4

Risk factors and associated conditions for heart, stroke and vascular diseases

4 Introduction

Risk factor is the term given to a range of health-related behaviours and biomedical conditions that can affect the health of an individual in a negative way. For heart, stroke and vascular diseases they include genetic, behavioural and biomedical factors, although there is a growing body of evidence that the determinants of health go beyond these to the underlying social, economic, psychological and cultural factors that can contribute to disease. Risk factors include both modifiable and non-modifiable factors.

Assessing the prevalence of risk factors in the population is useful in understanding trends in disease prevalence, incidence and death as well as predicting future trends, and can help to explain why some groups have better or worse health than others. Monitoring their prevalence can also provide insight into the success of health-related campaigns or the need to initiate health promotion interventions.

What are the risk factors for heart, stroke and vascular diseases?

The major preventable risk factors for heart, stroke and vascular diseases are tobacco smoking, insufficient physical activity, poor nutrition, alcohol consumption, high blood pressure, high blood cholesterol, overweight and diabetes.

Behavioural risk factors can influence biomedical (physiological) risk factors (e.g. poor nutrition and insufficient physical activity can lead to overweight, high blood pressure and high blood cholesterol). Behavioural and biomedical risk factors have the potential to be modified.

The risk factors presented in this chapter are:

Behavioural factors

- tobacco smoking
- insufficient physical activity
- poor nutrition
- alcohol consumption.

Biomedical factors

- high blood pressure
- high blood cholesterol
- overweight
- diabetes
- kidney (renal) failure.

Diabetes and kidney (renal) failure are both risk factors and associated conditions for heart, stroke and vascular diseases.

Although this report presents sections on individual risk factors, the actual risk of developing a heart, stroke or vascular disease depends on the 'intensity' of abnormalities (or levels) of risk factors.

Burden of risk factors

From the 1996 Burden of Disease and Injury Study, tobacco smoking was estimated to be the risk factor responsible for the greatest burden of disease (in terms of deaths and disability) in Australia, accounting for about 12% of the total burden of disease and injury in males and 7% in females, or 10% overall. This is followed by insufficient physical activity, responsible for about 7% of the total burden. Diabetes, high blood pressure and excessive alcohol consumption each account for about 5% of the total burden, overweight and obesity just over 4%, and high blood cholesterol and inadequate fruit and vegetable consumption about 3% each.

How many Australians have a modifiable risk factor for heart, stroke and vascular diseases?

In the 2001 National Health Survey, respondents were asked about their health and health behaviours. The results indicate that nine in ten Australians surveyed aged 18 years and over report having at least one of the following risk factors: tobacco smoking, excessive alcohol consumption, high blood pressure, high blood cholesterol, insufficient physical activity, overweight or diabetes. This corresponds to an estimated 13.1 million Australians affected.

Multiple risk factors

The more risk factors a person has, the greater his or her risk of developing heart, stroke and vascular diseases.

In 2001, based on self-reported information, more women (35.3%) than men (26.2%) aged 18 years and over had just one risk factor, whereas more men (26.1%) than women (20.9%) had three or more risk factors. The prevalence of three or more risk factors, as expected, is more common among older people (about one in three aged 65 years and over).

Other factors

Psychosocial factors, atrial fibrillation and transient ischaemic attack (TIA) can also affect the development of heart, stroke and vascular diseases. Due to limited data available, they are only briefly discussed in this section.

Psychosocial factors

A 2003 review by the NHFA concluded that depression, social isolation and lack of quality social support are substantial independent risk factors for coronary heart disease. The increased risk contributed by these psychosocial risk factors is of a similar order to other risk factors such as tobacco smoking, high blood pressure and high blood cholesterol. Depression is common in Australia with up to one in four females and one in six males likely to suffer from it at some time in their lives. Less is known about the prevalence and the impact of social isolation and lack of social support.

Atrial fibrillation

Atrial fibrillation is a condition in which the heart's two pumping chambers (the atria) quiver instead of beating regularly. Blood isn't pumped completely out of them, so it may pool and clot. If a piece of a blood clot in the atria leaves the heart and becomes lodged in an artery in the brain, a stroke may result. Atrial fibrillation affects 5% of people aged 65 years and over and increases their risk of stroke by five to six times compared with those of similar age.

Transient ischaemic attack

TIA is a temporary interruption of the blood supply to an area of the brain. A TIA may cause no permanent disability and can last up to 24 hours, but most last only a few minutes. A TIA is an important predictor of stroke and heart attack in the future.

Further reading

Bunker SJ, Colquhoun DM, Esler MD et al. 2003. Position statement. 'Stress' and coronary heart disease: psychosocial risk factors. NHFA position statement update. Med J Aust 178(6):272–6.

Hankey GJ, on behalf of the National Blood Pressure Advisory Committee of the National Heart Foundation of Australia 2001. Position statement. Non-valvular atrial fibrillation and stroke prevention. Med J Aust 174:234–348.

4 Tobacco smoking

Key points

- Tobacco smoking increases the risk of coronary heart disease, stroke and peripheral vascular disease.
- In 2001, almost 3.06 million (just below 20%) Australians aged 14 years and over smoked daily. A further 4% (almost 600,000 persons) smoked occasionally.
- Smoking rates among Australian adults fell steadily since the early 1970s and this trend continues.
- For people aged 14 years and over, smoking was more common in the most disadvantaged areas than in the least disadvantaged.
- Indigenous Australians were twice as likely to smoke compared with other Australians.

Tobacco smoking increases the risk of coronary heart disease, stroke and peripheral vascular disease, as well as a range of cancers and other diseases and conditions. The nicotine and carbon monoxide in tobacco smoke reduce the amount of oxygen in the blood and damage blood vessel walls, causing plaque to build up. Tobacco smoke may also trigger the formation of blood clots. Exposure to second-hand smoke also has serious health consequences, including increased risk of coronary heart disease and respiratory problems among adults and children.

What is tobacco smoking?

Smoking in this report refers to the smoking of tobacco products, including packet cigarettes, roll-your-own cigarettes, pipes and cigars. 'Daily smokers' refers to those who smoke at least one cigarette per day, and 'occasional smokers' refers to those who smoke less often than daily.

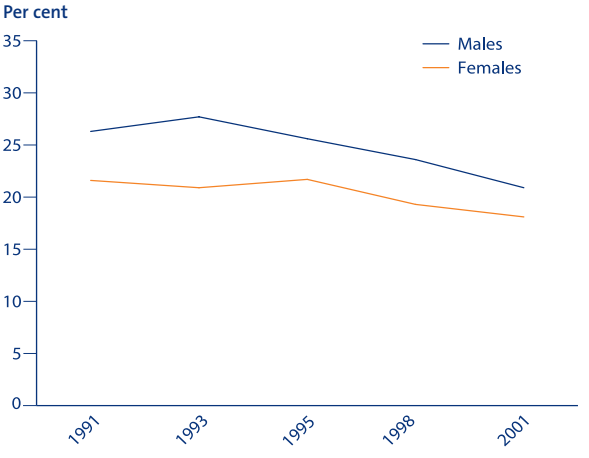
How many Australians smoke?

Based on self-reports from the 2001 National Drug Strategy Household Survey, 19.5% of Australians aged 14 years and over smoked on a daily basis. This corresponds to almost 3.06 million Australians. This is the first time that the prevalence of daily smoking has dropped below 20%. A further 4% (almost 600,000 persons) reported occasional smoking and were thus also at risk of developing coronary heart disease and other chronic conditions associated with the smoking of tobacco products.

Trends

Smoking rates among Australian adults have declined steadily since the early 1970s, and this trend continues. Smoking rates have declined by 21% for males and 16% for females over the last decade. The greatest recent decline (between 1998 and 2001) was among those aged 20–29 years. The fall was greater for women than for men in this age group.

People who were daily smokers, aged 14 years and over, 1991–01



Notes

1. Based on self-reports.
2. Age-standardised to the 2001 Australian population.

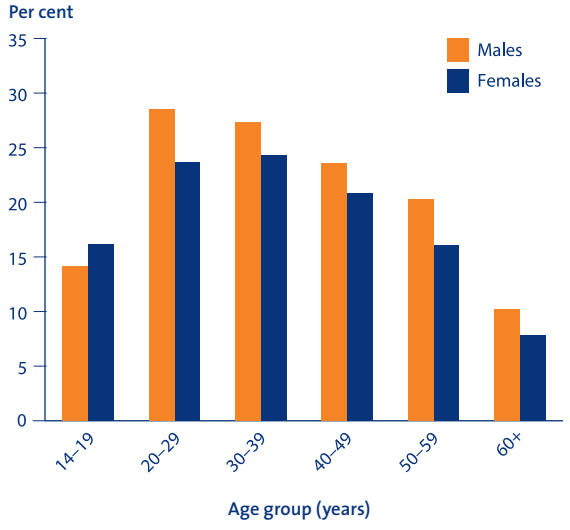
Sources: National Campaign Against Drug Abuse Household Survey 1991, 1993; National Drug Strategy Household Survey 1995, 1998, 2001.

Sex and age

In 2001, an estimated 21.1% of males and 18.0% of females aged 14 years and over were daily smokers. The highest rates of daily smoking occurred among men and women aged 20–29 years (26%). Beyond this age regular smoking declines, with those aged 60 years or more recording the lowest rates of daily smoking (9%). Around 15% of young people (aged 14–19 years) were daily smokers.

Around 30% of males and 23% of females aged 14 years and over reported that they were former smokers, while a further 45% and 56%, respectively, stated that they had never smoked.

People who were daily smokers, aged 14 years and over, 2001



Note: Based on self-reports.

Source: AIHW analysis of the 2001 National Drug Strategy Household Survey.

Socioeconomic status

In 2001, people aged 14 years and over in the most disadvantaged areas were more likely to smoke than those in the least disadvantaged areas (24% compared with 14%).

It is important to note that this measure of inequality relates to the average disadvantage of all people living in the area and will generally understate the true inequality at the individual level.

Aboriginal and Torres Strait Islander peoples

In 2001, Aboriginal and Torres Strait Islander peoples aged 14 years and over were twice as likely to smoke compared with other Australians (43% compared with 19%). Indigenous Australians were less likely than other Australians to be former smokers or to have never smoked.

Region

In 2001, people aged 14 years and over living in rural and remote areas were more likely to smoke than those living in urban areas (22% compared with 19%). Further, 52% of urban Australians reported that they had never smoked, compared with 47% of Australians in rural and remote areas.

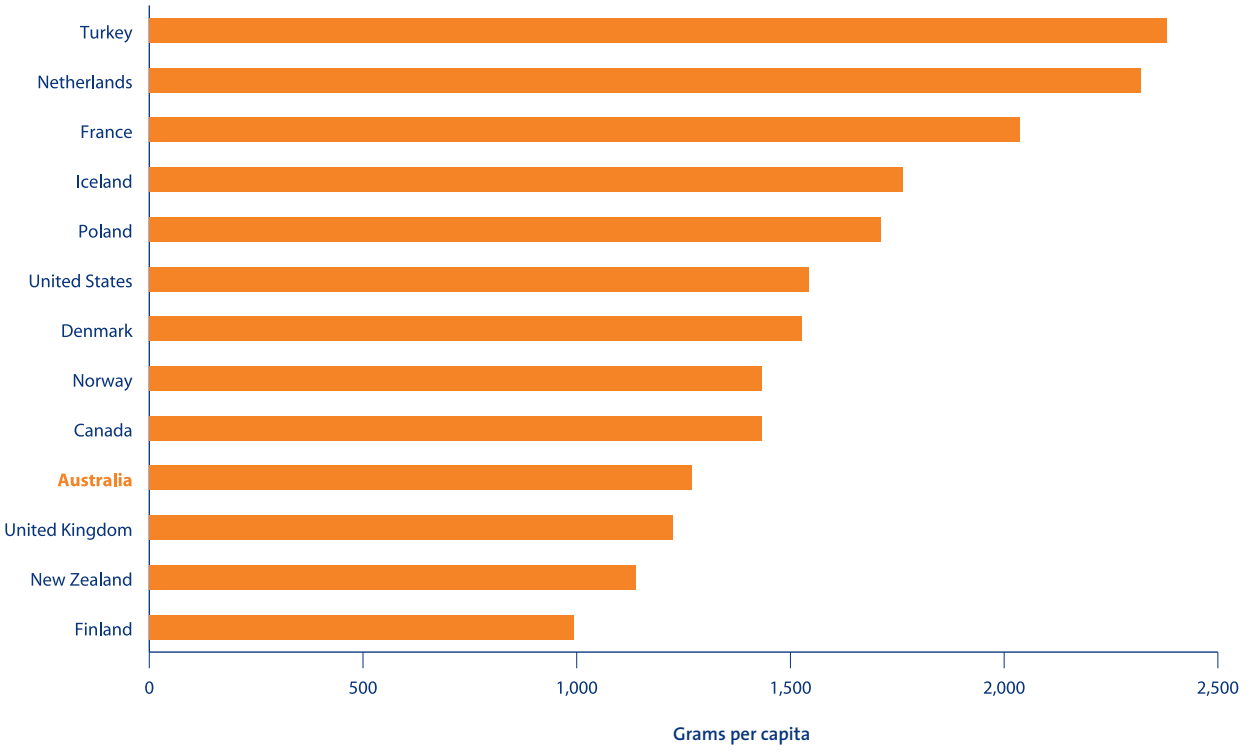
State and territory

In 2001, among people aged 14 years and over, smoking rates were highest in the Northern Territory (28%) and lowest in New South Wales (18%). This compares with the national average of just under 20%.

International comparisons

Tobacco consumption is highly prevalent in many countries of the world. In 2001, of those countries compared in the OECD Health Database, Turkey reported the highest consumption of tobacco at 2,380 grams per capita per year for those aged 15 years and over, while Finland reported the lowest at 992 grams. Australia's consumption of tobacco was 1,269 grams per capita and was towards the lower end of consumption of the countries compared.

Tobacco consumption, grams per capita, people aged 15 years and over, selected countries, 2001



Source: AIHW 2002b.

Health inequalities

People who were daily smokers, 2001

Population subgroup	Males	Females	Persons
		Per cent	
Age group (years)			
14–19	14.1	16.2	15.1
20–29	28.5*	23.7*	26.1*
30–39	27.3*	24.3*	25.7*
40–49	23.6*	20.8	22.2*
50–59	20.3*	16.1	18.2
60 and over	10.2	7.8*	8.9*
Ages 14 and over (ASR)	*20.9*	*18.1*	*19.5*
Socioeconomic status (IRSD)			
1st quintile (most disadvantaged)	24.5	22.8	23.6
2nd quintile	22.6	20.6	21.6
3rd quintile	21.4	18.1*	19.8*
4th quintile	20.6	18.0*	19.2*
5th quintile (least disadvantaged)	16.0*	11.8*	13.9*
Aboriginal and Torres Strait Islander status			
Aboriginal and Torres Strait Islander peoples	44.2	42.4	43.2
Other Australians	20.6*	17.7*	19.1*
Region (RRMA)			
Urban	19.7	17.4	18.6
Rural/remote	24.1*	19.9*	22.0*

* Statistically significant difference when compared with the first row in the population subgroup.

Notes

1. Based on self-reports.
2. Data for ages 14 years and over.
3. All rates other than the age-specific rates are age-standardised (ASR) to the 2001 Australian population.

Source: AIHW analysis of the 2001 National Drug Strategy Household Survey.

Further reading

AIHW 2002a. 2001 national drug strategy household survey: detailed findings. AIHW Cat. No. PHE 41. Canberra: AIHW (Drug Statistics Series No. 11).

AIHW 2002b. Statistics on drug use in Australia 2002. AIHW Cat. No. PHE 43. Canberra: AIHW (Drug Statistics Series No. 12).

AIHW: Ridolfo B & Stevenson C 2001. The quantification of drug-caused mortality and morbidity in Australia, 1998. AIHW Cat. No. PHE 29. Canberra: AIHW (Drug Statistics Series No. 7).

OECD 2003. OECD health data 2003, 3rd edition: a comparative analysis of 30 countries (CD-ROM). Paris: OECD.

Insufficient physical activity

Key points

- Being physically active reduces the risk of heart, stroke and vascular diseases.
- In 2000, 54% of Australians aged 18–75 years did not undertake sufficient physical activity for health benefits (7.27 million Australians). Around 15% were sedentary and around 39% reported some activity, but not enough to be categorised as 'sufficient'.
- Between 1997 and 2000, the proportion who were not sufficiently active rose from 49% to 54%.

Being physically active reduces the risk of heart, stroke and vascular diseases, particularly coronary heart disease. People who do not participate in regular physical activity are almost twice as likely to die from coronary heart disease as those who do. Insufficient physical activity is one of the most widespread of the established coronary risk factors. It is almost as important as tobacco smoking, and similar to high blood pressure and high blood cholesterol, in contributing to the prevalence of heart, stroke and vascular diseases in Australia.

Evidence suggests that regular physical activity may play a protective role against stroke. Leisure-time physical activity and vigorous work-related physical activity have been shown to lower the incidence of stroke.

Insufficient physical activity is linked to other risk factors for heart, stroke and vascular diseases such as overweight and obesity, high blood pressure, unfavourable levels of high-density lipoprotein (HDL) and total blood cholesterol, and Type 2 diabetes. There is also evidence that people who increase their level of physical activity reduce their levels of these risk factors.

What is sufficient physical activity?

The *National Physical Activity Guidelines for Australians* recommend 'at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week' to achieve health benefits. This is generally interpreted as 30 minutes on at least five days of the week; a total of at least 150 minutes of moderate-intensity activity per week. Examples of moderate-intensity activity include brisk walking, swimming, doubles tennis and cycling.

For population-monitoring purposes, 'sufficient time and sessions' is the recommended measure of sufficient physical activity for health as it takes into account the frequency and duration of physical activity. Research suggests that health benefits result from activity undertaken in a number of short sessions of 10 minutes or more as well as from longer sessions of 30 minutes or more. 'Sufficient time and sessions' is defined as at least 150 minutes (two-and-a-half hours) of physical activity accrued over at least five separate sessions (10 minutes or more) in the previous week. People reporting no physical activity at all during the previous week are classed as 'sedentary'.

Information presented in this section relates to walking, other moderate activity and vigorous activity during leisure time. Non-leisure activity such as work or domestic activity also contributes to overall physical activity, but is not currently collected in national population surveys.

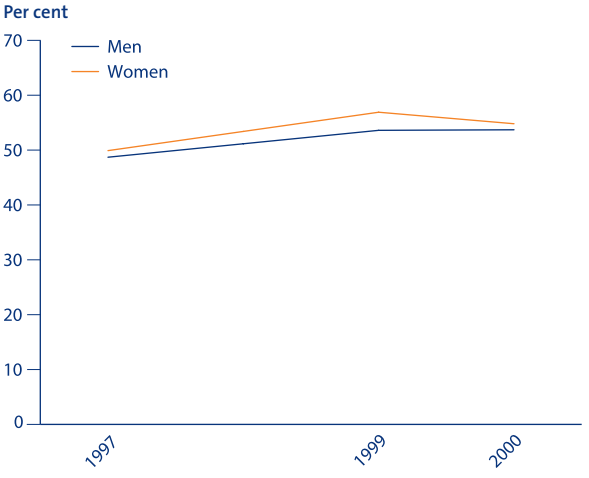
How many Australians are not sufficiently active?

In 2000, more than half (54%) of Australians aged 18–75 years did not undertake physical activity at the levels recommended to achieve health benefits. This corresponds to 7.27 million Australians. Around 15% of people were sedentary in their leisure time and around 39% reported some activity, but not enough to be categorised as 'sufficient'.

Trends

Between 1997 and 2000, the proportion of people who were not sufficiently active rose from 49% to 54%. The increase occurred among men and women and across all age groups with the exception of those aged 60–75 years (for whom activity levels remained fairly constant).

People who were not sufficiently active, aged 18–75 years, 1997, 1999 and 2000

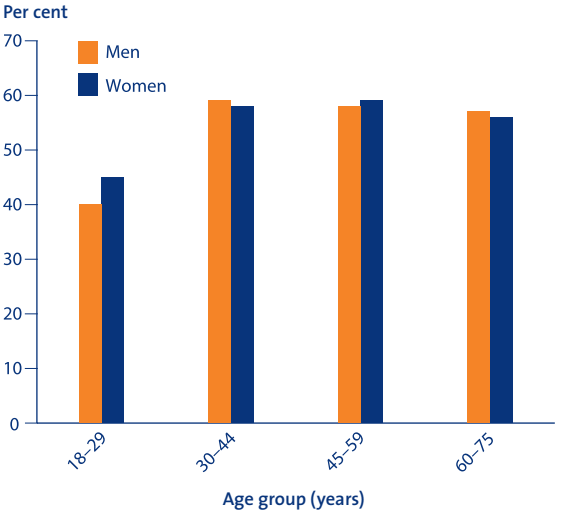


Notes

1. Based on self-reports.
2. Age-standardised to the 2001 Australian population.
3. 'Sufficient' physical activity is at least 150 minutes of activity accrued over at least five separate sessions in the previous week.

Source: AIHW analysis of the 1997, 1999, 2000 National Physical Activity Surveys.

People who were not sufficiently active, aged 18–75 years, 2000



Notes

1. Based on self-reports.
2. 'Sufficient' physical activity is at least 150 minutes of activity accrued over at least five separate sessions in the previous week.

Source: AIHW analysis of the 2000 National Physical Activity Survey.

Sex and age

In 2000, 55% of women and 54% of men were not sufficiently active. More men than women reported being sedentary in their leisure time (18% of men compared with 13% of women). Around 41% of women and 36% of men reported some physical activity, but for either insufficient time or too few sessions.

Rates of insufficient physical activity (including those who were sedentary) were highest among 30–59-year-olds (around 59%) and lowest among 18–29-year-olds (42%). The proportion of people who were sedentary increased with age from 10% in those aged 18–29 years to 18% in those 45–75 years of age.

Socioeconomic status

Educational attainment was used as an indicator of socioeconomic status. In 2000, people with less than 12 years of education were more likely to be insufficiently active (61%) than people who completed secondary school (52%) and those who completed a TAFE or tertiary qualification (51%). Around one in five adults with fewer than 12 years of education reported being sedentary in their leisure time, nearly twice the rate of those in the TAFE- or tertiary-educated group.

Aboriginal and Torres Strait Islander peoples

Comparable data on levels of insufficient physical activity are not available for Indigenous Australians.

Region

Comparable data on levels of insufficient physical activity are not available by region.

State and territory

Comparable data on levels of insufficient physical activity are not available by all states and territories.

International comparisons

Comparable international data on levels of insufficient physical activity are not available.

Health inequalities

People who were not sufficiently active, 2000

Population subgroup	Men	Women	Persons
		Per cent	
Age group (years)			
18–29	39.6	44.8	42.2
30–44	58.5*	57.6*	58.0*
45–59	58.1*	59.4*	58.7*
60–75	56.8*	56.0*	56.4*
Ages 18–75 (ASR)	*53.7*	*54.8*	*54.2*
Socioeconomic status (highest level of education)			
Did not complete secondary school	63.1	59.3	60.6
Completed secondary school	49.5*	54.3	51.6*
TAFE/tertiary	49.2*	52.7	50.8*
Aboriginal and Torres Strait Islander status	n.a.	n.a.	n.a.
Region	n.a.	n.a.	n.a.

* Statistically significant difference when compared with the first row in the population subgroup.

n.a. Not available from this data source.

Notes

1. Based on self-reports.
2. Data for ages 18–75 years.
3. All rates other than the age-specific rates are age-standardised (ASR) to the 2001 Australian population.
4. 'Sufficient' physical activity is at least 150 minutes of activity accrued over at least five separate sessions in the previous week.

Source: AIHW analysis of the 2000 National Physical Activity Survey.

Further reading

ABS 2002. 2001 national health survey: Aboriginal and Torres Strait Islander results, Australia. ABS Cat. No. 4715.0. Canberra: ABS.

AIHW 2003. The Active Australia survey: a guide and manual for implementation, analysis and reporting. Canberra: AIHW.

Bauman A, Ford I & Armstrong T 2001. Trends in population levels of reported physical activity in Australia, 1997, 1999 and 2000. Canberra: Australian Sports Commission.

DHAC 1999. National physical activity guidelines for Australians. Canberra: DHAC.

4 Poor nutrition

Key points

- The effect of nutrition on the risk of coronary heart disease and stroke results from the combined effects of individual dietary factors and total energy intake if it leads to overweight and obesity.
- Between 1983 and 1995, average energy intake in 25–64-year-olds increased significantly by about 350 kJ per day. Total fat intake declined, protein intake did not change significantly but intake of carbohydrates increased by 16–17%.
- The consumption of saturated fat, which can increase the risk of coronary heart disease, is above recommended levels. That of polyunsaturated fatty acids, which can reduce the risk of coronary events and deaths, is below recommended levels.
- A high dietary intake of salt may contribute to raise blood pressure. No national data exist to assess levels of salt consumption among Australians. However, in one study conducted in Hobart in the mid-1990s, only 6% of men and 36% of women were below the maximum levels recommended.
- The 2001 National Health Survey showed that Australian adults need to eat more fruit and vegetables to minimise the risk of heart, stroke and vascular diseases.

The effect of nutrition on the risk of coronary heart disease and stroke results from the combined effects of individual dietary factors and total energy intake if it leads to overweight and obesity. Heart, stroke and vascular diseases cannot be attributed to any one dietary component alone. Nutrition affects several biomedical conditions and other risk factors (e.g. blood pressure, blood cholesterol levels, micronutrient levels, overweight and obesity, and diabetes).

Dietary guidelines for Australians recommend consumption of a wide variety of nutritious foods. Essential nutrients for good health are found in varying amounts throughout many food groups. Variety in a diet maximises the possibility of obtaining enough of these essential nutrients. Food variety can be defined as the consumption of foods that are biologically diverse or nutritionally distinct from each other. Data from the 1995 National Nutrition Survey showed that the variety of food consumed in Australia had increased significantly since the previous survey in 1983.

There have been very few data collected in recent years on the food and nutrient intake of Australians. Therefore much of the following discussion relates to data that are five to ten years old.

Dietary risk factors for heart, stroke and vascular diseases

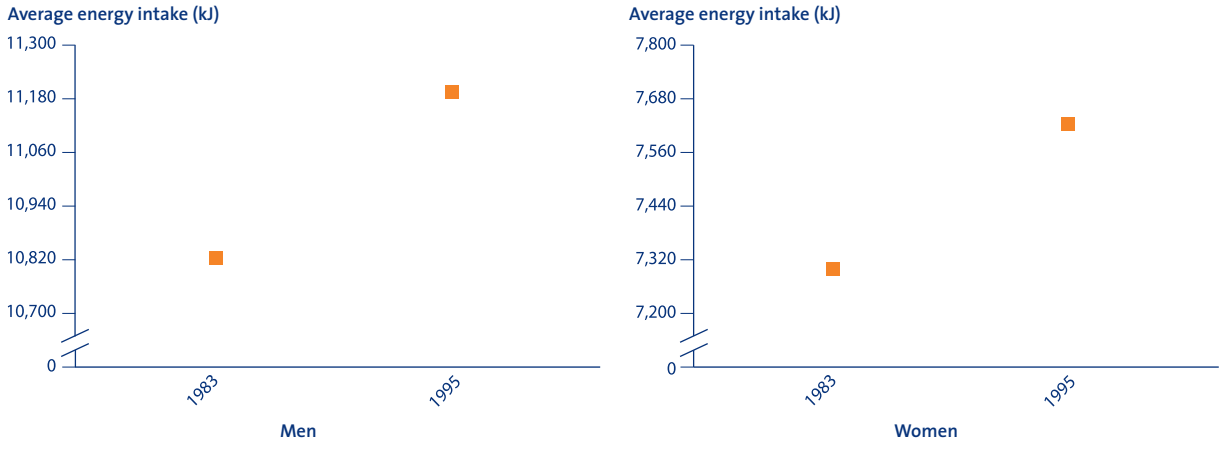
Energy intake

Between 1983 and 1995, average energy intake among comparable samples of 25–64-year-olds increased significantly by about 350 kJ per day. Fats are the most concentrated forms of energy but total fat intake over this time declined among this population. Protein intake did not change significantly but intake of carbohydrates increased by 16–17%.

Total intake of fat

Recent evidence suggests that total fat intake is not an independent risk factor for coronary heart disease, but a diet high in fat may contribute to an increased risk of being overweight. Among Australian men and women aged 25–64 years, average total fat intake (i.e. saturated, monounsaturated and polyunsaturated) declined significantly between 1983 and 1995. In 1995, total fat accounted for about 33% of the total energy intake of Australian adults—a significant reduction from around 37% in the 1980s (or between 100 and 200 kJ per day). However, this level is still above the National Health and Medical Research Council's (NHMRC's) recommended level of 30% and is well above the recommended 20–25% for anyone who is overweight.

Average energy intake among adults in capital cities aged 25–64 years, 1983 and 1995



Notes

1. Different scales have been used for men and women due to their differing dietary requirements and intake.
2. The difference between estimated average energy intake for 1983 and 1995 is statistically significant at the 0.01 level.
3. Data excludes the Northern Territory and Australian Capital Territory.

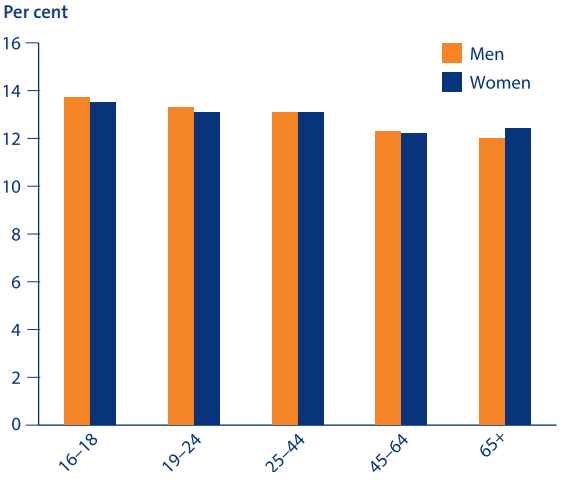
Source: Cook, Rutishauser & Seelig 2001.

Intake of saturated fatty and trans fatty acids

There is good evidence to support an association between a high consumption of saturated fatty acids and an increased risk of coronary heart disease. Saturated fatty acids increase the risk of coronary heart disease by increasing total and low-density lipoprotein (LDL) cholesterol (the 'bad' cholesterol). Among Australian adults, the contribution of saturated fat as a proportion of total energy intake has declined over the past decade. However, saturated fat still accounts for around 13% of total energy intake, higher than the maximum level of 10% recommended by the NHMRC. Consumption of saturated fat is slightly higher among younger Australians than among older Australians. The major sources of saturated fats in the adult diet are milk, cream, cheese, butter, pastries and fatty meat.

Trans fatty acids are a minor group of fats that occur in small amounts in meat fat and dairy fat as well as in 'hardened margarines' used in the production of baked and pastry products. Table (or 'soft') margarines and spreads on the Australian market

Saturated fat as a proportion of total energy intake, 1995



Source: ABS & DHFS 1997.

are virtually free of trans fatty acids. A high intake of trans fatty acids increases the risk of coronary heart disease by increasing total blood cholesterol and LDL cholesterol, and decreasing HDL cholesterol (the 'good' cholesterol). Currently there are no national data to assess trans fatty acid intake among Australians although it is believed to be between 1–2% of total fat.

To minimise the risk of coronary heart disease the NHFA recommends that saturated fatty acids and trans fatty acids together contribute no more than 8% of total energy intake.

Intake of polyunsaturated fatty acids

There is good evidence for replacing saturated fatty acids with n-6 polyunsaturated fatty acids (found primarily in vegetable oils and spreads made from seeds such as sunflower and soybean) to reduce the risk of coronary events and death, and to lower total cholesterol, LDL cholesterol and triglycerides. In 1995, the average Australian intake was 5% of total energy intake which is below the NHMRC's recommended range of 6–8%. Similarly the current intake of n-3 polyunsaturated fatty acids (found in oily fish, leafy plants, and canola and flaxseed oil) among Australian adults is low (about 0.2 g). The NHFA recommends the consumption of at least two fish meals (preferably oily fish) per week, and the intake of plant n-3 polyunsaturated fatty acids of at least two grams per day.

Intake of dietary cholesterol

There is some evidence that dietary cholesterol contributes to an increased risk of coronary heart disease but the risk is substantially less than for saturated and trans fatty acids. The major sources of dietary cholesterol are eggs, meat, poultry and milk. Among a comparable sample of the Australian population aged 25–64 years, average intake of dietary cholesterol decreased by about 60 mg between 1983 and 1995. In 1995, the average daily intake of dietary cholesterol among Australian men was 358 mg, and among women, 240 mg. The NHFA recommends that people at low risk of coronary heart disease can consume moderate quantities of cholesterol-rich foods. People with blood cholesterol levels greater than 5.0 mmol/L or with other risk factors should restrict their intake of cholesterol-rich foods.

High consumption of salt

Existing evidence suggests that a high dietary intake of salt may contribute to the rise in blood pressure that occurs with increasing age in western countries. No national data exist to assess levels of salt consumption among Australians. However, in one study conducted in Hobart in the mid-1990s, only 6% of men and 36% of women were below the maximum intake for sodium of 100 mmol/day recommended by the NHMRC.
The source of most dietary sodium in Australia, as in other western countries, is not discretionary salt use (i.e. salt added to cooking and at the table) but widely consumed processed foods such as bread, cheese, processed meats and snack foods. Because of this, the Australian dietary guidelines for adults recommends that the entire population reduce its salt consumption as a primary preventive measure against high blood pressure.

Consumption of fruit and vegetables

There is good evidence that increased consumption of fruit and vegetables reduces the risk of heart, stroke and vascular diseases. Protection may arise from reduced risk of developing atherosclerosis, a reduction in blood cholesterol levels, a reduction in levels of homocysteine (which is a possible risk factor for coronary heart disease) and reduced blood pressure. The Australian dietary guidelines for adults recommend consuming at least two serves of fruit and at least five serves of vegetables per day. Based on self-reports from the 2001 National Health Survey, these recommendations were more likely to be met

by older people than younger people, with men aged 19–34 years reporting the lowest levels of fruit and vegetable consumption (62% not consuming enough fruit and 79% not consuming enough vegetables).[21] Generally, more women than men met the recommended levels of consumption—about 60% of women and less than 50% of men consumed two or more serves of fruit, and about 35% of women and less than 30% of men consumed four or more serves of vegetables. Based on these results, the adult population as a whole needs to increase its fruit and vegetable consumption to minimise the risk of heart, stroke and vascular diseases.

International comparisons

In 2000 in the United States, 80% of men and 70% of women aged 20 years or more consumed less than five serves of fruit and vegetables per day. At the same time, in the United Kingdom among 19–64-year-olds, 87% of men and 85% of women reported low levels of fruit and vegetable consumption, and in Canada the prevalence among those aged 12 years or more was 67% of males and 57% of females.

In 1999–00, dietary intake in the United States, among all ages, showed that fat on average comprised 33% of energy intake, with little difference by age. Saturated fat intake among adults was about 11%; above the level recommended in the United States of 10% of energy intake. In New Zealand in 1997, 35% of energy came from fat in the diet of both males and females aged 15 years and older, with saturated fat comprising about 15%.

These results indicate that fruit and vegetable intake needs to increase and saturated fat intake needs to fall to minimise the risk of heart, stroke and vascular diseases arising from poor nutrition.

21 Analysis of vegetable consumption differs slightly from the recommended number of serves (it is based on 'less than four serves' not less than five) because the data did not permit analysis based on 'less than five serves'.

Health inequalities

People with a low intake of fruit and vegetables, 2001

Population subgroup	Proportion usually consuming less than 2 serves of fruit per day			Proportion usually consuming less than 4 serves of vegetables per day		
	Men	Women	Persons	Men	Women	Persons
	Per cent					
Age group (years)						
19–34	61.6	50.2	55.9	79.2	74.5	76.8
35–54	55.2*	43.2*	49.1*	73.0*	65.1*	69.0*
55–74	43.9*	30.0*	36.9*	67.4*	58.5*	62.9*
75 and over	38.1*	31.7*	34.3*	63.9*	61.4*	62.4*
Ages 19 and over (ASR)	*53.3*	*41.5*	*47.4*	*73.0*	*66.3*	*69.6*
Socioeconomic status (IRSD)						
1st quintile (most disadvantaged)	56.0	46.6	51.1	73.9	67.3	70.4
2nd quintile	56.7	42.9	49.8	71.8	66.6	69.2
3rd quintile	53.2	40.6	46.6	71.3	64.1	67.6
4th quintile	53.3	39.9*	46.6	72.4	67.2	69.7
5th quintile (least disadvantaged)	48.1*	38.6*	43.4*	75.7	66.3	71.0
Aboriginal and Torres Strait Islander status	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Regions (ASGC remoteness structure)						
Major cities	52.4	41.6	46.9	77.2	70.7	73.9
Inner regional	54.7	39.8	47.1	66.0*	56.1*	60.8*
Other areas	56.1	45.2	50.6	61.8*	59.0*	60.6*

* Statistically significant difference when compared with the first row in the population subgroup.

n.a. Not available from this data source.

Notes

1. Based on self-reports.
2. Data for ages 19 years and over.
3. All rates other than age-specific rates are age-standardised (ASR) to the 2001 Australian population.

Source: AIHW analysis of the 2001 National Health Survey.

Further reading

ABS & DHFS (Commonwealth Department of Health and Family Services) 1997. 1995 national nutrition survey: selected highlights. ABS Cat. No. 4802.0. Canberra: ABS.

ABS & DHAC 1998. 1995 national nutrition survey: nutrient intakes and physical measurements. ABS Cat. No. 4805.0. Canberra: ABS.

Beard TC, Woodward DR, Ball PJ et al. 1997. The Hobart salt study 1995: few meet national sodium intake target. Med J Aust 166:404–7.

Cook T, Rutishasuer I & Seelig M 2001. Comparable data on food and nutrient intake and physical measurements from the 1983, 1985 and 1995 national nutrition surveys. Canberra: DHAC.

Ministry of Health 1999. NZ food: NZ people. Key results of the 1997 national nutrition survey. Wellington: Ministry of Health.

National Blood Pressure Advisory Committee 2002. Salt and hypertension. Unpublished paper prepared on behalf of the NHFA. Viewed 4 February 2004, <http://www.heartfoundation.com.au/downloads/Salt_Hypertension_Feb_2002.pdf>.

NHFA 1999. A review of the relationship between dietary fat and cardiovascular disease. Aust J Nutr Diet 56(Suppl 4):S5–S22.

NHMRC 2003. Dietary guidelines for Australian adults. Canberra: NHMRC.

SIGNAL 2001. Eat well Australia: an agenda for action for public health nutrition 2000–2010. Canberra: National Public Health Partnership.

WHO 2003a. Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. WHO Technical Report Series 916. Geneva: WHO.

WHO 2003b. The SuRF report 1. Surveillance of risk factors related to noncommunicable diseases: current status of global data. Geneva: WHO.

Wright JD, Wang CY, Kennedy-Stephenson J et al. 2003. Dietary intake of ten key nutrients for public health, United States: 1999–2000. Advance data from vital and health statistics. No. 334. Maryland: National Center for Health Statistics.

4 Alcohol consumption

Key points

- Low to moderate consumption of alcohol is potentially protective whereas high consumption is associated with higher risk of heart, stroke and vascular diseases.
- The vast majority of people consume alcohol in moderation—73% of Australians aged 14 years and over in 2001. By contrast, 10% of those aged 14 years and over drank at levels harmful to their overall health (1.54 million Australians). About 18% of people aged 14 years and over abstained from alcohol.
- In 2001, among people aged 14 years and over, 10.5% of Indigenous Australian males drank alcohol at 'risky' levels compared with 6.7% for other Australian males. Similar proportions of Indigenous Australian females and other Australian females drank at 'risky' levels (around 7%).

The impact of alcohol consumption on heart, stroke and vascular diseases varies with levels of consumption—low to moderate consumption of alcohol is potentially protective whereas high consumption is associated with higher risk of heart, stroke and vascular diseases. High intake of alcohol (and particularly binge drinking) is associated with higher blood pressure and increased risk of death from stroke. Alcohol can also have an impact on blood triglyceride levels, complicating the effects of high blood cholesterol where present.

Many studies indicate that non-drinkers have a greater risk of heart attack and death from coronary heart disease than those with a moderate alcohol intake. The reasons for this are not yet entirely clear and the issues surrounding the protective or harmful effects of alcohol consumption are somewhat controversial. The benefit of low to moderate alcohol consumption in protecting against coronary heart disease (one to two drinks per day for men and less than one per day for women) relates mainly to men over 40 years of age and post-menopausal women.

Although alcohol is widely used and enjoyed in Australia, there are many cultural, social and health reasons why people choose not to drink. The potential health benefits alone should not be an inducement for abstainers to start drinking alcohol. The Australian alcohol guidelines state that 'if you choose not to drink, a healthy diet, regular exercise and giving up smoking will provide similar health benefits'. The contribution of alcohol to overall energy intake also needs to be considered because of its potential effect on weight gain.

What is alcohol consumption?

In this report, alcohol consumption is presented according to the NHMRC's alcohol guidelines. These describe three risk categories for alcohol-related harm in the long term. For males, the consumption of up to 28 standard drinks per week is considered 'low risk', 29 to 42 per week 'risky', and 43 or more per week 'high risk'. For females, the consumption of up to 14 standard drinks per week is considered 'low risk', 15 to 28 per week 'risky', and 29 or more per week 'high risk'.

How many Australians drink alcohol?

Based on self-reports from the 2001 National Drug Strategy Household Survey, the vast majority of people consume alcohol in moderation ('low risk')—73% of Australians aged 14 years and over. By contrast, 10% of those aged 14 years and over drank at levels considered to be harmful ('risky' and 'high risk') to their overall health. This corresponds to 1.54 million Australians affected. Around 18% of people aged 14 years and over abstained from alcohol in the previous 12 months.

People at risk of long-term harm from alcohol consumption, aged 14 years and over, 2001

	Level of risk[a]		
	Low risk	Risky	High risk
	Per cent		
Males	75.6	6.7	3.5
Females	69.8	7.2	2.3
Persons	*72.7*	*6.9*	*2.9*

(a) The NHMRC's alcohol guidelines describe three risk categories for alcohol-related harm in the long term. For males, the consumption of up to 28 standard drinks per week is considered 'low risk', 29 to 42 per week 'risky', and 43 or more per week 'high risk'. For females, the consumption of up to 14 standard drinks per week is considered 'low risk', 15 to 28 per week 'risky', and 29 or more per week 'high risk'.

(b) Based on self-reports.

(c) Age-standardised to the 2001 Australian population.

Source: 2001 National Drug Strategy Household Survey.

Trends

Information from previous years are not available based on the criteria of 'risky' and 'high risk'. Overall, population trends in alcohol consumption have remained relatively unchanged since 1993.

Sex and age

In 2001, among people aged 14 years and over, similar proportions of males and females drank at levels considered 'risky' or 'high risk' (10.2% and 9.5% respectively). More males (3.5%) than females (2.3%) were in the 'high risk' category for alcohol consumption.

Younger males and females (15% of 20–29-year-olds) were more likely than other age groups to consume high levels of alcohol.

Socioeconomic status

In 2001, among people consuming alcohol at harmful levels ('risky' and 'high risk') there were no significant differences by level of socioeconomic disadvantage.

Aboriginal and Torres Strait Islander peoples

In 2001, among people aged 14 years and over, 10.5% of Aboriginal and Torres Strait Islander males drank alcohol at 'high risk' levels compared with 3.3% among other Australian males. Among females, there was no significant difference in the proportions drinking at 'high risk' levels. Indigenous Australians were three times more likely to consume alcohol at 'high risk' levels than other Australians (9.3% compared with 2.7%). However, Indigenous Australians were more likely to abstain from alcohol compared with other Australians.

Region

In 2001, among people aged 14 years and over, a slightly higher percentage of people living in rural and remote areas reported consuming alcohol at 'risky' (7.9%) and 'high risk' (3.6%) levels, compared with those living in urban areas (6.6% and 2.6%, respectively). Males living in rural and remote areas were more likely to consume alcohol at 'risky' (8.4%) and 'high risk' (3.9%) levels, compared with females in rural and remote areas (7.4% 'risky' and 3.4% 'high risk').

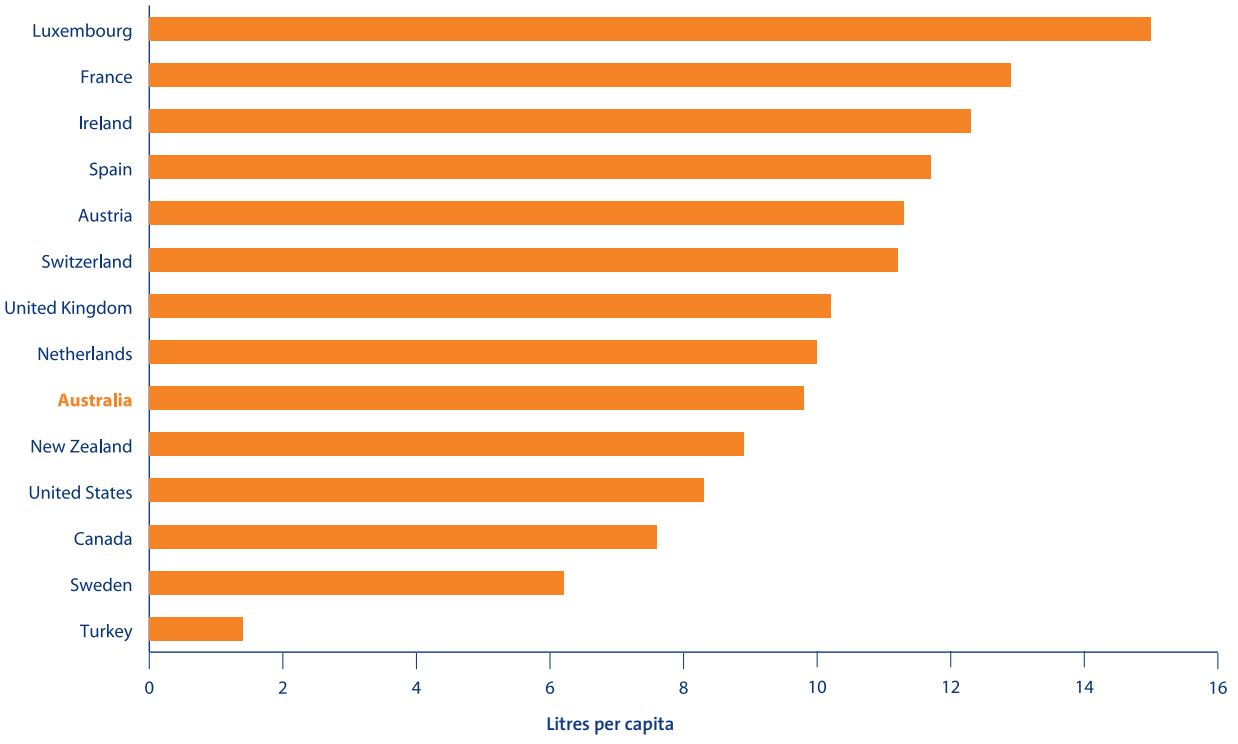
State and territory

In 2001, among people aged 14 years and over, the Northern Territory reported the highest rate of 'risky' level of alcohol consumption (13%) and Tasmania reported the highest rate of 'high risk' level of alcohol consumption (5%).

International comparisons

Alcohol consumption is highly prevalent in many countries of the world. In 2001, of those countries compared in the OECD Health Database, Luxemburg reported the highest per capita consumption of pure alcohol at 15 litres per capita per year for those aged 15 years and over, while Turkey reported the lowest at just over 1 litre per capita. Australia's per capita consumption of pure alcohol was 10 litres per capita and was towards the lower end of the countries compared.

Alcohol consumption, litres of pure alcohol per capita, people aged 15 years and over, selected countries, 2001



Source: AIHW 2003.

Health inequalities

People at risk of long-term harm from alcohol consumption, 2001

Population subgroup	Males		Females		Persons	
	'Risky'	'High risk'	'Risky'	'High risk'	'Risky'	'High risk'
	Per cent					
Age group (years)						
14–19	6.1	2.7	9.9	4.7	8.0	3.7
20–29	9.5*	5.0*	10.9	4.0	10.2	4.5
30–39	5.8	3.1	6.8	1.9*	6.3	2.5
40–49	6.4	3.2	7.8	1.9*	7.1	2.6
50–59	7.3	4.3	5.9*	1.5*	6.6	2.9
60 and over	5.4	2.6	3.7*	0.7*	4.4*	1.6*
Ages 14 and over (ASR)	*6.7*	*3.5*	*7.2*	*2.3*	*6.9*	*2.9*
Socioeconomic status (IRSD)						
1st quintile (most disadvantaged)	7.3	3.7	6.2	2.9	6.8	3.3
2nd quintile	6.6	4.1	6.7	2.5	6.6	3.3
3rd quintile	7.2	3.4	6.9	2.4	7.0	2.9
4th quintile	7.1	3.5	8.0	1.8	7.5	2.7
5th quintile (least disadvantaged)	5.8	2.6	8.3	1.7	7.0	2.2
Aboriginal and Torres Strait Islander status						
Aboriginal and Torres Strait Islander peoples	9.9	10.5	5.6	7.2	7.6	9.3
Other Australians	6.7	3.3*	7.2	2.2	6.9	2.7*
Region (RRMA)						
Urban	6.1	3.3	7.1	1.9	6.6	2.6
Rural/remote	8.4*	3.9	7.4	3.4*	7.9*	3.6*

* Statistically significant difference when compared with the first row in the population subgroup.

Notes

1. Based on self-reports.
2. Data for ages 14 years and over.
3. All rates other than age-specific rates are age-standardised to the 2001 Australian population.
4. 'Risky' refers to consuming 29 to 42 (for males) or 15 to 28 (for females) standard drinks per week. 'High risk' refers to consuming 43 or more (for males) or 29 or more (for females) standard drinks per week.

Source: AIHW analysis of the 2001 National Drug Strategy Household Survey.

Further reading

AIHW 2003. Statistics on drug use in Australia 2002. AIHW Cat. No. PHE 35. Canberra: AIHW (Drug Statistics Series No. 12).

AIHW 2002. 2001 national drug strategy household survey: detailed findings. AIHW Cat. No. PHE 41. Canberra: AIHW (Drug Statistics Series No. 11).

AIHW: Ridolfo B & Stevenson C 2001. The quantification of drug-caused mortality and morbidity in Australia, 1998. AIHW Cat. No. PHE 29. Canberra: AIHW (Drug Statistics Series No. 7).

NHMRC 2001. Australian alcohol guidelines: health risks and benefits. Canberra: NHMRC.

OECD 2003. OECD health data 2003, 3rd edition: a comparative analysis of 30 countries (CD-ROM). Paris: OECD.