compared with NRVs and will be the focus of a future AHS product release. For more information about estimating usual intakes see the AHS Users' Guide - Usual Nutrient Intakes.

Folate

Folate is a B group vitamin that is essential for healthy growth and development. Folate is particularly important in helping prevent neural tube defects (NTDs) in babies, including spina bifida. Folic acid is the form of folate used in supplements and for food fortification as it is more stable than the naturally-occurring forms in foods.¹ Given the critical importance of folate in early growth and development, it is recommended that all women of childbearing age, even if they are not planning on becoming pregnant, take extra folic acid.² Mandatory fortification of bread making flour with folic acid was also introduced in Australia in 2009 to help reduce the incidence of NTDs. Folate is also found naturally in foods such as green leafy vegetables, fruits and grains. Folate equivalents are used to measure folate intakes to account for the differing bioavailability of natural folate and folic acid.

In 2011-12, the average daily amount of folate equivalents consumed from foods was 683 µg for males and 544 µg among females see Table 1.1. In a similar pattern to thiamin, male folate equivalents were higher than females in each age group from 4-8 years and over, again reflecting the higher consumption of **Cereals and cereal products** among males. **Cereals and cereal products** and **Cereal based products and dishes** contributed 57% of folate equivalents, followed by **Non-alcoholic beverages** (8.3%, mainly from fruit juice and tea) and **Vegetable products and dishes** (7.9%) see Table 10.43.

For more information of folate levels of women of childbearing age see the Feature Article: Women of Childbearing Age from the Australian Health Survey: Biomedical Results for Nutrients, 2011-12.

Folate equivalents, Estimated Average Requirement (EAR) and mean daily intake, by age				
Age (years)	EAR (µg) ^(a)		Mean intake (µg) ^(b)	
	Males	Females	Males	Females
2-3	120	120	496	491
4-8	160	160	650	573
9-13	250	250	715	595
14-18	330	330	755	560
19-30	320	320	700	536
31-50	320	320	687	529
51-70	320	320	667	543
71 and over	320	320	686	553

Source:
 (a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council,
<http://www.nrv.gov.au/nutrients/folate>
 (b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council
<http://www.nrv.gov.au/nutrients/folate>, Last accessed 30/04/2014. Back
2. Food Standards Australia New Zealand 2012, *Folic acid fortification*,
<http://www.foodstandards.gov.au/consumer/nutrition/folicmandatory/pages/default.aspx>, Last accessed 30/04/2014. Back

Vitamin B12

Vitamin B12 is a water-soluble vitamin with a key role in the normal functioning of the brain and nervous system, and for the formation of blood. Vitamin B12 is a nutrient that helps keep the body's nerve and blood cells healthy and helps make DNA. Almost all vitamin B12 comes from animal foods, such as meat and dairy products.¹

In 2011-12, vitamin B12 intakes from food averaged 5.0 µg per day among males and 3.8 µg per female. Males aged 19-30 years had the highest intakes at 5.9 µg, reflecting their relatively high consumption of **Meat and poultry products and dishes**. In contrast, females aged 19-30 had an average 3.7 µg see Table 1.1. Main sources of vitamin B12 were **Milk products and dishes** (30%), **Meat, poultry and game products and dishes** (29%) **Cereal-based products and dishes** (13%) and **Fish and seafood products and dishes** (8.8%) see Table 10.47.

Note that vitamin B12 biomarkers were collected as part of the National Health Measures Survey. See the Australian Health Survey: Users' Guide, 2011-13, Folate & Vitamin B12 Biomarkers.

VITAMIN B12, Estimated Average Requirement (EAR) and mean daily intake, by age				
Age (years)		EAR (µg) ^(a)		Mean intake (µg) ^(b)
	Males	Females	Males	Females
2-3	0.7	0.7	3.7	3.5
4-8	1.0	1.0	3.6	3.0
9-13	1.5	1.5	4.3	3.7
14-18	2.0	2.0	5.2	3.7
19-30	2.0	2.0	5.9	3.7
31-50	2.0	2.0	5.3	3.8
51-70	2.0	2.0	4.9	4.0
71 and over	2.0	2.0	4.4	3.8

Source:
 (a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council <
<http://www.nrv.gov.au/nutrients/vitamin-b12>>
 (b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <
<http://www.nrv.gov.au/nutrients/vitamin-b12>>, Last accessed 30/04/2014. Back

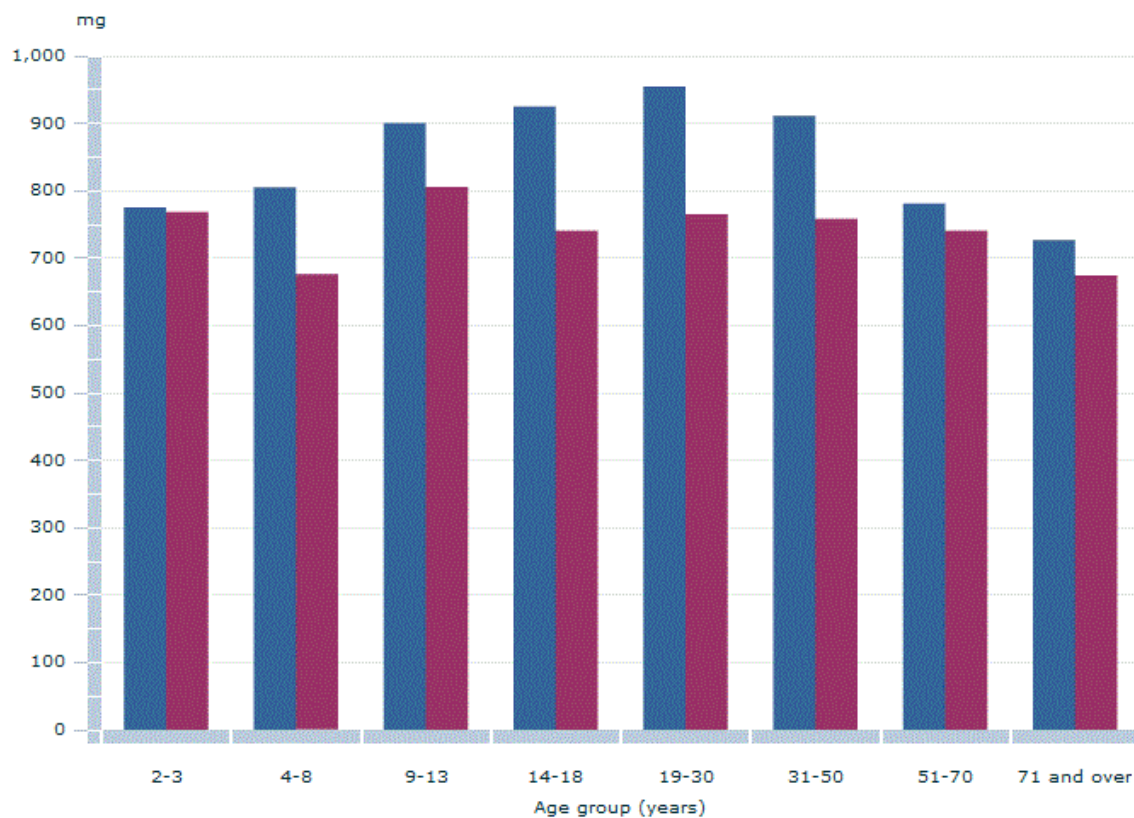
Calcium

Calcium is a mineral required for the growth and maintenance of the bones and teeth, as well as the proper functioning of the muscular and cardiovascular systems. Milk, milk-based foods and fortified dairy substitutes are the richest sources of calcium, although it is also found in smaller amounts in sardines and other bony fish, legumes and certain nuts.¹

In 2011-12, the daily amount of calcium consumed from foods and beverages averaged 865 mg among males and 745 mg among females. Between the ages of 12 and 18 years where the Estimated Average Requirement (EAR) is 1,050 mg per day, both males and females this age had average intakes below this amount based on their reported foods and beverages. Females in each older age groups also had average intakes of calcium less than the respective EARs, as did males aged 51-70 and 71 years and over see Table 1.1.

Milk products and dishes were the major source of calcium providing 42%; this was mainly from dairy milk (21%), cheese (9.6%) and yoghurt (4.8%). Other food groups contributing calcium included **Cereals and cereal products**, **Cereal-based products and dishes** (13% each) and **Non-alcoholic beverages** (12%). Compared with 1995, when the average calcium intake was 95 mg per 1,000 kJ, the 2011-12 average intake was very similar (98 mg per 1,000 kJ) see Table 10.53.

Persons aged 2 years & over - Average daily calcium intakes(a), 2011-12



■ Males ■ Females

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Footnote(s): (a) on the day prior to interview

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Calcium, Estimated Average Requirement (EAR) and mean daily intake, by age				
Age (years)	EAR (mg) ^(a)		Mean intake (mg) ^(b)	
	Males	Females	Males	Females
2-3	360	360	775	768
4-8	520	520	805	676
9-11	800	800	866	805
12-13	1,050	1,050	945	807
14-18	1,050	1,050	925	741
19-30	840	840	954	765
31-50	840	840	911	758
51-70	840	1,100	781	741
71 and over	1,100	1,100	726	674

Source:
 (a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council
<http://www.nrv.gov.au/nutrients/calcium>
 (b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <
<http://www.nrv.gov.au/nutrients/calcium>>, Last accessed 17/04/2014. Back

SODIUM

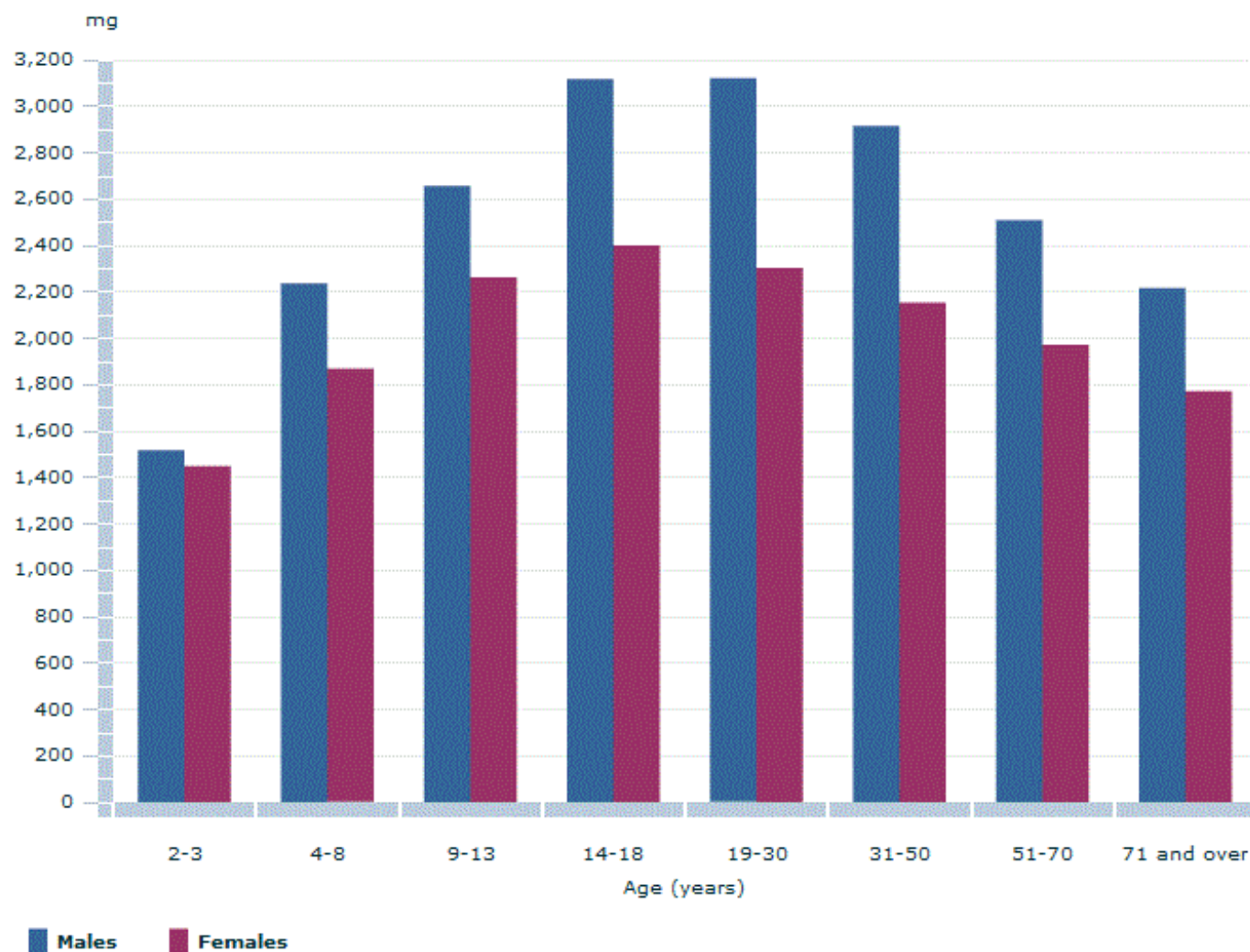
Sodium occurs in a number of different forms but is generally consumed as sodium chloride (commonly known as 'salt'). Sodium is found naturally in foods such as milk, cream, eggs, meat and shellfish. Sodium is also added to foods to enhance flavours and as a preservative. Processed foods, such as snack foods, bacon and other processed meats, and condiments generally have high levels of sodium added during processing. High intakes of sodium can increase blood pressure, and high blood pressure can increase the risk of developing heart and kidney problems.¹

In 2011-12, the average daily amount of sodium consumed from food for all persons aged two years and over was 2,404 mg (equivalent to around one teaspoon of table salt) see Table 1.1. This amount includes sodium naturally present in foods as well sodium added during processing, but excludes the 'discretionary salt' added by consumers in home prepared foods or 'at the table'. With an estimated 64% of Australians reporting that they add salt very often or occasionally either during meal preparation or at the table see Table 12.1, the average amounts of sodium presented here are likely to be an underestimate. See Interpretation section within the Nutrient Intake chapter of the AHS Users' Guide.

Sodium consumption was significantly higher among males than females across the age groups and peaked among males aged 14-18 years and 19-30 years whose average consumption was 3,117 mg and 3,120 mg respectively (equivalent to 8 grams of salt).² All male age groups except for those aged 71 years and over had average intakes that exceeded the Upper Level (UL) of sodium intake recommended by the National Health and Medical Research Council (NHMRC).¹ Among females, only those age groups younger than 19 years had average sodium intakes in excess of the UL.

One-quarter (25%) of sodium came from **Cereal-based products and dishes** (mainly from the mixed dishes where cereal is the major ingredient), while 18% came from **Cereal and cereal products** (mainly bread) and 18% came from **Meat and poultry** (mainly processed meat and mixed dishes) see Table 10.67.

Persons aged 2 years & over - Mean daily sodium intakes(a), 2011-12



[Save Chart Image](#)

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Footnote(s): (a) on the day prior to interview

Source(s): Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12

Sodium, Upper Level of Intake (UL) and mean daily intake, by age				
Age (years)		UL(mg) ^(a)		Mean intake (mg) ^(b)
	Males	Females	Males	Females
2-3	1,000	1,000	1,517	1,448
4-8	1,400	1,400	2,236	1,868
9-13	2,000	2,000	2,657	2,263
14-18	2,300	2,300	3,117	2,399
19-30	2,300	2,300	3,120	2,303
31-50	2,300	2,300	2,915	2,154
51-70	2,300	2,300	2,510	1,972
71 and over	2,300	2,300	2,217	1,773

Source:
 (a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <
<http://www.nrv.gov.au/nutrients/sodium>>
 (b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <
<http://www.nrv.gov.au/nutrients/sodium>> Back

2. 1 gram of sodium chloride (salt) contains 390 mg of sodium. Source: NHMRC 2006, *Nutrient Reference Values for Australia and New Zealand*, < <http://www.nrv.gov.au/nutrients/sodium> Back

Iodine

Iodine is a nutrient essential for the production of thyroid hormones. These hormones are important for normal growth and development, particularly of the brain. The major dietary sources of iodine include seafood (especially seaweed), baked bread and dairy milk. Inadequate amounts of iodine may lead to a range of conditions, including goiter, hypothyroidism, and in severe cases, intellectual disability.¹ Since October 2009, regulations have required that salt with added iodine (iodised salt) be used in all bread (except organic bread and bread mixes for making bread at home) in Australia.²

The average iodine intakes from food were estimated to be 191 µg among males and 152 µg among females see Table 1.1. However, intakes of iodine exclude the iodine consumed in table salt both in food preparation and at the table. Given that 29% of the population reported that they add iodised salt in food preparation and 21% add iodised salt at the table, these levels are expected to underestimate the true iodine consumption see Table 12.1. See the 'Interpretation' section of the Nutrient Intake chapter in the Users' Guide for more information. Excluding table salt as a source of iodine, the equal major food group contributors were **Cereals and cereal products** and **Milk products and dishes** (28% each), followed by **Non-alcoholic beverages** (14%, mainly from the milk in coffee and drinking water)drinking water) see Table 10.55.

For more information on the iodine levels of the Australian population see Feature Article: Iodine from the voluntary urine results collected in National Health Measures Survey.

Iodine, Estimated Average Requirement (EAR) and mean daily intake, by age				
Age (years)	EAR (µg) ^(a)		Mean intake (µg) ^(b)	
	Males	Females	Males	Females
2-3	65	65	149	150
4-8	65	65	167	145
9-13	75	75	185	172
14-18	95	95	202	159
19-30	100	100	213	153
31-50	100	100	199	153
51-70	100	100	181	148
71 and over	100	100	172	147

Source:

(a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council < <http://www.nrv.gov.au/nutrients/iodine>>

(b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. World Health Organization, UNICEF, ICCIDD, 2007, *Assessment of iodine deficiency disorders and monitoring their elimination*, <http://www.who.int/nutrition/publications/micronutrients/iodine_deficiency/9789241595827/en/>, Last accessed 17/04/2014. Back

2. Food Standards Australia New Zealand 2012, *Iodine fortification*, <<http://www.foodstandards.gov.au/consumer/nutrition/iodinefort/Pages/default.aspx>>, Last accessed 02/05/2014. Back

Iron

Iron is a mineral essential for the oxygen carrying ability of red blood cells. Meat, fish, poultry and wholegrain cereals contain iron.¹

Iron intakes from food and beverages averaged 12 mg per day among males and 9.4 mg among females see Table 1.1. The Major food groups contributing iron were **Cereals and cereal products** (31%, including 17% from Breakfast cereals, ready to eat and 10% from Regular breads, and rolls), **Meat, poultry and game products and dishes** (17%) and **Cereal-based products and dishes** (16%).

On a per unit of energy comparison, average iron intakes were less in 2011-12 than in 1995 (1.3 per 1,000 kJ and 1.5 mg per 1,000 kJ respectively) see Table 3.1.

Note that several iron biomarkers were collected as part of the National Health Measures Survey. See the Australian Health Survey: Users' Guide, 2011 - 13, Iron Biomarkers.

Iron Estimated Average Requirement (EAR) and mean daily intake, by age				
Age (years)	EAR (mg) ^(a)		Mean intake (mg) ^(b)	
	Males	Females	Males	Females
2-3	4.0	4.0	7.9	7.1
4-8	4.0	4.0	9.6	8.0
9-13	6.0	6.0	11.6	9.1
14-18	8.0	8.0	12.5	9.2
19-30	6.0	8.0	13.5	9.7
31-50	6.0	8.0	12.7	9.6
51-70	6.0	5.0	12.2	9.9
71 and over	6.0	5.0	11.6	9.2

Source:
 (a) National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, < <http://www.nrv.gov.au/nutrients/iron>>
 (b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, < <http://www.nrv.gov.au/nutrients/iron>>, Last accessed 17/04/2014. Back

Thiamin

Thiamin (or vitamin B1) is a vitamin that helps the body convert food into energy for the brain, nervous system, and muscles. Thiamin is found in small quantities in a range of foods, but the main source is cereal foods. Wheat flour for bread making is fortified (enriched) with thiamin in Australia.¹

In 2011-12, the average daily amount of thiamin consumed from foods was 1.8 mg per male and 1.4 mg per female see Table 1.1. The sex difference was significant from ages 9-13 years and older, reflecting the higher intakes of thiamin rich foods (mainly Cereals and cereal products) among males see Table 10.37. However, all age groups from both sexes had average intakes that exceeded the Estimated Average Requirement. **Cereals and cereal products** made up 41% of dietary thiamin intake, followed by **Yeast, vegetable and meat extracts** (12%) **Cereal based products and dishes** (also 12%) and **Meat, poultry and game products and dishes** (11%). Compared with 1995, the overall thiamin intake is similar at around 0.2 mg per 1,000 kJ.

THIAMIN, Estimated Average Requirement (EAR) and mean intake, by age				
Age (years)	EAR (mg) ^(a)		Mean intake (mg) ^(b)	
	Males	Females	Males	Females
2-3	0.4	0.4	1.3	1.3
4-8	0.5	0.5	1.7	1.5
9-13	0.7	0.7	1.9	1.5
14-18	1.0	0.9	1.9	1.5
19-30	1.0	0.9	1.9	1.4
31-50	1.0	0.9	1.7	1.3
51-70	1.0	0.9	1.7	1.3
71 and over	1.0	0.9	1.7	1.3
<p>Source:</p> <p>(a) National Health and Medical Research Council 2006, <i>Nutrient Reference Values for Australia and New Zealand</i>, Canberra: National Health and Medical Research Council http://www.nrv.gov.au/nutrients/thiamin</p> <p>(b) Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12</p>				

Endnotes

1. National Health and Medical Research Council 2006, *Nutrient Reference Values for Australia and New Zealand*, Canberra: National Health and Medical Research Council, <http://www.nrv.gov.au/nutrients/thiamin>, Last accessed 17/04/2014. Back

Supplements

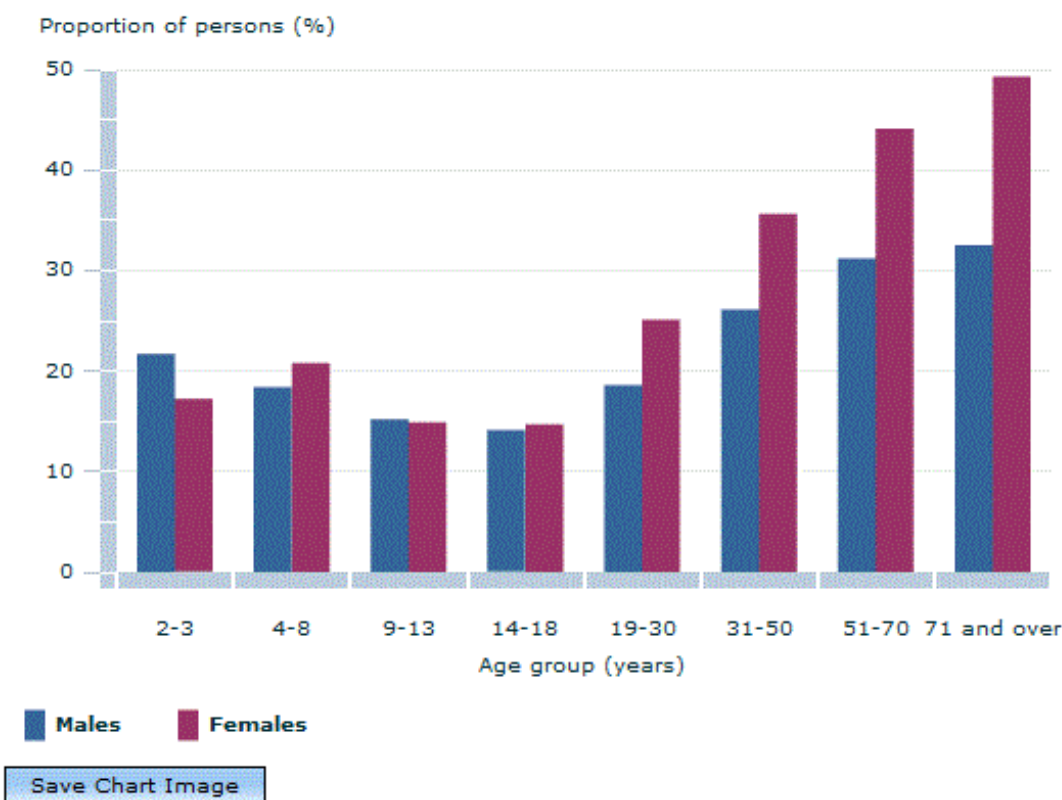
DIETARY SUPPLEMENTS

Dietary supplements include vitamins, minerals, oils, herbs and other nutritive and non-nutritive supplements. These are also referred to as 'complementary medicines,' and the many thousands of these various products are regulated within Australia by the Therapeutic Goods Administration.

In 2011-12, 29% of Australians reported taking at least one dietary supplement on the day prior to interview. Females were more likely than males to have had a dietary supplement (33% and 24% respectively), with the highest proportion of consumers in the older age groups. Almost half (49%) of women aged 71 years and over had taken a supplement, as had 44% of the 51-70 year old women see Table 11.1.

Half (50%) of the people who had taken a supplement had only taken one type of supplement, with around one-quarter (26%) taking two different supplements and another quarter (24%) taking three or more different supplements.

Persons aged 2 years & over - Supplement Consumers(a), 2011-12



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Footnote(s): (a) on the day prior to interview.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Multi-vitamin and/or multi-mineral supplements were the most commonly taken dietary supplements, being consumed by around 16% of the population with Fish oil supplements taken by around 12% of the population see Table 11.1.

Some single vitamin or mineral supplements while taken by relatively low proportions of the population, had particularly high proportion of consumers in some groups. For example, Calcium and Vitamin D were taken by between 3% and 4% of the population overall, but by around 13-14% of women aged 71 years and over see Table 11.1.

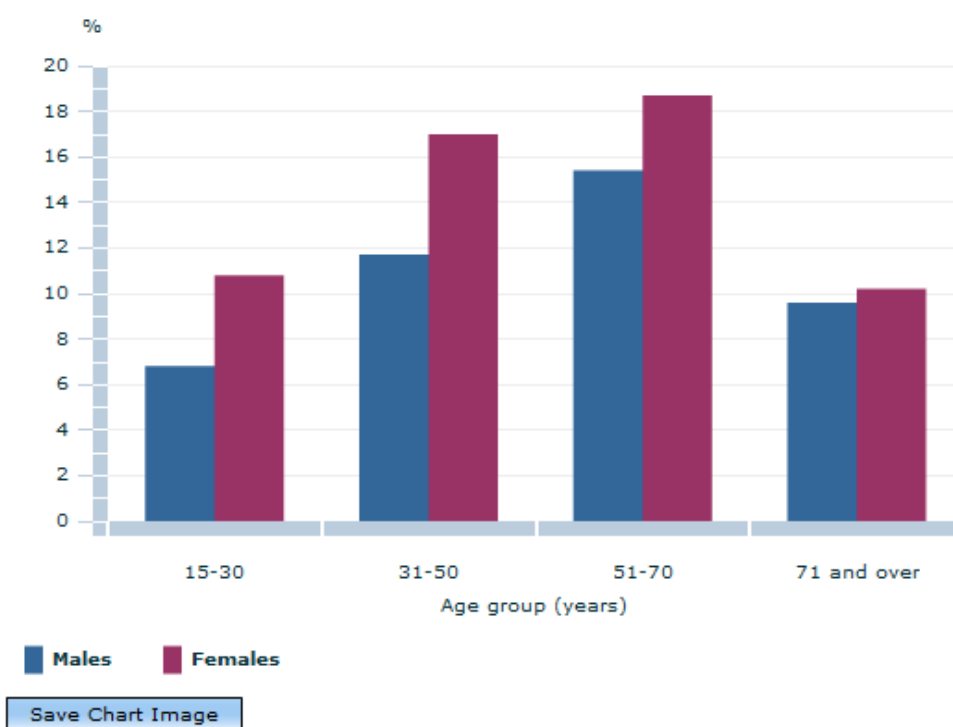
PROTEIN SUPPLEMENTS

Special dietary foods is a food category within the food classification used in the 2011-12 NNPAS, but includes foods such as protein supplements. By weight, 70% of the **Special dietary foods** consumed were Sport and protein prepared beverages and a further 5% were Sport and protein dry powders see Table 5.3. Overall, 2.9% of the population had consumed **Special dietary foods** on the day prior to interview, but the rate among young men was considerably higher with 7.8% of the 19-30 year olds consuming a **Special dietary food** see Table 4.1

Dieting

Health and body image are among a range of factors that can influence what and how people eat. Dieting may be one response to these particular concerns. In 2011-12, over 2.3 million Australians (13%) aged 15 years and over reported that they were on a diet to lose weight or for some other health reason. This included 15% of females and 11% of males. Being on a diet was most prevalent among 51-70 year olds where 19% of females and 15% of males were on some kind of diet see Table 13.1.

Persons aged 15 years & over - Proportion of persons currently on a diet, 2011-12



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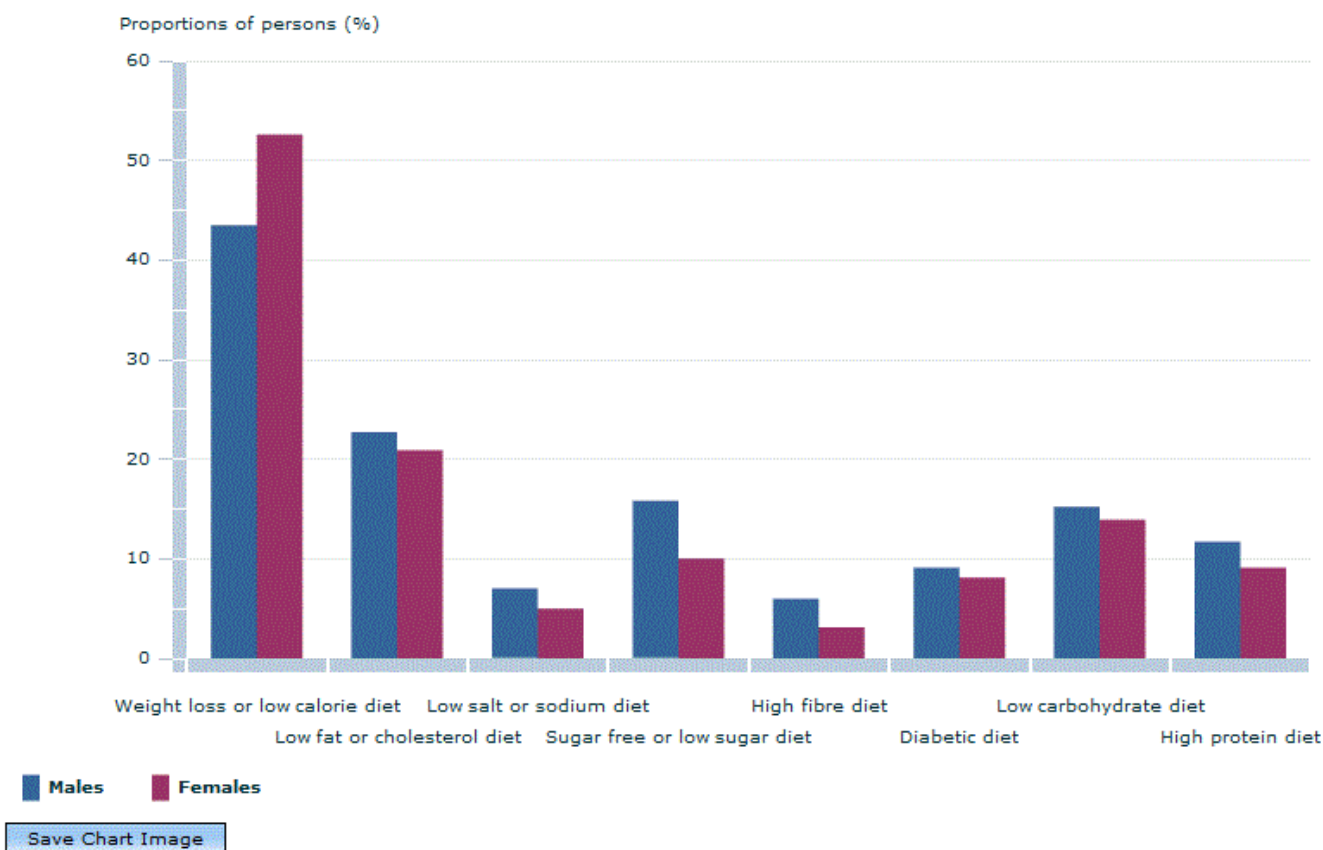
Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Around two-thirds of people who reported being on a diet (or 8.9% of the population aged 15 years and over), indicated they were on a diet to lose weight (including for health reasons as well as to lose weight), while 4.2% of the population were on a diet for other health reasons alone see Table 13.1.

Around half (49%) of people on a diet described the type of diet they were on as Weight loss or low calorie, with a higher proportion of female dieters being on a Weight loss or low calorie diet than men (53% and 44% respectively). The type of diet also varied by age group, with people aged 71 years and over most likely to report being on a Diabetic diet (31%) or Low fat / cholesterol diet (30%). In contrast, younger people aged 15-30 years were more likely to be on a Weight loss or low calorie diet (55%) or High protein diet (21%) see Table 13.1.

Persons aged 15 years & over - Type of diet currently on(a), 2011-12



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Footnote(s): (a) People may report more than one type of diet.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

DIETING AND BODY MASS

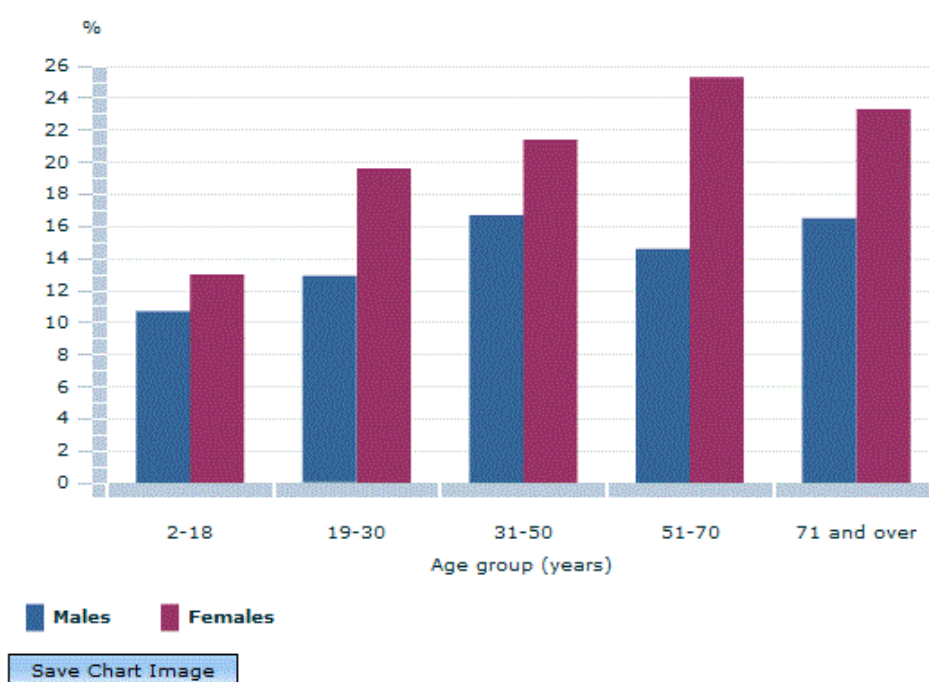
Of the 9.2 million Australians aged 15 years and over who were overweight or obese (based on their measured height and weight), one in six (17%) were on a diet at the time of the survey. The prevalence of dieting was higher among overweight/obese females (21%) than males (14%).

Of overweight or obese people, those who were on a diet were more likely to consider themselves to be overweight compared to those who were not on a diet (81% compared to 61%). Overweight or obese people on a diet were also more likely to be either dissatisfied or extremely dissatisfied with their weight compared to those who were not on a diet (60% and 40% respectively).

Food avoidance due to allergy, intolerance or ethical religious reasons

While for many people, avoiding particular foods is about taste, preference or an effort to make healthy choices, for a significant minority of the population, it is not simply a matter of choice. In 2011-12, 17% of Australians aged 2 years or over (or 3.7 million people) reported avoiding a food due to allergy or intolerance and 7% (1.6 million) avoided particular foods for cultural, religious or ethical reasons see Table 14.1.

Persons aged 2 years & over - Proportion who avoid particular food due to allergies or intolerance, 2011-12



Australian Bureau of Statistics

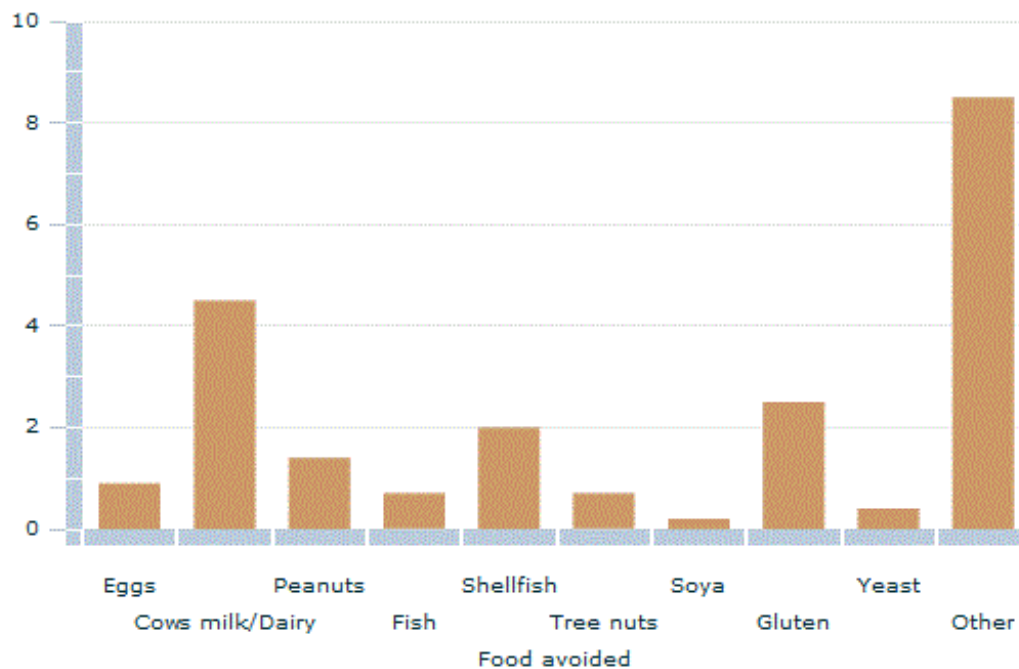
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Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Food avoidance due to allergy or intolerance was most prevalent among males aged 31-50 years (17%) and females aged 51-70 years (25%). The most common type of food reported causing intolerance was Cow's milk/Dairy (4.5%), followed by Gluten (2.5%), Shellfish (2.0%) and Peanuts (1.4%). While these were the most prevalent types of specific foods that were avoided, a higher proportion of people (8.5%) reported an 'Other' food that was not specifically prompted for. 'Other' included a large variety of specific foods (such as tomatoes, oranges, bananas, and capsicum) and general food types (such as 'spicy food', 'preservatives' and 'acidic foods').

Persons aged 2 years & over - Type of food avoided due to allergy or intolerance(a), 2011-12

Proportion of persons (%)



Save Chart Image

Australian Bureau of Statistics

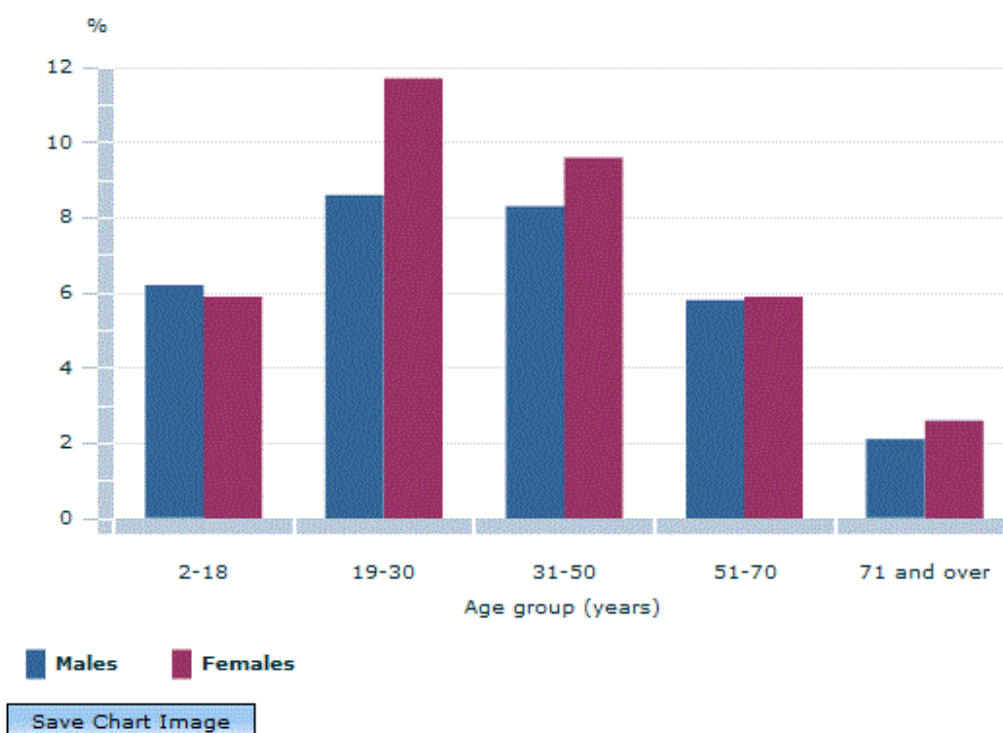
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Footnote(s): (a) People may report more than one type of avoidance.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Food avoidance for cultural, religious or ethical reasons was highest among the 19-30 year olds (10%) and the 31-50 years group (9.0%). Pork was the most commonly avoided food (3.9%), followed by Meat (2.1%), while 1.6% specified avoiding Beef.

Persons aged 2 years & over - Proportion who avoid particular food for cultural, religious or ethical reasons, 2011-12



Australian Bureau of Statistics

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Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

Discretionary foods

The related risk factors of diet and overweight and obesity contribute a high proportion of disease burden in Australia, manifesting particularly in cardiovascular disease, Type 2 diabetes and certain cancers.¹ In 2011-12, 63% of adults and 25% of children in Australia were overweight or obese, with these rates having risen in recent decades.² In addition to regular physical activity, following eating patterns which can provide adequate nutrient intakes whilst not exceeding energy requirements are seen as key to achieving and maintaining healthy body weight. In order to meet nutrient requirements within limited energy intakes, it is suggested that consumption of discretionary (energy dense, nutrient poor) food be reduced.³

DISCRETIONARY FOODS IN THE NNPAS

The Australian Dietary Guidelines Summary lists examples of discretionary choices as including: "most sweet biscuits, cakes, desserts and pastries; processed meats and sausages; ice-cream and other ice confections; confectionary and chocolate; savoury pastries and pies; commercial burgers; commercially fried foods; potato chips, crisps and other fatty and/or salty snack foods; cream, butter and spreads which are high in saturated fats; sugar sweetened soft drinks and cordials, sports and energy drinks and alcoholic drinks". Based on these definitions and the supporting documents which underpin the Australian Dietary Guidelines, foods reported within the NNPAS have been categorised as discretionary or non-discretionary. See User Guide section Discretionary Foods for more information.

UNDER-REPORTING AND DISCRETIONARY FOODS

The NNPAS (as with all representative dietary surveys) is subject to under-reporting. That is, a tendency for respondents to either change their behaviour or misrepresent their consumption (whether consciously or sub-consciously) to report a lower energy or food intake. Given the association of under-reporting with overweight/obesity and consciousness of socially acceptable/desirable dietary patterns, discretionary foods would be expected to be more likely to be under-reported than non-discretionary foods. See Users' Guide section Under-reporting in Nutrition Surveys for more information.

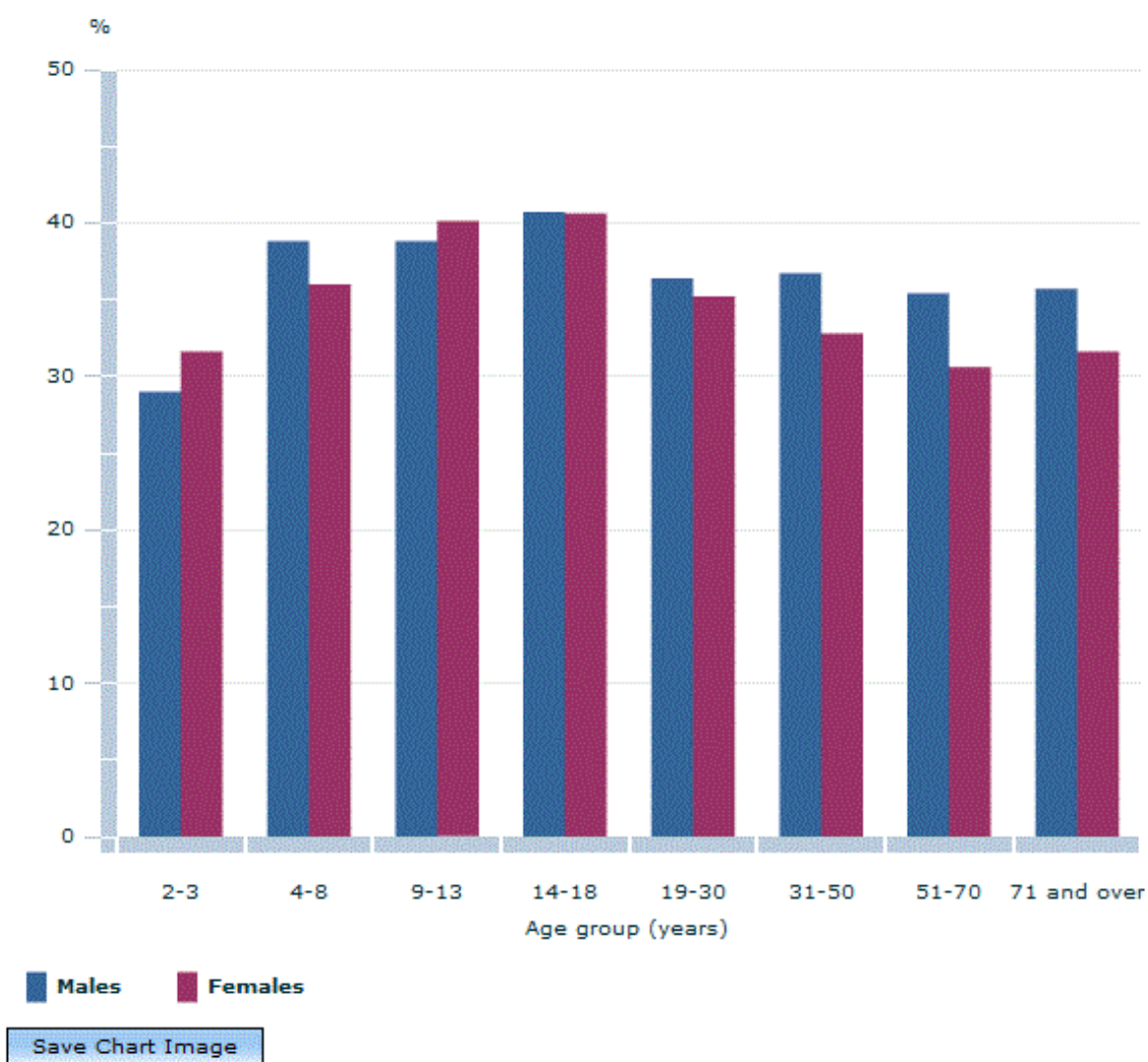
The Australian Dietary Guidelines³ states discretionary foods are: “foods and drinks not necessary to provide the nutrients the body needs, but that may add variety. However, many of these are high in saturated fats, sugars, salt and/or alcohol, and are therefore described as energy dense. They can be included sometimes in small amounts by those who are physically active, but are not a necessary part of the diet.”

On average, just over one-third (35%) of total daily energy reported as consumed was from 'discretionary foods'. The proportion of energy from discretionary foods was lowest among the 2-3 year old children (30%) and highest among the 14-18 year olds (41%). The proportion of energy from discretionary foods tended to decrease in age groups from 19-30 years and older, however females had significantly lower proportions of consumption than males from 31-50 years to 71 years and over see Table 9.1.

The particular food groups contributing most to the energy from discretionary foods reported were: **Alcoholic beverages** (4.8% of energy), Cakes, muffins scones and cake-type desserts (3.4%), **Confectionery and cereal/nut/fruit/seed bars** (2.8%), Pastries (2.6%), Sweet biscuits and Savoury biscuits (2.5%) and Soft drinks and flavoured mineral waters (1.9%). These were followed by smaller proportions of energy from a range of other discretionary foods including Potatoes (as chips/fries etc) (1.7%), Snack foods (1.5%), Frozen milk products (1.5%) and Sugar, honey and syrups (1.3%).

The proportion of energy contributed by particular discretionary foods varied with age. For example, the largest discretionary food contributor to the 2-3 year olds energy was Biscuits (4.8%), while for 4-8 and 9-13 year olds it was Cakes, muffins, scones and cake-type desserts (4.8% and 4.6% respectively). Among the 14-18 year olds it was **Confectionery and cereal/nut/fruit/seed bars** and Soft drinks and flavoured mineral waters (3.7% and 3.6% respectively). In all older age groups, alcoholic drinks formed the largest source of energy from discretionary foods, with 6.0% of energy consumed by people aged 19 years and over coming from **Alcoholic beverages** see Table 9.1.

Persons aged 2 years & over - Proportion of total energy intake from discretionary foods, 2011-12



Australian Bureau of Statistics

© Commonwealth of Australia 2014.

Source(s): Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12

ENDNOTES

1. Institute for Health Metrics and Evaluation *Global Burden of Diseases, Injuries, and Risk Factors Study 2010* <<http://www.healthmetricsandevaluation.org/sites/default/files/country-profiles/GBD%20Country%20Report%20-%20Australia.pdf>>, viewed 20 April 2014. Back
2. Australian Bureau of Statistics 2013, *Australian Health Survey: Updated Results, 2011-2012*, cat. no. 4364.0.55.003, <<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/33C64022ABB5ECD5CA257B8200179437?opendocument>>, viewed 20 April 2014. Back
3. National Health and Medical Research Council 2013, *Australian Dietary Guidelines*. Canberra: National Health and Medical Research Council, <https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n55_australian_dietary_guidelines_130530.pdf> Back

Under-reporting

Of particular importance to nutrition surveys is a widely observed tendency for people to under-report their food intake. This can include:

- actual changes in foods eaten because people know they will be participating in the survey
- misrepresentation (deliberate, unconscious or accidental), e.g. to make their diets appear more 'healthy' or be quicker to report.

In order to assist in the interpretation of data from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS) and particularly in comparisons with the 1995 National Nutrition Survey (NNS), Australian Bureau of Statistics (ABS) analysed the potential under-reporting prevalence in different population sub-groups and estimated how much energy might be missing from the food recall data. See details in Under-reporting in Nutrition Surveys in the Australian Health Survey (AHS) Users' Guide.

In summary, the analysis suggests that:

- It is likely that under-reporting is present in both surveys.
- There appears to be an increase in the level under-reporting for males between 1995 and 2011-12, especially for males aged 9 - 50.
- The level of under-reporting by female respondents also appears to have increased, but to a lesser extent than for males.
- In order to achieve an Energy Intake to Basal Metabolic Rate Ratio (EI:BMR) ratio of 1.55 which is the amount required for a normally active but not sedentary population, an increase in mean energy intake of 17% for males and 21% for females is required and greater increases are required for overweight and obese people than those of normal weight.
- Given the association of under-reporting with overweight/obesity and consciousness of socially acceptable/desirable dietary patterns, under-reporting is unlikely to affect all foods and nutrients equally.

There is still further work that can be conducted in this area. In particular, the investigation into the impact of under-reporting on the change in consumption patterns of different foods can be expanded.

Soft drink, burgers and chips - the diet of our young males (Media Release)

MEDIA RELEASE

9 May 2014

Embargo: 11.30 am (Canberra time)

56/2014

Soft drink, burgers and chips - the diet of our youth

Teenagers and young adults consume more soft drinks, burgers and chips than any other age group according to a report released today from the Australian Bureau of Statistics (ABS).

In the first detailed information on Australia's eating habits available in 15 years, Ms Louise Gates, ABS Director of Health Statistics, said that new results released today from the Australian Health Survey showed 51 per cent of teenage males (aged 14-18 years) and 44 per cent of young adult

males (aged 19-30 years) had consumed soft drink on the day prior to interview. This is compared to under 30 per cent for the rest of the population.

"These results show that on a typical day in Australia, one in four teenage males consume a burger compared with around only one in 14 for the whole population. One in five males in this age range also consume chips compared with only one in seven across the whole population.

"The report also recorded that rates of consumption of fruit and vegetables for teenagers and young adults were relatively low. Across these age groups, around 40 per cent of males and 50 per cent of females consumed fruit compared with 60 per cent for the whole population.

"While just under three quarters of teenagers and young adults consumed vegetables on the day prior to interview, almost half of this consumption was potatoes (including chips) for both teenage males and females.

"However, we did find that teenagers and young adults are not the nation's biggest coffee drinkers," added Ms Gates. "While nearly one in two Australians overall drank coffee on the day prior to the interview, only one in seven teenagers and one in three young adults consumed coffee," Ms Gates said.

Other results from the survey included that just over 2.3 million Australians aged 15 years and over reported being on a diet to lose weight or for some other health reason. Being on a diet was most prevalent among 51-70 year olds where 19 per cent of females and 15 per cent of males were on a diet.

Additionally, 3.7 million people reported avoiding a food due to allergy or intolerance. The most common type of food reported as causing intolerance was cow's milk followed by gluten.

These results are only a taste of the wealth of information available from the nutrition component of the Australian Health Survey which is based on a 24 hour dietary recall of over twelve thousand Australians.

Further information is available in Australian Health Survey: Nutrition First Results - Food and Nutrients (cat. no. 4364.0.55.007) available for free download from the ABS website.

Media notes

- Population is those aged 2 years and over.
- When reporting ABS data the Australian Bureau of Statistics (or ABS) must be attributed as the source.
- Media requests and interviews - contact the ABS Communications Section on 1300 175 070.

Explanatory Notes

INTRODUCTION

1 This publication presents a selection of results from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS), with the focus on foods and nutrients consumed and selected dietary behaviours.

2 The 2011-12 NNPAS was conducted throughout Australia from May 2011 to June 2012. The NNPAS was collected as one of a suite of surveys conducted from 2011-2013, called the Australian Health Survey (AHS).

3 The Australian Health Survey: Nutrition First Results – Foods and Nutrients publication contains food and nutrient information from a 24-hour dietary recall and information on selected dietary

behaviours by age groups and sex at the National level. The publication includes selected nutrient comparisons with the 1995 National Nutrition Survey.

4 The statistics presented in this publication are only a selection of the information collected in the NNPAS. All statistics from the 24-hour dietary recall are based on a single day's intake (Day 1). No adjustments have been made using the second day of 24-hour dietary recall information, although this is planned for a future release. Further publications from the Australian Health Survey are outlined in the Release Schedule, while the list of data items currently available from the survey are available in the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

SCOPE OF THE SURVEY

5 The National Nutrition and Physical Activity Survey (NNPAS) contains a sample of approximately 9,500 private dwellings across Australia.

6 Urban and rural areas in all states and territories were included, while Very Remote areas of Australia and discrete Aboriginal and Torres Strait Islander communities (and the remainder of the Collection Districts in which these communities were located) were excluded. These exclusions are unlikely to affect national estimates, and will only have a minor effect on aggregate estimates produced for individual states and territories, excepting the Northern Territory where the population living in Very Remote areas accounts for around 23% of persons.

7 Non-private dwellings such as hotels, motels, hospitals, nursing homes and short-stay caravan parks were excluded from the survey. This may affect estimates of the number of people with some chronic health conditions (for example, conditions which may require periods of hospitalisation).

8 Within each selected dwelling, one adult (aged 18 years and over) and, where possible, one child (aged 2 years and over) were randomly selected for inclusion in the survey. Sub-sampling within households enabled more information to be collected from each respondent than would have been possible had all usual residents of selected dwellings been included in the survey.

9 The following groups were excluded from the survey:

- certain diplomatic personnel of overseas governments, customarily excluded from the Census and estimated resident population
- persons whose usual place of residence was outside Australia
- members of non-Australian Defence Forces (and their dependents) stationed in Australia
- visitors to private dwellings.

DATA COLLECTION

10 Trained ABS interviewers conducted personal interviews with selected residents in sampled dwellings. One person aged 18 years and over in each dwelling was selected and interviewed about their own health characteristics including a 24-hour dietary recall and a physical activity module. An adult, nominated by the household, was interviewed about one child (aged 2 years and over) in the household. Selected children aged 15-17 years may have been personally interviewed with parental consent. An adult, nominated by the household, was also asked to provide information about the household, such as the combined income of other household members. Children aged 6-14 years were encouraged to be involved in the survey, particularly for the 24-hour dietary recall and physical activity module. For further information, see Data Collection in the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

11 All selected persons were required to have a follow-up phone interview at least 8 days after the face to face interview to collect a further 24-hour dietary recall. For those who participated, pedometer data was reported during this telephone interview.

SURVEY DESIGN

12 Dwellings were selected at random using a multistage area sample of private dwellings for the NNPAS.

The initial sample selected for the survey consisted of approximately 14,400 dwellings. This was reduced to approximately 12,400 dwellings after sample loss (for example, households selected in the survey which had no residents in scope of the survey, vacant or derelict buildings, buildings under construction). Of those remaining dwellings, 9,519 (or 77.0%) were fully or adequately responding, yielding a total sample for the survey of 12,153 persons (aged 2 years and over).

NNPAS, APPROACHED SAMPLE, FINAL SAMPLE AND RESPONSE RATES

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
Households approached (after sample loss)	2 227	1 983	1 988	1 551	1 545	1 155	911	1 006	12 366
Households in sample	1 666	1 371	1 525	1 211	1 334	1 003	592	817	9 519
Response rate (%)	74.8	69.1	76.7	78.1	86.3	86.8	65.0	81.2	77.0
Persons in sample	2 139	1 749	1 964	1 526	1 706	1 245	763	1 061	12 153

13 The physical measures module of the NNPAS was voluntary. In 2011-12, 83.7% of respondents aged 2 years and over had their height and weight measured. As a proportion of the Australian population, 84.9% of persons aged 2 years and over have a height and weight measurement. BMI data from the NNPAS presented in this publication relates to the measured population only. Analysis of the characteristics of people who agreed to be measured compared to those who declined across the AHS suite of surveys indicated that age and sex were factors in non-response. Females were more likely to decline, and non-response increased with age.

14 Of the 12,153 people in the final sample, 98% provided the first (Day 1), with the missing 2% of Day 1 dietary recalls being imputed. The second 24-hour dietary recall (Day 2) had 7,735 participants (64% of the total). The Day 2 24-hour dietary recall participation was slightly higher among older respondents, and sex did not appear as a factor in participation.

15 More information on response rates and imputation is provided in the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

16 To take account of possible seasonal effects on health and nutrition characteristics, the NNPAS sample was spread randomly across a 12-month enumeration period. Between August and September 2011, survey enumeration was suspended due to field work associated with the 2011 Census of Population and Housing.

WEIGHTING, BENCHMARKING AND ESTIMATION

17 Weighting is a process of adjusting results from a sample survey to infer results for the in-scope total population. To do this, a weight is allocated to each sample unit; for example, a household or a person. The weight is a value which indicates how many population units are represented by the sample unit.

18 The first step in calculating weights for each person was to assign an initial weight, which was

equal to the inverse of the probability of being selected in the survey. For example, if the probability of a person being selected in the survey was 1 in 600, then the person would have an initial weight of 600 (that is, they represent 600 others). An adjustment was then made to these initial weights to account for the time period in which a person was assigned to be enumerated.

19 The weights are calibrated to align with independent estimates of the population of interest, referred to as 'benchmarks', in designated categories of sex by age by area of usual residence. Weights calibrated against population benchmarks compensate for over or under-enumeration of particular categories of persons and ensure that the survey estimates conform to the independently estimated distribution of the population by age, sex and area of usual residence, rather than to the distribution within the sample itself.

20 The NNPAS was benchmarked to the estimated resident population living in private dwellings in non-Very Remote areas of Australia at 31 October 2011. Excluded from these benchmarks were persons living in discrete Aboriginal and Torres Strait Islander communities, as well as a small number of persons living within Collection Districts that include discrete Aboriginal and Torres Strait Islander communities. The benchmarks, and hence the estimates from the survey, do not (and are not intended to) match estimates of the total Australian resident population (which include persons living in Very Remote areas or in non-private dwellings, such as hotels) obtained from other sources. For the NNPAS, a seasonal adjustment was also incorporated into the person weights.

21 Survey estimates of counts of persons are obtained by summing the weights of persons with the characteristic of interest. Estimates of non-person counts (for example, number of organised physical activities) are obtained by multiplying the characteristic of interest with the weight of the reporting person and aggregating.

RELIABILITY OF ESTIMATES

22 All sample surveys are subject to sampling and non-sampling error.

23 Sampling error is the difference between estimates, derived from a sample of persons, and the value that would have been produced if all persons in scope of the survey had been included. For more information refer to the Technical note. Indications of the level of sampling error are given by the Relative Standard Error (RSE) and 95% Margin of Error (MoE).

24 In this publication, estimates with an RSE of 25% to 50% are preceded by an asterisk (e.g. *3.4) to indicate that the estimate has a high level of sampling error relative to the size of the estimate, and should be used with caution. Estimates with an RSE over 50% are indicated by a double asterisk (e.g. **0.6) and are generally considered too unreliable for most purposes. These estimates can be used to aggregate with other estimates to reduce the overall sampling error. Another factor, particular to this survey, that may explain certain high RSE's are some of the food groupings that make up the Food Classification. That is, a relatively high variance would be expected where foods are combined that have very different amounts of consumption. For example, within sub-major level food group of **Herbs, spices, seasonings and stock cubes** there are foods that have relatively small gram amounts of consumption (such as herbs and spices) grouped with foods that are consumed substantially greater amounts such as liquid stock. For more information on the Food classification see Food Intake in the AHS: Users' Guide, 2011-13.

25 The MoEs are provided for all proportion and average estimates to assist users in assessing the reliability of these types of estimates. Users may find this measure is more convenient to use, rather than the RSE, in particular for small and large proportion estimates. The estimate combined with the MoE defines a range which is expected to include the true population value with a given level of confidence. This is known as the confidence interval. This range should be considered by users to inform decisions based on the estimate.

26 Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Non-sampling errors occur when survey processes work less effectively than intended. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

27 Of particular importance to nutrition surveys is a widely observed tendency for people to under-report their food intake. This can include:

- actual changes in foods eaten because people know they will be participating in the survey
- misrepresentation (deliberate, unconscious or accidental), e.g. to make their diets appear more 'healthy' or be quicker to report.
-

Analysis of the results of the 1995 National Nutrition Survey (NNS) and the 2011-12 NNPAS suggests that, like other nutrition surveys, there has been some under-reporting of food intake by participants in these surveys and that the patterns of under-reporting have changed over time. It is difficult, from the available data, to accurately estimate the amount of under-reporting that has occurred and therefore how much energy and nutrients might be missing from the intakes reported by respondents. One method is to estimate the mean amount of energy for the population to achieve an EI:BMR ratio of 1.55 (i.e. the conservative minimum energy requirement for a normally active but sedentary population). Using this method, it is estimated that the average energy intakes may be understated by as much as 17% in males and 21% in females. The factor most closely associated with under-reporting was BMI, where people who were overweight or obese were most likely to have lower than expected energy intakes. For more information see Under-reporting in Nutrition Surveys in the AHS Users' Guide, 2011-13.

28 Another factor affecting the accuracy of the 24-hour dietary recall data is that most young children are unable to recall their intakes. Similarly, parents/carers of school-aged children may not be aware of a child's total food intake, which can lead to systematic under-reporting. Young children were encouraged to assist in answering the dietary recall questions. See the Interviews section of Data collection for more information on proxy use in the 24-hour dietary recall module.

29 Another non-sampling error specific to Nutrition surveys is the accuracy of the nutrient and measures database containing thousands of foods used to derive the nutrient estimates. The databases used for the 2011-12 NNPAS were developed by Food Standards Australia New Zealand specifically for the survey. A complete nutrient profile of 44 nutrients was created based on FSANZ's latest available data, however, not all data was based on directly analysed foods. Some data was borrowed from overseas food composition tables, food label information, imputed data from similar foods or data calculated using a recipe approach. See AUSNUT 2011-13 for more information.

30 Non-response occurs when people cannot or will not cooperate, or cannot be contacted. Non-response can affect the reliability of results and can introduce a bias. The magnitude of any bias depends on the rate of non-response and the extent of the difference between the characteristics of those people who responded to the survey and those who did not.

31 The following methods were adopted to reduce the level and impact of non-response:

- face-to-face interviews with respondents
- the use of interviewers, where possible, who could speak languages other than English
- follow-up of respondents if there was initially no response
- weighting to population benchmarks to reduce non-response bias.

32 By careful design and testing of the questionnaire, training of interviewers, and extensive editing and quality control procedures at all stages of data collection and processing, other non-sampling error has been minimised. However, the information recorded in the survey is essentially 'as reported' by respondents, and hence may differ from information collected using different methodology. For example:

- When people report on their food intakes in nutrition surveys, there is a tendency (bias) to underestimate when compared with an objective measure of energy expenditure. This is called under-reporting and includes actual changes in foods eaten because people know they will be asked about them and misrepresentation (deliberate, unconscious or accidental), e.g.

to make their diets appear more 'healthy' or be quicker to report. Further information on Under-reporting in Nutrition Surveys is available in the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

CLASSIFICATIONS

33 The AHS food classification was produced by Food Standards Australia New Zealand. It is formed by grouping the 8-digit food codes into broader food groups comprising major, sub-major and minor groups, along with dietary supplements. The AHS food classification is available as an Excel spreadsheet from the Downloads tab of this publication.

COMPARISONS WITH 1995 NNS

34 The NNPAS has not been collected in its current form before. However, the ABS has previously conducted nutrition surveys, the most recent being the 1995 National Nutrition Survey (1995 NNS). Published results from the 1995 NNS include:

- National Nutrition Survey: Selected Highlights, 1995 (4802.0)
- National Nutrition Survey: Foods Eaten, 1995 (4804.0)
- National Nutrition Survey: Nutrient Intakes and Physical Measurements, Australia 1995 (4805.0).

35 While the 1995 NNS collected similar food and nutrition data to the NNPAS, some important changes in the food classification and methodology mean that care needs to be taken in making direct comparisons between surveys. See Comparisons with 1995 NNS for more details.

CONFIDENTIALITY

36 The *Census and Statistics Act, 1905* provides the authority for the ABS to collect statistical information, and requires that statistical output shall not be published or disseminated in a manner that is likely to enable the identification of a particular person or organisation. This requirement means that the ABS must take care and make assurances that any statistical information about individual respondents cannot be derived from published data.

37 Some techniques used to guard against identification or disclosure of confidential information in statistical tables are suppression of sensitive cells, random adjustments to cells with very small values, and aggregation of data. To protect confidentiality within this publication, some cell values may have been suppressed and are not available for publication but included in totals where applicable. As a result, sums of components may not add exactly to totals due to the confidentialisation of individual cells.

ROUNDING

38 Estimates presented in this publication have been rounded. As a result, sums of components may not add exactly to totals. Also note that due to rounding to one decimal place, estimates showing as 0.0 with a high RSE or MoE have a true figure being less than 0.05 but greater than 0.0.

39 For pedometer and other physical activity data, minutes and number of steps are reported as whole numbers. All other units in the data are reported to one decimal place.

40 Proportions presented in this publication are based on unrounded figures. Calculations using rounded figures may differ from those published.

ACKNOWLEDGEMENTS

41 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act, 1905*.

42 The ABS gratefully acknowledges and thanks the Agricultural Research Service of the USDA for giving permission to adapt and use their Dietary Intake Data System including the AMPM for collecting dietary intake information as well as other processing systems and associated materials.

43 Food Standards Australia New Zealand (FSANZ) was contracted to provide advice throughout the survey development, processing and collection phases of the 2011-12 NNPAS, and to provide a nutrient database for the coding of foods and supplements consumed. The ABS would like to acknowledge and thank FSANZ for providing their support, advice and expertise to 2011-12 NNPAS.

PRODUCTS AND SERVICES

44 Summary results from this survey are available in spreadsheet form from the 'Downloads' tab in this release.

45 For users who wish to undertake more detailed analysis of the survey data, Survey Table Builder will also be made available in 2014. Survey Table Builder is an online tool for creating tables from ABS survey data, where variables can be selected for cross-tabulation. It has been developed to complement the existing suite of ABS microdata products and services including Census TableBuilder and CURFs. Further information about ABS microdata, including conditions of use, is available via the Microdata section on the ABS web site.

46 Special tabulations are available on request. Subject to confidentiality and sampling variability constraints, tabulations can be produced from the survey incorporating data items, populations and geographic areas selected to meet individual requirements. A list of currently available data items is available from the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

RELATED PUBLICATIONS

47 Other ABS publications which may be of interest are shown under the 'Related Information' tab of this release.

48 Current publications and other products released by the ABS are listed on the ABS website www.abs.gov.au. The ABS also issues a daily Release Advice on the website which details products to be released in the week ahead.

Glossary

The definitions used in this survey are not necessarily identical to those used for similar items in other collections. Additional information is contained in the Australian Health Survey(AHS): Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

24-hour dietary recall

This was the methodology used to collect detailed information on food and nutrient intake. The 24-hour dietary recall collected a list of all foods, beverages and supplements consumed the previous day from midnight to midnight, and the amount consumed. For more information, see the [24-hour Dietary Recall](#) of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Alcohol

The term 'alcohol' is commonly used to refer to alcoholic beverages. However, in the 2011-12 National Nutrition and Physical Activity Survey (NNPAS), alcohol refers to pure alcohol (or ethanol), which, as a macronutrient, contributes 29 kJ per gram.

Alcoholic beverages

The 'Alcoholic beverages' food group includes beers, wines, spirits, cider and other alcoholic beverages.

Alpha-Linolenic Acid (ALA)

Alpha-Linolenic Acid (ALA) is a plant-based omega-3 polyunsaturated fatty acid which is considered a small but important component of dietary intake in relation to helping reduce coronary heart disease risk.

AUSNUT 2011-13

See AUSNUT 2011-13 and also Nutrient Database

Australian Health Survey (AHS)

The Australian Health Survey 2011-13 is composed of three separate surveys:

- National Health Survey (NHS) 2011-12
- National Nutrition and Physical Activity Survey (NNPAS) 2011-12
- National Health Measures Survey (NHMS) 2011-12.

In addition to this, the AHS Survey contains a Core dataset, which is produced from questions that are common to both the NHS and NNPAS. See About the Australian Health Survey for details.

Basal Metabolic Rate (BMR)

Basal metabolic rate (BMR) is the amount of energy needed for a minimal set of functions necessary for life over a defined period of time. BMR is given in kilojoules (kJ) per 24 hours and is calculated using age, sex and weight (kg). For more information, see the Nutrient Intake chapter of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Body Mass Index (BMI)

Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, normal weight, overweight and obesity. It is calculated from height and weight information, using the formula weight (kg) divided by the square of height (m). To produce a measure of the prevalence of underweight, normal weight, overweight or obesity in adults, BMI values are grouped according to the table below which allows categories to be reported against both the World Health Organization (WHO) and National Health and Medical Research Council (NHMRC) guidelines.

BODY MASS INDEX, Adults	
Category	Range
Underweight	Less than 18.50
Normal range	18.50 — 24.99
Overweight	25.00 — 29.99
Obese	30.00 or more

Separate BMI classifications were produced for children. BMI scores were created in the same manner described above but also took into account the age and sex of the child. There are different cut-offs for BMI categories (underweight/normal combined, overweight or obese) for male and female

children. These categories differ to the categories used in the adult BMI classification and follow the scale provided in Cole TJ, Bellizzi MC, Flegal KM and Dietz WH, **Establishing a standard definition for child overweight and obesity worldwide: international survey**, BMJ 2000; 320. For a detailed list of the cut-offs used to calculate BMI for children see the AHS: Users' Guide (cat. no. 4363.0.55.001) chapter on Body Mass and Physical Measurements and Appendix 4: Classification of BMI for children.

Calcium

Calcium is a mineral required for the growth and maintenance of the bones and teeth, as well as the proper functioning of the muscular and cardiovascular systems.

Carbohydrate

Carbohydrates usually provide the major part of energy in human diets. Carbohydrates are comprised of the elements of carbon, hydrogen and oxygen. Data for total carbohydrates include starch, sugars and related substances (sugar alcohols and oligosaccharides). Sugar alcohols and oligosaccharides are included in 'Total carbohydrates' but not in starch and sugar sub-totals. Therefore, total carbohydrate does not always equal the the sum of sugars and starch.

Cereal based products and dishes

The 'Cereal based products and dishes' food group contains biscuits, cakes, pastries, pies, dumplings, pizza, hamburgers, hot dogs, and pasta and rice mixed dishes.

Cereals and cereal products

The 'Cereals and Cereal Products' food group includes grains, flours, bread and bread rolls, plain pasta, noodles and rice, and breakfast cereals.

Combination code

Combination codes were used to indicate whether the food was combined with another food prior to consumption. One of the following combination codes was assigned to each food:

- 0. Not applicable
- 1. Beverage with additions
- 2. Cereal with additions
- 3. Bread/baked products with additions
- 4. Salad
- 5. Sandwiches/wraps/rolls with fillings
- 6. Soup
- 7. Frozen meal
- 8. Ice cream/frozen yoghurt with additions
- 9. Vegetables with additions
- 10. Fruit with additions
- 12. Meat, poultry, fish
- 14. Chips
- 99. Other mixtures

Confectionery and cereal/nut/fruit/seed bars

The 'Confectionery and cereal/nut/fruit/seed bars' food group includes chocolate, fruit, nut and seed bars and muesli or cereal style bars.

Consumer

A respondent who reported consumption of any non-zero amount (applies to foods or nutrients).

Day 1 / Day 2 intake

Day 1 intake refers to information collected from the first 24-hour dietary recall, while Day 2 refers to information from the second 24-hour recall. In the 2011-12 NNPAS, Day 1 intake information was collected from all respondents, with a second 24-hour recall (Day 2) collected from around 64% of respondents. Nutrient intakes derived from 24-hour recall data do not represent the usual intake of a person because there is variation in day to day intakes. The second 24-hour recall is used to estimate and remove within-person variation in order to derive a usual nutrient intake distribution for the population. Usual nutrient intakes represent intakes over a long period of time.

Dairy & meat substitutes

The 'Dairy & meat substitutes' food group includes milk substitutes, cheese and meat substitutes, soy based ice cream and yoghurts and dishes where meat substitutes are the major components e.g. Tofu curry and Tofu and vegetable curry.

Dietary guidelines

The National Health and Medical Research Council (NHMRC) 2013 Australian Dietary Guidelines use the best available scientific evidence to provide information on the types and amounts of foods, food groups and dietary patterns that aim to:

- promote health and wellbeing
- reduce the risk of diet-related conditions
- reduce the risk of chronic disease.

The Guidelines are for use by health professionals, policy makers, educators, food manufacturers, food retailers and researchers.

The content of the Australian Dietary Guidelines applies to all healthy Australians, as well as those with common diet-related risk factors such as being overweight. They do not apply to people who need special dietary advice for a medical condition, or to the frail elderly.

Dietary supplement

For the purpose of the AHS, dietary supplements refer to products defined as Complementary Medicines under the Therapeutic Goods Regulations 1990 and that are not intended for inhalation or use on the skin. They include products containing ingredients that are nutrients, such as multivitamin or fish oil products.

Discretionary foods

The Australian Dietary Guidelines describes discretionary foods as being: "foods and drinks not necessary to provide the nutrients the body needs, but that may add variety. However, many of these are high in saturated fats, sugars, salt and/or alcohol, and are therefore described as energy dense. They can be included sometimes in small amounts by those who are physically active, but are not a necessary part of the diet". For more information, see the Discretionary Foods chapter of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Discretionary salt

Discretionary salt is the salt added to food, either at the table or during the cooking/preparation. It does not include salt (or salt containing ingredients) added during manufacturing of processed foods or as required for chemical reasons, for example in bread baking.

Eating occasion

Respondents in the 24-hour dietary recall were asked to state what the eating occasion was for each food consumed, for example breakfast, afternoon tea, dinner.

Egg products and dishes

The 'Egg products and dishes' food group includes eggs and dishes where eggs are the major component e.g. omelettes, frittatas and souffles.

Energy

Energy, measured in kilojoules (kJ), is required by the body for metabolic processes, physiological functions, muscular activity, heat production and growth and development. All energy reported in the 2011-12 NNPAS is energy including that from dietary fibre.

Energy Intake to Basal Metabolic Rate Ratio (EI:BMR)

The ratio of energy intake to basal metabolic rate (BMR) is estimated on the basis of weight, age and sex. This ratio has been used to develop cut-off limits for implausibly low intakes. When energy intakes equal energy expenditure, EI:BMR approximates the physical activity level.

Estimated Average Requirement (EAR)

The Estimated Average Requirement (EAR) of a particular nutrient is the level of that nutrient estimated to meet the requirements of the average healthy individual in a particular life stage and gender group. See Nutrient Reference Values for Australia and New Zealand.

Fat

Fat provides a significant amount of dietary energy and is also a carrier for fat-soluble vitamins and the source of essential fatty acids. It is the most energy dense of the macronutrients. The three fatty acid subtotals do not add up to total fat because total fat includes a contribution from the non-fatty acid components.

Fats and Oils

The 'Fats and Oils' group includes butters, dairy blends, margarines and other fats, such as animal-based fats.

Fatty acids

Fatty acids are units of carbon, hydrogen and oxygen which combine with glycerine to form fat. Most foods contain a mixture of monounsaturated, polyunsaturated and saturated fatty acids.

Fish and seafood products and dishes

The 'Fish and seafood products and dishes' food group includes fresh and tinned seafood, shellfish and mixed dishes with fish or seafood as the main component e.g. salmon mornay, fish curry and prawn cocktail.

Folate

In this publication, folate refers specifically to the naturally-occurring form of folate (tetrahydrofolate or THF).

Folate Equivalents

Folate is a B group vitamin that is essential for healthy growth and development, which is important during pregnancy to help prevent the incidence of neural tube defects (such as spina bifida) in babies. Folate intake is measured in folate equivalents to take into account the higher bioavailability of folic acid (pteroyl glutamic acid, or PGA, the form used in food fortification and supplements) than natural folate (tetrahydrofolate, or THF, the form found in foods and in the body). Folate equivalents = $1.67 \times \text{folic acid} + \text{natural folate}$.

Folate (Total)

Total folate includes both folic acid (pteroyl glutamic acid, or PGA) and its derivatives (tetrahydrofolate, or THF, the naturally-occurring forms of folate), all of which have similar functions in the body. Total folate is calculated as the sum of folic acid and folate, without any adjustment for their differing bioavailabilities.

Folic acid

Folic acid (pteroyl glutamic acid, or PGA) is the form of folate used in supplements and for food fortification as it is more stable than the naturally-occurring forms in foods. It is more bioavailable than the naturally-occurring forms of folate. As of 2009, all wheat flour for baking (including all products baked commercially, such as English muffins, bread rolls, and bagels) is fortified with folic acid.

Food classification or Food groups

Food and beverages reported by respondents in the 24-hour dietary recall were collected and coded at a detailed level, but for output purposes are categorised within a food classification with Major (2-digit), Sub-major (3-digit), and Minor group (5-digit) levels. The classification was developed by Food Standards Australia New Zealand, along with the Nutrient Database, specifically for the Australian Health Survey. At the broadest level (the Major group) there are 24 groups. These groups were designed to categorise foods that share a major component or common feature. Because many foods are in fact mixtures of different ingredients, the food groups will not exclusively contain the main food of that group.

Fortification

Fortification refers to adding vitamins and minerals to food. When there is determined to be a significant public health need, food manufacturers may be required to add certain vitamins or minerals to specified foods (mandatory fortification). In Australia, mandatory fortification of foods includes iodised salt used in all bread, thiamin and folic acid added to wheat flour for baking bread, and vitamin D added to edible oil spreads such as margarine. See Food Standards Australia New Zealand: Fortification.

Fruit products and dishes

The 'Fruit products and dishes' food group includes fresh, dried and preserved fruit, as well as mixed dishes where fruit is the major component, for example apple crumble or banana split.

Haram

'Haram' was among the list of response options for respondents who said that they avoided particular foods due to cultural, religious or ethical reasons. In this context haram refers to foods which may be considered forbidden in Islam such as alcohol, pork or other non-halal foods.

Health risk factors

Specific lifestyle and related factors impacting on health, including:

- tobacco smoking
- physical activity
- body mass
- dietary behaviour
- blood pressure.

Intense sweetener

Intense sweeteners are added to food to provide sweetness without contributing significantly to the

energy level (kilojoules). These food additives are substituted for sugar in some foods and beverages as a way to lower the kilojoule or carbohydrate level.

Iodine

Iodine is a nutrient essential for the production of thyroid hormones, which are essential for normal growth and development, particularly of the brain. Since October 2009, regulations have required that salt with added iodine (iodised salt) be used in all bread (except organic bread and bread mixes for making bread at home) in Australia.

Iron

Iron is a mineral essential for the oxygen carrying ability of red blood cells.

Infant formulae and foods

The 'Infant formulae and foods' food group includes infant formulae, and infant cereal, food and drink products

Linoleic Acid

Linoleic acid is a particular type of omega-6 polyunsaturated fatty acid associated with blood lipid profiles seen as having a lower risk of coronary heart disease.

Legume and pulse products and dishes

The 'Legume and pulse products and dishes' food group includes legumes and pulses e.g. baked beans, chickpeas, split peas, lentils and dishes where legumes are the major component, for example dhal and falafel.

Major food group

The Major food group is the broadest level classification for food consumption data (i.e. 2-digit level). The food classification is available in Excel spreadsheet format in the Downloads page of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Margin of Error (MoE)

Margin of Error describes the distance from the population value that the sample estimate is likely to be within, and is specified at a given level of confidence. Confidence levels typically used are 90%, 95% and 99%. For example, at the 95% confidence level the MoE indicates that there are about 19 chances in 20 that the estimate will differ by less than the specified MoE from the population value (the figure obtained if the entire population had been enumerated). In this publication, MoE has only been provided for the proportions and averages tables. For more information see the Technical notes of this publication.

Mean

The mean is the sum of the value of each observation in a dataset divided by the number of observations. This is also known as the arithmetic average. The mean is a useful single statistic used in this publication because it summarises consumption on a per person basis (including non-consumers, i.e. zero amounts). It is most commonly used because mean amounts of individual foods can be aggregated, that is the individual means for each food within a group will sum to the higher (parent) level food group.

Meat, poultry and games products and dishes

The 'Meat, poultry and games products and dishes' food group includes beef, sheep, pork, poultry, sausages, processed meat (e.g. salami) and mixed dishes where meat or poultry is the major component e.g. casseroles, curried sausages and chicken stir-fry.

Median

The median is the middle value in distribution when the values are arranged in ascending or descending order. The median divides the distribution in half (there are 50% of observations on either side of the median value). In a distribution with an odd number of observations, the median value is the middle value. In contrast to means which tend to be skewed to the right due to small numbers of large consumers, the median is not influenced by large individual values beyond the middle of the distribution. These features make the median value most useful in this publication when comparing amounts eaten of different foods or the same food eaten by different population sub-groups. However, because medians are only relevant to consumers, it may also be useful to know what proportion of the population were consumers to give some prevalence context for the consumption.

Milk products and dishes

The 'Milk products and dishes' food group includes milk, yoghurt, cream, cheese, custards, ice cream, milk shakes, smoothies and dishes where milk is the major component e.g. cheesecake, rice pudding and creme brulee.

Minor food group

The minor food group is the most detailed level (5-digit level) group in the classification for food consumption data. The food classification is available in Excel spreadsheet format in the Downloads page of the AHS Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Miscellaneous

The 'Miscellaneous' food group includes yeast, and spreadable yeast extract, intense sweeteners, herbs, spices and seasonings.

Monounsaturated Fat

Monounsaturated fat or monounsaturated fatty acids are a type of fat predominantly found in plant-based foods, although there are exceptions.

National Nutrition and Physical Activity Survey (NNPAS)

The National Nutrition and Physical Activity Survey focused on collecting information on:

- dietary behaviour and food avoidance (including 24-hour dietary recall)
- selected medical conditions that had lasted, or were expected to last for six months or more
 - cardiovascular and circulatory conditions
 - diabetes and high sugar levels
 - kidney disease
- blood pressure
- female life stages
- physical activity and sedentary behaviour (including 8 day pedometer component)
- use of tobacco
- physical measurements (height, weight and waist circumference).

Non-alcoholic beverages

The 'Non-alcoholic beverages' food group includes tea, coffee, juices, cordials, soft drinks, energy drinks and water.

Normal weight

See Body Mass Index (BMI).

Nutrient Database

The Nutrient Database used to derive energy and nutrient estimates for the 24-hour dietary recall data was developed by Food Standards Australia New Zealand. See AUSNUT 2011-13

Obese

See Body Mass Index (BMI).

Overweight

See Body Mass Index (BMI).

Percentage contribution to energy intake

This refers to the proportion of energy that a food or macronutrient contributes to each person's total energy intake. The energy from each of these nutrients was estimated by multiplying each gram of a particular nutrient by a conversion factor to determine the kilojoules (kJ) of energy. For more information, see the Nutrient Intake chapter of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Polyunsaturated Fat

Polyunsaturated fat or polyunsaturated fatty acids are a type of fat predominantly found in plant-based foods, although there are exceptions. Linoleic acid, alpha linolenic acid, long chain omega 3 fatty acids, and other polyunsaturated fatty acids are included in the polyunsaturated fatty acid total.

Preformed Vitamin A

Preformed vitamin A or retinol is the form of vitamin A found in animal-derived food, such as meat, dairy products, and eggs.

Pro Vitamin A

Pro vitamin A is the form of vitamin A found predominantly in dark green and orange vegetables. Where information on levels of carotenes other than beta carotene in foods was available, this has been included in the pro vitamin A total as beta carotene equivalents, according to the equation $\text{pro vitamin A} = \text{beta carotene} + 0.5 \times \text{alpha carotene} + 0.5 \times \text{cryptoxanthin}$. This equation takes into account the differing biological activities of the different forms of pro vitamin A.

Protein

Protein supplies essential amino acids and is also a source of energy. Protein can be supplied from animal or vegetable matter, though individual vegetable proteins do not contain all the essential amino acids required by the body. They may be limited in one of these essential amino acids.

Recommended usual intake of fruit

The National Health and Medical Research Council recommend levels of daily fruit intake to ensure good nutrition and health. Fruit intake has been grouped in the table below to allow results to be reported against the 2013 Australian Dietary Guidelines. A serve is approximately 150 grams of fresh fruit, half a cup of fruit juice (no added sugar) or 30 grams of dried fruit.*

RECOMMENDED DAILY SERVES OF FRUIT, by age

Age	Fruit (serves)
2-3 years	1
4-8 years	1.5
9-11 years	2
12-13 years	2
14-18 years	2
19-50 years	2
51-70 years	2
70+ years	2

*Note, while the NHMRC 2013 Australian Dietary Guidelines allow fruit juice to be used occasionally as one of the daily serves of fruit, the AHS only collected usual serves of fruit (excluding juice).

Recommended usual intake of vegetables

The National Health and Medical Research Council recommend levels of daily vegetable intake to ensure good nutrition and health. Vegetable intake has been grouped in the table below to allow results to be reported against the 2013 Australian Dietary Guidelines. A serve is approximately half a cup of cooked vegetables or legumes/beans or one cup of salad vegetables - equivalent to around 75 grams.*

RECOMMENDED DAILY SERVES OF VEGETABLES, by age

Age	Vegetables for males	Vegetables for females
2-3 years	2.5	2.5
4-8 years	4.5	4.5
9-11 years	5	5
12-13 years	5.5	5
14-18 years	5.5	5
19-50 years	6	5**
51-70 years	5.5	5
70+ years	5	5

*Note, while the Australian Dietary Guidelines include servings of legumes and beans in the recommendations for vegetable intake, the AHS only collected usual serves of vegetables (excluding legumes).

**Note, the recommended usual intake of vegetables for breastfeeding women is 7.5 serves and for pregnant women is 5 serves, however these population groups have not been separated in the nutrient data output.

Relative Standard Error (RSE)

The standard error expressed as a percentage of the estimate. For more information see the Technical notes in this publication.

Saturated Fat

Saturated fat or saturated fatty acids are a type of fat predominantly found in animal-based foods, although there are exceptions. Saturated fat is the total of all saturated fatty acids, that is all fatty acids without any double bonds.

Savoury sauces and condiments

The 'Savoury sauces and condiments' food group includes gravies and sauces, pickles, chutneys and relishes, salad dressings, stuffings and dips.

Seed and nut products and dishes

The 'Seed and nut products and dishes' food group includes seeds and seed products, and nuts and nut products

Snack foods

The 'Snack foods' food group includes potato chips, popcorn, corn chips, cheese and bacon balls and pretzels.

Sodium

Sodium occurs in a number of different forms but is generally consumed as sodium chloride (commonly known as 'salt').

Soup

The 'Soup' food group includes homemade, dry and canned soups as well as soups purchased ready to eat.

Special dietary foods

The 'Special dietary foods' food group includes formula dietary foods e.g. protein powders, meal replacement shakes and meal replacement bars.

Sub-major food group

The Sub-major food group is the second level (i.e. 3-digit level) of the classification for the food consumption data. The food classification is available in Excel spreadsheet format in the Downloads page of the AHS: Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Sugar products and dishes

The 'Sugar products and dishes' food group includes sugar, honey, syrups, jam, chocolate spreads and sauces and dishes and products other than confectionery where sugar is the major component e.g. pavlova and meringue.

Thiamin

Thiamin is a B group vitamin that helps the body to convert food to energy for the brain, nervous system and muscles. Wheat flour for bread making is fortified with thiamin in Australia.

Total Long Chain Omega 3 Fatty Acids

Long chain omega 3 fatty acids are a particular type of omega 3 fatty acids (eicosapentaenoic acid, docosapentanoic acid, and docosahexanoic acid) with cardiovascular and anti-inflammatory benefits. They are found in fatty fish such as salmon, sardines, mackerel, tuna and herring.

Under-reporting

Under-reporting refers to the tendency (bias) of respondents to underestimate their food intake in self-reported dietary surveys. It includes actual changes in foods eaten because people know they will be asked about them, and misrepresentation (deliberate, unconscious or accidental), e.g. to make their diets appear more 'healthy' or be quicker to report.

Underweight

See Body Mass Index (BMI).

Upper Level of Intake (UL)

The Upper Level of Intake (UL) of a nutrient is the highest average daily intake level that is likely to pose no adverse health effects. Nutrient intakes above the UL have a potentially increased risk of adverse effects. See Nutrient Reference Values for Australia and New Zealand.

Usual Intakes

Usual intakes represent food and nutrient intake over a long period of time. For a single person, dietary intake varies day to day. A single 24-hour dietary recall does not represent the usual, or long term, intake of a person because of this variation. In the 2011-12 NNPAS, all respondents were asked for follow-up contact phone details in order to conduct a second 24-hour recall over the phone at least 8 days later. A second 24-hour recall was collected from about 64% of respondents. The second 24-hour recall is used to estimate and remove within-person variation in order to derive a usual nutrient intake distribution for the population.

Vegetable products and dishes

The 'Vegetable products and dishes' food group includes vegetables and dishes where vegetables are the major component. e.g. salad or vegetable casserole.

Vitamins

Vitamins are organic compounds required in small amounts from the diet for normal growth and metabolic processes.

Vitamin A retinol equivalent

Vitamin A is a fat soluble vitamin which helps maintain normal reproduction, vision, and immune function. Vitamin A intake is measured in retinol equivalents to reflect the contribution of pro vitamin A and preformed vitamin A, using the equation: vitamin A retinol equivalent = retinol + beta carotene/6 + alpha carotene/12 + cryptoxanthin/12. The equation takes into account the differing biological activities of the different forms of vitamin A.

Vitamin B12

Vitamin B12, also known as cobalamin, has a key role in the normal functioning of the brain and nervous system, and the formation of blood. Almost all vitamin B12 comes from animal foods, such as meat and dairy products, although some is added to some plant-based foods such as vegetarian meat replacements.

Abbreviations

The following symbols and abbreviations are used in this publication:

..	not applicable
ABS	Australian Bureau of Statistics
AHS	Australian Health Survey
ALA	Alpha-linolenic acid
AMDR	Acceptable Macronutrient Distribution Ranges
AMPM	Automated Multiple-Pass Method
AUSNUT	Australian Food, Supplement and Nutrient Database
BMI	Body Mass Index
BMR	Basal Metabolic Rate
CURF	Confidentialised Unit Record File
DNA	Deoxyribonucleic acid
EAR	Estimated Average Requirement
EI	Energy intake
FSANZ	Food Standards Australia New Zealand
kg	kilogram
kJ	kilojoules
mg	milligram
ml	millilitre
MoE	Margin of Error
na	not available
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NATSINPAS	National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey
NHS	National Health Survey
NHMRC	National Health and Medical Research Council
NHMS	National Health Measures Survey
NNPAS	National Nutrition and Physical Activity Survey
NNS	National Nutrition Survey
NRV	Nutrient Reference Values
NTD	Neural tube defects
PGA	pteroyl glutamic acid
RSE	Relative standard error
SE	Standard error
THF	tetrahydrofolate
µg	microgram
UL	Upper Level of Intake
USDA	United States Department of Agriculture
WHO	World Health Organization

Appendix 1: Example foods in major food groups (Appendix)

EXAMPLE FOODS IN MAJOR FOOD GROUPS

Major food group	Examples
Non-alcoholic beverages	Tea, coffee, fruit juice, cordial, soft drink, water, electrolyte drink
Cereals and cereal products	Bread, rice, noodles, pasta, breakfast cereal
Cereal based products and dishes	Sweet biscuits, savoury biscuits, cake, sweet pastry, savoury pastry, pizza, sandwiches, burgers
Fats and oils	Butter, margarine, oils
Fish and seafood products and dishes	Fish, prawns, canned tuna, fish with pasta, fish with rice
Fruit products and dishes	Apples, pears, berries, oranges, peaches, bananas, melons, dried fruit, banana split, apple crumble
Egg products and dishes	Eggs, omelette, souffle, frittata
Meat, poultry and game products and dishes	Beef, lamb, pork, veal, kangaroo, chicken, ham, dried meats, sausages, casseroles, curries
Milk products and dishes	Milk, yoghurt, cream, cheese, ice cream, dairy desserts, cheesecake
Dairy & meat substitutes	Soy beverages, almond milk, tofu, quorn, tofu stirfry
Soup	Canned soup, homemade soup, dried soup mix
Seed and nut products and dishes	Peanuts, peanut butter, pumpkin seeds, coconut milk
Savoury sauces and condiments	Tomato sauce, chutney, salad dressings, mayonnaise, vinegar, dips
Vegetable products and dishes	Potatoes, carrots, beans, tomato, corn, salads, potato bake
Legume and pulse products and dishes	Lentils, soy beans, chickpeas, kidney beans, falafel, dhal
Snack foods	Potato crisps, popcorn, corn chips, rice crisps, pretzels
Sugar products and dishes	Sugar, honey, jam, icing sugar, apple sauce, meringue
Confectionery and cereal/nut/fruit/seed bars	Chocolate, muesli bars, fruit bars, lollies, chewing gum
Alcoholic beverages	Beer, wine, spirits, cocktails, liqueurs
Special dietary foods	Liquid and powdered meal replacements, protein drinks and powders, oral supplement powder and beverages (excluding electrolyte drinks)
Miscellaneous	Yeast, salt, intense sweeteners, herbs, stock, essences, gelatine, spreadable yeast extract
Infant formulae and foods	Toddler formula, rusks, infant cereals, infant fruit, infant custards, infant fruit juices
Dietary supplements	Vitamins and mineral supplements, fish oil supplements, fibre supplements
Reptiles, amphibia and insects	Crocodile, turtle, goanna

Technical Note

RELIABILITY OF THE ESTIMATES

1 Two types of error are possible in an estimate based on a sample survey: sampling error and non-sampling error. The sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. Since the estimates in this publication are based on information obtained from occupants of a sample of dwellings they are subject to sampling variability; that is they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the standard error (SE). There are about two chances in three that a sample estimate will differ by less than one SE from the figure that would have been obtained if all dwellings had been included, and about 19 chances in 20 that the difference will be less than two SEs.

2 Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate. The RSE is a useful measure in that it provides an immediate indication of the percentage errors likely to have occurred due to sampling, and thus avoids the need to refer also to the size of the estimate.

$$RSE\% = \left(\frac{SE}{estimate} \right) \times 100$$

3 RSEs for the published estimates and proportions are supplied in the Excel data tables, available via the Downloads page.

4 The smaller the estimate the higher is the RSE. Very small estimates are subject to such high SEs (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In the tables in this publication, only estimates with RSEs less than 25% are considered sufficiently reliable for most purposes. However, estimates with larger RSEs, between 25% and less than 50% have been included and are preceded by an asterisk (e.g. *3.4) to indicate they are subject to high SEs and should be used with caution. Estimates with RSEs of 50% or more are preceded with a double asterisk (e.g. **0.6). Such estimates are considered unreliable for most purposes.

5 The imprecision due to sampling variability, which is measured by the SE, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents and errors made in coding and processing of data. Inaccuracies of this kind are referred to as the non-sampling error, and they may occur in any enumeration, whether it be in a full count or only a sample. In practice, the potential for non-sampling error adds to the uncertainty of the estimates caused by sampling variability. However, it is not possible to quantify the non-sampling error.

STANDARD ERRORS OF PROPORTIONS AND PERCENTAGES

6 Proportions and percentages formed from the ratio of two estimates are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. For proportions where the denominator is an estimate of the number of persons in a group and the numerator is the number of persons in a sub-group of the denominator group, the formula to approximate the RSE is given below. The formula is only valid when x is a subset of y.

$$RSE\left(\frac{X}{Y}\right) = \sqrt{RSE(X)^2 - RSE(Y)^2}$$

COMPARISON OF ESTIMATES

7 Published estimates may also be used to calculate the difference between two survey estimates. Such an estimate is subject to sampling error. The sampling error of the difference between two

estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two estimates (x-y) may be calculated by the following formula:

$$SE(x - y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

8 While the above formula will be exact only for differences between separate and uncorrelated (unrelated) characteristics of sub-populations, it is expected that it will provide a reasonable approximation for all differences likely to be of interest in this publication.

9 Another measure is the Margin of Error (MoE), which describes the distance from the precision of the estimate at a given confidence level, and is specified at a given level of confidence. Confidence levels typically used are 90%, 95% and 99%. For example, at the 95% confidence level the MoE indicates that there are about 19 chances in 20 that the estimate will differ by less than the specified MoE from the population value (the figure obtained if all dwellings had been enumerated). The 95% MoE is calculated as 1.96 multiplied by the SE.

10 The 95% MoE can also be calculated from the RSE by:

$$MOE(y) \approx \frac{RSE(y) * y}{100} * 1.96$$

11 The MoEs in this publication are calculated at the 95% confidence level. This can easily be converted to a 90% confidence level by multiplying the MoE by

$$\frac{1.645}{1.96}$$

or to a 99% confidence level by multiplying by a factor of

$$\frac{2.576}{1.96}$$

12 A confidence interval expresses the sampling error as a range in which the population value is expected to lie at a given level of confidence. The confidence interval can easily be constructed from the MoE of the same level of confidence by taking the estimate plus or minus the MoE of the estimate.

EXAMPLE OF INTERPRETATION OF SAMPLING ERROR

13 Standard errors can be calculated using the estimates and the corresponding RSEs. For example, for females aged 19-30 years, the mean intake of Citrus fruit was 16.5 grams. The RSE for this estimate is 16.8%, and the SE is calculated by:

$$\begin{aligned} SE \text{ of estimate} &= \left(\frac{RSE}{100} \right) \times \text{estimate} \\ &= 0.168 \times 16.5 \\ &= 2.8 \end{aligned}$$

14 Standard errors can also be calculated using the MoE. For example the MoE for the estimate of

the proportion of females aged 19-30 years who ate a Citrus fruit on the day prior to interview is +/- 3.5 percentage points. The SE is calculated by:

$$\begin{aligned} SE \text{ of estimate} &= \left(\frac{MOE}{1.96} \right) \\ &= \left(\frac{3.5}{1.96} \right) \\ &= 1.8 \end{aligned}$$

15 Note due to rounding the SE calculated from the RSE may be slightly different to the SE calculated from the MoE for the same estimate.

16 There are about 19 chances in 20 that the estimate of the proportion of females aged 19-30 years who ate a Citrus fruit on the day prior to interview is within +/- 3.5 percentage points from the population value.

17 Similarly, there are about 19 chances in 20 that the proportions of females aged 19-30 years who ate a Citrus fruit on the day prior to interview is within the confidence interval of 8.8% to 15.8%.

SIGNIFICANCE TESTING

18 For comparing estimates between surveys or between populations within a survey it is useful to determine whether apparent differences are 'real' differences between the corresponding population characteristics or simply the product of differences between the survey samples. One way to examine this is to determine whether the difference between the estimates is statistically significant. This is done by calculating the standard error of the difference between two estimates (x and y) and using that to calculate the test statistic using the formula below:

$$\frac{|x - y|}{SE(x - y)}$$

19 If the value of the statistic is greater than 1.96 then we may say there is good evidence of a statistically significant difference at 95% confidence levels between the two populations with respect to that characteristic. Otherwise, it cannot be stated with confidence that there is a real difference between the populations.

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