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Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Contents

Key Findings 1
About the Australian Aboriginal and Torres Strait Islander Health Survey 6
Structure of the Australian Aboriginal Torres Strait Islander Health Survey 7
Foods Consumed 9
Non-alcoholic beverages 13
Cereal and cereal products 19
Milk products and dishes 21
Vegetable products and dishes 22
Cereal based products and dishes 27
Meat, poultry and game products and dishes 30
Fruit products and dishes 32
Sugar products and dishes 36
Fats and oils 38
Confectionary and cereal, nut, fruit, seed bars 38
Snack foods 39
Alcoholic beverages 40
Discretionary foods 43
Energy and nutrients 46
Energy 46
Macronutrients 49
Carbohydrate 52
Dietary fibre 54
Protein 55
Fat 56
Alcohol 57
Selected micronutrients 58
Folate 59
Vitamin B12 60
Thiamin 62
Calcium 63
Sodium 65
Iodine 68
Iron 70
Supplements 72
Dieting 74
Dieting and body mass 77
Food security 78
Under-reporting 79
Explanatory notes 81
Glossary 92
Abbreviations 109
Technical Note 111

KEY FINDINGS

This publication contains nutrition data collected in the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS). It presents results from a 24-hour dietary recall of food, beverages and dietary supplements, as well as some general information on dietary behaviours.

FOOD CONSUMPTION

Aboriginal and Torres Strait Islander people aged 2 years and over consumed an estimated 2.96 kilograms of foods and beverages (including water) per day, made up from a wide variety of foods across the major food groups.

- Almost nine in ten Aboriginal and Torres Strait Islander people (87%) reported consuming **Cereals and cereal products** and six in ten (62%) consumed **Cereal based products and dishes**.

- *Regular bread and bread rolls* was the most commonly eaten type of **Cereal and cereal product**, being consumed by 70% of people*. Ready to eat breakfast cereals* were eaten by 34% of the population.

- More than eight in ten Aboriginal and Torres Strait Islander people (83%) consumed from the **Milk products and dishes** group, with foods in this group providing an average 10% of the population's energy intake. Around seven in ten (69%) of people consumed *Dairy milk*, while over one quarter (27%) had *Cheese*.

- **Meat, poultry and game products and dishes** were consumed by three quarters (76%) of Aboriginal and Torres Strait Islander people, providing 16% of total energy intake. *Processed meats* were most commonly consumed (29%), followed by *Unprocessed beef, sheep and pork* (23%) and *Poultry and feathered game* (17%).

- Over two fifths (41%) of total daily energy reported as consumed by Aboriginal and Torres Strait Islander people 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.

- **Vegetable products and dishes** were consumed by almost two thirds (65%) of Aboriginal and Torres Strait Islander people, with *Potatoes* alone being consumed by over one third (36%). Based on people's self-reported usual consumption of vegetables, just 8% of the population met the recommended usual intake of vegetables.

- **Fruit products and dishes** were consumed by almost half (46%) of Aboriginal

and Torres Strait Islander people. Based on self-reported usual serves of fruit eaten per day, over half of those who consumed fruit (54%) met the recommendations for usual serves.

- Almost two in five (37%) Aboriginal and Torres Strait Islander people consumed *Soft drinks, and flavoured mineral water*.

Was there a difference by remoteness?

- Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to have consumed **Meat, poultry and game products and dishes** (81% compared with 74%), and derived a greater proportion of their energy intake from foods in this group (23% compared with 15%).

- Aboriginal and Torres Strait Islander people in non-remote areas obtained a greater proportion of energy from discretionary foods compared to the population in remote areas (42% and 35% respectively).

- A lower proportion of Aboriginal and Torres Strait Islander adults in remote areas compared with adults in non-remote areas reported consuming **Alcoholic beverages** (14% compared with 20%).

How did Aboriginal and Torres Strait Islander people compare with non-Indigenous people?

- A smaller proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people consumed food from the **Vegetable products and dishes** group (65% compared with 75%). Based on people's self-reported usual consumption of vegetables, a lower proportion of Aboriginal and Torres Strait Islander adults aged 19 years and over met the recommendations compared with non-Indigenous adults (4.4% compared with 6.8%).

- The proportion of Aboriginal and Torres Strait Islander people who consumed **Fruit products and dishes** was lower than the proportion in the non-Indigenous population (46% compared with 60%).

- The proportion of total daily energy from discretionary foods was higher among Aboriginal and Torres Strait Islander people than non-Indigenous people (41% compared with 35%).

- Overall, a lower proportion of Aboriginal and Torres Strait Islander adults (aged 19 years and over) than non-Indigenous adults consumed an **Alcoholic beverage** (19% compared with 32%). However, the median amount of **Alcoholic beverages** consumed was more than twice as high among Aboriginal and Torres Strait Islander

consumers (equivalent to 3 bottles of beer or 1.5 bottles of wine) than non-Indigenous consumers (equivalent to 1.2 bottles of beer or almost 5 glasses of wine).

- Twice as many Aboriginal and Torres Strait Islander people than non-Indigenous people consumed cordial (15% compared with 7%).

- A higher proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people consumed *Soft drinks, and flavoured mineral water* (37% compared with 29%). Aboriginal and Torres Strait Islander children aged 2-3 years were three times as likely as non-Indigenous children aged 2-3 years to have consumed *Soft drinks, and flavoured mineral waters* (18% compared with 5.8%).

ENERGY AND NUTRIENTS

The average energy intake was 9,175 kilojoules (kJ) for Aboriginal and Torres Strait Islander males and 7,261 kJ for Aboriginal and Torres Strait Islander females. Energy intakes were lowest among the toddler aged children (2-3 years), who averaged 6,169 kJ.

- Carbohydrate contributed the largest proportion of total energy, supplying 46% on average with the balance of energy coming from fat (31%), protein (18%), alcohol (2.0%) and dietary fibre (1.8%).

- The average daily intake of sodium from food was just over 2,379 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'.

Was there a difference by remoteness?

- Aboriginal and Torres Strait Islander people in remote areas derived a greater proportion of energy from protein compared with those living in non-remote areas (20% compared with 18% respectively). This aligns with higher consumption of *Meat, poultry and game products* by people in remote areas.

How did Aboriginal and Torres Strait Islander people compare with non-Indigenous people?

- Within carbohydrates, starch contributed 24% and sugars contributed 21% of energy. The highest contributor for total sugars was *Soft drinks, and flavoured mineral waters* – this combined with *Cordials* totalled 24% for Aboriginal and Torres Strait Islander people compared with 12% for non-Indigenous people.

- The contribution of Fat to average dietary energy intake is similar for both the

Aboriginal and Torres Strait Islander population and non-Indigenous population; however, saturated fat is higher for the Aboriginal and Torres Strait Islander population.

DIETARY SUPPLEMENTS

One in eight (12%) Aboriginal and Torres Strait Islander people reported taking at least one dietary supplement. Aboriginal and Torres Strait Islander people living in non-remote areas were three times more likely to take supplements than those in remote areas (14% and 4.3% respectively). A smaller proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people consumed supplements (12% compared with 29%).

DIETING

About 12% of Aboriginal and Torres Strait Islander people aged 15 years and over reported that they were on a diet to lose weight or for some other health reason. This was similar to the proportion of non-Indigenous people aged 15 years and over on a diet (13%). Both populations had more people on a diet to lose weight than for other health reasons.

FOOD SECURITY

More than one in five (22%) Aboriginal and Torres Strait Islander people were living in a household where someone went without food when the household ran out of food compared with less than one in twenty (3.7%) in the non-Indigenous population. Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to be living in a household that had run out of food and couldn't afford to buy more (31% compared with 20%).

UNDER-REPORTING

In order to assist in the interpretation of data from the 2012-13 NATSINPAS, particularly in comparisons with the 2011-12 National Nutrition and Physical Activity Survey (NNPAS), 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 more under-reporting in the NATSINPAS than in the NNPAS.
- The proportion of Aboriginal and Torres Strait Islander people who were classed as Low Energy Reports (LERs) increased with Body Mass Index (BMI) for both males and females, with females more likely to be LERs than males.
- The level of under-reporting appears to increase with BMI.

Care should be taken when interpreting results in this publication. Like in other nutrition surveys, there has been some under-reporting of food intake by participants in this survey. 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. As a result, no adjustment to the estimates has been applied and the results within this publication will be affected by under-reporting to differing degrees.

ABOUT THE AUSTRALIAN ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH SURVEY

The ABS 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 as well as new detailed information on nutrition, physical activity, and chronic disease and nutrient biomarkers.

The Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) forms part of the broader AHS and is based on a nationally representative sample of around 13,400 Aboriginal and Torres Strait Islander people. It was conducted in non-remote areas and remote areas across Australia, including discrete communities, and combines the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) with two new components - the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) and the National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) see Structure of the Australia Aboriginal and Torres Strait Islander Health Survey for more information.

The NATSINPAS is the first ABS survey to collect detailed nutrition information from Aboriginal and Torres Strait Islander people. Information for the nutrition component was gathered using a 24-hour dietary recall on all foods and beverages consumed on the day prior to interview. Where possible, at least 8 days after the first interview, respondents in non-remote areas were contacted to participate in a second 24-hour dietary recall via telephone interview. This publication contains information from the nutrition component of the NATSINPAS. It presents information on food, beverages and dietary supplements from the first interview, as well as some general information on dietary behaviours.

ACKNOWLEDGEMENTS

Both the NATSINPAS and NATSIHMS were made possible through additional funding from the Australian Government Department of Health and the National Heart Foundation of Australia. The contributions of these two organisations to improving health information in Australia through the collection of high quality statistics are greatly valued.

The AATSIHS was developed with the assistance of an advisory group comprised of experts on health issues, many of whom were Aboriginal and Torres Strait Islander people. 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 2012-13 NATSINPAS 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 support, advice and expertise for the 2012-13 NATSINPAS.

The ABS gratefully acknowledges and thanks the Agricultural Research Service of the United States Department of Agriculture (USDA) for giving permission to adapt and use their Dietary Intake Data System, including the Automated Multiple-Pass Method (AMPM) for collecting dietary intake information, as well as other processing systems and associated materials.

The success of the 2012-13 AATSIHS was also dependent on the very high level of cooperation received from Aboriginal and Torres Strait Islander people. 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*.

STRUCTURE OF THE AUSTRALIAN ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH SURVEY

This publication is one of several ABS releases from the 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS). The AATSIHS has three components:

- the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)
- the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS)
- the National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS).

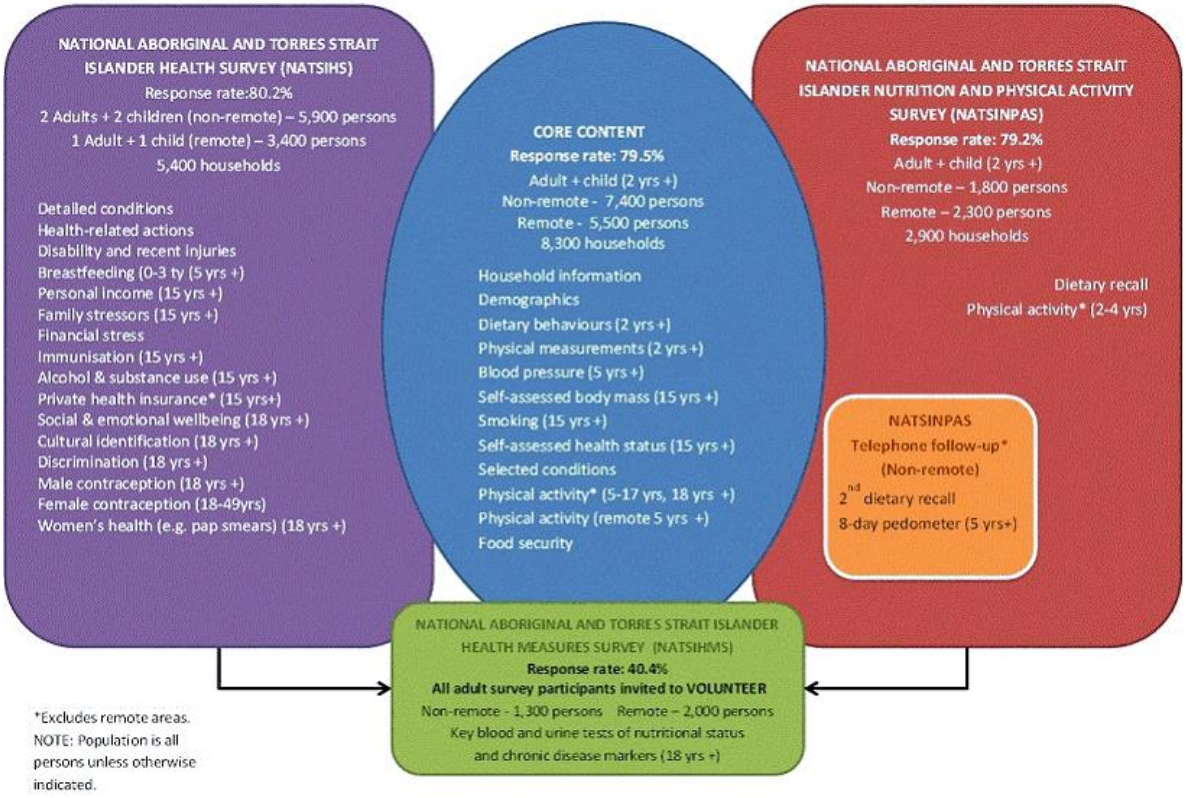
All people included in the AATSIHS were selected in either the NATSIHS or the NATSINPAS, however data items in the 'Core' were common to both surveys and therefore information for these data items is available for all Aboriginal and Torres Strait Islander persons in the AATSIHS.

All Aboriginal and Torres Strait Islander people aged 18 years and over who were selected in either the NATSIHS or NATSINPAS were also invited to participate in the voluntary NATSIHMS component.

The following diagram shows how the various components combine to provide

comprehensive health information for the Aboriginal and Torres Strait Islander population. The contents (and age of respondents by topic) for each component survey are listed below.

Structure of the Australian Aboriginal and Torres Strait Islander Health Survey



As shown in the diagram, around 13,400 Aboriginal and Torres Strait Islander people participated in either the NATSIHS or NATSINPAS, answering questions about topics such as long-term health conditions, health risk factors, tobacco smoking and self-assessed health, physical activity and sedentary behaviour. Around 12,900 Aboriginal and Torres Strait Islander people were included in the Core and 4,100 participated in the NATSINPAS only.

Also as indicated in the diagram, there are questionnaire content differences across non-remote and remote areas. Information about private health insurance, second day dietary recall, pedometer use, and physical activity for 2-4 year olds were not collected in remote areas. In addition, different questions were used to collect employment and physical activity data in non-remote and remote areas.

FOODS CONSUMED

FOOD GROUPS

Information on food and beverages consumed by respondents in the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) was collected and coded at a detailed level, but for output purposes has been categorised using a food classification with major and sub-major 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 only 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 an 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 include biscuits, cakes, pastries, mixed pasta or rice dishes, burgers, pizza and tacos. The **Cereal based products and dishes** group should not be confused with the **Cereal and cereal products** group 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 Users' Guide.

Aboriginal and Torres Strait Islander people aged 2 years and over consumed an estimated average of 2.96 kilograms of food and beverages per day, made up of a wide variety of foods across the major food groups (see Table 5.1). A majority of respondents in the NATSINPAS reported consuming **Cereals and cereal products** (87%), **Milk products and dishes** (83%), **Meat, poultry and game products and dishes** (76%), **Vegetable products and dishes** (65%) and **Cereal based products and dishes** (62%) (see Table 4.1 and Table 4.3).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in non-remote areas were *more* likely than those in remote areas to consume:

- **Fruit products and dishes** (49% compared with 35%)
- *Soft drinks, and flavoured mineral waters* (39% compared with 32%)

Aboriginal and Torres Strait Islander people in non-remote areas were *less* likely than those in remote areas to consume:

- **Cereals and cereal products** (86% compared with 91%)
- **Meat, poultry and game products and dishes** (74% compared with 81%)

How did this compare with non-Indigenous people?

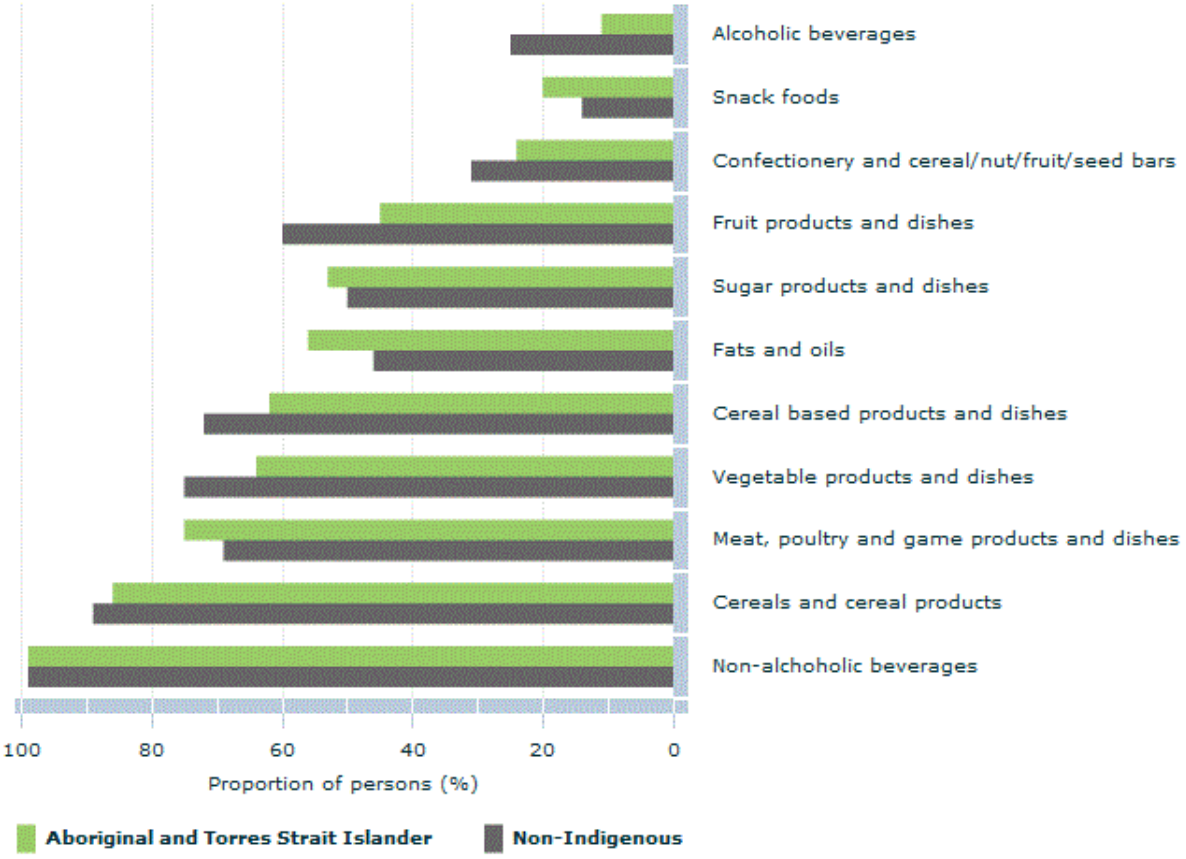
Aboriginal and Torres Strait Islander people were *more* likely than non-Indigenous people to consume:

- **Meat, poultry and game products and dishes** (76% compared with 69%)
- **Fats and oils** (56% compared with 46%)
- **Snack foods** (20% compared with 15%)

Aboriginal and Torres Strait Islander people were *less* likely than non-Indigenous people to consume:

- **Vegetable products and dishes** (65% compared with 75%)
- **Cereal based products and dishes** (62% compared with 72%)
- **Alcoholic beverages** (19% compared with 32%)
- **Confectionery and cereal/nut/fruit/seed bars** (25% compared with 32%)

Consumption from selected major food groups(a) by Indigenous status, 2012-13



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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 food in major food groups.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

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 (excluding non-consumers).

Care should be taken when interpreting food and beverage consumption in this publication. Analysis of the 2012-13 NATSINPAS suggests that, like in other nutrition surveys, there has been some under-reporting of food intake by participants in this

survey. 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. For more information on under-reporting in this survey, see the Under-reporting section of this publication and the Users' Guide.

NON-ALCOHOLIC BEVERAGES

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

WATER

Waters, municipal and bottled, unflavoured were consumed by 82% of Aboriginal and Torres Strait Islander people. Of those that consumed *Waters*, the median amount consumed was one litre (1,000 grams) per day (see Table 6.1).

Aboriginal and Torres Strait Islander people living in non-remote areas were less likely to have consumed *Waters* than those in remote areas (81% compared with 87%)

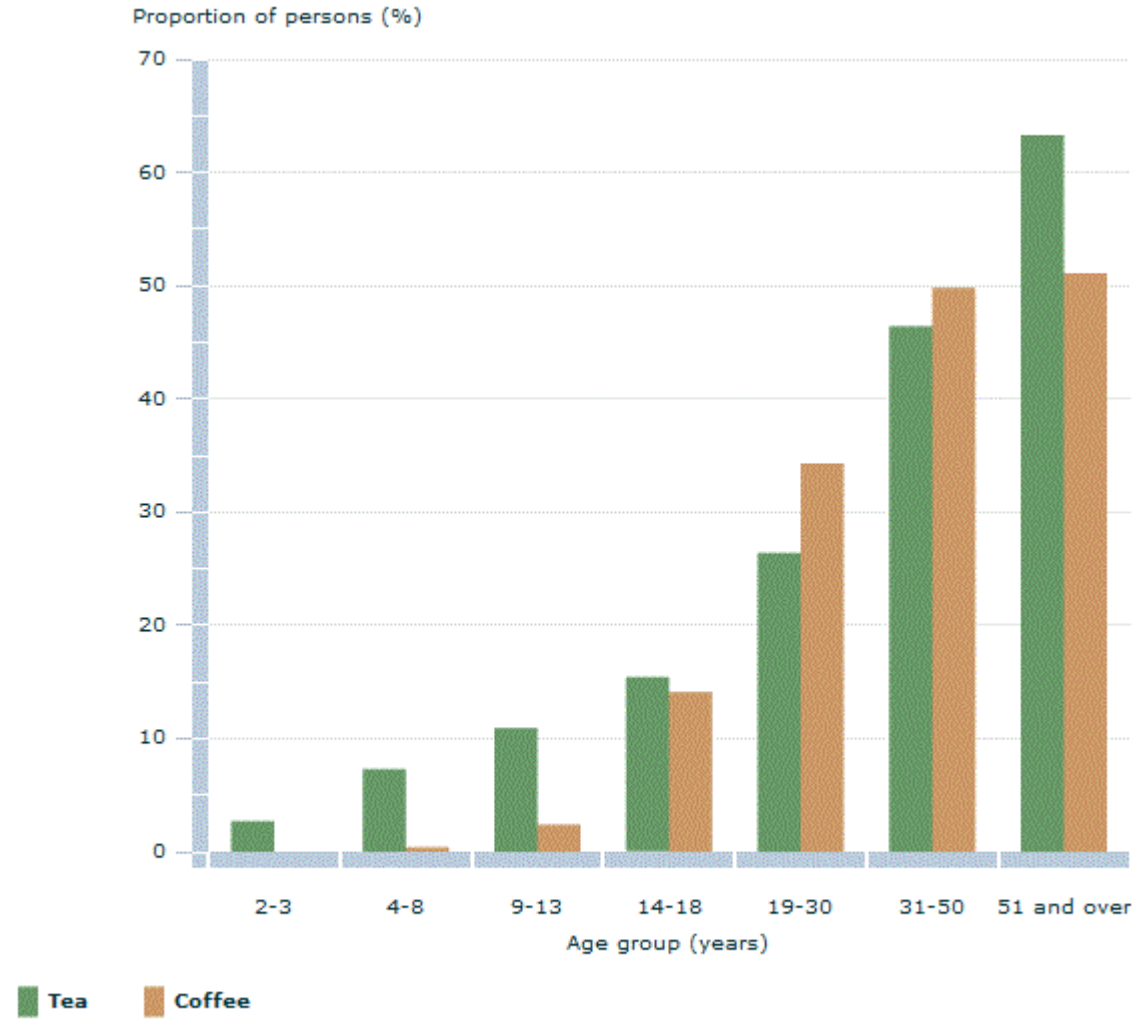
Aboriginal and Torres Strait Islander people were less likely to have consumed *Waters* than non-Indigenous people (82% compared with 87%). This could be partially explained by higher cordial consumption by Aboriginal and Torres Strait Islander people (see cordial section below).

COFFEE AND TEA

Coffee (including coffee substitutes) was consumed by 28% of Aboriginal and Torres Strait Islander people, and 29% consumed *Tea*. However, consumption of each beverage type was closely associated with age. For example, *Coffee* was consumed by around one in twenty (4.6%) Aboriginal and Torres Strait Islander children aged 2-18 years and one in three (34%) people aged 19-30 years. One in two people aged 31-50 years and 51 years and over reported consuming *Coffee* (50% and 51% respectively) (see Table 4.1 and Table 4.3).

Among those who consumed *Coffee (including coffee substitutes)*, median daily consumption was 330mls (equivalent to a large mug) while the median daily amount of tea consumed by tea drinkers was 400mls (around two small cups) (see Table 6.1).

Coffee & tea consumption(a)(b) by age, 2012-13



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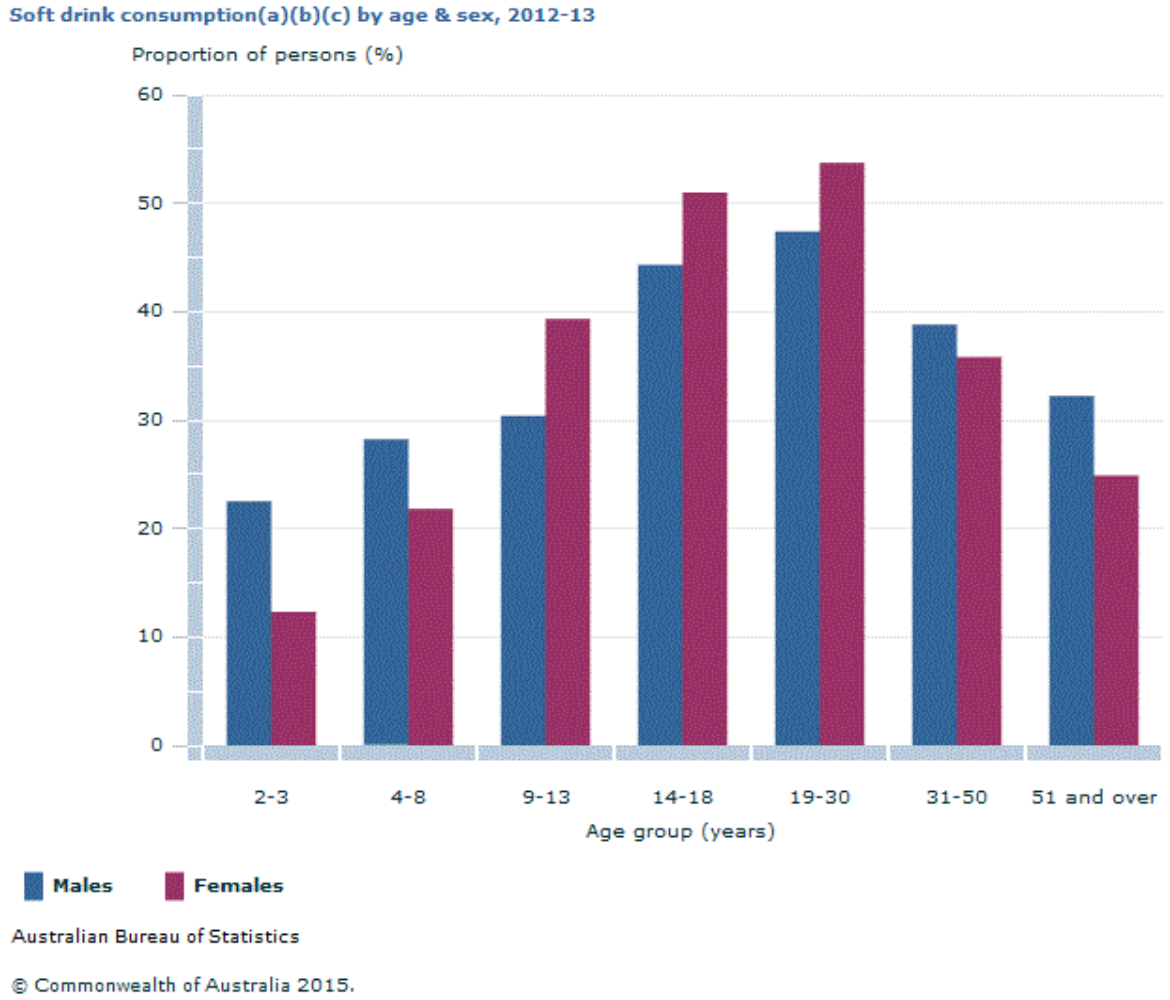
Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Aboriginal and Torres Strait Islander people were less likely than non-Indigenous people to have consumed both *Coffee (including coffee substitutes)* (28% compared with 46%) and *Tea* (29% compared with 38%). However, this difference between the Aboriginal and Torres Strait Islander and non-Indigenous populations is influenced by the younger age structure of the Aboriginal and Torres Strait Islander population, since consumption of each beverage type was associated with age. *Tea* consumption was similar between the two populations for every age group. *Coffee (including coffee substitutes)* consumption was higher for the 31-50 and 51 and over non-Indigenous age groups.

SOFT DRINKS AND FLAVOURED MINERAL WATERS

More than one in three (37%) Aboriginal and Torres Strait Islander people consumed *Soft drinks, and flavoured mineral waters*. The consumption rate of *Soft drinks, and flavoured mineral waters* in the Aboriginal and Torres Strait Islander population peaked among 19-30 year olds (47% of males and 54% of females). Among Aboriginal and Torres Strait Islander people who reported consuming *Soft drinks, and flavoured mineral waters,* the median daily amount consumed was the equivalent of a regular can (375mls) (see Table 6.1).



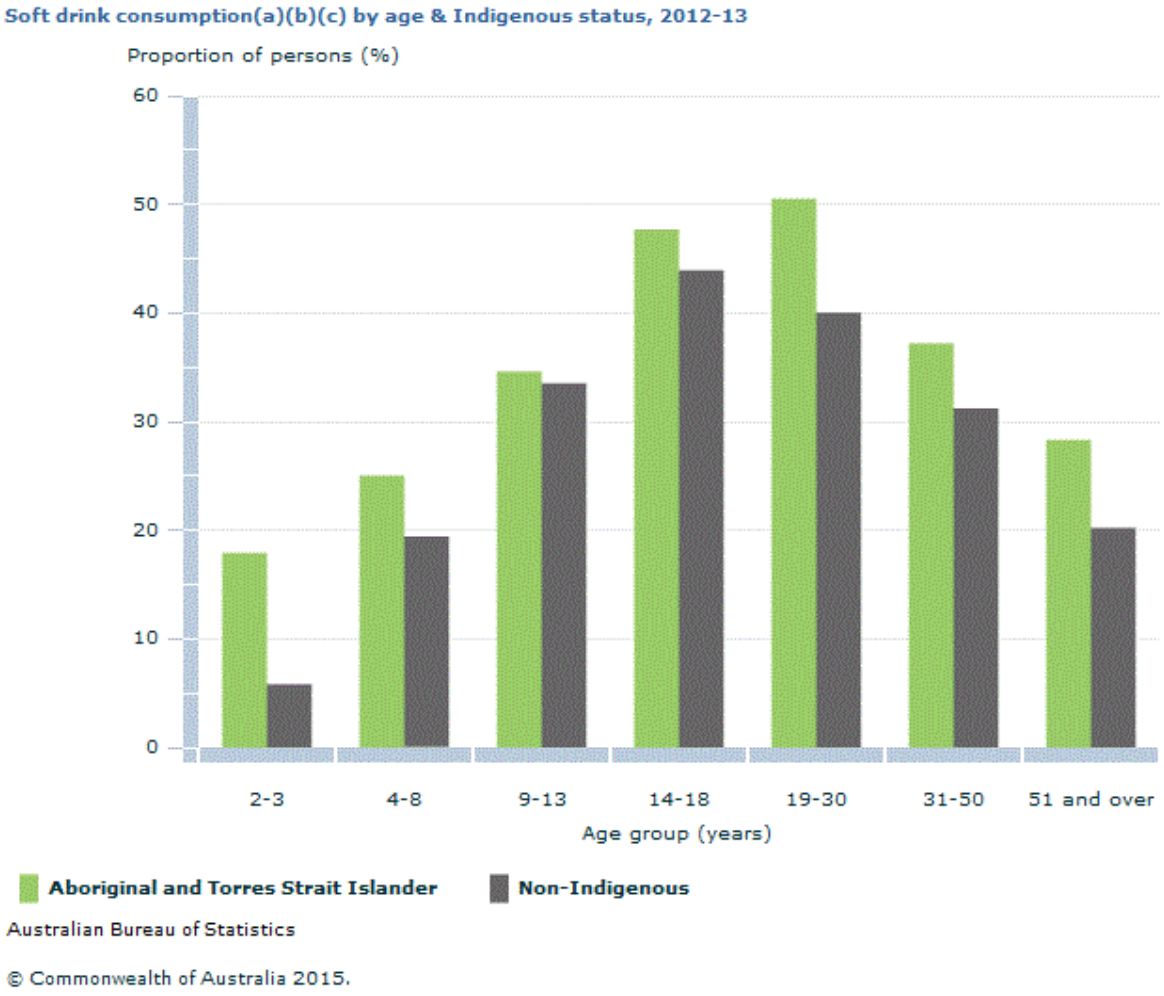
Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) Includes flavoured mineral waters. (c) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Aboriginal and Torres Strait Islander people living in non-remote areas were more likely than those in remote areas to have consumed *Soft drinks, and flavoured*

mineral waters (39% compared with 32%) (see Table 4.1 and Table 4.3).

A higher proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people consumed *Soft drinks, and flavoured mineral waters* (37% compared with 29%). This was particularly evident for children aged 2-3 years, with Aboriginal and Torres Strait Islander children three times as likely as non-Indigenous children to have consumed *Soft drinks, and flavoured mineral waters* (18% compared with 5.8%).



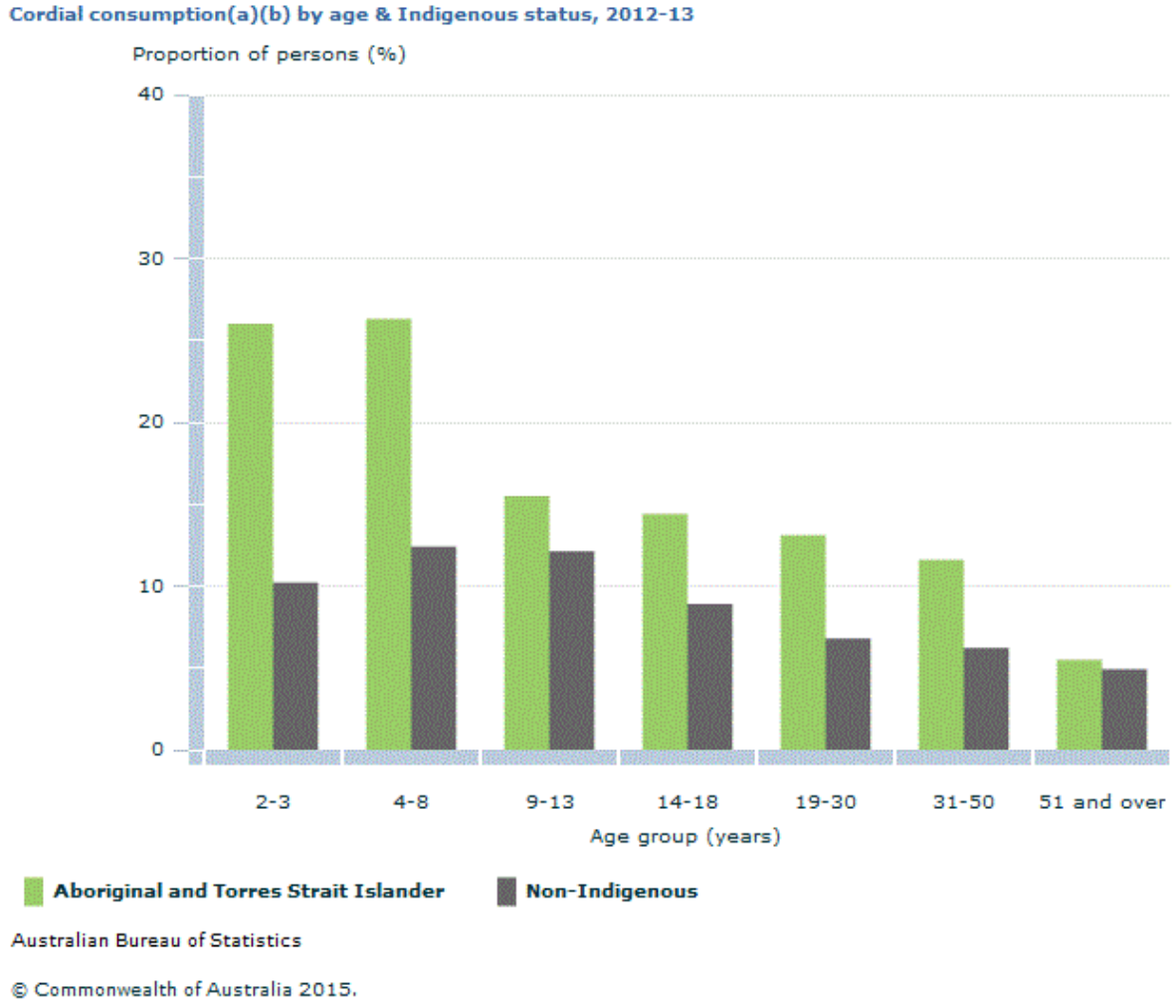
Footnote(s): (a) Persons aged 2 years and over. (b) Includes flavoured mineral waters. (c) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

CORDIALS

Aboriginal and Torres Strait Islander people were twice as likely as non-Indigenous

people to have consumed *Cordials* (15% compared with 7%). The consumption rate of *Cordials* was highest among Aboriginal and Torres Strait Islander children aged 2-3 and 4-8 years (both 26%). Similar proportions of people living in non-remote and remote areas consumed *Cordials*.



Footnote(s): (a) Persons aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

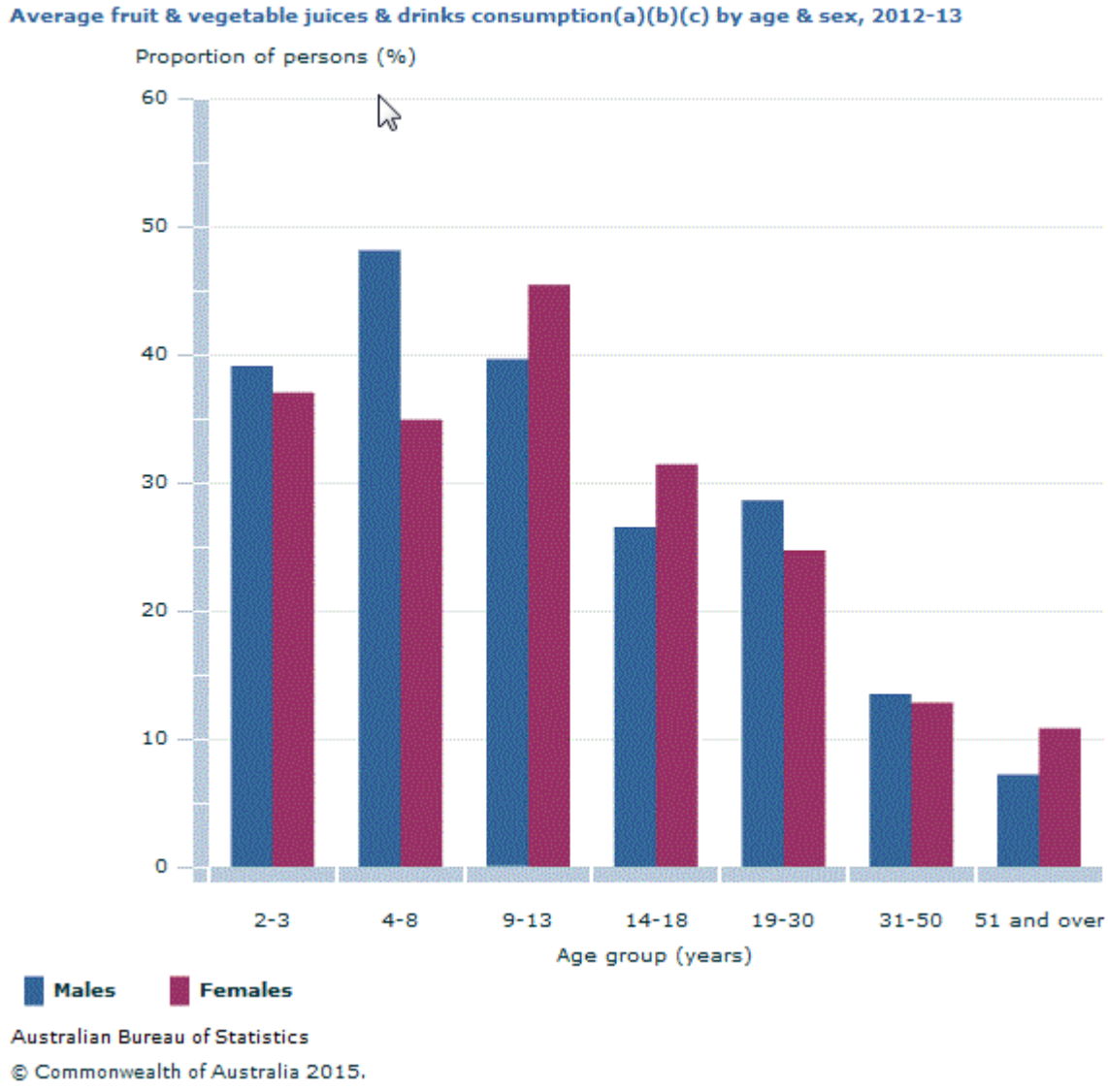
FRUIT AND VEGETABLE JUICES AND DRINKS

Overall, just over one quarter (26%) of the Aboriginal and Torres Strait Islander population consumed *Fruit and vegetable juices and drinks*. This was similar to

consumption in the non-Indigenous population (see Table 4.3).

Consumption of *Fruit and vegetable juices and drinks* was highest among Aboriginal and Torres Strait Islander children aged 9-13 years (42%). The proportion of Aboriginal and Torres Strait Islander people consuming these products declined in subsequent age groups, to 9.1% of those aged 51 years and over (see Table 4.1).

Of those who consumed *Fruit and vegetable juices and drinks*, the median amount consumed was 1 cup (250mls) (see Table 6.1).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) Fruit and/or vegetable juices and drinks include 'drinks' containing 100% juice or added water, flavours and sweeteners. (c) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition

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 in ten (87%) Aboriginal and Torres Strait Islander people reported eating foods from the **Cereals and cereal products** group (see Table 4.1).

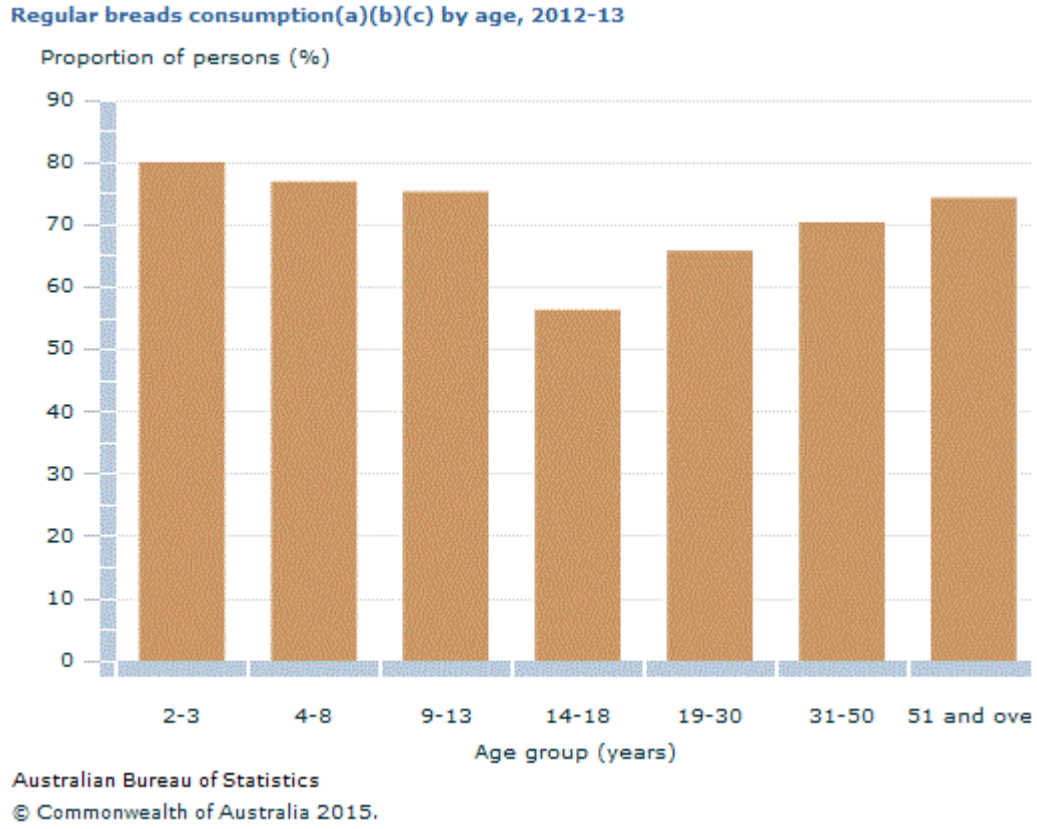
Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to have consumed foods from the **Cereals and cereal products** group (91% compared with 86%). This food group provided 17% of Aboriginal and Torres Strait Islander people's daily energy, on average, with the majority coming from *Regular breads and bread rolls* (9.6%) (see Table 8.1.)

BREAD

Within the **Cereal and cereal products** group, *Regular breads and bread rolls (plain/unfilled/untopped varieties)* were the products most commonly consumed by Aboriginal and Torres Strait Islander people (70%), a higher proportion than in the non-Indigenous population (66%) (see Table 4.1 and Table 4.3). Aboriginal and Torres Strait Islander people also derived more of their daily energy intake from this food group than did non-Indigenous people (9.6% compared with 7.7%) (see Table 8.1 and Table 8.3).

Among Aboriginal and Torres Strait Islander consumers of *Regular breads and bread rolls*, the median amount consumed on a day was 76 grams (2 average slices of bread is 66 grams) (see Table 6.1).

Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to have consumed *Regular breads and bread rolls* (74% compared with 69%).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) Includes bread rolls (plain/unfilled/untopped varieties). (c) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

BREAKFAST CEREALS

Breakfast cereals, ready to eat, were consumed by 34% of the Aboriginal and Torres Strait Islander population, similar to the rate in the non-Indigenous population.

Aboriginal and Torres Strait Islander children aged 2-3 years were the most prevalent consumers of *Breakfast cereals, ready to eat* (73%), followed by 4-8 year olds (62%) (see Table 4.1 and Table 4.3). Male consumers ate a median daily amount of 40 grams of *Breakfast cereals, ready to eat*, while females ate a median amount of 34 grams which is equivalent to around one metric cup (35 grams) 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 in ten (83%) Aboriginal and Torres Strait Islander people consumed from the **Milk products and dishes** group (see Table 4.1). This was similar to the proportion of non-Indigenous people that consumed these products (see Table 4.3). Aboriginal and Torres Strait Islander people living in non-remote areas were equally likely to have consumed products from this category as those living in remote areas. Foods in this group provided, on average, 10% of the Aboriginal and Torres Strait Islander population's energy intake (see Table 8.1).

DAIRY MILK

Dairy milk (cow, sheep and goat) was consumed by just over two thirds (69%) of the Aboriginal and Torres Strait Islander population (see Table 4.1). This was similar to the proportion of non-Indigenous people that consumed these products (68%) (see Table 4.3). The average daily consumption of *Dairy milk (cow, sheep and goat)* was just over half a cup (139mls), and a further 30mls of milk was consumed on average from the *Flavoured milks and milkshakes* group (see Table 5.1).[1]

CHEESE

Cheese was consumed by just over one quarter (27%) of the Aboriginal and Torres Strait Islander population, lower than consumption in the non-Indigenous population (32%). Within the Aboriginal and Torres Strait Islander population, consumption was

highest among children aged 2-3 years (36%) and 4-8 years (31%) (see Table 4.1 and Table 4.3).

FROZEN MILK PRODUCTS

Frozen milk products were consumed by 12% of the Aboriginal and Torres Strait Islander population, lower than consumption in the non-Indigenous population (15%). Within the Aboriginal and Torres Strait Islander population, children aged 4-8 and 9-13 years were the most likely to have consumed F*rozen milk products* (18% and 20% respectively). These two age groups were also the most likely to have consumed *Frozen milk products* in the non-Indigenous population (22% and 27% respectively) (see Table 4.1 and Table 4.3).

YOGHURT

Overall, *Yoghurt* was consumed by 7.5% of the Aboriginal and Torres Strait Islander population, around half the rate of the non-Indigenous population (16%). *Yoghurt* was consumed by one in five (19%) Aboriginal and Torres Strait Islander children aged 2-3 years. Females (9.1%) were more likely than males (5.9%) to have consumed *Yoghurt* (see Table 4.1 and Table 4.3).

ENDNOTES

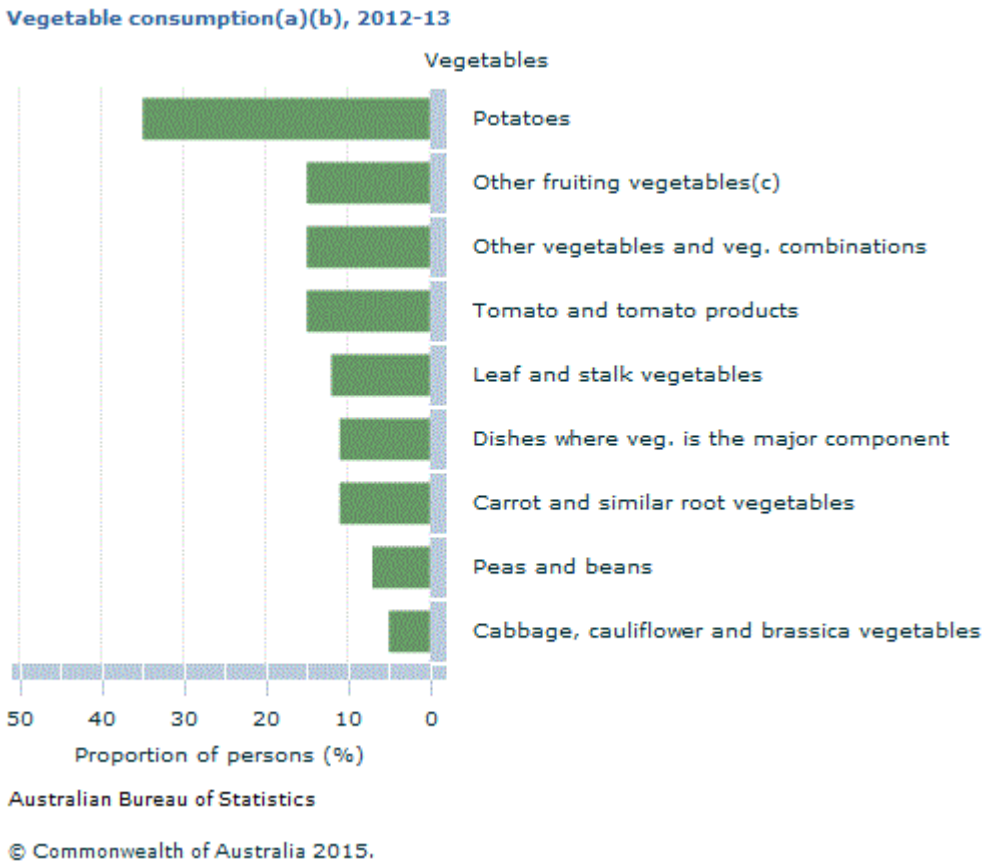
1. The group *Dairy milk (cow, sheep and goat)*, excludes the milk consumed as part of a beverage within the major group **Non-alcoholic beverages**.

VEGETABLE PRODUCTS AND DISHES

The **Vegetable products and dishes** food group includes vegetables, wild harvested vegetables and dishes where vegetable is the major component for example, zucchini slice and potato bake.

Around two thirds (65%) of Aboriginal and Torres Strait Islander people consumed **Vegetable products and dishes**. The largest contributing sub-major group was *Potatoes* (consumed by 36%), followed by *Tomatoes*, *Other fruiting vegetables* such as pumpkin and mushrooms, and *Other vegetables and vegetable combinations* such as onion, garlic and mixed vegetables (all 15%) (see Table 4.1).

Aboriginal and Torres Strait Islander people consumed, on average, 125 grams of vegetables per day, and vegetables provided an average 6.8% of their daily energy intake.



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview. (c) Includes mushrooms, cucumber, sweetcorn, pumpkin, avocado, capsicum and zucchini.

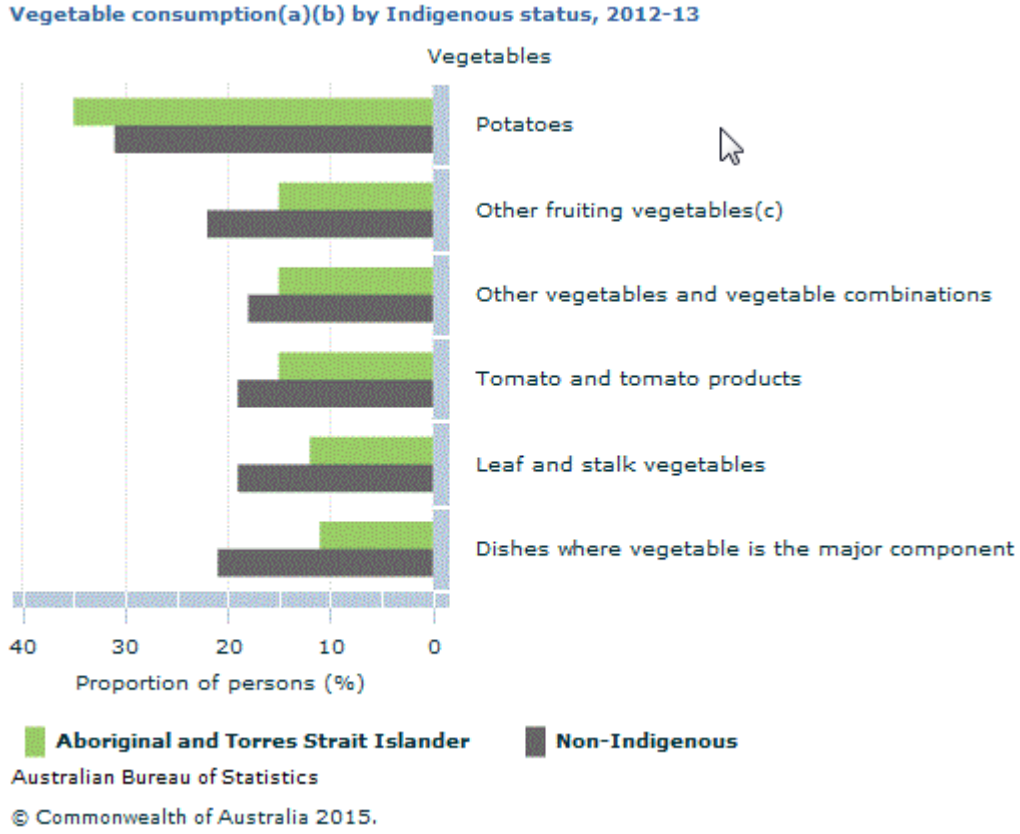
Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in remote areas reported lower overall vegetable consumption (56%) compared with those in non-remote areas (67%), and derived a lower proportion of their daily energy intake from vegetables (5.2% compared with 7.2%) (see Table 4.1 and Table 8.1).

How did this compare with non-Indigenous people?

Overall, **Vegetable products and dishes** were consumed by a lower proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people (65% and 75% respectively). Consumption among Aboriginal and Torres Strait Islander people was lower across all **Vegetable products and dishes** sub-groups, with the exception of *Potatoes* (36% of Aboriginal and Torres Strait Islander people compared with 31% of non-Indigenous people) (see Table 4.1 and Table 4.3).



Footnote(s): (a) Persons aged 2 years and over. (b) On the day prior to interview. (c) Includes mushrooms, cucumber, sweetcorn, pumpkin, avocado, capsicum and zucchini.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

'USUAL' DAILY SERVES OF VEGETABLES

In addition to collecting information about the foods actually consumed on the previous day, the 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) also asked people to report 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.*

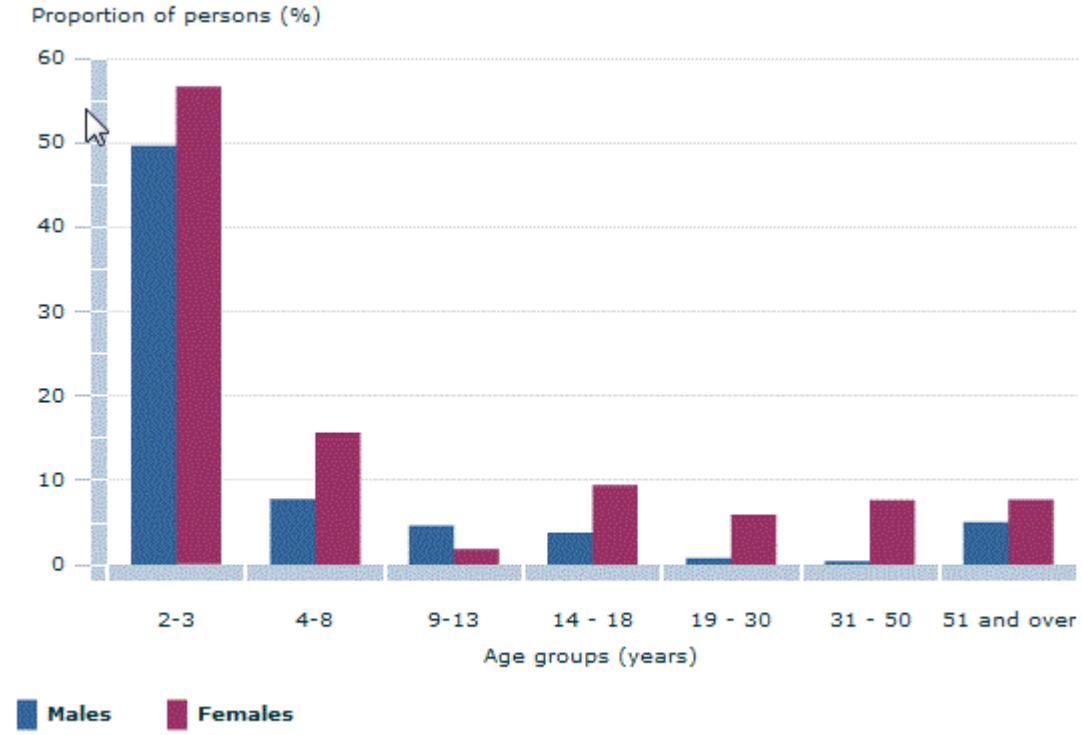
RECOMMENDED DAILY SERVES OF VEGETABLES, by age

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+ years	5-5.5	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 for this data item.

In NATSINPAS, one in twelve (8.0%) Aboriginal and Torres Strait Islander people met the recommended usual daily intake of vegetables.[1] Aboriginal and Torres Strait Islander children aged 2-3 years were most likely to have met the guidelines with around half (53%) usually eating two and a half serves per day. Adult males were least likely to have eaten the recommended number of serves of vegetables. Less than 1% of Aboriginal and Torres Strait Islander males aged 19-30 years and 31-50 years reported usually eating 6 or more serves of vegetables per day.

Met recommended vegetables serves, based on usual serves as reported in NATSINPAS(a)(b)(c)(d) by age & sex, 2012-13



Australian Bureau of Statistics

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Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) Based on Usual serves of vegetables. (c) According to NHMRC Australian Dietary Guidelines, 2013. (d) See endnote 1

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

A similar proportion of Aboriginal and Torres Strait Islander young people aged 2-18 years met the recommended usual intake of vegetables compared with non-Indigenous young people, however a lower proportion of Aboriginal and Torres Strait Islander adults 19 years and over met the recommendation compared with non-Indigenous adults (4.4% compared with 6.8%).

ENDNOTES

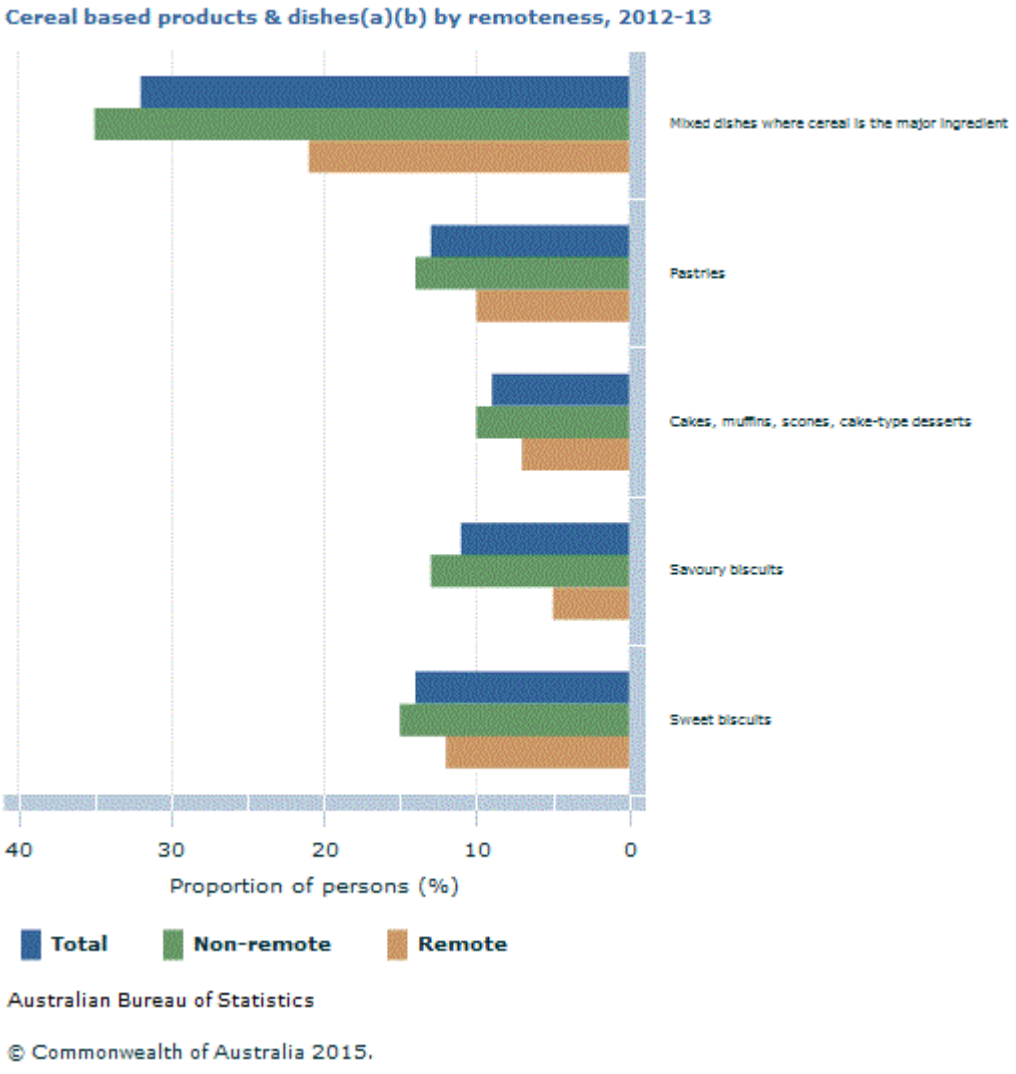
1. The AATSIHS questionnaire was developed prior to the release of the 2013 Australian Dietary Guidelines and consequently the units used in the AATSIHS (whole serves) do not allow strict comparability with the guidelines (in which some age/sex groups use half serves). The data presented have been derived 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.

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.

Six in ten (62%) Aboriginal and Torres Strait Islander people consumed **Cereal based products and dishes**[1]. On average, foods in this group provided 17% of the total energy intake for Aboriginal and Torres Strait Islander people (seeTable 8.1). The largest contributing sub-group was *Mixed dishes where cereal is the major ingredient*, consumed by 32% of the Aboriginal and Torres Strait Islander population. Teenagers aged 14-18 years and young adults aged 19-30 years were most likely to have consumed *Mixed dishes where cereal is the major ingredient* (43% and 41% respectively) see (Table 4.1 and Table 4.3).

Aboriginal and Torres Strait Islander people in non-remote areas were more likely to have consumed **Cereal based products and dishes** than people in remote areas (66% compared with 47%), and derived a greater proportion of their energy intake from foods in this group (18% compared with 12%) (see Table 4.1 and Table 8.1).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Aboriginal and Torres Strait Islander people were less likely than non-Indigenous people to have consumed **Cereal based products and dishes** (62% compared with 72%), and derived a smaller proportion of their energy intake from foods in this group (17% compared with 20%).

BISCUITS

Sweet biscuits were consumed by 15% of the Aboriginal and Torres Strait Islander population, and *Savoury biscuits* were consumed by 12%. Consumption of both biscuit types was more common among children and adults 51 years and over. The prevalence of biscuit consumption declined progressively among older children and young adults, with people aged 14-18 years least likely to have eaten a biscuit (around 8%). In subsequent age groups consumption increased, with 17% of people 51 years and over having eaten a sweet biscuit and 11% having eaten a savoury biscuit. Aboriginal and Torres Strait Islander people were less likely than non-Indigenous people to have eaten *Sweet biscuits* and *Savoury biscuits* (24% and 17% respectively among non-Indigenous people) (see Table 4.1 and Table 4.3).

CAKES, MUFFINS, SCONES AND CAKE-TYPE DESSERTS

Cakes, muffins, scones, and cake-type desserts were consumed by 9.7% of Aboriginal and Torres Strait Islander people and 16% of non-Indigenous people. Within the Aboriginal and Torres Strait Islander population, the highest intake was among children aged 4-8 years and adults 51 years and over (both 14%) (see Table 4.1 and Table 4.3).

PASTRIES

Pastries were consumed by 14% of the Aboriginal and Torres Strait Islander population. The highest consumption was among 14-18 year olds (21%) and lowest among people 51 years and over (10%). People in non-remote areas reported higher consumption than those in remote areas (14% compared with 11%) (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).

MEAT, POULTRY AND GAME PRODUCTS AND DISHES

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

Three quarters of Aboriginal and Torres Strait Islander people (76%) consumed a food from the **Meat, poultry and game products and dishes** group. Food from this group contributed 17% of total energy intake for Aboriginal and Torres Strait Islander people (see Table 8.1). Aboriginal and Torres Strait Islander males and females were equally likely to have consumed from this food group (see Table 4.1).

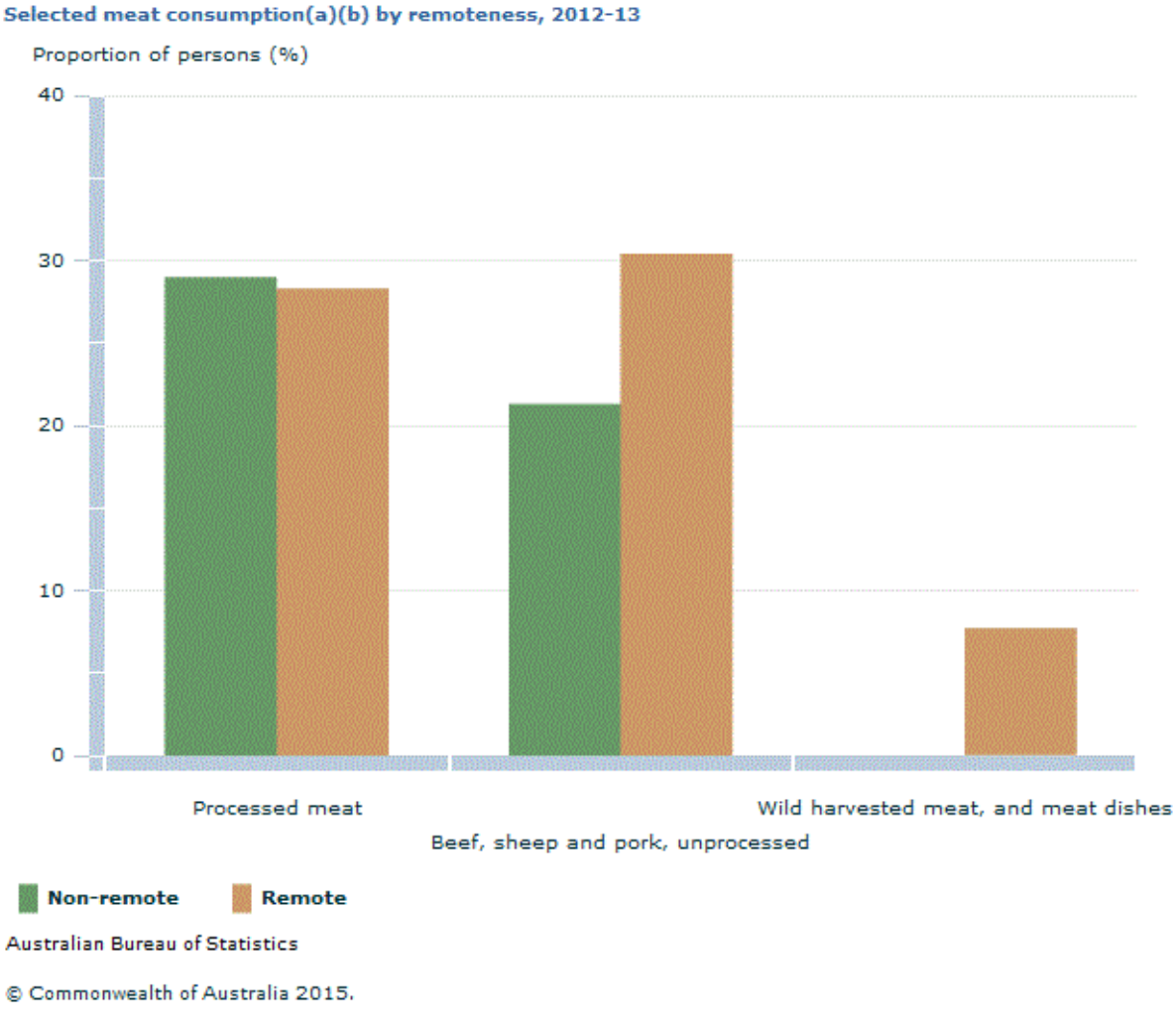
For Aboriginal and Torres Strait Islander people, the most commonly consumed food from the **Meat, poultry and game products and dishes** was *Processed meat* (29%), followed by *Beef, sheep and pork, unprocessed* (23%) and *Poultry and feathered game* (17%) (see Table 4.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to have consumed foods from the **Meat, poultry and game products and dishes** group (81% compared with 74%), and derived a greater proportion of their daily energy intake from it (23% compared with 15%). While similar proportions of people living in non-remote and remote areas had eaten *Processed meat*, those living in remote areas were more likely than those in non-remote areas to have consumed *Beef, sheep and pork, unprocessed* (30% compared with 21%). Only people living in remote areas reported consuming *Wild harvested meat, and meat dishes* (7%)(see Table 4.1).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people were more likely to have consumed food from the **Meat, poultry and game products and dishes** group than non-Indigenous people (76% compared with 69%), and derived a higher proportion of their energy intake from food in this group (16% compared with 14%). Aboriginal and Torres Strait Islander people were more likely than non-Indigenous people to have eaten *Processed meat* (29% compared with 22%) (see Table 4.1 and Table 4.3).



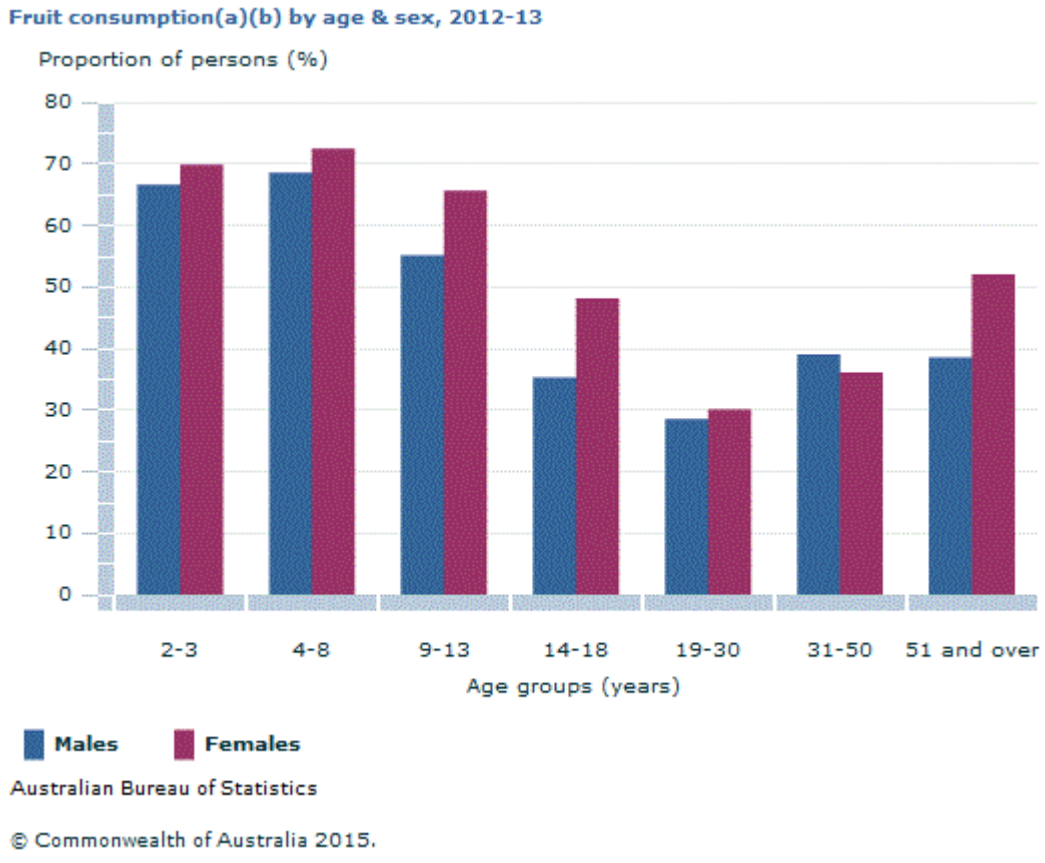
Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

FRUIT PRODUCTS AND DISHES

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

Fruit products and dishes were consumed by almost half (46%) of the Aboriginal and Torres Strait Islander population. The proportion of consumers varied considerably across age groups. Young adults aged 19-30 years were the least likely to have eaten food from this group, with only three in ten (30%) reporting any consumption the previous day, while seven in ten (70%) Aboriginal and Torres Strait Islander children aged 4-8 years had consumed **Fruit products and dishes** (see Table 4.1).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

The average amount of **Fruit products and dishes** consumed by Aboriginal and Torres Strait Islander people was 111 grams, around the weight of a large banana or small apple (see Table 5.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in remote areas were less likely than those in non-remote areas to have consumed **Fruit products and dishes** (35% compared with 49%), and derived a smaller proportion of their total energy intake from foods in this group (2.8% compared with 3.5%) (see Table 4.1 and Table 8.1). People living in remote areas also consumed a smaller average amount of food from this group (93g compared with 116g) (see Table 5.1).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people were less likely than non-Indigenous people to have consumed **Fruit products and dishes** (46% compared with 60%) (see Table 4.1 and Table 4.3), and derived a smaller proportion of their energy intake from foods in this group (3.4% compared with 4.4%) (see Table 8.1 and Table 8.3). Aboriginal and Torres Strait Islander people also consumed a smaller average amount of food from this group (111g compared with 145g) (see Table 5.1).

'USUAL' DAILY SERVES OF FRUIT

In addition to collecting information about the foods actually consumed on the previous day, the AATSIHS also asked respondents to report 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 per day for 2-3 year olds, one-and-a-half serves for 4-8 year olds[1], and two serves for everyone aged 9 years and over.

Recommended usual intake of fruit

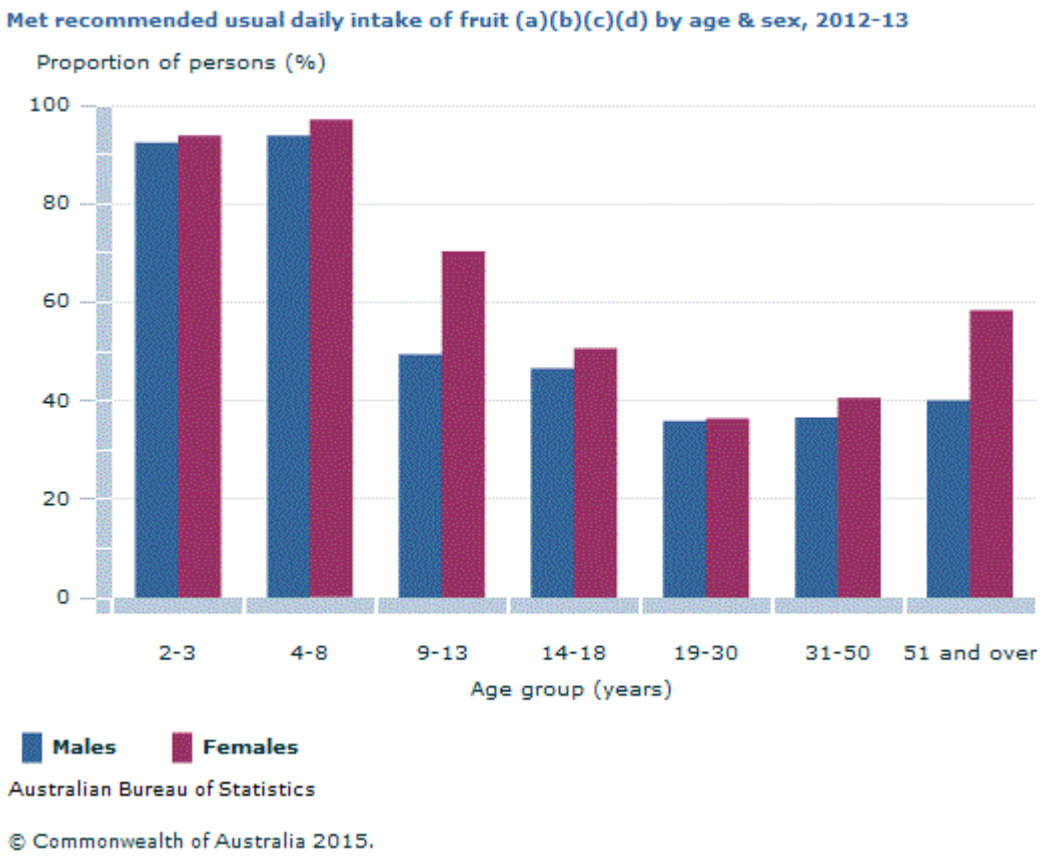
The National Health and Medical Research Council (NHMRC) 2013 *Australian Dietary Guidelines*[2] recommend a minimum number of serves of fruit each day, depending on age and sex, to ensure good nutrition and health. The table below outlines the recommended number of serves for children, adolescents and 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+ 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 AATSIHS only collected usual serves of fruit (excluding juice).

Just over half (54%) of Aboriginal and Torres Strait Islander people had consumed the recommended serves of fruit per day, with females (57%) more likely than males (51%) to meet the guidelines. These proportions were similar to those in the non-Indigenous population. Similar proportions of Aboriginal and Torres Strait Islander people living in non-remote and remote areas met the guidelines for daily serves of fruit.



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) Based on Usual serves of fruit from Australian Health Survey Results, 2011-12. (c) According to the NHMRC Australian Dietary Guidelines, 2012. (d) See Endnote 2.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

ENDNOTES

1. Although the AATSIHS 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.
2. 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 20/02/2015.

SUGAR PRODUCTS AND DISHES

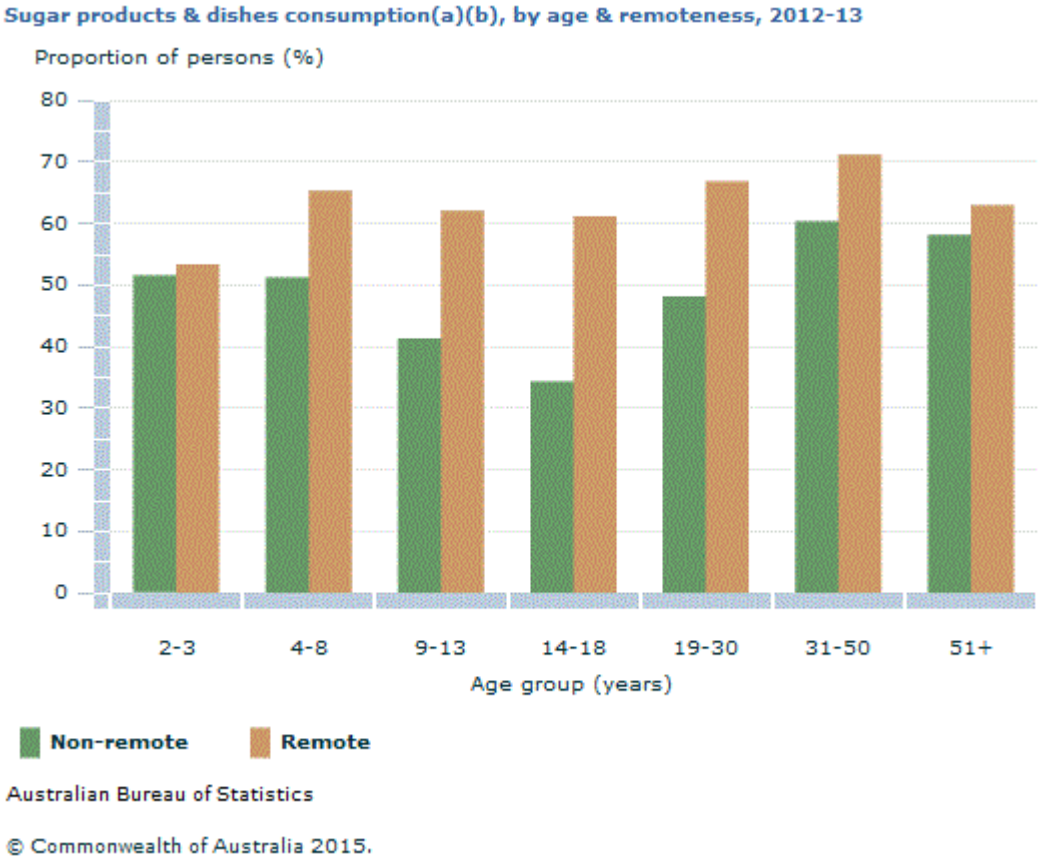
The **Sugar products and dishes** food group includes sugar, honey, syrups, jams, chocolate spreads, sauces and dishes other than confectionery where sugar is the major component, for example, ice confection, pavlova and meringue.

Although only contributing 2.5% of total energy intakes on average, **Sugar products and dishes** were consumed by more than half (54%) of Aboriginal and Torres Strait Islander people (see Table 8.1). This included 48% who consumed from the *Sugar, honey and syrups* sub-group and 8.5% who had *Jam and lemon spreads, chocolate spreads and sauces*. Similar proportions of males and females were consumers of **Sugar products and dishes**.

On average, around four teaspoons (16 grams) of **Sugar products and dishes** were consumed by Aboriginal and Torres Strait Islander people per day, including around 3 teaspoons (11 grams) of *Sugar, honey and syrups* (see Table 5.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to have consumed **Sugar products and dishes** (65% compared with 50%), and derived a higher proportion of their energy intake from foods in this group (3.2% compared with 2.3%).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people were more likely than non-Indigenous people to have consumed **Sugar products and dishes** (54% compared with 50%), and derived a greater proportion of their energy intake from foods in this group (2.5% compared with 1.8%).

While not part of the **Sugar products and dishes** group, *Intense (or artificial) sweetening agents* were added to foods and beverages by 2.6% of Aboriginal and Torres Strait Islander people compared with 4% of non-Indigenous people. The highest consumption among Aboriginal and Torres Strait Islander people was 9.6% by those 51 years and over, which was consistent with higher consumption among adults 51 years and over in the non-Indigenous population (see Table 4.1 and Table 4.3).

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 56% of the Aboriginal and Torres Strait Islander population[1], mostly made up of the 34% who had eaten *Margarine and table spreads* and the 19% who had eaten *Butters*. The pattern of consumption by age followed a similar relative distribution as for *Regular breads and bread rolls*, reflecting the close pairing of these foods (see Table 4.1).

Was there a difference by remoteness?

Butter was consumed by similar proportions of Aboriginal and Torres Strait Islander people in non-remote and remote areas, however Aboriginal and Torres Strait Islander people in remote areas were less likely to have eaten *Margarine and table spreads* (27% compared with 36% in non-remote areas) (see Table 4.1 and Table 4.3).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people overall were more likely than non-Indigenous people to have eaten **Fats and oils** (56% compared with 46%). There was higher consumption among Aboriginal and Torres Strait Islander people in both the two major sub-groups, *Butters* and *Margarine and table spreads*.

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 one quarter (25%) of the Aboriginal and Torres Strait Islander population with around two in five Aboriginal and Torres Strait Islander children aged 4-8 and 9-13 years consuming from this group (40% and 38% respectively). *Chocolate and chocolate-based confectionary* was overall the most popular type of confectionary and was consumed by one in eight (12%) Aboriginal and Torres Strait Islander people.

The *Other confectionery* sub-group (mainly consisting of lollies) was consumed by 8.2% of the Aboriginal and Torres Strait Islander population with children aged 4-8 years the highest consumers (16%). These children were also the most likely to have eaten *Muesli or cereal style bars* (18% of 4-8 year olds) (see Table 4.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in non-remote areas were twice as likely to have eaten **Confectionery and cereal/nut/fruit/seed bars** as those in remote areas (28% compared with 14%), and gained over twice as much of their average daily energy intake from these products (2.9% compared with 1.3%) (see Table 8.1).

How did this compare with non-Indigenous people?

A lower proportion of Aboriginal and Torres Strait Islander people than non-Indigenous people consumed from the **Confectionery and cereal/nut/fruit/seed bars** food group (25% compared with 32%). *Chocolate and chocolate-based confectionery* was consumed by around one in eight Aboriginal and Torres Strait Islander people (12%) and one in six non-Indigenous people (17%) (see Table 4.1 and Table 4.3).

SNACK FOOD

The **Snack food** group includes potato snacks, corn snacks and other snacks.

Snack foods were consumed by one in five (20%) Aboriginal and Torres Strait Islander people and provided on average 2.2% of the daily energy intake (see Table 8.1).

Within the Aboriginal and Torres Strait Islander population, children 4-8 years were the highest consumers of **Snack foods** (39%) and were also the largest consumers of *Potato snacks* (24%). In comparison, **Snack foods** were consumed by just 12% of Aboriginal and Torres Strait people 19 years and over (see Table 4.1).

Was there a difference by remoteness?

Consumption of **Snack foods** was higher among Aboriginal and Torres Strait Islander people living in non-remote areas than in remote areas (22% compared with 12%).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people were more likely than non-Indigenous people to have eaten **Snack foods** (20% compared with 15%). The largest contributing snack sub-group was *Potato snacks*, consumed by 13% of Aboriginal and Torres Strait Islander people and 8.9% of non-Indigenous people (see Table 4.1 and Table 4.3).

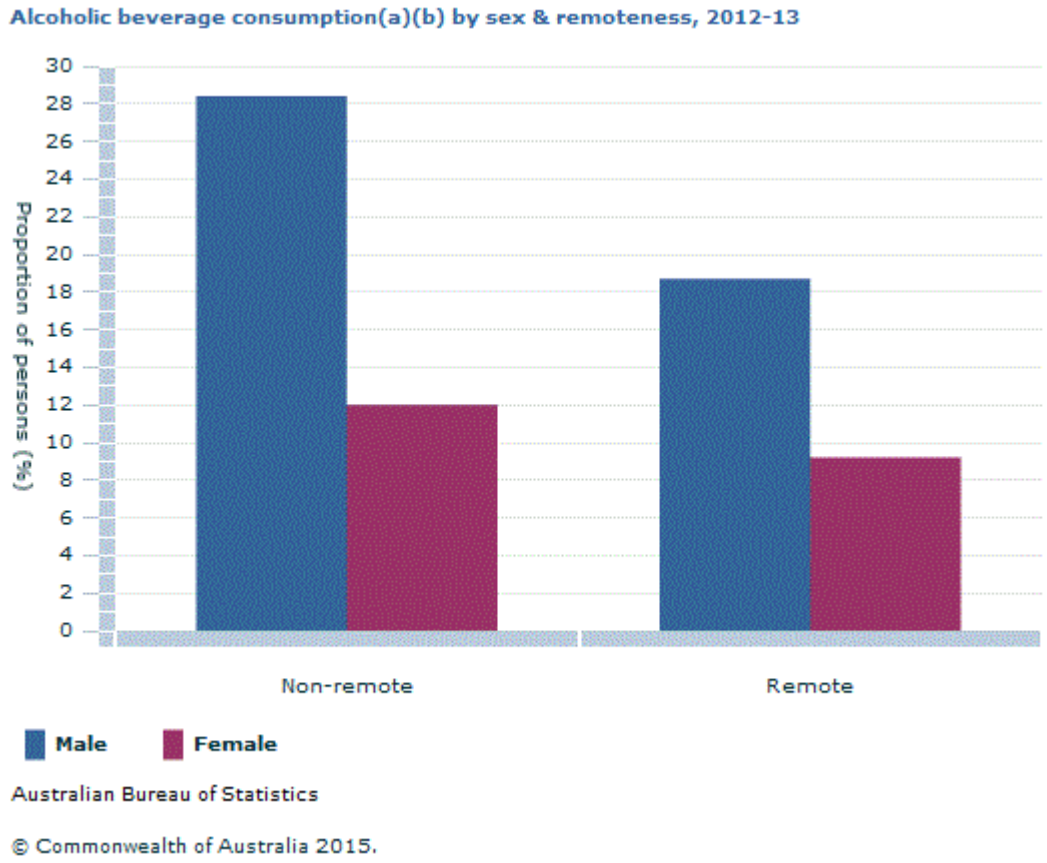
ALCOHOLIC BEVERAGES

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

About one in five Aboriginal and Torres Strait Islander adults aged 19 years and over (19%) consumed **Alcoholic beverages.** Aboriginal and Torres Strait Islander males aged 19 years and over were more than twice as likely as females in this age group to consume **Alcoholic beverages** (26% compared with 11%). Consumption among males was highest in the 31-50 year age range where around one in three males (35%) consumed alcohol. In comparison, consumption among females increased with age to 14% among the 51 years and over age range (see Table 4.1).

Was there a difference in remoteness?

A lower proportion of Aboriginal and Torres Strait Islander adults in remote areas than non-remote areas reported consuming **Alcoholic beverages** (14% and 20% respectively).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 19 years and over. (b) On the day prior to interview.

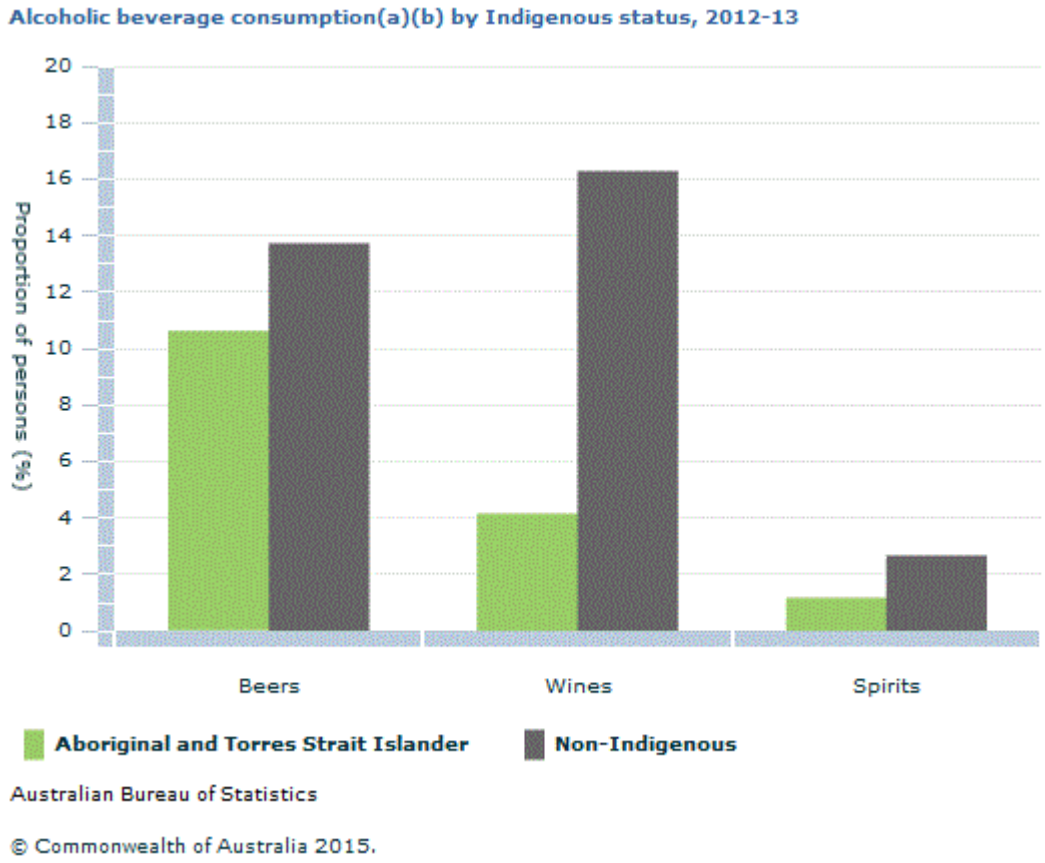
Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander adults aged 19 years and over were less likely than non-Indigenous adults to have consumed **Alcoholic beverages** (19% compared with 32%). However of those who did consume **Alcoholic beverages**, the median consumed was more than twice as high among Aboriginal and Torres Strait Islander consumers (equivalent to 3 bottles of beer or 1.5 bottles of wine) than non-Indigenous consumers (equivalent to 1.2 bottles of beer or almost 5 glasses of wine)[1] (see Table 6.1 and Table 6.3).

Aboriginal and Torres Strait Islander males derived a greater proportion of energy from **Alcoholic beverages** than females, with an average daily total of 9.0%, compared with only 3.5% for females. In the non-Indigenous population there was a more even distribution, with males and females deriving 7.0% and 4.6% of average daily energy respectively (see Table 8.1 and Table 8.3).

The most commonly consumed **Alcoholic beverages** were *Beers* (11%) and *Wines* (4.2%), with *Spirits* (excluding pre-mixed drinks) being consumed by 1.2% of the Aboriginal and Torres Strait Islander population. In contrast, non-Indigenous people were most likely to have consumed *Wines* (16%), followed by *Beers* (14%) (see Table 4.1 and Table 4.3).



Footnote(s): (a) Persons aged 19 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

ENDNOTES

1. This refers to a 375ml bottle of beer, 750ml bottle of wine, or a 100ml glass of wine.

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 Australia, 71% of Aboriginal and Torres Strait Islander adults (aged 19 years and over) and 29% of Aboriginal and Torres Strait Islander children (aged 18 years and under) were overweight or obese. 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.[2]

DISCRETIONARY FOODS IN THE NATSINPAS

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 NATSINPAS have been categorised as discretionary or non-discretionary. See User Guide section Discretionary Foods for more information.

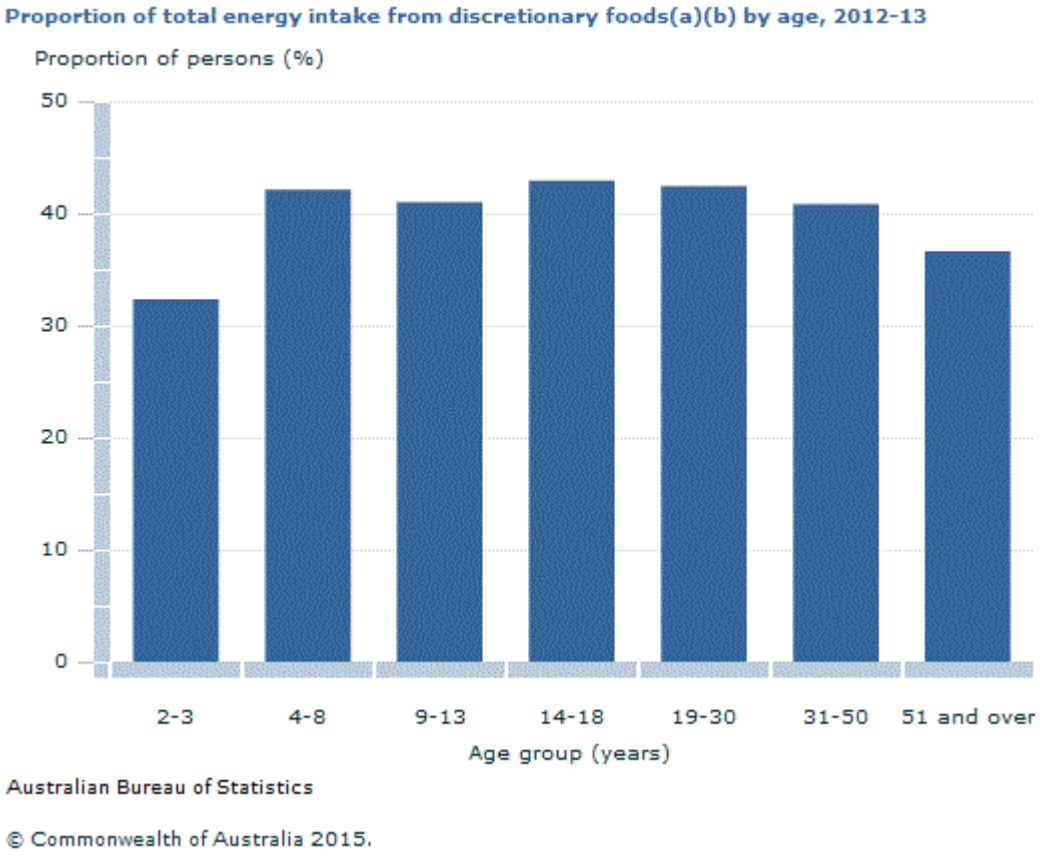
UNDER-REPORTING AND DISCRETIONARY FOODS

The NATSINPAS (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 may be more likely to be under-reported than non-discretionary foods. See Users' Guide section Under-reporting in the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey for more information.

The Australian Dietary Guidelines[2] 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 two fifths (41%) of total daily energy reported as consumed by Aboriginal and Torres Strait Islander people was from 'discretionary foods'. The particular food groups contributing most to the energy from discretionary foods reported were: **Cereal based products and dishes** (8.8% of energy, such as from pastries), **Non-alcoholic beverages** (6.9%, such as from soft drinks), **Alcoholic beverages** (4.2%, such as from beer), **Meat, poultry and game products and dishes** (3.8%, such as from sausages) and **Vegetable products and dishes** (3.4%, such as from potatoes as chips/fries).

The proportion of energy from discretionary foods was similar across all age groups except for 2-3 year old Aboriginal and Torres Strait Islander children who record a lower proportion (32%).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

The proportion of energy contributed by particular discretionary foods varied with age. For example, the largest discretionary food contributor to energy for Aboriginal and Torres Strait Islander people in age groups under 14 years or 51 years and over was **Cereal based products and dishes** (between 7% and 12%). Among 14-18 and 19-30 year olds it was **Non-Alcoholic beverages** (9.4% and 8.4% respectively), while for 31-50 year olds **Alcoholic beverages** formed the largest source of energy from discretionary foods (8.1%) (see Table 9.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in non-remote areas tended to obtain a greater proportion of energy from discretionary foods than did people in remote areas (42% compared with 35%) (see Table 9.1). **Cereal based products and dishes** (9.2%) and **Vegetable products and dishes** (3.6%) were more likely to have been consumed by Aboriginal and Torres Strait Islander people in non-remote areas than in remote areas, resulting in the overall higher proportion of energy from discretionary foods for people in non-remote areas.

How does this compare with non-Indigenous people?

Discretionary foods contributed more to the energy intake of Aboriginal and Torres Strait Islander people than for non-Indigenous people (41% compared with 35%). This is due to a higher intake of **Non-alcoholic beverages, Meat, poultry and game products and dishes**, and **Vegetable products and dishes** having a greater contribution to average daily energy intake in the Aboriginal and Torres Strait Islander population than in the non-Indigenous population.

ENDNOTES

1. Institute for Health Metrics and Evaluation *Global Burden of Diseases, Injuries, and Risk Factors Study 2010* < http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_australia.pdf >, viewed 20 February 2015.

2. 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 >

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 was only collected from non-remote respondents. Second day 24-hour recall data is available by request or via microdata products to be released by late 2015.

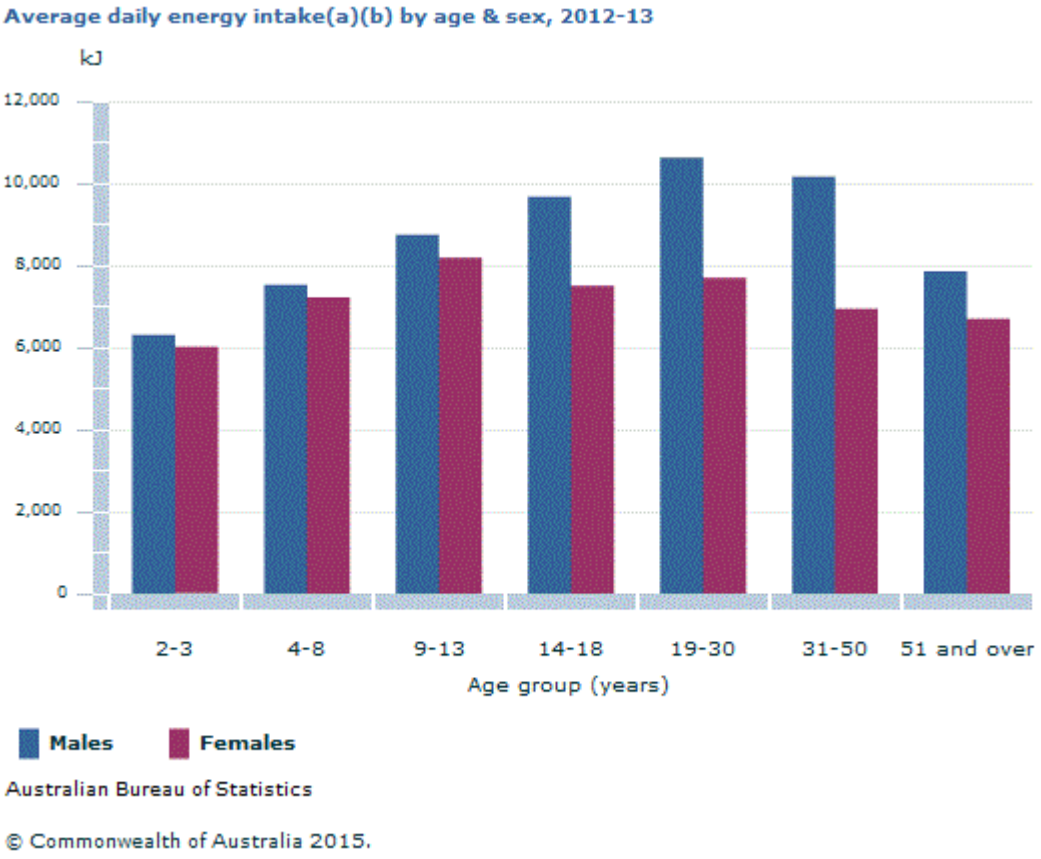
Care should be taken when interpreting energy and nutrient intakes in this publication. Analysis of the 2012-13 NATSINPAS suggests that, like in other nutrition surveys, there has been some under-reporting of food intake by participants in this survey. Given the association of under-reporting with overweight/obesity and consciousness of socially acceptable/desirable dietary patterns, under-reporting is unlikely to affect all foods and nutrients equally. For more information on under-reporting in this survey, see the Under-reporting section of this publication and the Users' Guide.

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.

The average energy intake was 9,175 kilojoules (kJ) for Aboriginal and Torres Strait Islander males and 7,261 (kJ) for Aboriginal and Torres Strait Islander 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 24% in males and 31% in females. This compares to 17% for males and 21% for females in the 2011-12 National Nutrition and Physical Activity Survey (NNPAS) population. 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 the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey in the Users' Guide.

Energy intakes were lowest among Aboriginal and Torres Strait Islander children aged 2-3 years who averaged 6,169 kJ. Males aged 19-30 year old had the highest energy intakes (10,620 kJ). Female energy intakes were highest among the 9-13 year olds (8,184 kJ).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey Nutrition Results - Foods and Nutrients, 2012-13

The leading sub-major food groups contributing to energy were *Regular breads, and bread rolls* (9.6%), *Mixed dishes where cereal is the major ingredient* (8.6%), *Beef, sheep and pork (including mixed dishes)* (7.0%), *Poultry (including mixed dishes)* (5.7%), *Potatoes* (4.9%) and *Dairy milk* (4.7%) (see Table 8.1).

Was there a difference by remoteness?

The average daily energy intake for the Aboriginal and Torres Strait Islander people in non-remote areas was 8,305 kJ compared to 7,873 kJ for those living in remote areas. Aboriginal and Torres Strait Islander males living in non-remote areas had energy intakes 10% higher than those living in remote areas (9,355 kg and 8,507 kg respectively). Comparatively, the energy intakes between females living in non-remote and remote areas were similar (7,266 kJ and 7,243 kJ respectively).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people had a lower average daily energy intake than non-Indigenous people (8,213 kJ compared with 8,540 kJ) (see Table 1.1 and Table 1.3).

As stated in the introduction to this chapter, both of these are likely to be an under-estimate due to the inherent under-reporting bias associated with dietary surveys based on a range of analyses, it appears that the amount of under-reporting is greater in the Aboriginal and Torres Strait Islander population than the non-Indigenous population so this comparison should be made with caution. For more information see Under-reporting in the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey in the Users' Guide for further information on Low Energy Reporters.

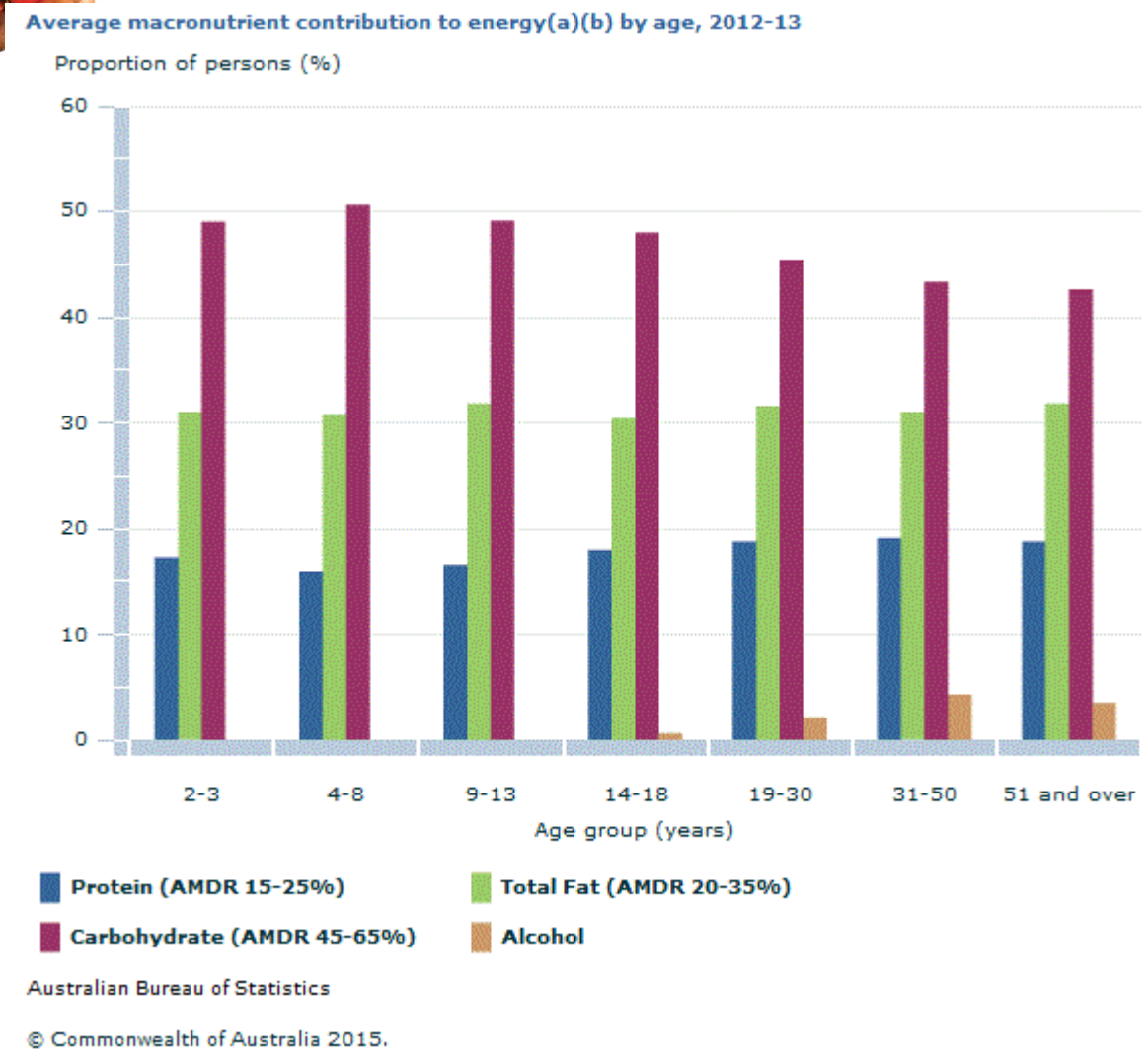
ENDNOTES

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 04/02/2015.

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 in order to lower chronic disease risk while ensuring adequate micronutrient status.[1]

The average proportion of energy intake from protein, fat, and carbohydrate among Aboriginal and Torres Strait Islander people was within the bounds of the AMDRs[2]. Carbohydrate contributed the largest proportion of energy intake (46%), which is at the lower end of the recommended intake range (Carbohydrate AMDR 45%-65%). Based on a single day's intake it is not possible to estimate the proportion of Aboriginal and Torres Strait Islander people who have usual intakes that were below the AMDR. However, people in older adult age groups (31-50 years and 51 years and over) had averages that were below the lower limit of the AMDR, indicating that carbohydrate contribution to energy was less than 45% for part of this population. The 51 years and over age group had the lowest proportion of energy derived from carbohydrates at 43%. Whilst this age group was within the AMDRs for protein (18.8%) and fat (31.8%), the fat contribution was at the higher end of the AMDR scale (see Table 2.1 and Table 2.3).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over.
(b) Proportions will not add to 100% due to excluding energy from fibre and other components. See User Guide – Energy conversion factors.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in remote areas derived a greater proportion of energy from protein compared with those living in non-remote areas (20% compared with 18%). This aligns with higher consumption of *Meat, poultry and game products* by people in remote areas. However, total fat contribution is slightly lower in remote areas at 30% contribution to energy, compared with 32% in non-remote areas (see Table 2.1).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people and non-Indigenous people derived similar amounts of their daily energy intake from Protein, Total Fat, Carbohydrates and Alcohol. However, Aboriginal and Torres Strait Islander people derived less of their energy from dietary fibre compared with non-Indigenous people (1.8% and 2.2% respectively).

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 20/02/2015.
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, yams 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 by Aboriginal and Torres Strait Islander people per day was 228 grams (see Table 1.1). Carbohydrate contributed 46% of total energy intakes, with Total starch contributing 24% of energy and Total sugars contributing 21% of energy.

Total starch

The leading sub-major food groups contributing to Total starch were: *Regular breads, and bread rolls* (providing 28% of starch), *Mixed dishes where cereal is the major ingredient* (14%), *Potatoes* (11%), *Breakfast cereals, ready to eat* (7.4%) and *Flours and other cereal grains and starches* (mainly rice) (6.2%) (see Table 10.11).

Total sugars

Total sugars include those sugars naturally present in foods, such as fruit and milk as well as the sugars added to processed foods and beverages. The food groups contributing the greatest amounts of sugars were: *Soft drinks, and flavoured mineral waters* (providing 17% of sugars), **Fruit products and dishes** (11%), *Sugar, honey and syrups* (9.4%), *Fruit and vegetable juices, and drinks* (7.9%), *Dairy milk* (7.5%) and *Cordials* (6.4%) (see Table 10.9).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in non-remote areas derived a larger proportion of energy from Total sugars compared to those in remote areas (22% and 19% respectively). However, Aboriginal and Torres Strait Islander people living in remote areas derived a larger proportion of energy from Total starch (25% compared with 24% for people in non-remote areas) (see Table 2.1).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people and non-Indigenous people derived similar amounts of their energy intake from Carbohydrates, Total sugars, and Total starch.

The highest contributor for Total sugars in the Aboriginal and Torres Strait Islander population was *Soft drinks, and flavoured mineral waters* – this combined with *Cordials* accounted for almost one quarter (24%) of energy from Total sugars compared with only 12% for non-Indigenous people.

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 20/02/2015.

DIETARY FIBRE

Dietary fibre refers to that fraction of the edible part of plants or their extracts, or synthetic analogues that is resistant to digestion and absorption in the small intestine, usually with complete or partial fermentation in the large intestine; and that promote one or more of the following beneficial physiological effects – laxation, reduction in blood cholesterol or modulation of blood glucose.[1]

The average amount of dietary fibre consumed by Aboriginal and Torres Strait Islander people per day was 18 grams and the mean contribution to energy intake from dietary fibre was 1.8%.

The leading food group that contributed to the intake of dietary fibre was **Cereals and cereal products** (31%) with *Regular breads, and bread rolls (plain/unfilled/untopped varieties)* (17%) being the main contributor. Other food groups that contributed to the intake of dietary fibre were: **Vegetable products and dishes** (19%), **Cereals based products and dishes** (16%) and **Fruit products and dishes** (14%) (see Table 10.13).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in non-remote areas consumed more dietary fibre per day than those in remote areas (18 grams and 16 grams respectively) (see (see Table 1.1 and Table 1.3).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people, on average, consumed less dietary fibre per day than non-Indigenous people (18 grams compared with 22 grams). Consequently, the average contribution to energy intake from dietary fibre was less for Aboriginal and Torres Strait Islander people (1.8%) than for non-Indigenous people (2.2%) (see Table 2.1 and Table 2.3).

ENDNOTES

1. Food Standards Australia New Zealand 2012, <<http://www.foodstandards.gov.au/science/monitoringnutrients/nutrientables/nuttab/Documents/REVISED%20Complete%20Explanatory%20Notes%20with%20Attachments%20may%202011.pdf>, Last accessed 02/02/2015.

PROTEIN

Both animal and plant foods provide protein, 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 for Aboriginal and Torres Strait Islander people (see Table 2.1). For Aboriginal and Torres Strait Islander people the major food sources of protein included: *Beef, sheep and pork* (18% including mixed dishes), *Poultry and feathered game* (13% including mixed dishes), *Mixed dishes where cereal is the major ingredient* (10%), *Regular breads, and bread rolls* (9.0%), *Dairy milk* (6.0%) and **Fish and seafood products and dishes** (5.1%) (see Table 10.3).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in remote areas obtained more dietary energy from protein compared with those in non-remote areas (20% and 18% respectively). **Meat, poultry and game products and dishes** were the largest source of protein, contributing 49% for people in remote areas and 37% for people in non-remote areas.

How did this compare with non-Indigenous people?

Both Aboriginal and Torres Strait Islander people and non-Indigenous people had an average of 18% of dietary energy from protein. However, *Beef, sheep and pork* (including mixed dishes) was a more common source of protein for Aboriginal and Torres Strait Islander people (18%) than non-Indigenous people (15%).

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 20/02/2015.

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]

The contribution of Fat to the Aboriginal and Torres Strait Islander population's dietary energy intake was 31%, most of which most came from saturated fat (13%) and monounsaturated fat (12%).

Linoleic acid is a polyunsaturated omega-6 fatty acid associated with blood lipid profiles, which is seen as posing a lower risk in the development of coronary heart disease. It is found in plant oils (such as safflower, grapeseed and sunflower) as well as nuts and seeds.[1] Linoleic acid contributed 3.6% 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 plant oils such as canola and linseed or flaxseed, nuts, and seeds. The average contribution of ALA to total dietary energy was 0.5% which is within the AMDR (0.4-1%).

The leading food sources for Total fat include: *Beef, sheep and pork* (10% including mixed dishes), *Mixed dishes where cereal is the major ingredient* (9.2%), *Poultry and feathered game* (8.3% including mixed dishes), *Dairy milk* (6.3%) and *Potatoes* (5.8%).

Was there a difference by remoteness?

Fat contributed an average 32% of dietary energy intake for Aboriginal and Torres Strait Islander people in non-remote areas. This compared with an average 30% of dietary energy intake for people living in remote areas. For Aboriginal and Torres Strait Islander people in remote areas the proportion of Total fat from *Beef, sheep and pork (including mixed dishes)* was 19% compared with 8.3% for people in non-remote areas. *Mixed dishes where cereal is the major ingredient* was the highest contributor towards the consumption of fat for Aboriginal and Torres Strait Islander people in non-remote areas (10% compared with 4.8% in remote areas) (see Table 10.5).

How did this compare with non-Indigenous people?

The contribution of Fat to average dietary energy intake is similar for both the Aboriginal and Torres Strait Islander population and non-Indigenous population; however, saturated fat is higher for the Aboriginal and Torres Strait Islander population (by 1%) which although a small difference, is statistically significant (see Table 2.1).

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/nutrients/fats-total-fat-fatty-acids>, Last accessed 20/02/2015.

ALCOHOL

Alcohol is a relatively energy rich macronutrient, second only to fat in energy density, although it is nutrient poor. There is no AMDR for alcohol; however, the general recommendation is that alcohol should form less than 5% of energy intakes.[1]

Alcohol contributed an average of 2.0% to the Aboriginal and Torres Strait Islander population's total energy intake, but this ranged from 0% among children aged less than 14 years to 6.5% among males aged 31-50 years (see Table 2.1).

Was there a difference by remoteness?

The average contribution of alcohol to energy intake was similar for Aboriginal and Torres Strait Islander people living in non-remote and remote areas (see Table 10.15).

How did this compare with non-Indigenous people?

Alcohol contribution to energy intake was lower in the Aboriginal and Torres Strait Islander population than in the non-Indigenous population (2.0% compared with 3.4% respectively) (see Table 2.1 and Table 2.3).

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/chronic-disease/macronutrient-balance>

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. 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.

The average daily amount of folate equivalents consumed by Aboriginal and Torres Strait Islander people from foods was 672 µg for males and 565 µg for females. Males and females in all age groups had average intakes that exceeded the Estimated Average Requirement.

Cereals and cereal products and **Cereal based products and dishes** contributed 52% and 10% respectively of folate equivalents, followed by **Non-alcoholic beverages** (7.6%, mainly from fruit juice and tea), **Miscellaneous** (6.9%, from yeast, vegetable or meat extracts) and **Milk products and dishes** (5.4%) (see Table 10.43).

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	610	565
4-8	160	160	673	646
9-13	250	250	700	696
14-18	330	330	759	555
19-30	320	320	680	520
31-50	320	320	681	503
51-and over	320	320	559	570

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 Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13

Was there a difference by remoteness?

The amount of folate equivalents consumed by males (695 µg) and females (572 µg) in non-remote areas was higher than in remote areas (males 588 µg, females 538 µg) (see Table 1.1).

How did this compare with non-Indigenous people?

The average daily intake of folate equivalents was similar for Aboriginal and Torres Strait Islander people and non-Indigenous people (618 µg and 614 µg respectively).

The National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) included tests for Serum folate, which is a measure of the amount of folate circulating around the body. For more information on Serum folate levels for Aboriginal and Torres Strait Islander people see Australian Aboriginal and Torres Strait Islander Health Survey: Biomedical Results, 2012-13 (Table 12.1).

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/nutrients/folate>, Last accessed 20/02/2015.

2. Food Standards Australia New Zealand 2012, *Folic acid fortification*, <http://www.foodstandards.gov.au/consumer/nutrition/folicmandatory/pages/default.aspx>, Last accessed 20/02/2015.

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]

Vitamin B12 intakes for Aboriginal and Torres Strait Islander people from food averaged 5.0 µg per day for males and 3.8 µg for females. Males and females in all age groups had average intakes that exceeded the Estimated Average Requirement. Males aged 19-30 years had the highest intakes at 5.9 µg, reflecting their relatively high consumption of **Meat, poultry and game products and dishes**. In contrast,

females aged 19-30 years had an average vitamin B12 intake of 4.0 µg (see Table 1.1).

The main sources of vitamin B12 were: **Meat, poultry and game products and dishes** (35%), **Milk products and dishes** (28%) **Cereal-based products and dishes** (12%) and **Fish and seafood products and dishes** (7.8%) (see Table 10.47).

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	4.4	3.9
4-8	1.0	1.0	3.4	3.5
9-13	1.5	1.5	4.2	3.7
14-18	2.0	2.0	4.9	3.4
19-30	2.0	2.0	5.9	4.0
31-50	2.0	2.0	5.8	4.0
51 and over	2.0	2.0	4.6	3.5

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 Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13.

The average vitamin B12 intake for Aboriginal and Torres Strait Islander people and non-Indigenous people is the same at 4.4 µg per day. While for Aboriginal and Torres Strait Islander people, **Meat, poultry and game products and dishes** was the highest contributor towards B12 intake (35%), for non-Indigenous people it was **Milk products and dishes** (30%).

The National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) included tests for Vitamin B12, a nutrient that helps keep the body's nerve and blood cells healthy. For more information on Vitamin B12 levels for Aboriginal and Torres Strait Islander people see Australian Aboriginal and Torres Strait Islander Health Survey: Biomedical Results, 2012-13 (Table 12.1).

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/nutrients/vitamin-b12>, Last accessed 23/02/2015.

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. In Australia, wheat flour for bread-making is fortified (enriched) with thiamin.[1]

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	1.7	1.4
4-8	0.5	0.5	1.8	1.7
9-13	0.7	0.7	2.1	1.6
14-18	1.0	0.9	2.1	1.3
19-30	1.0	0.9	1.7	1.3
31-50	1.0	0.9	1.8	1.2
51 and over	1.0	0.9	1.3	1.7

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/thiamin
(b) Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Food and Nutrients, 2012-13

The average daily amount of thiamin consumed from foods by Aboriginal and Torres Strait Islander people was 1.6mg (1.8 mg for males and 1.4 mg for females) (see Table 1.1). Male and females in all age groups had average intakes that exceeded the Estimated Average Requirement. **Cereals and cereal products** made up 44% of dietary thiamin intake, followed by *Yeast, and yeast vegetable or meat extracts* (15%), **Cereal based products and dishes** (11%) and **Meat, poultry and game products and dishes** (10%) (see Table 10.37).

Was there a difference by remoteness?

Thiamin intake was similar among Aboriginal and Torres Strait Islander people in non-remote areas and remote areas (1.6 mg and 1.5 mg respectively).

How did this compare with non-Indigenous people?

The average daily thiamin intake for Aboriginal and Torres Strait Islander people was the same as for non-Indigenous people (both 1.6 mg).

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 20/02/2015.

CALCIUM

Calcium is a mineral required for the growth and maintenance of the bones and teeth, and for 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]

Calcium, Estimated Average Requirement (EAR) and mean daily intake, by age

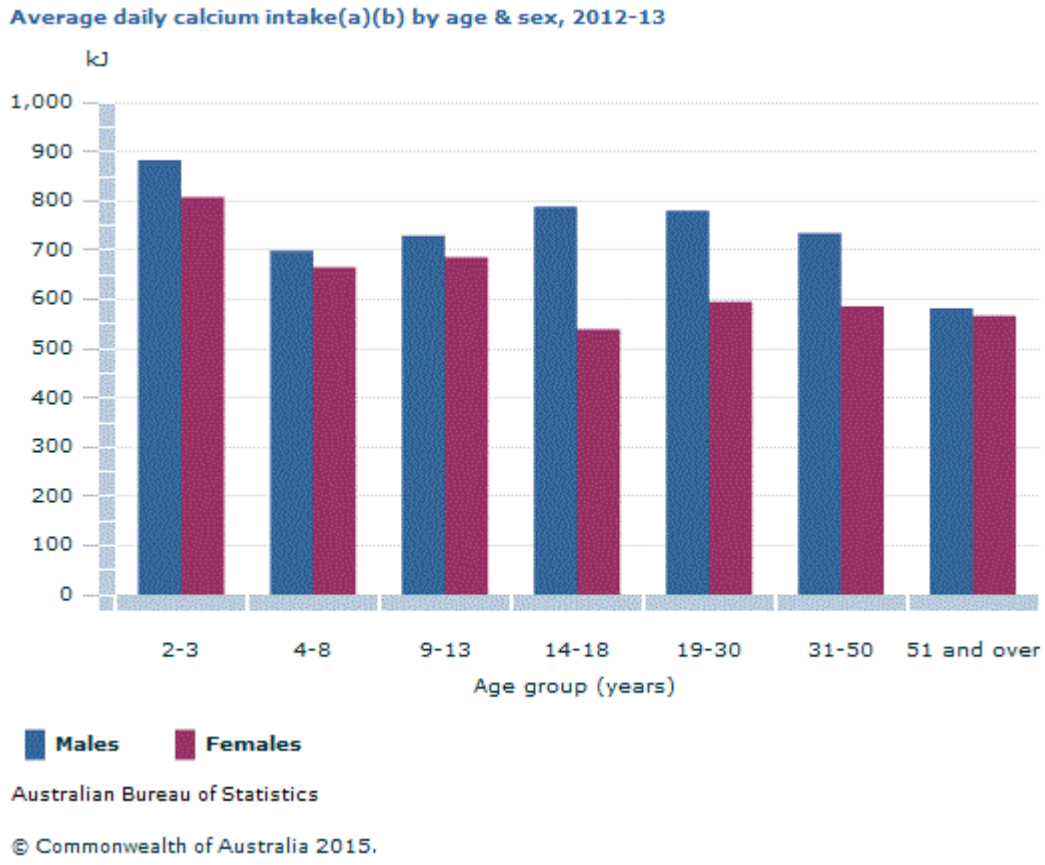
Age (years)	EAR (mg)[(a)]		Mean intake (mg)[(b)]	
	Males	Females	Males	Females
2-3	360	360	882	807
4-8	520	520	698	664
9-13	800-1,050	800-1,050	729	685
14-18	1,050	1,050	787	539
19-30	840	840	780	595
31-50	840	840	734	586
51 and over	840-1,100	1,100	581	566

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 Aboriginal and Torres Strait Islander Health Survey: Nutrition results- Food and Nutrients, 2012-13

The daily amount of calcium consumed from foods and beverages by Aboriginal and Torres Strait Islander people averaged 734 mg for males and 611 mg for females. Between the ages of 9 and 18 years, where the Estimated Average Requirement (EAR) ranges from 800-1,050 mg per day, both males and females had average intakes below the EARs based on their reported foods and beverages. Females in older age groups also had average intakes of calcium less than the respective EARs, as did males aged 51 years and over.

Milk products and dishes were the major source of calcium, providing 44%; mainly from *Dairy milk* (24%), *Cheese* (11%) and *Flavoured milks and milkshakes* (4.4%).

Other food groups contributing calcium included: **Cereals and cereal products** (14%), **Cereal based products and dishes** (13%) and **Non-alcoholic beverages** (9.7%) (see Table 10.53).



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people in non-remote areas (711 mg) had a higher calcium intake than those in remote areas (530 mg) (see Table 1.1).

How did this compare with non-Indigenous people?

The average calcium intake for the Aboriginal and Torres Strait Islander population was 673 mg, lower than the average intake for the non-Indigenous population (807

mg) (see Table 1.1 and Table 1.3).

Although Aboriginal and Torres Strait Islander people consumed a similar proportion of dairy milk as non-Indigenous people, Aboriginal and Torres Strait Islander people consumed less cheese, frozen milk products and yoghurt. This has contributed to Aboriginal and Torres Strait Islander people having a lower calcium intake than non-Indigenous people.

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 20/02/2015.

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]

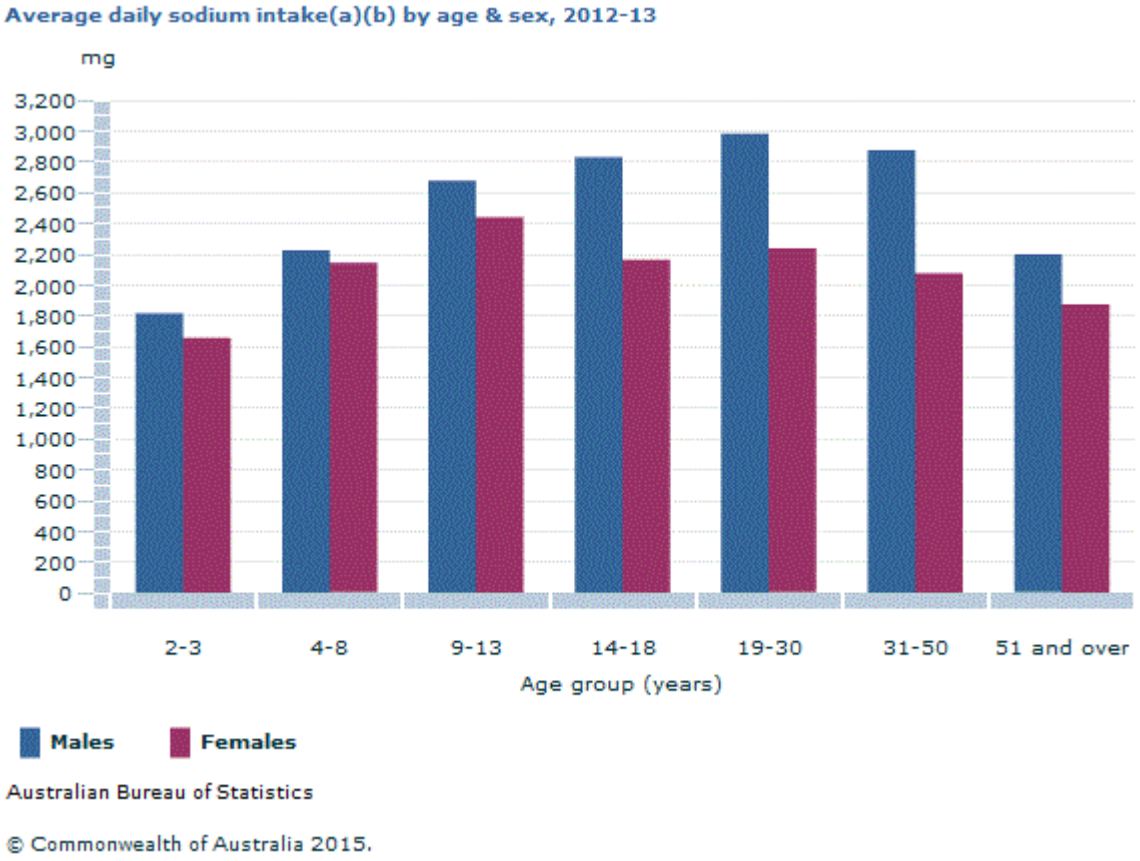
The average daily amount of sodium consumed from food by Aboriginal and Torres Strait Islander people was 2,379 mg (equivalent to around one teaspoon of table salt) (see Table 1.1). This amount includes sodium naturally present in foods as well as sodium added during processing, but excludes the 'discretionary salt' added by consumers in home prepared foods or 'at the table'. Two thirds (66%) of Aboriginal and Torres Strait Islander people reported that they add salt very often or occasionally either during meal preparation or at the table (see Table 12.1), and as a result, 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, 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	1,816	1,655
4-8	1,400	1,400	2,225	2,141
9-13	2,000	2,000	2,677	2,440
14-18	2,300	2,300	2,829	2,164
19-30	2,300	2,300	2,981	2,236
31-50	2,300	2,300	2,873	2,075
51 and over	2,300	2,300	2,197	1,874

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 Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13

Sodium consumption was higher among Aboriginal and Torres Strait Islander males than females (2,638 mg and 2,122mg) respectively, equivalent to approximately 6 grams or 1 teaspoon of salt.[2] Aboriginal and Torres Strait Islander males in all age groups, except for those aged 51 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 in age groups below 14 years had average sodium intakes in excess of the UL.



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

For Aboriginal and Torres Strait Islander people, just under one quarter (23%) of sodium came from **Cereal based products and dishes** (mainly from *Mixed dishes where cereal is the major ingredient*), 22% came from **Meat and poultry** (mainly *Processed meat* and mixed dishes) and 20% came from **Cereal and cereal products** (mainly *Regular breads, and bread rolls*) (see Table 10.67).

How did this compare with non-Indigenous people?

The average daily sodium intake was similar for Aboriginal and Torres Strait Islander people and non-Indigenous people (2,379 mg and 2,408 mg respectively). In both populations, males recorded a higher average consumption of sodium than females (see Table 1.1 and Table 1.3).

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/sodium> Last accessed 23/02/2015.
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> Last accessed 23/02/2015

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 goitre, 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 daily iodine intakes for Aboriginal and Torres Strait Islander people from food were 182 µg for males and 149 µg for females (see Table 1.1). However, intakes of iodine exclude the iodine consumed in table salt used both in food preparation and at the table. Given that 21% of the Aboriginal and Torres Strait Islander population reported that they add iodised salt in food preparation or iodised salt at the table, the levels reported in foods consumed may be lower than actual iodine consumption (see Table 12.1). See the Interpretation section of the Nutrient Intake chapter in the AHS Users' Guide for more information.

Excluding table salt as a source of iodine, the major food group contributors were **Cereals and cereal products** (32%) and **Milk products and dishes** (26%), followed by **Non-alcoholic beverages** (12%, mainly from *Waters, municipal and bottled, unflavoured* and *Soft drinks, and flavoured mineral waters*) (see Table 10.55).

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	180	164
4-8	65	65	156	152
9-13	75	75	176	174
14-18	95	95	195	141
19-30	100	100	205	146
31-50	100	100	186	146
51 and over	100	100	156	138

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 Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13

Was there a difference by remoteness?

Average daily iodine intake was higher for Aboriginal and Torres Strait Islander people living in non-remote area than in remote areas (171 µg compared with 145 µg) (see Table 1.1).

How did this compare with non-Indigenous people?

Aboriginal and Torres Strait Islander people, on average, consumed less iodine per day than non-Indigenous people (165 µg and 172 µg respectively) (see Table 1.1 and Table 1.3). **Cereals and cereal products** contributed most to iodine intake for both Aboriginal and Torres Strait Islander people (32%) and non-Indigenous people (28%).

The National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) included tests for iodine. For more information on iodine levels for Aboriginal and Torres Strait Islander people see Table 3.1 Selected biomarkers by Indigenous status, Persons (estimate).

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 23/02/2015.
2. Food Standards Australia New Zealand 2012, *Iodine fortification*, <http://www.foodstandards.gov.au/consumer/nutrition/iodinefort/Pages/default.aspx> , Last accessed 23/02/2015.

IRON

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

The average iron intake for Aboriginal and Torres Strait Islander people from food and beverages was 10mg per day, an average iron intake of 1.3mg per 1,000 kJ of energy. Intakes were the same for Aboriginal and Torres Strait Islander males and females.

The major food groups contributing to iron intake were: **Cereals and cereal products** (32%, including 17% from *Breakfast cereals, ready to eat* and 13% from *Regular breads, and rolls*), **Meat, poultry and game products and dishes** (22%) and **Cereal based products and dishes** (15%) (see Table 10.57).

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	8.5	8.2
4-8	4.0	4.0	10.3	9.3
9-13	6.0	6.0	12.7	9.8
14-18	8.0	8.0	12.7	9.0
19-30	6.0	8.0	12.2	9.0
31-50	6.0	8.0	12.2	8.3
51 and over	6.0	5.0	10.5	8.8

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/iron>
(b) Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in non-remote and remote areas had similar average daily iron intakes (1.3mg and 1.5mg respectively).

How did this compare with non-Indigenous people?

The average daily iron intake for Aboriginal and Torres Strait Islander people and non-Indigenous people was similar (10mg and 11mg respectively). Both Aboriginal and Torres Strait Islander people and non-Indigenous people had an average iron intake of 1.3mg per 1,000 kJ of energy (see Table 3.1 and Table 3.3).

Note that several iron biomarkers were collected as part of the National Aboriginal and Torres Strait Islander Health Measures Survey. See the Australian Aboriginal and Torres Strait Islander Health Survey: Users' Guide, 2012-13, Iron Biomarkers.

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 20/02/2015.

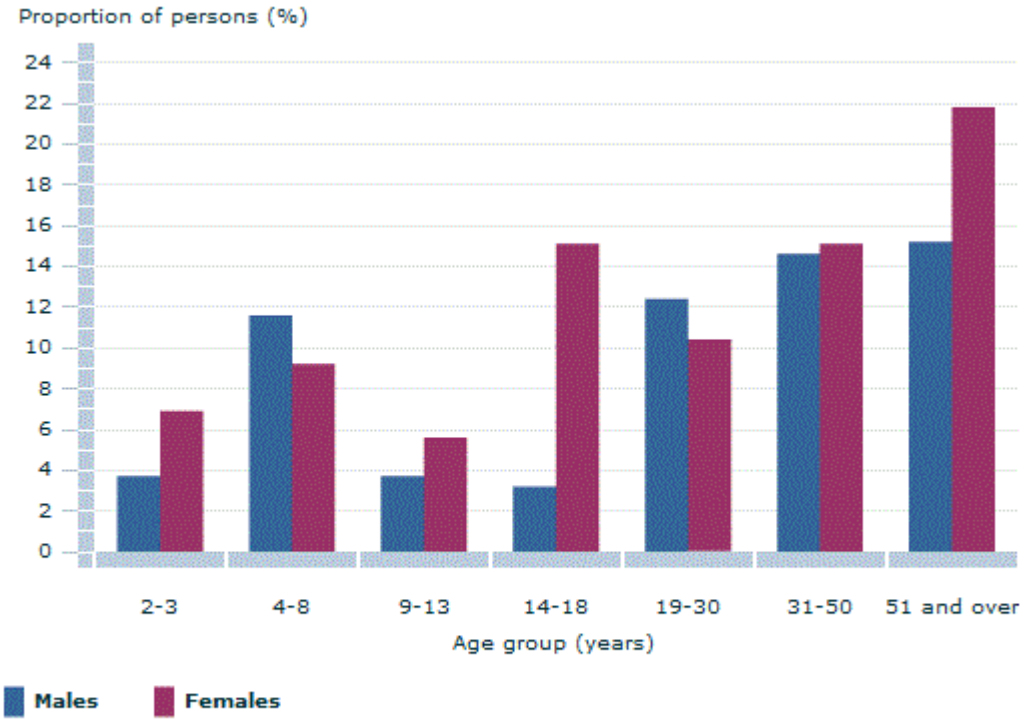
SUPPLEMENTS

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.

One in eight (12%) Aboriginal and Torres Strait Islander people reported taking at least one dietary supplement. Aboriginal and Torres Strait Islander adults (19 years and over) were more likely than children to have taken a supplement (14% compared with 8% for children). Overall, males and females were equally likely to have taken supplements. However, females aged 14-18 years were five times more likely to have taken supplements than males of the same age (15% compared with 3.2% for males).

Supplement consumers(a)(b) by age & sex, 2012-13



Australian Bureau of Statistics

© Commonwealth of Australia 2015.

Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 2 years and over. (b) On the day prior to interview.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Around three in five (62%) Aboriginal and Torres Strait Islander people who had taken a supplement had only taken one type of supplement, with one quarter (25%) taking two different supplements, and one in eight (13%) taking three or more different supplements.

Among Aboriginal and Torres Strait Islander people, Vitamin and/or mineral supplements (9.2%) were the most commonly taken dietary supplements, with Oil supplements taken by around 4.1% of the population (see Table 11.1).

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in non-remote areas were three times as likely as those in remote areas to have taken one or more supplements (14% compared with 4.3%) (see Table 11.1).

How does this compare with non-Indigenous people?

Non-Indigenous people were more than twice as likely as Aboriginal and Torres Strait Islander people to have taken one or more supplements (29% compared with 12%) (see Table 11.3).

PROTEIN SUPPLEMENTS

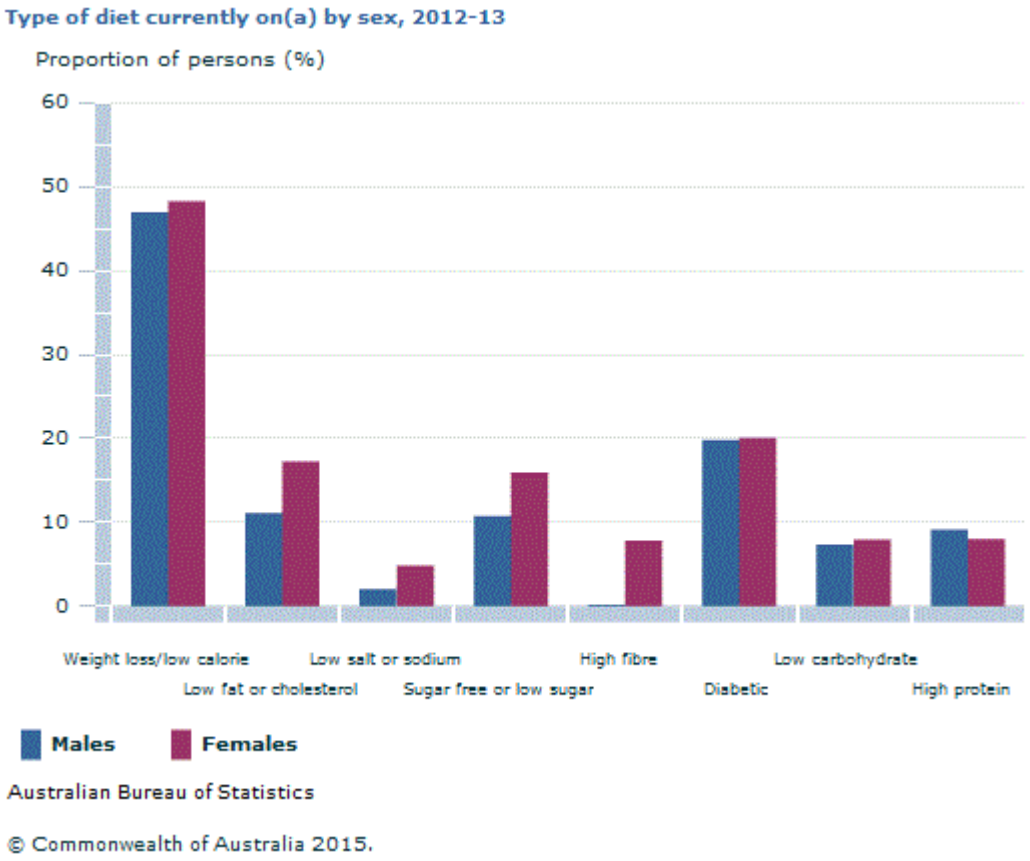
Special dietary foods is a food category within the food classification used in the 2012-13 NATSINPAS, and includes foods such as protein supplements. Overall, 1.9% of Aboriginal and Torres Strait Islander people consumed **Special dietary foods,** a lower proportion than in the non-Indigenous population (2.9%). Aboriginal and Torres Strait Islander males aged 19-30 years were most likely to have consumed a **Special dietary food**, with similar rates reported in the non-Indigenous cohort (see Table 4.1 and Table 4.3).

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. Around one in eight (12%) Aboriginal and Torres Strait Islander people aged 15 years and over reported that they were on a diet to lose weight or for some other health reason. Those aged 15-30 years were less likely to be on a diet than those in the older age groups (6.9% compared with 14% of 31-50 year olds and 18% of those 51 years and over). A similar proportion of males and females were on a diet (see Table 13.1).

Two thirds (66%) of Aboriginal and Torres Strait Islander people who reported being on a diet indicated they were on a diet to lose weight (including for health reasons as well as to lose weight), while the remainder were on a diet for other health reasons (34%).

Almost half (48%) of Aboriginal and Torres Strait Islander people on a diet described the type of diet they were on as Weight loss / low calorie, with similar rates for male and female dieters.



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 15 years and over currently on a diet.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people aged 15 years and over in non-remote areas were equally likely as those in remote areas to report being on a diet. However, half (50%) of the dieters in remote areas reported being on a diet for health reasons other than weight loss, compared with less than one third of the population in non-remote areas (31%) (see Table 13.1).

How does this compare with non-Indigenous people?

The proportion of Aboriginal and Torres Strait Islander people on a diet is comparable to that of non-Indigenous people on a diet (12% and 13% respectively).

Aboriginal and Torres Strait Islander dieters were more likely than non-Indigenous dieters to be on a Diabetic diet (20% compared with 8.3% respectively). However, non-Indigenous dieters were more likely to be on a Low fat / cholesterol diet (22% compared with 15% of Aboriginal and Torres Strait Islander dieters).

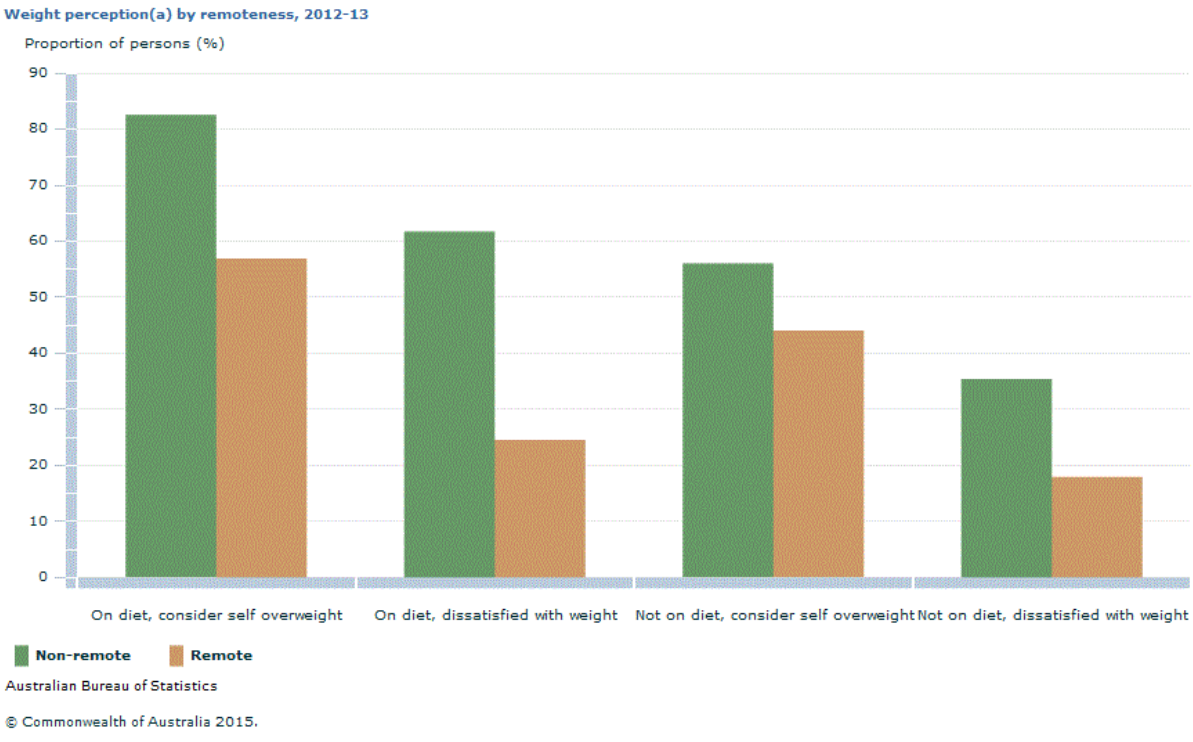
DIETING AND BODY MASS

Around two thirds (67%) of Aboriginal and Torres Strait Islander people aged 15 years and over were overweight (28%) or obese (39%) based on their measured height and weight. Of these, only one in six (17%) of them were on a diet consisting of 10% of those who were overweight and 21% of those who were obese.

Among Aboriginal and Torres Strait Islander people who were overweight or obese, dieters were more likely than those who were not on a diet to consider themselves to be overweight (78% compared with 53%). Dieters were also more likely than those who were not on a diet to be dissatisfied or very dissatisfied with their weight (55% compared with 32%).

Was there a difference by remoteness?

There were similar proportions of overweight or obese Aboriginal and Torres Strait Islander dieters in non-remote and remote areas. However, those in non-remote areas were more likely to consider themselves to be overweight, and were also more likely to be dissatisfied with their weight.



Footnote(s): (a) Aboriginal and Torres Strait Islander people aged 15 years and over who were overweight or obese.

Source(s): Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results – Foods and Nutrients, 2012-13

FOOD SECURITY

More than one in five (22%) Aboriginal and Torres Strait Islander people were living in a household that, in the previous 12 months, had run out of food and had not been able to afford to buy more. This was significantly higher than in the non-Indigenous population (3.7%). These figures include 7% of the Aboriginal and Torres Strait Islander population and 1.4% of the non-Indigenous population who lived in a household that had gone without food when they ran out.

Was there a difference by remoteness?

Aboriginal and Torres Strait Islander people living in remote areas were more likely than those in non-remote areas to be living in a household that had run out of food and couldn't afford to buy more (31% compared with 20%). This includes 9.2% of people in remote areas and 6.4% of people in non-remote areas who went without food when they ran out (see Table 14.1).

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

- the misrepresentation of foods and beverages consumed (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 2012-13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) and also in making comparisons with the 2011-12 National Nutrition and Physical Activity Survey (NNPAS), 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 the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey in the Users' Guide.

In summary, the analysis shows that:

- Under-reporting is likely to have occurred in both surveys.

- When compared with results for the total population from the 2011-12 NNPAS, there was a higher proportion of Low Energy Reporters (LERs) for both Aboriginal and Torres Strait Islander males and females in NATSINPAS.

- The proportion of Aboriginal and Torres Strait Islander people who were classed as LERs increased with Body Mass Index (BMI) for both males and females, with females more likely to be low energy reporters than males.

- The BMI distribution of the NATSINPAS population differs from the NNPAS population, for example almost two fifths (39%) of the NATSINPAS population is obese, compared with 25% of the NNPAS population. Differences in the BMI distributions may be a potential driver of differences in under-reporting between the two populations.

- In order for each member of the Aboriginal and Torres Strait Islander population to achieve an Energy Intake to Basal Metabolic Rate Ratio (EI:BMR) ratio of 1.55 which is the ratio expected for a normally active but sedentary population, an increase in mean energy intake of 24% for males and 31% for females would be

required with greater increases required for overweight and obese people than for those of normal weight. This compares to 17% for males and 21% for females in the NNPAS population.

- Given the association of under-reporting with overweight/obesity and consciousness of socially acceptable/desirable dietary patterns, under-reporting is unlikely to have affected the results for all foods and nutrients equally.

Explanatory Notes

INTRODUCTION

1 This publication presents a selection of results from the 2012-13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS), with the focus on foods and nutrients consumed and selected dietary behaviours.

2 The 2012-13 NATSINPAS was conducted throughout Australia from August 2012 to July 2013. The NATSINPAS was collected as one of a suite of surveys that together comprise the Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS).

3 The Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition - Foods, Nutrients and Supplements publication contains food and nutrient information from a 24-hour dietary recall and information on selected dietary behaviours of Aboriginal and Torres Strait Islander people by age groups and sex at the National level. The publication includes selected comparisons with the non-Indigenous population from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS) component of the 2011-13 Australian Health Survey.

4 The statistics presented in this publication are only a selection of the information collected in the NATSINPAS. 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 collected from respondents living in non-remote areas.

5 Throughout this release, the term 'Aboriginal and Torres Strait Islander people' refers to all persons who identified themselves as being of Aboriginal, Torres Strait Islander, or both Aboriginal and Torres Strait Islander origin.

6 Explanations of terms and concepts are provided in the Glossary and a list of data items currently available from the survey can be found in the Australian Aboriginal and Torres Strait Islander Health Survey: Users' Guide, 2012-13 (cat no. 4727.0.55.002), referred to throughout this publication as the 'Users' Guide'.

SCOPE AND COVERAGE OF THE SURVEY

6 The National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) is based on a sample of approximately 2,900 private dwellings across Australia.

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 The scope of the NATSINPAS was all Aboriginal and Torres Strait Islander people who were usual residents of private dwellings in Australia. Usual residents are those who usually live in a particular dwelling and regard it as their own or main home.

9 Within each selected dwelling, one Aboriginal and Torres Strait Islander adult (aged 18 years and over) and, where possible, one Aboriginal and Torres Strait Islander 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.

10 The following groups were excluded from the survey:

- Non-Indigenous persons;
- Non-Australian diplomats; diplomatic staff and members of their household;
- Members of non-Australian Defence forces stationed in Australia and their dependents; and
- Overseas visitors.

11 The survey excluded visitors to private dwellings, except for those that had been resident six months or longer. Visitors who were a usual resident of another dwelling and were in-scope of the survey may be selected in the survey only at their usual residence dwelling, or if not selected, would have been represented by similar persons who were selected in the survey.

12 The NATSINPAS was conducted in non-remote and remote areas in all states and territories of Australia, including discrete Aboriginal and Torres Strait Islander communities.

13 Coverage exclusions apply to those people who were part of the in-scope population, but who were not included in the sampling frame as a way of managing enumeration costs. The sample was based on areas in which Aboriginal and Torres Strait Islander households were identified in the 2011 Census of Population and Housing. Coverage exclusions applied included:

- Statistical Areas Level 1 (SA1s) (or Collection Districts (CDs) in the Northern Territory (NT)) with no Aboriginal and Torres Strait Islander households;
- Some discrete Aboriginal and Torres Strait Islander communities with a

small number of Aboriginal and Torres Strait Islander households; and
- Some SA1s, or CDs in the NT, in remote areas with a small number of Aboriginal and Torres Strait Islander households.

14 These coverage exclusions result in an estimated undercoverage of approximately 4% of Aboriginal and Torres Strait Islander persons in Australia. Although these areas were not enumerated, the final sample was weighted to population benchmarks to account for these exclusions. Further information on undercoverage is provided in paragraphs 44 to 48 and more information on the scope and coverage of the survey is provided in the Users' Guide.

15 The estimated resident Aboriginal and Torres Strait Islander population aged 2 years and over living in private and non-private dwellings at 30 June 2011 was 636,945. Excluding persons in non-private dwellings, there were 606,915 Aboriginal and Torres Strait Islander people aged 2 years and over.

16 Population benchmarks, which align with the survey scope, are based on the most recently released Estimated Resident Aboriginal and Torres Strait Islander Population (ERP), which in this case are for 30 June 2011. The ERP data are based on the 2011 Census of Population and Housing, adjusted by the 2011 Post-Enumeration Survey (PES). More information about the Estimated Resident Aboriginal and Torres Strait Islander Population can be found in Estimates of Aboriginal and Torres Strait Islander Australians, June 2011 (cat. no. 3238.0.55.001).

RESPONSE RATES

17 After sample loss the NATSINPAS approached 3,661 households. Of these, 2,900 (79%) were fully or adequately responding, yielding a total sample for the survey of 4,109 persons (aged 2 years and over).
18 The final persons in sample used in the publication by non-remote and remote areas follow.

FINAL PERSONS IN SAMPLE

		Non-remote	**Remote**
Adults		1170	1505
Children			
	2-4	145	211
	5-17	477	601
Total		**1792**	**2317**

19 More information on response rates is available in the Users' Guide.

DATA COLLECTION

20 Trained ABS interviewers conducted personal interviews with selected Aboriginal and Torres Strait Islander residents in sampled private dwellings. Selected persons aged 18 years and over in each dwelling were 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 for selected children (aged 2 years and over) in the household. An adult, nominated by the household, was also asked to provide information about the household, such as the combined income of 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 Users' Guide.

21 The majority (61%) of Aboriginal and Torres Strait Islander children aged 15-17 years could were personally interviewed with consent from a parent or guardian. For the remaining 39% of children is this age group, proxy interviews were conducted with a parent or guardian.

22 All selected persons in non-remote areas of the NATSINPAS were asked to have a follow-up telephone interview at least 8 days after the face to face interview to collect further nutrition data. For those who opted in, pedometer data was also reported during this telephone interview. Results from this phase of the survey have not been included in this publication.

23 The physical measures module of the NATSINPAS was voluntary. In 2012-13, 84% of persons aged 2 years and over in the NATSINPAS had a height and weight measurement. BMI data presented in this publication are based on the measured population only. Analysis of the characteristics of people who agreed to be measured compared to those who declined across the AATSIHS suite of surveys indicate that age and remoteness were factors in non-response. Persons in non-remote areas were more likely to decline to be measured and response rates were higher for adults than for children.

24 Of the 4,109 people in the final sample, 99.5% provided the first (Day 1), with the missing 0.5% of Day 1 dietary recalls being imputed. The second 24-hour dietary recall (Day 2) which was only offered to those in non-remote areas had 771 participants (43% of the total in non-remote areas). The Day 2 24-hour dietary recall participation was slightly lower among female children than other respondents.

25 To take account of possible seasonal effects on health and nutrition characteristics, the NATSINPAS sample was surveyed across a 12-month enumeration period.

26 More information on data collection and a copy of the survey questionnaire are provided in the Users' Guide.

WEIGHTING, BENCHMARKING AND ESTIMATION

27 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 person in the sample. The weight is a value which indicates how many population units are represented by the sample unit.

28 The first step in calculating weights for each person was to assign an initial weight, which is 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 would represent 600 others).

29 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.

30 The NATSINPAS was benchmarked to the estimated resident population living in private dwellings at 30 June 2011. As people in non-private dwellings (e.g. hotels) are excluded from the scope of the survey, they have also been excluded from the survey benchmarks. Therefore, the NATSINPAS estimates do not (and are not intended to) match estimates for the total resident Aboriginal and Torres Strait Islander population obtained from other sources.

31 Estimates of counts of persons are obtained by summing person weights of persons with the characteristic of interest. The estimates presented in this release are based on benchmarked person weights.

32 More information on weighting, benchmarking and estimation is provided in the Users' Guide.

RELIABILITY OF ESTIMATES

33 All sample surveys are subject to error which can be broadly categorised as either sampling error or non-sampling error.

34 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 Margin of Error (MoE).

35 In this publication, estimates with a RSE in the range 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 a RSE greater than 50% are annotated with a double asterisk (e.g. **0.6) and are generally considered to be too unreliable for most purposes. These estimates can be aggregated with other estimates to reduce the overall sampling error. Another factor that may explain certain high RSE's in the NATSINPAS are some of the food groupings that make up the Food Classification. That is, a relatively high variance would be expected where foods with very different amounts of consumption are combined. For example, within sub-major level food group of *Herbs, spices, seasonings and stock cubes* there are foods with relatively small gram amounts of consumption (such as herbs and spices) that have been grouped with foods that are consumed in substantially greater amounts such as liquid stock. For more information on the Food classification see Food Intake in the AHS: Users' Guide, 2011-13.

36 Margin of Error (MoE) calculation at the 95% confidence level, are provided for all proportions to assist users in assessing the reliability of these data. Users may find this measure is more convenient to use, rather than the RSE, in particular for small and large proportions. 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.

37 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.

38 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
- the misrepresentation of foods and beverages consumed (deliberate, unconscious or accidental), e.g. to make their diets appear more ‘healthy’ or be quicker to report.

Analysis of the results of the 2012-13 NATSINPAS suggests that, like other nutrition surveys (including the 2011-12 NNPAS), there has been some under-reporting of food intake by participants in these 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 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 for Aboriginal and Torres Strait Islander people may be understated by as much as 24% for males and 31% for 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 the National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey in the AATSIHS Users' Guide, 2011-13.

39 A further 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 use of proxies in the 24-hour dietary recall module.

40 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 2012-13 NATSINPAS were developed by Food Standards Australia New Zealand specifically for the survey. A complete nutrient profile of 44 nutrients was created based on the latest available data, however, not all data was based on directly analysed foods. Some data was obtained 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.

41 Non-response occurs when people cannot or will not cooperate, or cannot be contacted by interviewers. 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.

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

- face-to-face interviews with respondents
- follow-up of respondents if there was initially no response
- weighting to population benchmarks to reduce non-response bias.

43 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 a different methodology.

Under-coverage

44 Under-coverage is the shortfall between the population represented by the achieved sample and the in-scope population. Weighting, as described in paragraphs 27 to 32 adjusts for under-coverage, reducing the under-coverage bias in estimates.

45 Under-coverage rates can be estimated by calculating the difference between the sum of the initial weights of the sample and the population count. If a survey has no under-coverage, then the sum of the initial weights of the sample will equal the population count (ignoring small variations due to sampling error).

46 It is usual for ABS Aboriginal and Torres Strait Islander surveys to have large levels of under-coverage. The NATSINPAS under-coverage rate was 63% of the in-scope population at the national level. However, 6% of this was due to planned frame exclusions and overlap with the Monthly Population Survey where analysis has shown that the impact of any bias is minimal. For comparison, the estimated under-coverage in the 2004–05 NATSIHS and the 2008 NATSISS was 42% and 53% respectively.

47 The NATSINPAS rate varies across states and territories, with Victoria (78%), the Northern Territory (72%) and New South Wales (68%) recording the highest rates of under-coverage. The lowest under-coverage rates were in Tasmania (6%) and the Australian Capital Territory (44%).

48 Under-coverage may occur due to a number of factors, including:

- frame exclusions (areas being removed from the sampling frame);
- non-response;
- non-identification of people as being of Aboriginal and/or Torres Strait Islander origin; and
- issues arising in the field

For more details on these, refer to the Users' Guide.

CLASSIFICATIONS

49 The AATSIHS food classification was produced by Food Standards Australia New Zealand (FSANZ). 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.

CONFIDENTIALITY

50 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.

51 Techniques used to guard against identification or disclosure of confidential information in statistical tables includes: the suppression of sensitive cells, random adjustments to cells with very small values, and aggregation of data. To ensure confidentiality within this publication, some cell values may have been suppressed and are not available for publication but are included in totals where applicable. As a result, components may not always add exactly to totals.

ROUNDING

52 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 shown as 0.0 with a high RSE or MoE have a true value of less than 0.05 but greater than 0.0.

53 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.

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

ACKNOWLEDGEMENTS

55 The success of the NATSINPAS was dependent on the high level of cooperation received from Aboriginal and Torres Strait Islander peoples and their communities. Without their continued cooperation, the wide range of Aboriginal and Torres Strait Islander 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.

56 The ABS gratefully acknowledges and thanks the Agricultural Research Service of the United States Department of Agriculture (USDA) for giving permission to adapt and use their Dietary Intake Data System, including the Automated Multiple-Pass Method (AMPM) for collecting dietary intake information, as well as other processing systems and associated materials.

57 Food Standards Australia New Zealand (FSANZ) was contracted to provide advice throughout the survey development, processing and collection phases of the 2012-13 NATSINPAS, 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 support, advice and expertise for the 2012-13 NATSINPAS.

PRODUCTS AND SERVICES

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

59 For users who wish to undertake more detailed analysis of the survey data, Survey Table Builder will also be made available in 2015. 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 website.

60 Special tabulations are available on request. Subject to confidentiality and sampling variability constraints, customised 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 Users' Guide.

61 Information from the NATSINPAS will be returned to Aboriginal and Torres Strait Islander people through the ABS State and Territory Statistical Services (STSS) Program and collaborations with other organisations.

62 For more information about this survey and associated products, contact the National Information and Referral Service on 1300 135 070 or the National Centre for Aboriginal and Torres Strait Islander Statistics indigenous.statistics@abs.gov.au. The ABS Privacy Policy outlines how the ABS will handle any personal information that you provide to us.

RELATED PUBLICATIONS

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

64 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).

Aboriginal and Torres Strait Islander people

Refers to people who identified themselves, or were identified by another household member, as being of Aboriginal, Torres Strait Islander, or Aboriginal and Torres Strait Islander origin.

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. Alcoholic beverages contain more than just alcohol. They range from 2 – 40% alcoholic content.

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 Aboriginal and Torres Strait Islander Health Survey (AATSIHS)

The Australian Aboriginal and Torres Strait Islander Health Survey 2011-13 is composed of three separate surveys:

- National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2012-13
- National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS) 2012-13
- National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) 2012-13.

In addition to this, the AATSIHS Survey contains a Core dataset, which is produced from questions that are common to both the NATSIHS and NATSINPAS. See About the Australian Aboriginal and Torres Strait Islander Health Survey for details.

Australian 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 elderly.

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.

Cholesterol

Cholesterol is a type of fat and a component of cell membrane.

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.

Respondents living in remote areas only had one interview.

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

See Australian Dietary Guidelines.

Dietary supplements

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*folic acid + natural folate.

Folate (Total)

Total folate includes both folic acid (pteroyl glutamic acid, or PGA) and its derivatives (tetrahydrofolate, or THF, the naturally-occuring 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 dietary supplements and for food fortification as it is more stable and bioavailable than the naturally-occurring forms in foods. As of 2009, all bread making flour 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.

Health risk factors

Specific lifestyle and related factors impacting on health, including:

- tobacco smoking
- physical inactivity
- 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.

Infant formulae and foods

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

Iron

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

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 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. In this release, mean usual intakes for each age by sex group are calculated from the distribution of usual nutrient intakes individual intakes (the observations) simulated by the NCI method.

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 a set of observations. In this release, median usual intakes for each age and sex group are shown as the 50th percentile of the range of observations simulated by the NCI method.

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 of the AHS Users' Guide, 2011-13 (cat. no. 4363.0.55.001).

Miscellaneous food group

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 Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS)

The National Aboriginal and Torres Strait Islander 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.

Non-Indigenous people

This term refers to the population of Australian people who did not identify themselves as Aboriginal or Torres Strait Islander.

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.

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.

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 pro vitamin A = beta carotene + 0.5*alpha carotene + 0.5*cryptoxanthin. This equation takes into account the differing biological activities of the different forms of pro vitamin A.

Recommended usual daily 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 daily 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.

Remoteness

The Remoteness Structure for the Australian Statistical Geography Standard (ASGS) 2011, has five categories based on an aggregation of geographical areas which share common characteristics of remoteness, determined in the context of Australia as a whole. These categories are:

- Major cities of Australia

- Inner regional Australia
- Outer regional Australia
- Remote Australia
- Very remote Australia

The five categories are generally aggregated in some way for use in output. For this publication, the first three categories represent non-remote areas and the last two represent remote areas.

The 2011 Remoteness Structure has been built using the same principles as the 2006 Remoteness Structure. The primary difference is that it was built from ASGS Statistical Area Level 1 (SA1) regions rather than from 2006 Census Collection Districts (CCD).

The criteria for these categories are based on the Accessibility/Remoteness Index of Australia (ARIA). ARIA measures the remoteness of a point based on the physical road distance to the nearest Urban Centre in each of five size classes. For more information on how ARIA is defined see Information Paper: ABS Views on Remoteness, 2001 (cat. no. 1244.0) and Information Paper: Outcomes of ABS Views on Remoteness Consultation, Australia, Jun 2001 (cat. no. 1244.0.00.001). Also refer to Census Geography Paper 03/01 - ASGC Remoteness Classification - Purpose and Use, available from the ABS web site.

Reptiles, amphibia and insects

The "Reptiles, amphibia and insects' food group includes Crocodile, Goanna, Turtle and insects.

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 docosahaexanoic 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.

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 B6

Vitamin B6 is involved in the metabolism of amino acids, glycogen and sphingoid bases, where it functions as a coenzyme. Dietary sources come from a wide range of foods including organ and muscle meats, breakfast cereals, vegetables, and fruits.

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.

Vitamin C

Vitamin C is commonly found in fruits and vegetables and refers to compounds with antiscorbutic activity and antioxidant properties.

Vitamin E

Vitamin E refers to a group of compounds called tocopherols and tocotrienols. It prevents the oxidation of polyunsaturated fatty acids, acting as an antioxidant in the lipid phase of cell membranes.

Vitamins

Vitamins are organic compounds found naturally in food and are either fat or water soluble. They are required in small amounts. Vitamins enable the human body to function efficiently by regulating biochemical processes such as growth metabolism, cell reproduction, digestion, and oxidation of the blood.

Zinc

Zinc is a mineral required for the function of many enzymes and has a role in protein and DNA synthesis. It is widely present in foods, in particular meat, seafood and poultry.

ABBREVIATIONS

The following symbols and abbreviations are used in this publication:

. .	not applicable
ABS	Australian Bureau of Statistics
AATSIHS	Australian Aboriginal and Torres Strait Islander Health Survey
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
NATSIHMS	National Aboriginal and Torres Strait Islander Health Measures 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

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.

$$RSE\% = \frac{SE}{estimate} \times 100$$

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:

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

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 **Vegetable products and dishes** was 137.5 grams. The RSE for this estimate is 13.2%, and the SE is calculated by:

$$SE\ of\ estimates = \left(\frac{\text{RSE}}{100}\right) \times estimate$$

$$= 0.132 \times 137.5$$

$$= 18.1$$

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 **Vegetable products and dishes** on the day prior to interview is +/- 8.3 percentage points. The SE is calculated by:

$$SE\ of\ estimates = \left(\frac{\text{MOE}}{1.96}\right)$$

$$= \left(\frac{8.3}{1.96}\right)$$

$$= 4.2$$

15 There are about 19 chances in 20 that the estimate of the proportion of females aged 19-30 years who ate a **Vegetable products and dishes** on the day prior to interview is within +/- 8.3 percentage points from the population value.

16 Similarly, there are about 19 chances in 20 that the proportions of females aged 19-30 years who ate a **Vegetable products and dishes** on the day prior to interview is within the confidence interval of 54.8% to 71.4%.

SIGNIFICANCE TESTING

17 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:

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

18 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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