## CHAPTER 1  TRENDS IN OVERWEIGHT AND OBESITY

- Obesity
- More than two billion people worldwide are overweight or obese
- Global survey reveals soaring obesity rates in Australia
- Overweight and obesity in Australia by the numbers
- Obesity and overweight worldwide
- Australia needs to tackle its rising levels of obesity, says OECD
- Overweight and obesity in Australia
- Overweight and obesity statistics
- Obesity: a national epidemic and its impact on Australia
- Overweight and obesity rates across Australia
- Excess body weight

## CHAPTER 2  CAUSES AND IMPACTS OF EXCESS WEIGHT

- Causes of overweight and obesity
- What makes you fat?
- How being overweight or obese affects your health
- Complications of obesity
- How does excess weight cause disease?
- Obesity and chronic disease
- Long-term study finds Australian adults increasingly at risk of diabetes and obesity

## CHAPTER 3  HEALTHY WEIGHT: FOOD, ACTIVITY AND OBESITY POLICY

- Tips for losing weight healthily
- Food: getting the balance right
- Australian Health Survey: nutrition first results – foods and nutrients
- Soft drink, burgers and chips – the diet of our youth
- What’s the best diet for weight loss?
- New WHO guidelines should be a call to industry to stop sugarcoating kids’ foods
- Australia’s physical activity and sedentary behaviour guidelines
- Aussie kids graded D- in first ever physical activity report card
- Australian idle: physical activity and sedentary behaviour of adult Australians
- Junk food advertising to kids
- Personal responsibility won’t solve Australia’s obesity problem
- Fat nation: why so many Australians are obese and how to fix it

**Exploring issues – worksheets and activities**

**Fast facts**

**Glossary**

**Web links**

**Index**
Obesity and Overweight is Volume 380 in the ‘Issues in Society’ series of educational resource books. The aim of this series is to offer current, diverse information about important issues in our world, from an Australian perspective.

KEY ISSUES IN THIS TOPIC
In the last three decades, obesity has increased in almost every country in the world, among adults and children alike. Globally, more than two billion people are now overweight or obese; among high-income countries, Australia and New Zealand have seen the greatest recent growth in obesity rates.

This book presents an overview of Australia’s national weight problem, explaining how body weight is measured and highlighting the causes, health risks and costs of overweight and obesity. General advice is also offered on how to achieve and maintain healthy weight through balanced food intake, increased physical activity, and government policy approaches.

SOURCES OF INFORMATION
Titles in the ‘Issues in Society’ series are individual resource books which provide an overview on a specific subject comprised of facts and opinions.

The information in this resource book is not from any single author, publication or organisation. The unique value of the ‘Issues in Society’ series lies in its diversity of content and perspectives.

The content comes from a wide variety of sources and includes:
- Newspaper reports and opinion pieces
- Website fact sheets
- Magazine and journal articles
- Statistics and surveys
- Government reports
- Literature from special interest groups

CRITICAL EVALUATION
As the information reproduced in this book is from a number of different sources, readers should always be aware of the origin of the text and whether or not the source is likely to be expressing a particular bias or agenda.

It is hoped that, as you read about the many aspects of the issues explored in this book, you will critically evaluate the information presented. In some cases, it is important that you decide whether you are being presented with facts or opinions. Does the writer give a biased or an unbiased report? If an opinion is being expressed, do you agree with the writer?

EXPLORING ISSUES
The ‘Exploring issues’ section at the back of this book features a range of ready-to-use worksheets relating to the articles and issues raised in this book. The activities and exercises in these worksheets are suitable for use by students at middle secondary school level and beyond.

FURTHER RESEARCH
This title offers a useful starting point for those who need convenient access to information about the issues involved. However, it is only a starting point. The ‘Web links’ section at the back of this book contains a list of useful websites which you can access for more reading on the topic.
Obesity increases the risk of many diseases. Fat is deposited on our bodies when the energy (kilojoules) we consume from food and drink is greater than the energy used in activities and at rest. Small imbalances over long periods of time can cause you to become overweight or obese.

Obesity and other non-communicable diseases (NCDs) such as cardiovascular diseases, cancers and diabetes are now the world’s biggest killers, causing an estimated 35 million deaths each year, 60% of all deaths globally, with 80% in low- and middle-income countries.

According to the ABS Australian Health Survey: First results 2011-2012, for Australian adults 18 years and over, the prevalence of overweight and obesity has increased over time, from 56.3% in 1995, 61.2% in 2007-08, and 62.8% in 2011-2012. Men and women living in inner regional, outer regional and remote areas of Australia are more likely to be overweight or obese, compared with men and women living in major cities.

For Australian children, there has been an increase in the proportion of 5-17 year olds who were overweight or obese since 1995, with 25.7% of children overweight or obese in 2011-12.

Body mass index

Overweight and obesity are defined by the World Health Organization using the body mass index (BMI). BMI is a measure of body size and is used to indicate level of risk for morbidity (disease risk) and mortality (death rates) at the population level. It is calculated by dividing your weight in kilograms by your height in metres squared. For example, a person who is 165 cm tall and weighs 64 kg would have a BMI of 24.

People with a BMI of 25 or more are classified as overweight. People with a BMI of 30 or greater are classified as obese.

BMI calculations used for adults are not a suitable measure of weight for children or adolescents. A dietitian or your doctor can assess your child’s weight using a special BMI chart, together with weight and height growth charts.

The distribution of fat is important when assessing overweight and obesity, and the associated disease risk. Increased abdominal obesity is related to a higher risk of cardiovascular disease, type 2 diabetes and cancer.

Abdominal obesity is measured using waist circumference. When identifying health risk in adults, it is recommended that you combine BMI with waist circumference as a measurement of disease risk. A waist circumference above 94 cm in men and above 80 cm in women is regarded as overweight and an indicator of serious chronic disease risk. A waist circumference above 102 cm in men and 88 cm in women is regarded as obesity.

Increased risk of chronic disease

Obesity increases the risk of many chronic and potentially lethal diseases. Most of these diseases can be prevented with lifestyle changes, including healthy eating and regular physical activity.

Generally speaking, the more body fat you’re carrying, the higher your health risk. However, the amount of weight gained throughout your adult years also contributes to the risk. For example, a middle-aged person who weighs 10 kg more than they did in their early 20’s has an increased risk of high blood pressure, stroke, diabetes and coronary heart disease.

Some of the many chronic conditions and diseases associated with obesity include:
- Insulin resistance
- High blood pressure
- Atherosclerosis
- Cardiovascular disease
- Stroke
Obesity and Overweight Issues | Volume 380

Some cancers including breast, endometrial and colon cancer
Type 2 diabetes (non-insulin dependent diabetes mellitus)
Gall bladder disease
Polycystic ovarian syndrome
Musculoskeletal problems such as osteoarthritis and back pain
Gout
Cataracts
Stress incontinence
Sleep apnoea.

Causes of obesity
A range of factors can cause obesity. Factors in childhood and adolescence are particularly influential, since a high proportion of obese children and adolescents grow up to be obese adults.

Factors known to increase the risk of obesity include:
- **Eating more kilojoules than you use** – whatever your genetic background, you will deposit fat on your body if you eat more energy (kilojoules) than you use.
- **Inactivity** – for most of us, physical activity is no longer a natural part of our daily schedule. Obese people tend to live sedentary lifestyles.
- **Modern living** – most modern conveniences, such as cars, computers, televisions and home appliances, reduce the need to be physically active.
- **Socioeconomic factors** – people with lower levels of education and lower incomes are more likely to be overweight or obese. This may be because they have less opportunity to eat healthy foods and take part in physical activities.
- **Changes in the food supply** – availability and marketing of energy-dense, nutrient poor foods and drinks have increased and the relative cost of them has decreased.
- **Genes** – researchers have found that genetics play a part in regulating body weight. However, these genes explain only a small part of the variation in body weight. Parental overweight or obesity is associated with increased risk of child overweight or obesity.
- **Birth factors** – some studies suggest that a person is more likely to become obese later in life if they experienced poor nutrition in utero, maternal smoking, or had a low birth weight. However, other studies show that high birth weight (especially above 4 kg) is a stronger risk for becoming overweight. There is convincing evidence showing that breastfeeding infants compared with formula feeding is associated with a reduced risk of becoming obese.

The costs of obesity
Apart from the massive direct health system cost of obesity to Australian taxpayers, indirect health costs include work absenteeism, production lost to premature death, and the hundreds of millions of dollars that Australians spend each year on weight management programs.

What the experts recommend
Experts predict that Australia’s obesity rate will keep rising, which will put even greater strain on our health system. If current trends continue, it is estimated to increase for both males and females and across the age span, resulting in around one third of 5-19 year olds being overweight or obese by 2025, as well as 83% of males and 75% of females aged 20 years and over. For Australia, this would represent 16.9 million people.

Obesity is difficult to tackle because of the many contributing factors. The International Obesity Taskforce suggests:
- Helping families to understand how to provide a healthy environment for themselves and their children. This would include decisions about physical activity and healthy eating habits
- Identifying high-risk groups in the community
- Changing city planning to include venues for safe, accessible and affordable physical activities
- Improving the nutritional value of processed foods
- Reducing food marketing to children
- Reducing the price of healthy foods, such as fruits, vegetables and wholegrain products
- Improving the nutrition and variety of food available at school canteens and in workplaces
- Improving opportunities for physical activity in schools and workplaces
- Increasing education for health professionals on how to recognise and manage weight problems in people
- Investing in community education programs on weight management.

Where to get help
- Your doctor
- Dietitians Association of Australia
  Tel. 1800 812 942

Things to remember
- Overweight and obesity are preventable diseases. To prevent them, we need to choose healthier, lower-energy foods and be more physically active.
- Rates of overweight and obesity are rising rapidly. This has a major impact on health and healthcare costs.
- Everyone can and should seek changes to their lifestyle to help them stay a healthy weight.

This fact sheet was produced in consultation with, and approved by Deakin University – School of Exercise and Nutrition Sciences.

A new analysis of world population data shows the number of people across the world who are overweight or obese has grown by 28% in adults and 47% in children in the last 33 years.

Among high-income countries, Australia and New Zealand have seen the greatest increases in obesity. It shows the highest increase in the prevalence of adult obesity has been in the United States (33%), Australia (28% of men and 30% of women) and the United Kingdom (25%).

Published in *The Lancet* today, the *Global Burden of Disease* study shows the global figure grew from 857 million in 1980 to 2.1 billion in 2013.

**A DISTURBING TREND**

Obesity has increased in almost every country in the world, among both adults and children. But more than half of the planet’s obese people live in the United States (more than 13%), China and India (15% combined), Russia, Brazil, Mexico, Egypt, Germany, Pakistan, and Indonesia.

Indeed, the largest number of obese people live in the developing world, with the top ten countries including China, India, Brazil, Mexico, Pakistan and Indonesia.

There’s wide variation in the rates of increase across countries, but the most rapid increases were seen in Egypt, Saudi Arabia, Oman, Honduras, Bahrain, New Zealand, Kuwait and the United States.

In children, prevalence of overweight and obesity increased from around 17% (1980) to around 24% (2013) for developed countries and from around 8% to 13% for developing countries. In adults, the greatest increases were observed among 20- to 40-year-olds, with the highest prevalence of obesity moving to younger ages over time.

All other things being equal this foreshadows continuing increases in obesity, alongside health, wellbeing and productivity complications arising from carrying too much weight at a younger age.

**OUR NEIGHBOURHOOD**

The most recent Australian data shows almost two in three adults and more than one in four children are now overweight or obese. These figures are up from just over one in three adults and one in ten children in the 1980s.

The findings support recent suggestions that the rate of increase in obesity may be slowing for adults because the recent increases in the developed world have been slower than they were between 1992 and 2002. While this has previously been reported for children in many developed countries, it’s been less clear for adults.

In Australia, we’ve recently gathered evidence to support the suggestion that the rate of weight gain in adults has slowed. But we also found this trend excluded people from disadvantaged backgrounds. So while total population trends in body mass index are important, they remain only one part of a larger picture, reflecting continuing high levels and an unequal social distribution of unhealthy diets and inactivity.

**WHAT TO DO?**

Knowing how bad things are is one part of the picture. We also need to talk about what we can do to curb this trend.

Imagine an outbreak of an infectious disease, or a leak of a toxic substance, threatening to reach over one-third of the world’s adult population, and over half the adults in high-income countries. And imagine that this disease or substance was known to increase the risk of a number of life-threatening and disabling diseases including cancer, cardiovascular disease, and arthritis. It’s difficult to imagine...
Global survey reveals soaring obesity rates in Australia

Selected findings extracted from the *Global Burden of Disease Study 2013*

**Key Australian findings from the study**

- The analysis examined the rates of excessive weight in adults and children in 188 countries between 1980 and 2013.
- Obesity rates in Australia and New Zealand are climbing faster than anywhere else in the world, and have soared by more than 80% in the past 33 years.
- Overall 63% of Australian adults are overweight, up from 49% in 1980. Five million people – one third of the adult population – are obese. One in four children are overweight.
- The findings reveal almost one in three Australians is obese. Australia is one of the fattest nations, jumping almost 40 places to 25th in obesity ranking, just behind the US but well ahead of France, Finland, Germany and Japan.
- Australia and New Zealand are ranked the 30th and 23rd most overweight countries in the world, not far behind the US, which is ranked 20th. In the US, close to three quarters of men and six in 10 women are overweight or obese.
- The survey found 29% (5.2 million) Australian adults are now obese according to their body mass index (BMI), compared to 16% in 1980. About one quarter of children and more than 60% of adults are either overweight or obese. One third of women are obese, a 75% increase since 1980.
- Obesity, which is defined as having a body mass index of 30 or higher, is linked to higher risk of heart disease, stroke, high blood pressure and bowel, oesophageal and pancreatic cancer.
- Health experts are calling on the Federal Government to commit to a national anti-obesity strategy to restrict junk food marketing, restore the healthy food-star rating system and force companies to cut sugar and fat in processed food and drink.

**Key global findings from the study**

- Globally, 2.1 billion people are now overweight or obese, a 28% increase in adults and an almost 50% increase for children since 1980. Not one country has reduced obesity rates in the past three decades; more than half of the world’s obese people now live in developing countries.
- In the developed world, men have higher rates of obesity than women. The opposite is true in developing countries.
- The prevalence of childhood obesity has rapidly increased in developed countries, from 17% in 1980 to 24% in 2013 in boys; and from 16% to 23% in girls.
- Especially high rates of overweight and obesity have already been reached in Tonga where levels of obesity in men and women exceed 50%.
- More than 50% of women are obese in the Kuwait, Libya, Qatar and the Pacific Islands of Kiribati.

**Sources**


that we wouldn’t see concerted and systematic effort to eliminate the risk.

But this is not what’s happening. Action against unhealthy weight gain is still sporadic and disconnected.

The authors note that, like combating climate change, the solution needs to be political but question whether there’s a will to curb economic growth for the sake of public health.

We need strong preventive measures to halt, let alone reverse, growth of obesity worldwide. And we need to prepare for its health and productivity implications.

Many of the countries hardest hit by have limited healthcare resources to deal with the consequent increases in obesity-related diseases, such as diabetes and heart disease.

**Overweight and obesity in Australia by the numbers**

- 3 in 5 Australian adults are overweight or obese (based on BMI). That’s over 12 million people!
- 5% more adults are overweight or obese than in 1995.
- 1 in 4 Australian children are overweight or obese.
- Over 30% more people living in outer regional and remote areas are obese than people living in major cities.
- Overweight and obesity is only beaten by smoking and high blood pressure as a contributor to burden of disease.

Overweight and obesity are the fifth leading risk for global deaths, according to this fact sheet from the World Health Organization.

**KEY FACTS**

- Worldwide obesity has nearly doubled since 1980.
- In 2008, more than 1.4 billion adults, 20 and older, were overweight. Of these over 200 million men and nearly 300 million women were obese.
- 35% of adults aged 20 and over were overweight in 2008, and 11% were obese.
- 65% of the world’s population live in countries where overweight and obesity kills more people than underweight.
- More than 40 million children under the age of five were overweight in 2011.
- Obesity is preventable.

What are overweight and obesity? Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.

Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person’s weight in kilograms divided by the square of his height in meters (kg/m²).

The WHO definition is:
- A BMI greater than or equal to 25 is overweight
- A BMI greater than or equal to 30 is obesity.

BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals.

Facts about overweight and obesity

Overweight and obesity are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of the diabetes burden, 23% of the ischaemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity.

Some WHO global estimates from 2008 follow.
- More than 1.4 billion adults, 20 and older, were overweight.
- Of these overweight adults, over 200 million men and nearly 300 million women were obese.
- Overall, more than 10% of the world’s adult population was obese.

In 2011, more than 40 million children under the age of five were overweight. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. More than 30 million overweight children are living in developing countries and 10 million in developed countries.

Overweight and obesity are linked to more deaths worldwide than underweight. For example, 65% of the world’s population live in countries where overweight and obesity kill more people than underweight (this includes all high-income and most middle-income countries).

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended.

What causes obesity and overweight?

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended.

Globally, there has been:
- An increased intake of energy-dense foods that are high in fat, and
- An increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanisation.

Changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing and education.
What are common health consequences of overweight and obesity?
Raised BMI is a major risk factor for noncommunicable diseases such as:
• Cardiovascular diseases (mainly heart disease and stroke), which were the leading cause of death in 2008
• Diabetes
• Musculoskeletal disorders (especially osteoarthritis – a highly disabling degenerative disease of the joints)
• Some cancers (endometrial, breast, and colon).

The risk for these noncommunicable diseases increases, with the increase in BMI.
Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood. But in addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects.

Facing a double burden of disease
Many low- and middle-income countries are now facing a ‘double burden’ of disease.
• While they continue to deal with the problems of infectious disease and under-nutrition, they are experiencing a rapid upsurge in noncommunicable disease risk factors such as obesity and overweight, particularly in urban settings.
• It is not uncommon to find under-nutrition and obesity existing side-by-side within the same country, the same community and the same household.

Children in low- and middle-income countries are more vulnerable to inadequate pre-natal, infant and young child nutrition. At the same time, they are exposed to high-fat, high-sugar, high-salt, energy-dense, micronutrient-poor foods, which tend to be lower in cost but also lower in nutrient quality. These dietary patterns in conjunction with lower levels of physical activity, result in sharp increases in childhood obesity while under-nutrition issues remain unsolved.

How can overweight and obesity be reduced?
Overweight and obesity, as well as their related non-communicable diseases, are largely preventable. Supportive environments and communities are fundamental in shaping people’s choices, making the healthier choice of foods and regular physical activity the easiest choice (accessible, available and affordable), and therefore preventing obesity.

At the individual level, people can:
• Limit energy intake from total fats and sugars
• Increase consumption of fruit and vegetables, as well as legumes, whole grains and nuts
• Engage in regular physical activity (60 minutes a day for children and 150 minutes per week for adults).

Individual responsibility can only have its full effect where people have access to a healthy lifestyle. Therefore, at the societal level it is important to:
• Support individuals in following the recommendations above, through sustained political commitment and the collaboration of many public and private stakeholders
• Make regular physical activity and healthier dietary choices available, affordable and easily accessible to all – especially the poorest individuals.

The food industry can play a significant role in promoting healthy diets by:
• Reducing the fat, sugar and salt content of processed foods
• Ensuring that healthy and nutritious choices are available and affordable to all consumers
• Practising responsible marketing especially those aimed at children and teenagers
• Ensuring the availability of healthy food choices and supporting regular physical activity practice in the workplace.

WHO response
Adopted by the World Health Assembly in 2004, the WHO Global Strategy on Diet, Physical Activity and Health describes the actions needed to support healthy diets and regular physical activity. The Strategy calls upon all stakeholders to take action at global, regional and local levels to improve diets and physical activity patterns at the population level.

WHO has developed the 2008-2013 Action plan for the global strategy for the prevention and control of noncommunicable diseases to help the millions who are already affected cope with these lifelong illnesses and prevent secondary complications. This action plan aims to build on, the WHO Framework Convention on Tobacco Control and the WHO Global Strategy on Diet, Physical Activity and Health. The action plan provides a roadmap to establish and strengthen initiatives for the surveillance, prevention and management of NCDs.

The Political Declaration of the High Level Meeting of the United Nations General Assembly on the Prevention and Control of Noncommunicable Diseases of September 2011, recognises the critical importance of reducing the level of exposure of individuals and populations to unhealthy diet and physical inactivity. The political declaration commits to advance the implementation of the WHO Global Strategy on Diet, Physical Activity and Health, including, where appropriate, through the introduction of policies and actions aimed at promoting healthy diets and increasing physical activity in the entire population.
AUSTRALIA NEEDS TO TACKLE ITS RISING LEVELS OF OBESITY, SAYS OECD

Australians continue to enjoy one of the highest levels of health across the developed world but need to address Australia’s growing obesity problem, according to a new OECD report.

Health at a Glance 2013 states that life expectancy at birth now stands at 82 years in Australia; almost 2 years above the average life expectancy of the 34 OECD countries.

Australians also enjoy good access to a high quality health care system. It consistently rates among the top five countries in terms of survival after being diagnosed with cancer or after suffering acute myocardial infarction (heart attack). These good outcomes are achieved at a reasonable price, with Australians spending 8.9% of their GDP on health compared to an OECD average of 9.3%.

But Australian state and federal governments face considerable challenges if they want to improve their population’s health, most notably on high levels of obesity.

Australia has among the highest rates of adult obesity in the world at 28.3%, behind the United States (36.5%), Mexico (32.4%) and New Zealand (28.4%) but ahead of the United Kingdom (24.8%) and Ireland (23%).

Obesity is a leading cause of diabetes and cardiovascular disease. Governments need to invest in cost-effective strategies to reverse the obesity epidemic.


Increasing obesity among adults in OECD countries, 2000 and 2011 (or nearest year)

Endnote

1. Data are based on measurements rather than self-reported height and weight. Source: OECD, Health at a Glance 2013
OVERWEIGHT AND OBESITY IN AUSTRALIA

Being overweight or obese increases a person’s risk of developing long-term health conditions including cardiovascular disease, high blood pressure and Type 2 diabetes. Being underweight can also be a health risk factor for some people. Body Mass Index (BMI) is a common measure for defining whether a person is underweight, normal weight, overweight or obese.

Information from the Australian Bureau of Statistics

In 2011-12, 62.8% of Australians aged 18 years and over were overweight or obese, comprised of 35.3% overweight and 27.5% obese. A further 35.5% were of normal weight and 1.7% were underweight.

The prevalence of overweight and obesity has increased in Australia over time, from 56.3% in 1995 and 61.2% in 2007-08.

Overweight and obesity varies with age, with 74.9% of people aged 65-74 years being overweight or obese,

Footnote(s): (a) Based on Body Mass Index for persons whose height and weight was measured.

Source(s): Australian Health Survey: Updated Results, 2011-12.
increase in weight and BMI over time. The graph on the previous page compares the distribution of BMI scores for people aged 18 years and over between 1995 and 2011-12. This graph shows that not only is there a greater proportion of people who are overweight and obese since 1995, but also that there has been an increase in the proportion of people with much higher BMI scores. For example, in 1995 5.0% of persons aged 18 years and over had a BMI of 35 and over, whereas in 2011-12 the corresponding proportion was 9.6%.

Between 1995 and 2011-12, the average adult man’s weight increased by 3.6 kg, while the average adult woman’s weight increased by 4.0 kg.

In 2011-12, men living in inner regional, outer regional and remote areas of Australia were more likely to be overweight or obese (74.4%) compared with men living in major cities (67.7%). This pattern was also consistent for women, with women living in inner regional, outer regional and remote areas more likely to be overweight or obese (65.2%) than women living in major cities (52.5%).

Looking at the level of disadvantage by sex showed that proportionally more women living in areas of most disadvantage were overweight or obese (63.8%) compared with women living in areas of least disadvantage (47.7%). Interestingly, this pattern was not observed for men, with similar overweight or obese rates for men living in areas of most disadvantage (69.0%) and those living in areas of least disadvantage (68.6%).

Note that BMI was only calculated for persons for whom height and weight was measured. In 2011-12, 15.7% of persons aged 18 years and over did not have their height and/or weight measured.

• Also see Tables 1, 5 and 6 in Australian Health Survey: Updated Results, 2011-12.

Footnote(s): (a) Based on Body Mass Index for persons whose height and weight was measured.

Source(s): Australian Health Survey: Updated Results, 2011-12.
Overweight and obesity statistics

A FACT SHEET FROM THE HEART FOUNDATION

Overweight

In 2011/12, five million Australians aged 18 and over were overweight (BMI of 25.0 kg/m² to 29.9 kg/m²). This accounts for more than a third (35%) of adult Australians. Just over three million Australian men were overweight, or 42% of all males aged 18 and over. Close to two million Australian women were overweight, or approximately 28% of all females aged 18 and over.

<table>
<thead>
<tr>
<th>% Overweight by age and gender¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>18-24</td>
</tr>
<tr>
<td>25-34</td>
</tr>
<tr>
<td>35-44</td>
</tr>
<tr>
<td>45-54</td>
</tr>
<tr>
<td>55-64</td>
</tr>
<tr>
<td>65-74</td>
</tr>
<tr>
<td>75-84</td>
</tr>
<tr>
<td>85+</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Change in overweight status over time

Compared to 1995, the proportion of Australians that were overweight in 2012 has fallen by 6%.

<table>
<thead>
<tr>
<th>% Overweight by time period¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Overweight (total)</td>
</tr>
<tr>
<td>Overweight (males)</td>
</tr>
<tr>
<td>Overweight (females)</td>
</tr>
</tbody>
</table>

Obesity

In 2011/12, more than one in four adult Australians were obese. This represents almost four million Australians aged 18 and over (BMI of 30.0 kg/m² or more). Just over 2 million Australian men were obese, or approximately 28% of all males aged 18 and over. Close to 2 million Australian women were obese, or approximately 28% of all females aged 18 and over.

<table>
<thead>
<tr>
<th>% Obesity by age and gender¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>18-24</td>
</tr>
<tr>
<td>25-34</td>
</tr>
<tr>
<td>35-44</td>
</tr>
<tr>
<td>45-54</td>
</tr>
<tr>
<td>55-64</td>
</tr>
<tr>
<td>65-74</td>
</tr>
<tr>
<td>75-84</td>
</tr>
<tr>
<td>85+</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Change in obesity status over time

Compared to 1995, the proportion of Australians that are obese in 2012 has increased by 47%.

<table>
<thead>
<tr>
<th>% Obesity by time period¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Obesity (total)</td>
</tr>
<tr>
<td>Obesity (males)</td>
</tr>
<tr>
<td>Obesity (females)</td>
</tr>
</tbody>
</table>

Socio-demographic status

In 2011/12, Australians living in regional/remote locations and those in the highest disadvantaged group were significantly more likely to be overweight/obese. Being Australian born, having English as the main language spoken at home and being employed also significantly increased the likelihood of being overweight/obese.

<table>
<thead>
<tr>
<th>% Overweight/obesity by socio-demographic status¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country of birth</td>
</tr>
<tr>
<td>Born overseas</td>
</tr>
<tr>
<td>Main language spoken at home</td>
</tr>
<tr>
<td>Language other than English</td>
</tr>
<tr>
<td>Labour force</td>
</tr>
<tr>
<td>Unemployed</td>
</tr>
<tr>
<td>Index of disadvantage</td>
</tr>
<tr>
<td>Lowest disadvantaged</td>
</tr>
<tr>
<td>Remoteness</td>
</tr>
<tr>
<td>Regional and remote</td>
</tr>
</tbody>
</table>

Location

In 2011/12, the prevalence of overweight/obesity in adult Australians was lowest in VIC and NSW. Prevalence of overweight/obesity was highest in SA.

<table>
<thead>
<tr>
<th>% Overweight/obese by state/territory¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>State/Territory</td>
</tr>
<tr>
<td>South Australia</td>
</tr>
<tr>
<td>Western Australia</td>
</tr>
<tr>
<td>Queensland</td>
</tr>
<tr>
<td>Tasmania</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>Northern Territory</td>
</tr>
<tr>
<td>New South Wales</td>
</tr>
<tr>
<td>Victoria</td>
</tr>
</tbody>
</table>

Attitudes towards weight

Over half (55.7%) of Australians are trying to lose weight. Only 30% of Australians who are obese (based on their BMI) described their weight status as obese. Furthermore, only one in three obese people are concerned about their weight.²

REFERENCES


This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au

OBESITY: A NATIONAL EPIDEMIC AND ITS IMPACT ON AUSTRALIA

EXECUTIVE SUMMARY FROM A KEY REPORT BY OBESITY AUSTRALIA

Epidemiology of obesity

Obesity represents a major health and societal issue for Australia. The most recent Australian Health Survey (2011-2012), highlights that 63% of adults are now overweight or obese, with 28% classified as obese. Projections suggest that by 2025, the prevalence of overweight and obesity will increase to over 70%, with approximately one third of the adult Australian population classified as obese.

Drivers of obesity

The current obesity epidemic is driven by the interplay between genetics and the environment. Obesity has a substantial genetic component with up to 90% of the population predisposed genetically to being overweight and obese. Coupled with the current environment of widespread abundance and access to energy dense food and a sedentary lifestyle, obesity has continued to increase.

Complications of obesity

Obesity is commonly recognised as causing a variety of associated disorders (type 2 diabetes, cardiovascular disease, some cancers), but often not seen as a disease in its own right. Osteoarthritis, sleep apnoea, reproductive difficulties, stigmatisation are part and parcel of being obese. Being obese increases your risk of associated disorders and a reduction of body weight of just 5-10% will have beneficial effects on both cardiovascular and metabolic outcomes.

Managing obesity

Managing obesity can be broadly divided into prevention and intervention.

- Prevention is best done early (prior to conception, during pregnancy, or at the latest prior to a child’s third birthday) so that epigenetic ‘set-points’ for the regulation of appetite and fat mass are optimised. However this must be coupled with a broader societal program for healthy food choices and the opportunities for increased energy expenditure.

- Intervention can be classified as:
  - Lifestyle modification including supervised weight loss programs leading to improved nutrition, physical activity or behavioural change, with a combination of all three being most effective.
  - Pharmaceutical assistance in weight loss and maintenance.
  - Bariatric medicine/surgery, which produces substantial weight loss.

Cost of obesity

Estimating the cost of obesity is complicated. In 2008, the annual financial cost of obesity was estimated at AUD $8.3 billion with an additional AUD $49.9 billion in the form of lost wellbeing, bringing the combined cost of obesity to AUD $58.2 billion.

Current policy

In recent years, there has been an increased focus on obesity by the Federal and State Governments. This included establishing obesity as one of nine National Health Priority Areas, the creation of various taskforces, community and social marketing programs, with funds allocated from the Federal Government to the States and Territories.

Call to action

Obesity Australia calls for the following actions to be taken:

1. For Australia-wide (i.e. Federal Government) action to harmonise and complement the State/Territory efforts in prevention, and to directly support treatment of overweight and obesity.
   a. Prevention can be achieved through programs which educate parents and young children in food and health literacy.
   b. Treatment of obesity relies on access to effective and safe obesity therapies with minimal side effects including accredited multi-faceted weight loss and weight loss maintenance programs, pharmaceutical interventions and provision of bariatric medicine/surgery in the public sphere.

2. For the Australian Medical Association, and the various medical colleges to formally recognise obesity as a disease.
   a. Recognition of obesity as a disease is essential to reducing the stigma around obesity, and also key to increasing community engagement in practices and policies that reduce obesity rates.

If obesity rates continue to grow in Australia at current rates over the next decades, it is conceivable that the health and economic cost due to obesity will also grow to overwhelming proportions. Alternatively, if we can commit to an obesity prevention plan starting with defining obesity as a disease and gaining additional federal support for prevention and intervention, then it may not only save billions of Australian tax dollars, but also improve the health and wellbeing of Australians now and for future generations. There is therefore no time to wait.

OVERWEIGHT AND OBESITY RATES ACROSS AUSTRALIA

Australia ranks seventh among developed countries for rates of obesity, according to these key findings from the National Health Performance Authority.

**VARIATION ACROSS AUSTRALIA**

In 2011-12, almost three in 10 adults (28%) were obese compared to one in 10 (11%) in 1989.1,2 With more than one in four adults now obese, Australia ranks seventh among developed countries for rates of obesity for people aged 15 years and over.6

High rates of overweight and obesity occur in all local areas including wealthy inner-city suburbs and rural and disadvantaged communities. Across all local areas, Western NSW had the highest rate, with almost eight in 10 adults being overweight or obese (79%) compared to five in 10 adults (49%) in Eastern Sydney. To allow fairer comparisons to be made between the Medicare Local areas for which there were data, Medicare Local catchments have been grouped into seven peer groups based on similar geographic remoteness and socio-economic status.

Across metropolitan areas, five in 10 adults were overweight or obese in the wealthiest inner-city suburbs (Metro 1 peer group) compared to six in 10 in lower-income urban communities (Metro 2 and 3). In regional or rural local areas, between six and seven in 10 adults were overweight or obese. Obesity by itself followed a similar pattern. Across metropolitan areas, two in 10 adults were obese in the wealthiest inner city suburbs (Metro 1) compared to three in 10 in lower-income urban communities (Metro 2 and 3). In regional or rural local areas, anywhere from two to four in 10 adults were obese.

**VARIATION ACROSS STATES AND TERRITORIES**

The five local areas with the highest percentages of overweight or obese adults were regional and rural catchments in five states (see table below).

When only obese adults were considered, half of the six local areas with the highest percentages were in Queensland.

High rates of overweight and obesity occur in all local areas including wealthy inner-city suburbs and rural and disadvantaged communities.

The five local areas with the lowest percentages of overweight and obese adults were all in the Metro 1 peer group and in New South Wales or Victoria. The same five local areas also had the lowest percentages of obese adults.

**WHERE TO FROM HERE?**

The Council of Australian Governments has set a target by 2018 to increase the proportion of the population in the healthy weight range by 5 percentage points over the 2009 baseline, from 37% to 42%.7 In 2011-12, 36% of adults nationally were found to be in the healthy weight range.1

**ENDNOTES**


© Commonwealth of Australia 2013.

---

**VARIATION ACROSS STATES AND TERRITORIES**

<table>
<thead>
<tr>
<th>State</th>
<th>Local Area</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>Western NSW</td>
<td>79%</td>
</tr>
<tr>
<td>Queensland</td>
<td>Townsville-Mackay</td>
<td>75%</td>
</tr>
<tr>
<td>South Australia</td>
<td>Country South SA</td>
<td>75%</td>
</tr>
<tr>
<td>Victoria</td>
<td>Gippsland</td>
<td>75%</td>
</tr>
<tr>
<td>Western Australia</td>
<td>Goldfields-Midwest</td>
<td>74%</td>
</tr>
</tbody>
</table>

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au

© Commonwealth of Australia 2013.

---


Obesity and Overweight

Issues in Society | Volume 380
EXCESS BODY WEIGHT

Following is an extract from a national health performance report produced by the COAG Reform Council

In 2011-12, nearly 2 in 3 adults were overweight or obese – 1 in 4 were obese, a 15 per cent increase since 2007-08. Rates of overweight and obesity were higher for men. Rates for children were stable.

Rates of overweight and obesity increased nationally, in Queensland and South Australia

In 2011-12, 63.2% of Australian adults (aged 18 years and over) were overweight or obese. Queensland (65.4%), Western Australia (66.0%) and South Australia (66.1%) had a significantly higher proportion of overweight and obese adults than the national rate. NSW had a significantly lower proportion (61.1%) (see Figure 2.1).

Between 2007-08 and 2011-12, the rate of adult overweight and obesity significantly increased:

- Nationally, from 61.1% to 63.2%
- In Queensland, from 61.2% to 65.4%
- In South Australia, from 60.9% to 66.1%.

Nationally, the increase in adult overweight and obesity has been driven by an increase in the obesity rate. Since 2007-08, the proportion of obese adults has risen by 3.7 percentage points – equivalent to a 15% increase. The rate of obesity among adults increased from 24.4% to 28.1% – higher than the most recent OECD average (22.2% in 2010) (OECD, 2012b). Significant increases also occurred in NSW, Queensland and South Australia.

The increase in obesity far outweighs the 1.6 percentage point fall (36.7% to 35.1%) in the proportion of overweight adults.

Rates of overweight and obesity for children have remained stable overall – but have increased significantly in Tasmania

In 2011-12, 25.3% of children (aged 5-17 years) were overweight or obese – 17.7% overweight and 7.6% obese (see Figure 2.2). These were similar to rates in 2007-08. Australia’s rates are higher than international comparisons – in 2011, the latest available OECD average of overweight and obesity for children was 21.4% for girls, and 22.9% for boys (OECD, 2011).

Tasmania was the only state where rates of child overweight and obesity increased significantly, from 18.7% in 2007-08 to 28.6% in 2011-12.

In 2011-12, nearly 2 in 3 adults were overweight or obese – 1 in 4 were obese.

Overweight and obesity are still more prevalent among men – and increasing

Men (70.3%) are more likely to be overweight or obese than women (55.7%) – in particular, men in the 25-69 year age cohorts have significantly higher rates than women in these age groups.

Overall, between 2007-08 and 2011-12, the proportion of overweight or obese men increased (67.8% to 70.3%). The proportion of overweight or obese women did not change significantly (54.3% to 55.7%), except for women aged 45-54 years old, for whom it increased

**FIGURE 2.1: OVERWEIGHT AND OBESITY IN 2011-12 AND CHANGE SINCE 2007-08**

<table>
<thead>
<tr>
<th>STATE</th>
<th>OVERWEIGHT</th>
<th>OBESITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>33.3</td>
<td>27.7</td>
</tr>
<tr>
<td>Vic</td>
<td>36.0</td>
<td>25.9</td>
</tr>
<tr>
<td>Qld</td>
<td>35.0</td>
<td>30.5</td>
</tr>
<tr>
<td>WA</td>
<td>36.6</td>
<td>29.4</td>
</tr>
<tr>
<td>SA</td>
<td>37.4</td>
<td>28.7</td>
</tr>
<tr>
<td>Tas</td>
<td>36.1</td>
<td>28.0</td>
</tr>
<tr>
<td>ACT</td>
<td>38.4</td>
<td>25.2</td>
</tr>
<tr>
<td>NT</td>
<td>35.7</td>
<td>28.0</td>
</tr>
<tr>
<td>Aust</td>
<td>35.1</td>
<td>28.1</td>
</tr>
</tbody>
</table>

Notes: 1. Data for the Northern Territory are not comparable over time. Source: ABS – see Appendix C.
Australia’s progress towards the benchmark to increase the proportion of adults and children at a healthy body weight is reported on page 60 of the report. From 58.7% to 64.6%.

Source: ABS – see Appendix C.
CHAPTER 2

Causes and impacts of excess weight

CAUSES OF OVERWEIGHT AND OBESITY

While many factors may influence an individual’s weight, overweight and obesity are due mainly to an imbalance of energy intake from the diet and energy expenditure (through physical activities and bodily functions). Genetic and environmental factors play a role, but attention to diet and physical activity is important not only for preventing weight gain, but also for weight loss and subsequent maintenance. Information from the Australian Institute of Health and Welfare

Energy intake

The total amount of food that your body needs depends on your age, sex, body size, level of physical activity and whether you are pregnant or breastfeeding. The body converts the protein, fat and carbohydrate in food to energy. Fat is the most concentrated source of energy.

Energy intake from food varies greatly between individuals, for example, the average intake for children ranges from about 6,000 kilojoules for children aged 2-3 to about 10,000 kilojoules for adolescents aged 14-16. The average energy intake for adults was about 10,000 kilojoules for men and about 7,000 kilojoules for women aged 18 and over.

Energy needs increase during periods of growth, during pregnancy and breastfeeding and with increasing physical activity.

Energy expenditure

The human body expends energy in three ways:

- Basal metabolism (the energy used to maintain vital body processes)
- Thermic processes (the energy taken to digest and absorb food)
- Physical activity (the energy used to move around).

Physical activity is the most variable component of energy expenditure, and the only component a person has any direct control over. For a normally active person, physical activity contributes about 20% to daily energy expenditure.

The balance

Healthy eating and physical activity are important for a healthy active life. Maintaining your weight means balancing the energy going into your body (as food and drink) and the energy being used for growth and repair, for physical activity, and to keep your bodily functions working. An excess energy intake, even a small amount over a long period, will cause weight gain. Children and adolescents need enough nutritious food to grow and develop normally. Older people need to keep physically active and eat nutritious foods to help maintain muscle strength and a healthy weight.

The Australian Guide to Healthy Eating provides practical advice on the types and amounts of foods different groups should eat every day. Following these recommendations and limiting the number of energy-dense, nutrient-poor discretionary foods and drinks is the best way to maintain a healthy weight. Being physically active and eating healthily throughout life helps to promote health and wellbeing and prevent chronic disease.


Being physically active and eating healthily throughout life helps to promote health and wellbeing and prevent chronic disease.
WHAT MAKES YOU FAT?

CHOICE TAKES A LOOK AT SOME THEORIES ABOUT THE CAUSES OF OBESITY

INTRODUCTION

CHOICE looks at the science of overweight and obesity and provides an overview of some of the latest theories about what makes people gain weight.

At its simplest, we gain weight and get fat if we suffer an energy imbalance – that is, if the energy we eat exceeds the energy we burn off through metabolic processes and physical activity. But it’s clearly more complex than that, and some people gain weight far more readily than others with an apparently similar lifestyle.

It’s generally accepted that while some genes may predispose people to obesity, obesity is not inevitable. Rather, it’s an interaction between genetics, lifestyle and environment. Some of the more recent avenues of research into obesity include looking at systemic inflammation, the role of our gut bacteria and environmental contaminants. Here we look at some of this research, and how it relates to the modern obesity crisis.

Systemic inflammation

Research over the last two decades has shown that obesity and other metabolic diseases such as diabetes and cardiovascular disease, are linked with a chronic low-grade systemic inflammation. This inflammation, also called ‘metaflammation’ because of its relationship to metabolic processes, has various physiological effects, including changes to glucose and fat metabolism which lead to insulin resistance and weight gain.

Inflammation can be detected by measuring inflammation-related chemicals in the blood. Researchers have found that a diet high in saturated and trans fats, sugar and high glycaemic index foods, and modern processed or modified foods, is associated with this inflammation. Fruit and vegetables, fish and fish oil, nuts, olive oil and herbs and spices seem to have an anti-inflammatory effect. Drinks including tea, wine and beer appear to have anti-inflammatory effects as well, though too much alcohol has been associated with increased inflammation.

Foods with high energy density and/or low satiety – which feature prominently among so-called pro-inflammatory foods – can result in weight gain and, ultimately, obesity – which itself has a pro-inflammatory effect. Weight loss, however, has an anti-inflammatory effect. Your overall diet, particularly energy balance, is therefore important, and can contribute to inflammation.

Physical activity can have an anti-inflammatory effect, although the dose makes the poison: too much (in terms of duration and intensity) or too little (independent of weight) exercise can be inflammatory. An increasing body of research shows that the amount of sitting we do, irrespective of other activity, causes inflammation.

EDCs and other environmental contaminants

Chemicals known to have an endocrine (hormonal system) disrupting effect, called endocrine-disrupting chemicals or EDCs, may also be linked with obesity.

These include certain phthalates, which are found in plastics, cosmetics and fragrances.

- Dichlorodiphenyldichloroethylene (DDE), which is a chemical formed from the breakdown of the once widely used dichlorodiphenyltrichloroethane (DDT) organochlorine pesticide
- Polychlorinated biphenyl (PCB), a persistent organic pollutant now banned but once used on various industrial and manufacturing applications
- Dioxins, industrial and combustion-related chemicals
- Possibly bisphenol A.

And it’s not just in humans – studies have found that low-level environmental contamination of these so-called ‘obesogens’ may be linked with weight gain in other mammals.

Obesogens, which are stored in fatty tissue, are thought to act via an inflammatory effect, but may also exert their effects on the genetics of a developing foetus, consequently affecting future generations.

The gut bacteria of the microbiome

Most people are aware that we have lots of bacteria living in our gut – for example, the so-called good bacteria and bad bacteria, which may get out of balance if we’re sick or take certain medications. We’re born with them, though the types and numbers are modified over our lifetime. Collectively called the microbiome – and considered by some to be an ‘organ’ in its own right – the bacteria in and on us comprise about two kilograms of our body weight and these bacteria outnumber human cells 10 to one. The importance of the microbiome is gaining...
more and more attention, and different assortments of bacteria have been associated with intestinal and bowel conditions such as ulcerative colitis and irritable bowel syndrome, and also immune disorders such as allergies and type 1 diabetes.

But it’s becoming increasingly apparent that the microbiome is linked with metabolism and metabolic diseases, including type 2 diabetes and obesity. It’s known that obese people and lean people have different bacterial profiles, though whether this is a cause or effect of obesity is unknown. For example, when sterile (bacteria-free) lean mice exposed to non-sterile obese mice, they get fat, despite there being no change to their energy intake – suggesting it’s the bacteria that causes obesity. The use of antibiotics in human and veterinary medicine has also been linked with obesity.

There are several suggestions as to how the microbiome may cause obesity. Certain bacteria, the ones more predominant in obese people, are better at extracting energy from food for the host, leading to weight gain. It’s also been suggested that the microbiome is linked with obesity through inflammation (see previous page). Other theories relate to chemical or hormonal communications between the host and the microbiome, or the regulation by the microbiome of host genes related to energy expenditure and storage. Most likely it’s a combination of several effects.

Small trials in which microbe-rich faecal matter (that’s poo to you) is transplanted from healthy individuals into the lower intestine of people with colitis have been successful in treating the disease, leading some to suggest similar treatment for obesity and type 2 diabetes. However, there are far too many unknowns at this point, such as which bacteria are beneficial and which pathogenic, and whether artificially changing someone’s microbiome may cause other problems. More likely scenarios are the development of microbial supplements of helpful bacteria, perhaps in combination with antibiotics targeting undesirable bacteria, or else drugs that mimic their actions.

**DIET AND EXERCISE**

While it would be great to blame environmental chemicals, our forebears and undesirable bacteria for all our weight gain woes, our lifestyle choices also play an important role in weight control. Here we look at how diet, exercise, sleep and stress can affect our weight.

**What we eat**

A popular myth, often used to promote low-carbohydrate diets, is that advice to follow a low-fat diet has failed, resulting in population weight gain despite eating less fat. Fat, it’s argued, has been unfairly demonised, and carbohydrates are to blame. But while it’s true that the percentage of total kilojoules, or energy, we receive from fat has decreased, we’re eating more kilojoules than ever, and the absolute amount of fat has in fact increased in the last few decades.

However, choosing some low-fat or reduced-fat processed foods – such as ice cream, pastry, biscuits, or flavoured yoghurt – may result in weight gain because the fat may be replaced with sugar to make it tastier. So these often (though not always) contain as many kilojoules as regular-fat products – but because they’re ‘low fat’, people think they can eat more of them. These foods may also be less satisfying than their regular-fat counterparts. This doesn’t mean low-fat products should be avoided – many low-fat dairy products such as milk and cheese contain as much or more protein and calcium as their regular-fat counterparts, but less fat (much of which is saturated) and fewer kilojoules.

It’s easy to blame high fat and/or sugar junk food such as ice cream, biscuits, chocolate, pizza, soft drink and chips for weight gain, but eating excessive amounts of energy-dense healthy foods – muesli, dried fruit, nuts, seeds and dairy foods – instead may also cause weight gain. And meals that appear to be healthy, low-kilojoule options, such as salad, might conceal high-fat dressing, croutons, hard cheese and fatty meats. Fruit juice may also be a problem, with many people not realising how much energy it contains: measure for measure, juice contains more nutrients than fizzy drinks or beer, but the energy content is similar.

Kilojoule for kilojoule, the time of day when you eat doesn’t seem to make much difference. But it may affect how much and what you eat, which could lead to weight gain. Studies show that people who eat a good breakfast within a couple of hours of waking are less likely to be overweight that those who don’t – and, conversely, that breakfast skippers are more likely to be overweight, probably because they eat high-fat or high-sugar foods at this point, such as which bacteria are beneficial and which pathogenic, and whether artificially changing someone’s microbiome may cause other problems. More likely scenarios are the development of microbial supplements of helpful bacteria, perhaps in combination with antibiotics targeting undesirable bacteria, or else drugs that mimic their actions.

Obesity is not inevitable. Rather, it’s an interaction between genetics, lifestyle and environment. Some of the more recent avenues of research into obesity include looking at systemic inflammation, the role of our gut bacteria and environmental contaminants.
later in the day. If you eat well earlier in the day, you may have more energy to be more active during your waking hours, ultimately burning more energy.

Other studies have found that many overweight people overeat at night-time, and that night-time meals are often fattier than other meals. This is especially true for those who eat lightly during the day, when they overcompensate for the lack of food. And many people gorge on junk food later in the day when they’re tired, stressed or overwhelmed. But any weight gain would be due to excess kilojoules rather than the time of day.

**How we move**

Physical activity is important for weight control, but about 60% of people don’t get enough, according to the Australian Bureau of Statistics. Cardio exercise, such as walking or jogging, burns energy when you’re doing it, but resistance training or weight lifting results in increased muscle mass, which boosts your metabolism so you’re burning more energy even when you’re not exercising. Yet the modern workplace, personal motorised transport and labour-saving devices all mean we don’t need to use our muscles much anymore for everyday activities.

Old-order Amish people, who live much like our pre-industrial revolution forebears did, walk an average of about 16,000 steps a day (as measured by a pedometer) as opposed to the average Australian adult’s approximately 9,000 steps and the average American’s approximately 5,000. Rates of obesity among these Amish are correspondingly lower, despite having a diet high in saturated fat and refined sugar.

Our leisure activities – computers, gaming and television – are also becoming increasingly more sedentary. Time spent viewing television seems to be associated with obesity in children, though not necessarily because of lack of physical activity. Rather, it seems to be because of the snack food eaten while watching, or because of foods shown on TV that entice us to eat after watching TV – possibly by increasing levels of the appetite-stimulating hormone, ghrelin.

**Too much stress**

Many of us know the feeling of wanting to eat something when we feel stressed, and preferably something high in fat and/or sugar – it’s a form of emotional eating. While it may make you feel a little better, there’s actually a chemical cascade going on within us that makes us want to do this – with the unfortunate effect of potentially inducing weight gain.

When you suffer from chronic stress, your body increases its production of cortisol. Higher levels can be useful because they prepare the body for action by increasing blood sugar and insulin release, providing an energy burst. However, prolonged, abnormally high levels of cortisol are a problem, because it increases appetite and also causes the elevated blood sugar to be stored as fat that is more likely to be deposited in the abdomen. Stress also increases the release of a neurotransmitter called neuropeptide Y, which has a double-whammy weight gain effect of increasing appetite and conserving energy. At the same time, leptin, which helps control the effects of neuropeptide Y, is decreased.

**Not enough, or too much sleep**

Consistently sleeping too little (less than six hours) or too long (more than eight hours) has been shown to increase the risk of obesity, as well as other diseases such as diabetes and cardiovascular disease. Levels of the hunger-stimulating hormone ghrelin tend to be higher in sleep-deprived people, while the appetite control hormone leptin is lower than in people who sleep the average amount. This means people who sleep less tend to eat more, and especially carbohydrate-rich or fatty foods – and they more than compensate for the extra energy required for being awake longer. At the same time, people who are hungry tend to sleep less – so going on a food-deprivation diet could be counter-productive.

How Being Overweight or Obese Affects Your Health

Do you know how to tell if you’re overweight or obese and if you are, what it means for your health? Cathy Johnson addresses these questions in this fact file from ABC Health & Wellbeing.

Australians are bigger than ever, and this has the potential to affect not just our health but our capacity to enjoy and participate in life.

Almost two thirds of Australian adults (63 per cent) are overweight or obese, new figures from the Australian Bureau of Statistics suggest. This is a jump from just over half (56 per cent) in 1995.

More men than women are affected, with almost 80 per cent of men aged 65 to 74 having a weight that is unhealthy.

How can you tell if you’re overweight or obese?

Just weighing yourself on the scales isn’t a reliable way of knowing if you’re overweight; the ABS figures are based on Body Mass Index (BMI).

It’s just one of several more accurate ways to tell if your weight is healthy:
- **Body Mass Index (BMI)** compares your weight relative to your height (your weight in kilograms is divided by the square of your height in metres) and gives you a number that indicates whether you fall into a weight range that is healthy, overweight, or obese. Read more about BMI and calculate yours at www.abc.net.au/health/quizzestools/tools/2008/01/17/2114338.htm
- **Waist circumference**, involves measuring your waist in centimetres with a tape measure. Many consider this a better measure than BMI because it is a more direct measurement of the body fat most dangerous to health – visceral fat. This is fat between the organs in your abdomen, which makes up part of the overall fat visible on your belly. Read more about how to tell if your waist measurement is healthy or not at www.abc.net.au/health/quizzestools/tools/2008/01/17/2114338.htm
- **Waist to hip or waist to height ratios** (compares your waist measure in centimetres to your hip measure or your height in centimetres)
  - For men, a waist to hip ratio below 0.9 is healthy
  - For women, a waist to hip ratio below 0.8 is healthy.

More men than women are affected, with almost 80 per cent of men aged 65 to 74 having a weight that is unhealthy.

Why is fat around your middle more dangerous?

Carrying extra weight around your middle is considered more of a health hazard than fat on the hips or thighs. This is because fat around your middle is likely to be mostly visceral fat, which behaves differently in the body.

Visceral fat is more likely to release immune system chemicals, hormones and other substances that disrupt processes in the body. The end result is an increased risk of a number of diseases (see below).

What are the health effects of carrying extra weight?

The National Health and Medical Research Council says obesity worsens or increases your risk of diseases, including:
- Diabetes
- Obstructive sleep apnoea
- Polycystic ovarian syndrome
- Hypertension (high blood pressure)
- Abnormal lipids (fats) in your blood
- Heart attack
- Stroke
- Some cancers
• Fatty liver (a buildup of excess fat in liver cells).

One of the most important ways in which extra body fat (especially visceral fat) increases your risk of health problems is by causing your body to be less responsive to the hormone insulin. Insulin controls a large number of the chemical processes that keep your body functioning, so when it is not working properly, it leaves you at risk of many different illnesses.

Is excess weight a problem if you are not obese?

Yes. Research has shown carrying excess kilos, even if you are not obese, is associated with an increased risk of disease (although the increased risk is greater still if you are obese).

Specifically, recent Australian research suggests that as people gain weight, they experience a steady increase in the risk of going to hospital for treatment for a health problem.

• If you are overweight, you have a 20 per cent increased risk of being sick enough to need hospital treatment.
• If you are severely obese, you have a 100 per cent increased risk of being sick enough to need hospital treatment (i.e. you have double the risk of someone whose weight is in the healthy range).

Even if you are just overweight rather than obese, any weight you can lose through lifestyle change, particularly exercise, is likely to be beneficial for your health.

How this happens isn’t well understood. Research suggests these people may not stay as healthy if they gain more weight, but a proportion of them do stay healthy regardless of any weight gain.

Is extra weight or obesity always unhealthy?

No. It seems some obese people are unexpectedly free of problems like high blood fats and high blood pressure and it seems their insulin works well in their bodies.

Even if you are just overweight rather than obese, any weight you can lose through lifestyle change, particularly exercise, is likely to be beneficial for your health.

Does fitness make a difference?

Once it was thought being fit might offset the health risks of obesity. For instance, exercise can help insulin work more effectively to control glucose levels in the blood.

However recent research suggests fitness may be helpful, but it isn’t enough to make obesity safe.

If you are overweight and active, it is better than being overweight and inactive but not as good as being slim and active, the research suggests.
Obesity is not always thought of as being a cause of other diseases, nor is it often seen as a disease itself. However, obesity has been associated with cardiovascular diseases such as hypertension (high blood pressure), dyslipidaemia, coronary artery disease and stroke, obstructive sleep apnoea, insulin resistance, type 2 diabetes, non-alcoholic fatty liver disease (NAFLD), cancer, osteoarthritis, as well as mental health issues such as cognitive impairment and depression.

This infographic was provided courtesy of Obesity Australia.


This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
How does excess weight cause disease?

It’s time to admit it – Australia is becoming an obese nation. We all know obesity increases our risk of chronic disease, but how does excess fat actually affect our body? Joseph Proietto explains in this article from The Conversation

When you consider the potential for a shortened lifespan and increased risk of a long list of diseases, it’s no wonder Australia’s obesity epidemic is causing so much concern.

According to the National Health and Medical Research Council, obesity causes, worsens, or increases your risk of a raft of diseases, including:

- Diabetes
- Obstructive sleep apnoea
- Polycystic ovarian syndrome
- Hypertension
- Abnormal lipids
- Heart attack and stroke
- Some cancers
- Fatty liver

So how does obesity cause or contribute to these problems? The answer is complex, as there are multiple mechanisms. But the most important factor is that fat causes resistance to insulin, the hormone responsible for regulating metabolism.

When the body accumulates excess fat, it’s either stored in fat cells, where it’s relatively safe, or deposited in tissues, such as the liver and muscles.

In the liver, fat drives the increased production of glucose (sugar). In muscles, excess fat impairs the action of insulin to stimulate the body’s cells to use this glucose as a source of energy. The resulting insulin resistance forces the pancreas to overproduce insulin, in an effort to maintain normal blood glucose levels.

This is dramatically demonstrated in patients who have lipodystrophy, a genetic or autoimmune disorder in which there is a deficiency of fat cells. These people have nowhere to store fat, except in liver and muscle, and develop severe insulin resistance, diabetes and fatty liver.

Diabetes

Obesity affects the body’s ability to produce insulin. This is caused by stress on the insulin-producing pancreatic islet (β) cells and excess fat directly damaging these islet cells.

In people with a genetic predisposition to diabetes, the combination of insulin resistance, direct fat toxicity and genetic predisposition leads to the failure and death of islet cells. The result is a relative deficiency of insulin and the development of type 2 diabetes.

When the body accumulates excess fat, it’s either stored in fat cells, where it’s relatively safe, or deposited in tissues, such as the liver and muscles.

Obstructive sleep apnoea

Obstructive sleep apnoea (OSA) occurs when there is an excess of fat around the neck which increases the collapsibility of the air passage to the lung, particularly during sleep. The resulting reduction of blood oxygen tells the sleeper’s brain to wake up and take a deep breath. This happens repeatedly during the night, preventing the individual from getting enough sleep.

Polycystic ovarian syndrome

The high insulin levels resulting from insulin resistance stimulate the ovary to make an excess of male-type hormones (normally produced in small amounts in women). This over-production of hormones can lead to acne, facial hair and the production of ovarian cysts. Polycystic ovarian syndrome is also a common cause of infertility.

Hypertension

Hypertension, or high blood pressure, means the heart has to work harder than usual to pump blood to the arteries. Insulin has been shown to increase blood pressure by causing the kidney to retain salt and by activating the sympathetic (adrenaline) nervous system. Salt increases the amount of water that is retained (and therefore the volume of the blood), while the increased sympathetic activity narrows some blood vessels. The increased fluid and decreased vessel volume combine to increase blood pressure.
Abnormal lipids (high cholesterol)

The body produces cholesterol, a type of fat, to perform a number of metabolic processes such as creating hormones and bile.

The typical lipid abnormalities seen in people with obesity are elevated triglyceride (known as ‘storage fat’) and a low HDL-cholesterol (or good cholesterol). While still under investigation, there is some evidence to suggest that elevated triglycerides are caused by fat-induced insulin resistance.

Low HDL-cholesterol is bad because its role is to take cholesterol from the blood vessels to the liver for removal. Low HDL means that this cleaning function doesn’t occur, leaving harmful cholesterol to remain in the blood vessels.

Increased risk of heart attack and stroke

As described above, obesity causes multiple cardiovascular risk factors such as impaired glucose tolerance, high blood pressure and abnormal lipids. These lead to excess fat deposition in the blood vessels, including those supplying the heart muscle and the brain.

When these fatty plaques rupture, a clot forms over them, blocking the vessel and resulting in a heart attack or a stroke, depending on which artery the clot forms in.

Increased incidence of cancer

The increased risk of cancer, particularly of the breast and bowel, with obesity has been documented in several large surveys. The mechanisms of this link are not yet fully understood and are currently the subject of much research.

Fatty liver

Excess fat accumulation in the liver can cause damage leading to liver-cell death, and in genetically susceptible people, can even cause cirrhosis (end-stage liver disease which requires a liver transplant).

The high prevalence of obesity means that fat-induced cirrhosis is overtaking excess alcohol or viral hepatitis as the commonest cause of cirrhosis.

Researchers are still investigating the mechanisms underpinning the links between obesity and various chronic diseases, but there’s no doubt excess weight poses a serious health risk. Urgent action is needed to halt Australia’s obesity epidemic.

Joseph Proietto is Professor of Medicine at the University of Melbourne.
OBESITY AND CHRONIC DISEASE

The 2011-13 ‘Australian Health Survey’ results to date have highlighted the growing problem of obesity in Australia, according to this feature article from the Australian Bureau of Statistics.

It is estimated that 62.8% of Australian adults are now overweight or obese, with this figure increasing over the past two decades (up from 56.3% in 1995). The first biomedical results from the National Health Measures Survey (NHMS) showed that being overweight or obese increased the risk of abnormal test results for nearly every chronic disease tested in the NHMS. These differences remained even after age was taken into account.

This article looks more closely at how obesity was associated with cardiovascular disease, diabetes and liver disease.

OBESITY AND CARDIOVASCULAR DISEASE

How many Australians are at risk of cardiovascular disease?

Results from the Australian Health Survey showed that 6.2% of all adults had current and long-term heart, stroke or vascular disease. Most commonly this group of conditions is referred to under the broader term of ‘heart disease’ or ‘cardiovascular disease’.

Cardiovascular disease remains one of the leading causes of death worldwide. In 2011, ischaemic heart disease, which includes angina, blocked arteries of the heart and heart attacks, was the leading cause of death for all Australians, representing 14.6% of all deaths registered in 2011.

The main indicators of cardiovascular disease that were measured in the NHMS were cholesterol, including LDL and HDL cholesterol, and triglycerides. In 2011-12, around one in three Australian adults (32.8%) had high levels of total cholesterol, with around one in four (23.1%) having lower than normal levels of HDL ‘good’ cholesterol and one in three (33.2%) having high LDL ‘bad’ cholesterol. Around 14% had high triglycerides.

Taking all these tests into account, around 63.2% of people aged 18 years and over had dyslipidaemia. That is, they were taking cholesterol-lowering medication or had one or more of high total cholesterol, low HDL cholesterol, high LDL cholesterol or high triglyceride levels based on their test results. This comprised 13.8% who took cholesterol-lowering medication and 49.4% who took no medication but had at least one abnormal test result.

How much more at risk are people who are overweight or obese?

Research shows that excess body weight is a major risk factor for heart disease, as high levels of body fat can raise blood lipid levels which can cause fatty deposits developing in the arteries, increasing the risk of heart attack or stroke. In 2011-12, people who were obese were nearly five times as likely as those who were of normal weight or underweight to have high triglycerides (25.3% compared with 5.3%) and more than twice as likely to have lower than normal levels of HDL ‘good’ cholesterol (36.2% compared with 14.1%). This pattern was also evident for total cholesterol but the relationship was not as strong.

Is it just older people who are affected?

It is well documented that the risk of cardiovascular disease increases after the age of 45 years. However, the NHMS shows that a significant number of adults under 45 years had indicators of cardiovascular disease, especially among those who were obese. For example, four in every ten (39.1%) obese adults under the age of 45 years had lower than normal levels of HDL ‘good’ cholesterol and nearly one in four (22.6%) had high triglycerides. This was substantially higher than for those aged 18-44 years who were of normal weight or underweight (15.4% and 4.5% respectively). This was also higher than the equivalent rates for all people aged 45 years and over (22.5% for lower than normal HDL cholesterol and 16.7% for high triglycerides).
Does the risk of cardiovascular disease increase when obesity is combined with smoking?

The risk of cardiovascular disease further increased when obesity was combined with smoking, particularly for younger people. Around half (51.7%) of those aged 18-44 years who were current daily smokers and obese had high LDL ‘bad’ cholesterol levels. This compared with only 15.8% of those who were both a non-smoker and of normal weight or underweight. Young smokers aged 18-44 years who were obese were also much more likely to have high triglycerides (27.0% compared with 3.7%) and abnormal levels of HDL ‘good’ cholesterol (52.3% compared with 14.8%).

Similarly, people aged over 45 years who smoked and who were obese were much more likely to have lower than normal HDL cholesterol (52.3%) and high triglycerides (36.8%) than people who did not smoke and who were of normal weight or underweight (10.8% and 5.9% respectively). However, the combination of smoking and obesity did not significantly increase rates of abnormal total cholesterol or LDL cholesterol for this age group.

OBESITY AND DIABETES

How many Australians have diabetes?

According to the NHMS, 5.1% of Australians aged 18 years and over had diabetes. This comprised 4.2% with known diabetes and 0.9% whose test results indicated diabetes, but who were previously unaware that they had the condition. A further 3.1% of adults were identified as not currently having diabetes, but were at high risk of having the condition.

How much of a risk factor is obesity?

Obesity is a known risk factor for diabetes as excess body weight can interfere with the body’s production of, and resistance to, insulin. In 2011-12, adults who were obese were seven times as likely as those who were of normal weight or underweight to have diabetes.

Persons aged 18 years and over: proportion with cardiovascular risk factors by body mass index and smoker status, 2011-12

<table>
<thead>
<tr>
<th></th>
<th>Obese and current daily smoker</th>
<th>Normal weight/underweight and non-smoker</th>
<th>All persons who were obese</th>
<th>All persons who were of normal weight/underweight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>18-44 YEARS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal total cholesterol (≥5.5 mmol/L)</td>
<td>43.4</td>
<td>15.2</td>
<td>35.5</td>
<td>16.4</td>
</tr>
<tr>
<td>Abnormal HDL cholesterol (&lt;1.0 mmol/L for men and &lt;1.3 mmol/L for women)</td>
<td>52.3</td>
<td>14.8</td>
<td>39.1</td>
<td>15.4</td>
</tr>
<tr>
<td>Abnormal LDL cholesterol (≥3.5 mmol/L)(a)</td>
<td>51.7</td>
<td>15.8</td>
<td>39.5</td>
<td>17.5</td>
</tr>
<tr>
<td>Abnormal triglycerides (≥2.0 mmol/L)(a)</td>
<td>27.0</td>
<td>3.7</td>
<td>22.6</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>45 YEARS AND OVER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal total cholesterol (≥5.5 mmol/L)</td>
<td>39.6</td>
<td>41.5</td>
<td>38.0</td>
<td>42.2</td>
</tr>
<tr>
<td>Abnormal HDL cholesterol (&lt;1.0 mmol/L for men and &lt;1.3 mmol/L for women)</td>
<td>52.3</td>
<td>10.8</td>
<td>34.4</td>
<td>11.8</td>
</tr>
<tr>
<td>Abnormal LDL cholesterol (≥3.5 mmol/L)(a)</td>
<td>34.2</td>
<td>38.7</td>
<td>35.3</td>
<td>39.7</td>
</tr>
<tr>
<td>Abnormal triglycerides (≥2.0 mmol/L)(a)</td>
<td>36.8</td>
<td>5.9</td>
<td>26.9</td>
<td>6.5</td>
</tr>
<tr>
<td><strong>All persons</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

(a) Based on the fasting population.

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
Obese people who did not already have diabetes were at high risk of the condition, compared with less than 1% of those who were normal weight or underweight.

**OBESITY AND LIVER DISEASE**

*How many Australians have signs of liver disease?*

A range of factors, including fatty liver disease, infections and excessive alcohol consumption can prevent the liver from functioning properly. The NHMS included two tests for liver function: gamma glutamyl transferase (GGT) and alanine aminotransferase (ALT). These tests check the liver’s health and can detect liver damage.

In 2011-12, around one in ten (11.0%) people aged 18 years and over had abnormal levels of ALT in their blood and 12.4% had abnormal levels of GGT.

**Is liver disease more common among people who are obese?**

Excess body fat is recognised as a risk factor for liver disease. In 2011-12, people who were obese were around four times as likely than those who were of normal weight or underweight to have abnormal ALT levels (19.5% compared with 4.6%). Likewise, around one in five (21.6%) people who were obese had abnormal GGT compared with only 6.0% who were of normal weight or underweight.

**Does it just affect older people or are young people at risk too?**

Similarly to cardiovascular disease, young people who were obese were also at higher risk of liver disease. Among those aged 18-44 years, obese people were five times as likely as those of normal weight or underweight to have high ALT levels (24.9% compared with 4.6%) and nearly six times as likely to have high GGT levels (19.0% compared with 3.2%).

**ENDNOTES**


© Commonwealth of Australia.
Long-term study finds Australian adults increasingly at risk of diabetes and obesity

One of the most comprehensive studies tracking the health of Australians has released findings that paint a disturbing picture of the nation’s battle with diabetes and obesity. An ABC News report by Sophie Scott and Gillian Bennett

The AusDiab study was funded through a National Health and Medical Research Council grant and followed 11,000 Australians for 12 years.

Researchers found the incidence of diabetes remained very high, with almost 270 adult Australians diagnosed each day, and people aged 25-34 were gaining more weight than other age groups. Patients with diabetes were also found more likely to suffer other conditions as well.

Prevalence of depression in patients with diabetes was 65 per cent, which was much higher than those without diabetes. Study leader Professor Jonathan Shaw says the link between diabetes and depression is complex.

“It appears there’s a bit of a two-way street here. People with depression are more likely to develop conditions like diabetes, partly because they feel less able to pursue healthy lifestyles,” Professor Shaw said.

“But partly because there are also some – not fully understood – metabolic pathways that link the two.”

Professor Shaw says people with diabetes also had twice the rate of cognitive impairment compared to those without diabetes.

“One of the biggest contradictions is that we are seeing people living longer but with higher rates of chronic diseases. So their quality of life is compromised by disease,” he said.

Professor Shaw says a person who is aged 80 in 2013 may have been living with diabetes or high blood pressure for 20 years, which has a damaging effect over time.

“As we get better at managing chronic disease, we’re seeing people living longer and with higher rates of frailty and cognitive impairment,” he said.

**Women and young people at greater risk of obesity**

In line with previous trends, obesity levels continued to rise. The report found that the average gain in waist circumference over the 12 years of the study was 5.3 centimetres and it was greater in women than men.

“Younger people don’t seem to think about diseases in relation to their weight or their waist circumference, but that’s where most of the weight gain is occurring,” Professor Shaw said.

“They’ve stopped doing exercise they did as a young single person – they’ve taken on a lot of family responsibilities – but they don’t yet feel any great connection or risk of developing diseases such as diabetes.

“That’s where we need to focus our efforts on preventing weight gain, because it’s much easier to prevent weight gain than it is to achieve weight loss.”

Despite public education campaigns, more than a third of people in the study were not meeting the physical activity guidelines of 30 minutes of exercise a day. Obesity remains one of the biggest risk factors for type 2 diabetes.

Researchers measured how much exercise people do, and how much time they were sitting down every day. Professor Shaw says from this, they found many people’s perceptions were inaccurate.

“People significantly overestimate the amount of exercise they’re doing by about 50 per cent, and they underestimate by about half the amount of time they’re spending sitting down.”

Professor Shaw says tools exist to help people live healthier lives.

“We need to be prepared to take some tough decisions but it’s not impossible. Look what we have achieved with gun control, smoking cessation and water restrictions,” he said.

Professor Shaw says a Preventative Health Task Force came up with a raft of recommendations designed to make Australia healthier.

“Many of those ideas are now sitting on shelves gathering dust. Everything should be on the table: taxation levers, town planning, office space layout needs to be reconsidered to tackle the growing personal and community impact of chronic disease,” he said.

Source: Baker IDI Heart and Diabetes Institute (2013). The Australian Diabetes, Obesity and Lifestyle study, p.6 (Extract).
CHAPTER 3
Healthy weight: food, activity and obesity policy

TIPS FOR LOSING WEIGHT HEALTHILY

The Australian Dietary Guidelines recommend that we all achieve and maintain a healthy weight. More than half of all Australian adults are above their healthiest weight. Here are some tips from eatforhealth.gov.au

HOW DO YOU KNOW IF YOU ARE CARRYING EXTRA WEIGHT?

Most adults can use the following graph as a guide to the healthiest weight for their height. Draw a line across from your height without shoes in centimetres and a line straight up from your weight in kg with light clothes but no shoes. The point where these two lines cross will land in a BMI range. Your weight will be classified as 'underweight' (less than your healthiest weight), 'normal' (healthiest weight), 'overweight' (above your healthiest weight and at greater risk of some health problems) or 'obese' (significantly above your healthiest weight and at greatest risk of health problems).

You can also use the graph to work out what is the healthiest weight for your height. The graph cannot be used for children or people under eighteen years of age because they are still growing and developing.

If you are carrying extra weight losing even 5 kg can make you feel better and lower your risk factors for health problems.

Everyday there are new ideas, diets, programs and books telling us how to lose weight. It can be very confusing and hard to know what to try.

It’s easier than ever before to gain weight and harder to take it off. Discretionary foods are cheaper and tastier, portion sizes are larger and we are less active at work and in our spare time.

**If you are carrying extra weight losing even 5 kg can make you feel better and lower your risk factors for health problems.**

So to lose weight that stays off we need to make small changes that turn back the clock. We need to limit discretionary foods, downsize our portions, and find ways to be more active in our everyday lives.

To lose weight, we need to eat and drink fewer kilojoules that we use. Choosing foods from the Australian Dietary Guidelines will help us choose...
foods that provide the most nutrients, without the extra kilojoules. For example eating more coloured vegetables and salad will keep us feeling fuller for fewer kilojoules. In fact making half our meals coloured vegetables or salad and having smaller portions of the other foods, we can reduce the kilojoules by up to half.

To lose weight that stays off we need to make small changes that turn back the clock. We need to limit discretionary foods, downsize our portions, and find ways to be more active in our everyday lives. To lose weight, we need to eat and drink fewer kilojoules that we use.

The recommended number of serves can be used to plan meals and snacks for weight loss. Following the serves from the ‘Five Food Groups’ and avoiding discretionary foods will help most people lose weight while staying healthy. Younger men, people who are taller than average or more active may find they need to include the ‘additional serves’.

Planning is the secret to successful weight loss. By thinking ahead about meals and snacks we can spread the number of serves from the five foods groups over interesting meals and snacks and avoid unplanned eating of extra serves or discretionary foods.

Making a plan for meals and snacks will also make food shopping easier and quicker and cheaper and avoid unplanned extra kilojoules, because then we can buy exactly what we need. Also, knowing a few tips for getting the most out of food labels when shopping can help avoid extra kilojoules.

Eating away from home can be a challenge when wanting to lose weight, but again, thinking ahead and knowing some useful strategies can make it work.

If we eat more ‘mindfully’, turning off the TV, slowing down and savouring food, we can enjoy food more, be more in touch with how hungry or satisfied we are and eat less.

You will find plenty of great information and tips to help you with goal setting, increasing physical activity and making other lifestyle changes to help with weight loss at The Healthy Weight Guide website.

© Commonwealth of Australia 2014.

FOOD: GETTING THE BALANCE RIGHT

“All things in moderation—you should eat a balanced diet”. This is obviously true, but what does it actually mean? What is a balanced diet? How do I achieve a balanced diet? Why is an unbalanced diet bad for me? These are big questions, and perhaps surprisingly, we don’t yet know the full answers. However, there are some important messages arising from modern scientific research, explains Professor Stephen Simpson in this fact sheet from Obesity Australia.

The nutrient balance problem

We require a very long list of nutrients from our diet, each one in appropriate amounts, if we are to remain healthy. These nutrients can be split into two main types.

The first type is the ‘macronutrients’, which includes proteins, fats and carbohydrates. These form the main proportion of the diet and are our major sources of energy, but additionally provide building blocks for growing and maintaining a healthy body. Protein, for example, contains 20 different types of building blocks called amino acids, needed for growth and repair of tissues and for making essential hormones and enzymes. Many of the components of cell membranes as well as steroid hormones derive from dietary fats.

The second type of nutrients is the ‘micronutrients’, which include minerals, vitamins and other chemicals that are required in tiny amounts, but without which we cannot survive.

Eating too little of any nutrient, micro- or macro-, will cause health problems (so-called diseases of deficiency), but so too will eating an excess: too much ingested energy relative to requirements, usually as fats or carbohydrates, can lead to obesity, whereas eating too much of a vitamin or mineral can be toxic.

Nutrients come bundled together in foods, which are mixtures of nutrients and other components. Different foods contain different mixtures of nutrients. It therefore follows that eating a balanced diet requires eating appropriate foods so that you end up meeting all your requirements for dozens of different nutrients.

At this point you will despair of ever working out what a balanced diet is—how can I possibly keep track of dozens of different nutrients at once? Happily, you don’t have to.

Simplifying the balancing act

We may need dozens of different nutrients, each at an optimal level, but by following the simple rule “eat a wide variety of fresh, whole foods”, most of the micronutrients will take care of themselves. Vitamin and mineral deficiencies or toxic excesses are highly unlikely on a varied diet of fresh foods, but much more likely on a diet of processed and take-away foods.

Mineral and vitamin supplements are typically not needed on a fresh food diet, unless prescribed by your doctor; indeed they are pointless and could be toxic if taken in excess. Vitamin supplements are added to some processed foods, such as breakfast cereals and breads, because the manufacturing process either removes or destroys micronutrients present in the raw ingredients.

By taking away the need to worry about micronutrients (by eating a varied, fresh food diet), we can now concentrate on the type and balance of macronutrients—a much easier task.

Macronutrient balancing: calories are not all created equal

The types and the relative proportions of protein, fats and carbohydrates in the diet are critical to attaining a balanced diet. The separate fact sheets on healthy fats and carbohydrates explain more about these two macronutrients.

High quality proteins are those that contain a balanced mixture of the 20 amino acids. Most animal proteins (red and white meat, fish and shellfish, eggs and dairy) are well balanced sources of amino acids. This makes sense since animal proteins are close to the composition of our own tissues—we too are an animal after all. Individual plant proteins are often less well balanced in amino acid composition than animal proteins but this is easily overcome by eating a variety of legumes, pulses, nuts and cereals. Once more, variety is good.

Having dispensed with the type of macronutrients (again, eat a varied, fresh-food diet), we can now focus on macronutrient balance. We know that the balance of macronutrients affects appetite, obesity, metabolic health, ageing, immunity, resistance to infectious disease, and the vast community of bacteria that live in our gut and are essential to good health and immune function (you are only 10% human when all the cells in your body are counted—90% are bacteria, most of which inhabit your gut)7.

Our bodies have a special and powerful appetite for protein, which attempts to ensure that we eat a target amount of protein each day.
and which can dominate appetites for carbohydrate or fat. When we are deficient in protein we seek it out, finding flavours associated with protein-rich foods very attractive.

These flavour cues for protein include salt and ‘umami’ taste (found for example in meat juices, chicken stock and mushrooms). The problem comes when such flavours are associated with processed foods that are low in protein, and high in fat and carbohydrate. Potato chips and savoury snacks are, in effect, protein decoys designed to fool our protein seeking response.

The consequences of having a dominant protein appetite are considerable. When there is a shift towards including more high-fat and high-carbohydrate foods in the diet (as has happened over the past 50 years in developed countries), our bodies resist eating too much protein, which seems likely that pureed fresh foods are a good place to start. How the composition of a balanced diet changes from childhood to adolescence, adulthood and old age is not really understood.

**Conclusion**

The advice from our current understanding of the science of diet balance would be to:

- Eat a varied diet of fresh, whole foods to make sure that you get sufficient micronutrients and high quality macronutrients
- Avoid processed (especially snack) foods
- Ensure that about 20% of your calories are in the form of protein, around 50% as good carbohydrates and the rest healthy fats (see separate fact sheets on the Obesity Australia website, www.obesityaustralia.org).

**REFERENCES**


Professor Stephen Simpson is from the University of Sydney.

---

**Eating too little of any nutrient, micro- or macro-, will cause health problems (so-called diseases of deficiency), but so too will eating an excess: too much ingested energy relative to requirements, usually as fats or carbohydrates, can lead to obesity, whereas eating too much of a vitamin or mineral can be toxic.**
Obesity and Overweight Issues in Society | Volume 380

Australian Health Survey: nutrition first results – foods and nutrients

NUTRITION DATA FROM THE AUSTRALIAN BUREAU OF STATISTICS

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

Food consumption

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

• On the day before interview, almost all people (97%) reported consuming foods from the Cereals and cereal products or Cereal-based products and dishes groups. Regular bread and bread rolls was the most commonly eaten type of Cereal and cereal product, being consumed by 66% of people. Ready to eat breakfast cereals were eaten by 36% of the population.
• More than eight out of ten people (85%) consumed from the Milk products and dishes group on the day prior to interview, with foods in this group providing an average 11% of the population’s energy intake. Around two-thirds (68%) of people consumed Dairy milk, while almost one-third (32%) had Cheese.
• Meat, poultry and game products and dishes were consumed by around seven out of ten (69%) people on the day prior to interview, providing 14% of total energy intakes. Chicken was the most commonly consumed meat within this category with 31% either eating a piece of chicken or eating chicken as part of a mixed dish. Beef was consumed by 20% (either alone or in a mixed dish). Ham was the most commonly consumed processed meat, being consumed by 12% of the population.

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

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

In the first detailed information on Australia’s eating habits available in 15 years, Ms Louise Gates, ABS Director of Health Statistics, said that new results from the Australian Health Survey showed 51 per cent of teenage males (aged 14-18 years) and 44 per cent of young adult males (aged 19-30 years) had consumed soft drink on the day prior to interview. This is compared to under 30 per cent for the rest of the population.

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

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

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

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

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

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

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

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

© Commonwealth of Australia.

• Vegetable products and dishes were consumed by three-quarters (75%) of the population, with Potatoes making up around one-quarter (by weight) of all vegetables consumed. Based on people’s self-reported usual consumption of vegetables, just 6.8% of the population met the recommended usual intake of vegetables.

• Fruit products and dishes were consumed by six out of ten people (60%) overall on the day before interview. Based on self-reported usual serves of fruit eaten per day, just over half (54%) met the recommendations for usual serves of fruit.

• The most popular beverages consumed were water (consumed by 87% of the population), coffee (46%), tea (38%) soft drinks and flavoured mineral waters (20%) and Alcoholic beverages (25%).

• Just over one-third (35%) of total energy consumed was from ‘discretionary foods’, that is foods considered to be of little nutritional value and which tend to be high in saturated fats, sugars, salt and/or alcohol. The proportion of energy from discretionary foods was highest among the 14-18 year olds (41%). The particular food groups contributing most of the energy from discretionary foods were: Alcoholic beverages (4.8% of energy), Cakes, muffins, scones and cake-type desserts (3.4%), Confectionery and cereal/nut/fruit/seed bars (2.8%), Pastries (2.6%), Sweet biscuits and Savoury biscuits (2.5%) and Soft drinks and flavoured mineral waters (1.9%).

Energy and nutrients

The average energy intake was 9,655 kilojoules (kJ) for males and 7,402 kJ for females. Energy intakes were lowest among the toddler aged children who averaged 5,951 kJ and were highest among 19-30 year old males (11,004 kJ). Female energy intakes were highest among the 14-18 year olds (8,114 kJ).

• Carbohydrates contributed the largest proportion of total energy, supplying 45% on average with the balance of energy coming from fat (31%), protein (18%), alcohol (3.4%) and dietary fibre (2.2%).

• Within carbohydrates, starch contributed 24% and sugars contributed 20% of energy. The major source of total sugars (natural and added) in the diets were: Fruit (providing 16% of sugars), Soft drinks and flavoured mineral waters (9.7%), Dairy milk (8.1%), Fruit and vegetable juices and drinks (7.5%), Sugar, honey and syrups (6.5%), Cakes, muffins, scones, cake-type desserts (5.8%).

• The average daily intake of sodium from food was just over 2,404 mg (equivalent to around one teaspoon of table salt). This amount includes sodium naturally present in foods as well as sodium added during processing, but excludes the ‘discretionary salt’ added by consumers in home prepared foods or ‘at the table’. In addition to sodium from food, 64% of Australians reported that they add salt very often or occasionally either during meal preparation or at the table, therefore the true average intake is likely to be significantly higher.

Dietary supplements

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

Dieting

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

Food avoidance

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

• The most common type of food intolerance reported was Cow’s milk/Dairy (4.5%), followed by Gluten (2.5%), Shellfish (2.0%) and Peanuts (1.4%).

• Pork was the most commonly avoided food type (3.9%) for cultural, religious or ethical reasons, while 2.1% specified avoiding all meat.

Under-reporting

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

• It is likely that under-reporting is present in both surveys.

• There appears to be an increase in the level under-reporting for males between 1995 and 2011-12, especially for males aged 9-50.

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

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

© Commonwealth of Australia 2014.
What’s the best diet for weight loss?

When it comes to weight loss, there are no magic tricks that guarantee success. What works for you is likely to be different to what works for your partner, neighbour or workmate, says Clare Collins.

The best advice is to find a healthy eating regime – let’s call it a diet – that you can stick to. You may choose a specific diet book or commercial program to kick start your weight loss, but in the longer term, switch to an eating pattern you can live with for good.

The diet that works best will depend on many factors: your current weight, dieting history, how much weight you need to lose, reasons for wanting to lose weight, your knowledge and skills around food preparation and nutrition, personal supports and the time you have to focus on weight loss.

Research shows the more radical the diet approach, the more likely you are to give up because of boredom or unpleasant side-effects.

But first, a warning about fad diets.
Fad diets can work in the short-term because they lead to a reduction in total kilojoules but are usually nutritionally inadequate.
They often ban specific foods or food groups, such as carbohydrates, and promise miraculous results. Or they may promote unproven fat burning or other supplements. Fad diets generally contradict advice from credible health professionals.
Research shows the more radical the diet approach, the more likely you are to give up because of boredom or unpleasant side-effects including bad breath, constipation, and even gall bladder disease.

GETTING STARTED
First up, decide on your weight loss goal. If your body mass index (BMI) is over 25, aim to lose up to 10% of your body weight in six months.
Next, decide how you’re going to monitor your progress. You can record your weight weekly using an app, at your weight-loss group or program, or use a pen-and-paper diary.

REDUCING YOUR ENERGY INTAKE
Everybody’s total daily energy needs are different, depending on your level of activity – this calculator can help you work out your individual energy needs.
A weight-loss diet should reduce your daily energy intake by at least 2,000 kilojoules (kJ) per day compared to what you usually eat when weight stable.
That is enough of a kilojoule reduction to lose a quarter to half a kilogram per week, which can add up to 12 to 25 kilograms over a year.
Sounds easy, but it’s a lot more difficult in practice.
for diet versions or soda water, or not eating after 8 pm to reduce snacking.

Other approaches that fit this category are low glycemic index (GI) diets or avoiding foods with added sugar.

If you track your progress in a weight-loss diary and monitor your dietary intake, physical activity, body weight and measurements, you’re more likely to lose weight and keep it off.

**Low-energy diets (LED)**

LEDs prescribe a daily energy intake of about 4,200 to 5,000 kJ per day. This is usually a list of specific meals and snacks that you follow closely to ensure your kilojoule intake matches the daily target.

Most commercial weight-loss programs – such as Weight Watchers, Biggest Loser Club, Jenny Craig or home delivery Lite n Easy – provide this. Weight-loss diets that give you a meal plan, such as those designed by accredited practising dietitians, are usually LEDs.

**Very low-energy diets (VLED)**

VLEDs limit total energy intake to only 1,800 to 2,500 kJ per day.

This approach uses formulated meal replacements (FMRs) to ensure your energy intake is kept very low. FMRs are supplemented with vitamins and minerals to try and meet the body’s requirements, despite the severe energy restriction.

VLEDs, such as Optifast or KicStart, are used when you need to lose weight quickly for health reasons or ahead of surgery. Talk to your GP first because they need to be supervised by a doctor or dietitian due to potential side-effects such as gall bladder or liver inflammation, constipation, headaches and bad breath.

**LONG-TERM CHANGE**

The level of energy restriction to aim for depends on what you think you can stick to. If your weight is going up by a few kilograms each year, then your current energy needs are probably around 9,000 to 11,000 kJ per day.

If you have never been on a diet before, then start with an RED.

If you want to lose weight faster, you will need the lower kilojoule target of an LED, but it will be harder to stick to.

Once you have set the level of energy restriction, then further manipulating nutrients – by eating more or less protein, for instance – will not lead to greater weight loss. This applies to altering the proportion of total fat, the glycemic load or glycemic index of the carbohydrate.

For weight loss, it is kilojoule total that counts.

**MONITORING YOUR SUCCESS**

The National Health and Medical Research Council’s (NHMRC) 2013 guidelines for weight management, which are based on the best available scientific evidence, highlight the importance of recognising and avoiding triggers that prompt eating and learning to modify unhelpful thinking patterns that become barriers to following a diet.

The guidelines also note that self-monitoring is key to weight-loss success. If you track your progress in a weight-loss diary and monitor your dietary intake, physical activity, body weight and measurements, you’re more likely to lose weight and keep it off.

Once you have found the eating pattern that allows you to lose 250 grams to one kilogram per week, share your success story. That way more people will discover that ‘the best diet’ for weight loss might not have a fancy name, but is an approach that you can live with, for good.

Clare Collins is Professor in Nutrition and Dietetics at the University of Newcastle.

New WHO guidelines should be a call to industry to stop sugarcoating kids’ foods

Australia needs to take action in response to new World Health Organization guidelines around sugar consumption, according to a coalition of leading health organisations, the Obesity Policy Coalition

O vernight the World Health Organization put out revised recommendations for consultation stating that free sugar* should contribute only five per cent of an individual’s daily energy intake. This is almost half their previously recommended daily amount, representing around six teaspoons of a sugar a day.

Executive Manager of the Obesity Policy Coalition, Jane Martin, said the recommendation should be heeded in Australia and that better labelling on packaged foods would empower consumers to take control of their diets.

“We know Australians are consuming far too much sugar but at the same time many people are trying to consciously eat healthier food. This is why labelling is so crucial.

“It’s time for manufacturers to stop sugarcoating the truth about what’s in our food with marketing spin and give Australians real information through clear front of pack labelling about what they’re eating.

“At present it’s not easy for parents to find this information at a glance while they’re in the supermarket aisles. The use of a variety of terms for sugar on nutrition information panels such as ‘fructose’, ‘glucose’, ‘corn syrup’ and ‘dextrose’ can add further confusion.

“The information available on packs often doesn’t distinguish added sugar from total sugar, which takes into account sugar naturally contained in products.

“Nevertheless, what is clear is that many of the foods marketed to children are particularly high in added sugar. For example, a serve of Kellogg’s Nutri-Grain contains around two teaspoons of added sugar. Some products such as juice contain much more, which means some children could exceed the proposed guidelines before they’ve even finished breakfast.

“Young children require less kilojoules and therefore less sugar than adults on a healthy diet so the promotion of these high sugar products to families is unethical,” said Ms Martin.

Ms Martin said there was good evidence that excess sugar consumption that wasn’t burnt off by exercise resulted in individuals becoming overweight or obese. It is well established that obesity is a leading risk factor for type 2 diabetes, cardiovascular disease and some cancers.

Professor Boyd Swinburn, Co-Director of the WHO Collaborating Centre for Obesity Prevention at Deakin University, Melbourne noted the guidelines would likely also improve children’s dental health and minimise the risk of dental cavities throughout their lives, but he warned that governments will need to remain strong in the face of industry pressure.

“I expect that the sugar industry will start immediately attacking the credibility of WHO about this recommendation, like they did in 2003 when WHO set the 10% recommendation. They will be pulling all the political strings they can to prevent governments taking up this recommendation, and I sincerely hope that the Australian government is listening more to the solid evidence and recommendations from WHO than it is to the lobbying of the sugar industry,” he said.

**AMOUNTS OF TOTAL SUGAR IN KIDS’ FOOD PRODUCTS (PER SERVE)**

<table>
<thead>
<tr>
<th>Product</th>
<th>Teaspoons</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just Juice 100% Apple Juice Tetra Pack (200 mL)</td>
<td>5</td>
<td>20.2</td>
</tr>
<tr>
<td>Paddle Pop Rainbow (68 g)</td>
<td>3.5</td>
<td>13.5</td>
</tr>
<tr>
<td>Kellogg’s Coco Pops (30 g)</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Calci-Yum Squeezie Kids Yoghurt Vanilla (70 g)</td>
<td>2.5</td>
<td>9</td>
</tr>
<tr>
<td>Kellogg’s Nutri-Grain (30 g)</td>
<td>2.5</td>
<td>9.6</td>
</tr>
<tr>
<td>Heinz Dora the Explorer Pasta Shapes in Tomato Sauce (220 g)</td>
<td>2</td>
<td>7.7</td>
</tr>
</tbody>
</table>

i. Nutrition information sourced from Coles Online [http://shop.coles.com.au](http://shop.coles.com.au). From available sources it was not possible to quantify added sugar or ‘free sugar’, therefore values represented here are total sugar.

ii. Based on 4 g per teaspoon.

* Free sugar is defined by the WHO as sugars added to food by the manufacturer, cook or consumer.

© Cancer Council Victoria

AUSTRALIA’S PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR GUIDELINES

This article from the Department of Health contains a summary for each of the guidelines, with tips and ideas for how to be physically active.

MAKE YOUR MOVE – SIT LESS – BE ACTIVE FOR LIFE!

Regardless of how young or old you are, there are physical activity and sedentary behaviour guidelines available for you.

- National Physical Activity Recommendations for Children (0-5 years)
- Australia’s Physical Activity and Sedentary Behaviour Guidelines for Children (5-12 years)
- Australia’s Physical Activity and Sedentary Behaviour Guidelines for Young People (13-17 years)
- Australia’s Physical Activity and Sedentary Behaviour Guidelines for Adults (18-64 years)
- Choose Health: Be Active – A physical activity guide for older Australians
- Make Your Move – Sit Less – Be active for life! – A resource for families.

NATIONAL PHYSICAL ACTIVITY RECOMMENDATIONS FOR CHILDREN (0-5 YEARS)

Being physically active every day is important for the healthy growth and development of infants, toddlers and pre-schoolers.

These recommendations are for all infants aged 0-5 years who have not yet started school, irrespective of cultural background, gender or ability. The recommendations are outlined below and are also available in the brochure – Move and Play Every Day.

**Physical Activity Recommendations**

- For health development in infants (birth to one year) physical activity – particularly supervised floor-based play in safe environments – should be encouraged from birth.
- Toddlers (1 to 3 years) and pre-schoolers (3 to 5 years) should be physically active every day for at least three hours, spread throughout the day.

**Sedentary Behaviour Recommendations**

- Children younger than 2 years of age should not spend any time watching television or using other electronic media (DVDs, computer and other electronic games).
- For Children 2 to 5 years of age, sitting and watching television and the use of other electronic media (DVDs, computer and other electronic games) should be limited to less than one hour per day.
- Infants, toddlers and pre-schoolers (all children birth to 5 years) should not be sedentary, restrained, or kept inactive, for more than one hour at a time, with the exception of sleeping.

AUSTRALIA’S PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR GUIDELINES FOR CHILDREN (5-12 YEARS)

Being physically active is good for kids’ health, and creates opportunities for making new friends and developing physical and social skills. These guidelines are for all children aged 5-12 years who have started school, irrespective of cultural background, gender or ability.

The guidelines are outlined below and are also available in the Make your move – Sit less – Be active for life! brochure which provides further information and guidance about physical activity, play, sedentary behaviour (sitting) and ‘screen time’ for children.

**Physical Activity Guidelines**

- For health benefits, children aged 5-12 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day.
- Children’s physical activity should include a variety of aerobic activities, including some vigorous intensity activity.
- On at least three days per week, children should engage in activities that strengthen muscle and bone.
- To achieve additional health benefits, children should engage in more activity – up to several hours per day.

**Sedentary Behaviour Guidelines**

- To reduce health risks, children aged 5-12 years should minimise the time they spend being sedentary every day. To achieve this:
Limit use of electronic media for entertainment (e.g. television, seated electronic games and computer use) to no more than two hours a day – lower levels are associated with reduced health risks.

- Break up long periods of sitting as often as possible.

AUSTRALIA’S PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR GUIDELINES FOR YOUNG PEOPLE (13-17 YEARS)

As young people move through school, start work and become more independent, being physically active and limiting sedentary behaviour every day is not always easy, but it is possible and it is important. These guidelines are for all young people, irrespective of cultural background, gender or ability.

The Make your move – Sit less – Be active for life! brochure presents the guidelines and provides further information and advice about physical activity and sedentary behaviour (sitting) for young people.

Physical Activity Guidelines
- For health benefits, young people aged 13-17 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day.
- Young people’s physical activity should include a variety of aerobic activities, including some vigorous intensity activity.
- On at least three days per week, young people should engage in activities that strengthen muscle and bone.
- To achieve additional health benefits, young people should engage in more activity – up to several hours per day.

Sedentary Behaviour Guidelines
- To reduce health risks, young people aged 13-17 years should minimise the time they spend being sedentary every day. To achieve this:
  - Limit use of electronic media for entertainment (e.g. television, seated electronic games and computer use) to no more than two hours a day – lower levels are associated with reduced health risks.
  - Break up long periods of sitting as often as possible.

AUSTRALIA’S PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR GUIDELINES FOR ADULTS (18-64 YEARS)

Being physically active and limiting your sedentary behaviour every day is essential for health and wellbeing. These guidelines are for all adults aged 18-64 years, irrespective of cultural background, gender or ability.

The guidelines are outlined below and are also available in the Make your Move – Sit less – Be active for life! brochure which provides further information and guidance about physical activity and sedentary behaviour (sitting) for adults.
Physical Activity Guidelines
- Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount.
- Be active on most, preferably all, days every week.
- Accumulate 150 to 300 minutes (2½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1¼ to 2½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week.
- Do muscle strengthening activities on at least 2 days each week.

Sedentary Behaviour Guidelines
- Minimise the amount of time spent in prolonged sitting.
- Break up long periods of sitting as often as possible.

PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER AUSTRALIANS (65 YEARS AND OLDER)
Being physically active and staying fit and healthy will help you to get the most out of life, whatever your age. These recommendations are designed to help older Australians achieve sufficient physical activity for good health as they age. They are mainly for people who are not currently building 30 minutes of physical activity into their daily lives, and are looking for ways they can do so.

Physical Activity Recommendations
There are five physical activity recommendations for older Australians. These recommendations are also available in the Choose Health: Be Active – A physical activity guide for older Australians brochure which provides further information about physical activity for older Australians.

1. Older people should do some form of physical activity, no matter what their age, weight, health problems or abilities.
2. Older people should be active every day in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.
3. Older people should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days.
4. Older people who have stopped physical activity, or who are starting a new physical activity, should start at a level that is easily manageable and gradually build up the recommended amount, type and frequency of activity.
5. Older people who continue to enjoy a lifetime of vigorous physical activity should carry on doing so in a manner suited to their capability into later life, provided recommended safety procedures and guidelines are adhered to.

MAKE YOUR MOVE – SIT LESS – BE ACTIVE FOR LIFE! – A RESOURCE FOR FAMILIES
This brochure for families provides you with a summary of Australia’s Physical Activity and Sedentary Behaviour Guidelines for all ages. It provides information about the benefits of being physically active, and offers steps that you and your family can take towards better health, at any age. You will find information for everyone – infants and toddlers, children, young people and adults too, as well as tips and ideas for being more active and less sedentary every day.

© Commonwealth of Australia.

Aussie kids graded D- in first ever physical activity report card

Australian school children rank among the worst in the world for overall physical activity levels, narrowly avoiding a FAIL in a new national report card from Active Healthy Kids Australia

Supported by the National Heart Foundation of Australia and Exercise and Sports Science Australia, the inaugural Active Healthy Kids Australia Report Card on Physical Activity for Children and Young People has found 80% of 5-17 year-olds are not meeting the Australian physical activity guidelines of at least 60 minutes of exercise each day.

Using an international ranking tool developed in Canada, Australia’s Report Card will today be measured against 14 other countries around the world.

Report author Natasha Schranz, PhD from the University of South Australia said too many Australian parents believe playing sport is enough to keep their kids healthy.

“Australia is a sporting nation, and vast numbers of children are involved in some type of organised sport but this report clearly shows we need to be looking at further ways to keep kids active when they are not on the sports field,” Dr Schranz said.

“Things like walking to school, playing outside and turning off televisions and computers also contribute to overall health and physical activity levels – and these things are being forgotten.”

Among the 12 grades assigned in the Report Card, key grades include:

- **D-** for Overall Physical Activity Levels
- **B-** for Organised Sport and Physical Activity Participation
- **D** for Active Transportation (such as riding or walking to school)
- **D-** for Sedentary Behaviours (screen time).

The Heart Foundation’s National Lead on Active Living, Associate Professor Trevor Shilton said the evidence can’t be ignored.

“We’re raising a generation of couch potatoes and if we don’t start to reverse this trend this will drive up health problems in the future – obesity, high blood pressure and heart disease,” he said.

“We know what works. We need high quality, mandatory physical activity in our schools. We need to encourage and support our kids to stay active in everyday life – to be social and play outside, to walk and cycle in their neighbourhoods, do some household chores and limit hours of screen time.

“It requires a coordinated response – governments, communities, schools, families and individuals can all play a role, we just need to start the conversation.”

ABOUT THE REPORT CARD

The Active Healthy Kids Australia Physical Activity Report Card for Children and Young People was developed by researchers at several leading Australian universities and research institutes using data from a number of national and state-based surveys. Full copies of the Report Card can be downloaded at www.activehealthykidsaustralia.com.au in May 2014.

© 2014 National Heart Foundation of Australia. Reproduced with permission.

INTRODUCTION

Physical activity has many health benefits including helping to prevent heart disease, type 2 diabetes and some cancers, and improving psychological wellbeing.

According to the 2011-12 National Health Survey, 65% of adults aged 18 years and over were either overweight or obese, and this rate has increased over time. Along with poor nutrition, the main factors associated with increases in obesity and being overweight are sedentary behaviour and physical inactivity. With lifestyles becoming increasingly more sedentary, the level of physical inactivity has continued to rise over time.

The 2011-12 National Nutrition and Physical Activity Survey (NNPAS) explored levels of physical activity. To measure physical activity, the NNPAS collected data on walking for transport, walking for fitness and moderate and vigorous physical activity for fitness, recreation or sport undertaken in the week prior to interview.

Respondents’ levels of physical activity were categorised as:
- High
- Moderate
- Low, or
- Sedentary

based on the duration and intensity of this physical activity.

For sedentary behaviour, data were collected on sitting at work, sitting for transport and sitting or lying down for other social or leisure activities.

This article commences with a general look at levels of physical activity among the Australian adult population, before focusing on those with sedentary levels of physical activity. The article will explore in detail the characteristics of Australians with sedentary levels of physical activity, how they are spending their sedentary time and how much time they spend being sedentary.

This is one of two articles produced for the November 2013 issue of Perspectives on Sport which uses data from the 2011-12 NNPAS to examine levels of physical activity among adult Australians. The corresponding article, Let’s Get Physical – How do Australians Measure Up? examines what proportion of adult Australians meet the National Physical Activity Guidelines, by selected demographic and socio-economic characteristics. Data presented in the two articles are intended to be complementary, however comparisons between the populations presented in the two articles should not be made as different data items are used in analysis. More information about the populations presented can be found in the Adult Physical Activity Survey section of the Australian Health Survey: Users’ Guide, 2011-13.

Note that all data comparisons in this article should be considered significantly different unless otherwise indicated.

LEVEL OF PHYSICAL ACTIVITY

When the level of physical activity is considered for all Australian adults, more people reported sedentary levels of physical activity (21% or 3.6 million) than high levels of physical activity (15% or 2.5 million). More than one-quarter (28%) of Australian adults reported moderate levels of physical activity, with over one-third (35%) reporting low levels.

Males and females reported similar rates of sedentary levels of physical activity (21%). However, males reported higher rates of high levels of physical activity (19%, compared with 11% of females) and lower rates of low levels of physical activity (31% compared with 39% of females).

PERSONS WITH SEDENTARY LEVELS OF PHYSICAL ACTIVITY

The focus of this article will now move specifically to those Australian adults who reported sedentary levels of physical activity, and the demographic, socio-economic
and geographic characteristics of this group. Throughout this section, it should be noted that age may also be a contributing influence, however an age standardisation process has not been conducted as part of the analysis.

**Age and sex**

The lowest rate of sedentary levels of physical activity was reported by people aged 18-24 years (11%). Sedentary levels of physical activity generally increased between young adult ages and middle age. Rates of sedentary levels of physical activity then appear to plateau to around age 75, before increasing substantially for the age group 75 and over (42%).

Differences in the sedentary rates of males and females varied by age group. Older males (aged 75 and over) reported lower rates of sedentary levels of physical activity than their female counterparts (35% compared with 47%). Young males (aged 18-24 years) also reported lower rates of sedentary levels compared with females of the same age (10% compared with 13%), however there

---

**LEVEL OF PHYSICAL ACTIVITY(a), BY SEX, 2011-12**

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Sedentary(b)</th>
<th>Not Stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1,587.3</td>
<td>2,282.6</td>
<td>2,631.6</td>
<td>1,763.8</td>
<td>140.9</td>
<td>8,406.3</td>
</tr>
<tr>
<td>Females</td>
<td>962.2</td>
<td>2,436.5</td>
<td>3,331.1</td>
<td>1,843.1</td>
<td>63.0</td>
<td>8,635.9</td>
</tr>
<tr>
<td>Persons</td>
<td>2,549.6</td>
<td>4,719.0</td>
<td>5,962.7</td>
<td>3,606.9</td>
<td>203.9</td>
<td>17,042.2</td>
</tr>
</tbody>
</table>

**PARTICIPATION RATE (%)**

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Sedentary(b)</th>
<th>Not Stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>18.9</td>
<td>27.2</td>
<td>31.3</td>
<td>21.0</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Females</td>
<td>11.1</td>
<td>28.2</td>
<td>38.6</td>
<td>21.3</td>
<td>0.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Persons</td>
<td>15.0</td>
<td>27.7</td>
<td>35.0</td>
<td>21.2</td>
<td>1.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

---

**LEVEL OF PHYSICAL ACTIVITY(a), BY AGE AND SEX, 2011-12**

**SEDENTARY LEVELS OF PHYSICAL ACTIVITY(a)(b), BY AGE AND SEX, 2011-12**

**SEDENTARY LEVELS OF PHYSICAL ACTIVITY(a)(b), BY SEX, 2004-5 TO 2011-12**
is not enough evidence to suggest that this difference is statistically significant. Women in the middle age groups (25-34, 35-44, 45-54 and 65-74) generally reported lower rates than males in these age groups, however there is not enough evidence to suggest these differences are statistically significant.

Level of physical activity over time

In previous iterations of the health survey walking for transport was excluded from the information collected for exercise in the week prior to interview. Consequently, to provide a time series comparison, walking for transport was excluded from the 2011-12 figures presented in the graph on page 42 (bottom right).

Sedentary levels of physical activity have increased over time from 34% in 2004-05 to 41% in 2011-12. This increase occurred for both males and females from 2004-05 (33% for males and 35% for females) to 2011-12 (39% for males and 42% for females). Although females reported higher rates of sedentary levels of physical activity than males at the three time periods, there is not enough evidence to suggest that these differences are statistically significant.

Household structure

For most household types there was little variation in the rates of sedentary levels of physical activity for all persons. However, one person with children households (26%), person living alone households (24%) and couple only households (23%) reported higher rates of sedentary levels of physical activity than those in couple with children households (18%).

When examining the rates including sex, some variation can be seen for most household types. It can be seen that females living in single parent households reported higher rates of sedentary levels of physical activity compared with males in single parent households (27% compared with 23%). In couple only households males reported higher rates of sedentary levels of physical activity than females (24% compared with 22%).

Country of birth

Rates of sedentary levels of physical activity were similar for those born in Australia (22%) and those born overseas (20%). However greater disparity is seen when looking at region of birth in more detail. Persons born in Southern and Eastern Europe and North Africa and the Middle East (29% and 28% respectively) reported higher rates of sedentary levels of physical activity than those born in North-East Asia (12%). While it appears that those born in North-East Asia reported lower rates of sedentary levels of physical activity than all other regions, there was not enough evidence to suggest that all of these differences were statistically significant.
There is a general decline in the rates of sedentary levels of physical activity as the level of highest non-school qualification increases. Persons who had no non-school qualification reported higher rates of sedentary levels of physical activity (27%) than those with a Postgraduate Degree (9%). There was some variation when examining level of educational attainment by sex. While it appears that for higher educational attainment (an Advanced Diploma/Diploma or higher), females reported higher rates of sedentary levels of physical activity, there is not enough evidence to suggest that these relationships are statistically significant. It also appears that females with no non-school qualification reported higher rates of sedentary levels of physical activity than their male counterparts (28% compared with 25%), however, again there is not enough evidence to suggest that this relationship was statistically significant.

**Socio-economic disadvantage**

The Index of Relative Socio-economic Disadvantage (IRSD) summarises information about the economic and social conditions of people and households within an area, including only measures of relative disadvantage5. A low score indicates an area of relatively greater disadvantage in general. For example, an area could have a low score if there are many households with low incomes, many people with no qualifications or many people in low skill occupations. A high score indicates an area with a relative lack of disadvantage in general. For example, an area could have a high score if there are few households with low incomes, few people with no qualifications, and few people in low skilled occupations.

Rates of sedentary levels of physical activity decline as the level of disadvantage decreases. More than a quarter (28%) of those living in areas of the highest disadvantage reported sedentary levels of physical activity, whilst 14% of those in the least disadvantaged areas reported sedentary levels of physical activity. Rates of sedentary levels of physical activity do not vary by sex.

**State and territory**

Similar rates of sedentary levels of physical activity were reported by persons in Queensland (25%), the Northern Territory (24%), Tasmania (23%) and South Australia (23%), compared with a lower rate of sedentary activity in the Australian Capital Territory (17%).

**TYPE OF ACTIVITY PARTICIPATED IN**

Around 9 in 10 adults with sedentary levels of physical activity reported watching TV and sitting for transport. Over half (55%) of adults with sedentary levels of physical activity reported sitting or lying down to use the computer or the internet and almost half (46%) spent time sitting at work.

**TIME SPENT PARTICIPATING**

An analysis of average time spent on sedentary activities revealed that persons with sedentary levels of

---

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
Persons with sedentary levels of physical activity on average spent 30.9 hours in the week prior to interview being sedentary for leisure. When including sedentary time spent at work, persons with sedentary levels of physical activity on average spent 38.4 hours per week being sedentary.

Persons with sedentary levels of physical activity spent, on average, 16 hours in the week prior to interview watching television or videos and 7.6 hours in the week sitting at work.

**SUMMARY**

This article has shown that the proportion of the population with sedentary levels of physical activity has increased over time from 2004-5 to 2011-12. Variations in rates of sedentary levels of physical activity can be observed across geographic and demographic groups. For some variables, such as household structure and sex, there is not enough evidence to suggest that they have an influence on rates of sedentary levels of physical activity.

Rates of sedentary levels of physical activity appear to be most affected by age, generally increasing between young adult ages and middle age before plateauing to around age 75, after which the rate increases again.

Level of non-school qualification also appears to be an influencing factor with rates of sedentary levels of physical activity being lower for persons with a higher level of non-school qualification compared with those with a lower level of non-school qualification.

In addition, while there was some variation in rates of sedentary levels of physical activity by state, more observable differences in rates could be seen when examining the Index of Relative Socio-economic Disadvantage.

As noted earlier, variables such as income, education and socio-economic status can also be influenced by age. Further analyses involving age standardisation would be required to further understand these relationships.

The most common types of sedentary activities participated in by those with sedentary levels of physical activity were watching television or videos and sitting for transport.

**ENDNOTES**


© Commonwealth of Australia 2014.
JUNK FOOD ADVERTISING TO KIDS

One in four Australian children is overweight or obese. Is the all-pervasive junk food advertising to children part of the problem? Miranda Herron from CHOICE investigates

01. THE COST OF CHILDHOOD OBESITY

Big food and drink companies are under fire from health advocates and parents for bombarding children with junk food advertising and sophisticated marketing techniques.

It’s not just TV advertising influencing children anymore – they can be reached in a multitude of ways, through new and constantly evolving media platforms.

Experts are calling for governments to step in and impose restrictions on junk food to help curb childhood obesity, but so far authorities have adopted a wait-and-see strategy, allowing the food and beverage industries to experiment with self-regulation. At this point, however, there is little evidence that self-regulation has had an impact on the amount of advertising for unhealthy foods to which children are exposed.

In the absence of government restrictions, CHOICE investigates strategies to help parents and communities wind back junk food intake and promote more nutritious choices.

What’s the problem?

Around the globe, governments and communities are grappling with the social, financial and health costs of overweight and obese populations. There are many reasons for this weight gain – sedentary lifestyles, too much screen time and not enough exercise are a few. One of the biggest factors, of course, is food. Portion sizes have increased dramatically; people cook less and eat more takeaway.

For children, junk foods and drinks are cheaper and more readily available in public spaces and schools than healthy snack foods.

The food and beverage industry’s argument around junk foods is that parents should educate their kids about eating unhealthy food in moderation as part of a balanced diet and active lifestyle.

So why can’t we help kids just say no?

The reason moderation is so hard, say health advocates, is that those same companies pushing moderation are undermining parents at every step by spending vast amounts on advertising, and marketing unhealthy foods and drinks to influence children’s preferences.

Research has also shown advertising plays an important role in promoting unhealthy eating habits, influencing the brands children choose and encouraging them to like energy-dense salty, sugary or fatty foods.

Children are becoming overweight earlier in life, and obesity has been associated with an increased number of children and adolescents diagnosed with type 2 diabetes. Obese children are also more likely to become obese adults.

“The battleground between the food industry and parents is certainly not a level playing field,” says associate professor Teresa Davis from the University of Sydney Business School. “Advertising to kids is all-pervasive – [it’s] a multi-billion dollar industry with sophisticated, constantly evolving psychological techniques. We expect individual parents to be smarter than clever market researchers and branding experts, but not all parents possess the nutritional knowledge to counteract misleading marketing messages.”

Reversing kids’ preferences from unhealthy to healthy foods is hard, she says, when kids are swamped with messages about ‘treat’ foods and there is almost no promotion of healthy food.

41% of Australian children’s daily food intake is made up of ‘discretionary foods’. $56 bn estimated annual cost of overweight and obesity in Australia.

Source: Medical Journal of Australia

02. HOW MARKETERS INFLUENCE CHILDREN

Food and drink companies now have many ways to reach children as the line between entertainment and advertising is increasingly blurred.

- Children are exposed via ads on TV, the internet, social media, viral marketing and celebrity endorsements – particularly sports stars.
- As well as product tie-ins, placement within TV shows and films, and outdoor advertising in public spaces, advertising and marketing also reaches kids via competitions, supermarket promotions and discounts, and smartphone ‘advergames’ with embedded brand messages and licensed characters.
- Phone apps are another way of reaching kids. Hungry Jack’s ‘Shake & Win’ app, for example, generates vouchers for free or discounted food when users shake their phone at any Hungry Jack’s store.

Food and drink companies are interested in selling products but also creating brand loyalty in children that they will carry into adulthood. According to information from a children’s marketing conference: “A lifetime customer may be worth $100,000 to a retailer, making effective ‘cradle to grave’ strategies extremely valuable. For this reason, building brand loyalty is critical and marketing to kids is the best way to do so.”

Brand awareness through sport

McDonald’s say they don’t advertise or market to
children aged under 14 – yet they create brand awareness by sponsoring children’s sports such as Little Athletics, Hoop Time basketball, and Swimming Queensland. KFC and Milo are sponsors of Cricket Australia; Coca-Cola sponsors Bicycle Network Victoria, which has a program for teens.

“Fast food companies sponsoring sports undermines the healthy eating messages that governments and parents are trying to promote,” says Jane Martin from the Obesity Policy Coalition (OPC). “It normalises the relationship between junk food and sport, sending the message that if I play sport, I can eat what I want.”

She argues that junk food promotion should be minimised, while the promotion of nutritious foods needs to be increased to help normalise and reinforce healthy eating in kids.

03. EXPERTS CALL FOR REGULATION

What the government’s up against is a powerful, well-funded food and beverage industry,” says Kerin O’Dea, professor of population health and nutrition at the University of South Australia. She argues junk foods are highly profitable, and it’s not in the industry’s financial interest to cooperate with public health initiatives – but when governments mandate regulations, the industry does toe the line.

“In the past, governments have legislated to force changes that are good for public health, like seat belts in cars and smoking laws,” she says. “But while Australia has been a world leader in the fight against big tobacco, we’re quite timid when it comes to the processed food industry, and the media companies that make money out of junk food advertising.”

Opponents of government intervention are disdainful of ‘nanny state’ policies. However, O’Dea argues critics of intervention need to realise the massive financial costs – like the estimated $56 billion spent on obesity annually in Australia – are borne by the whole community.

“The National Broadband Network is called expensive at $30 billion in total,” says O’Dea, “but the financial costs of obesity are more than that every year.”

The World Health Organization weighs in

There are no simple solutions to the obesity problem, and no single approach is likely to be effective.

However, a World Health Organization report concluded that marketing of junk food to children has damaging consequences and that tightening restrictions on marketing is central to the fight against childhood obesity.

“In a perfect world this would mean banning all advertising and marketing of discretionary foods to children under 12,” says Dr Mark Lawrence, associate professor in public health nutrition at Deakin University’s School of Exercise and Nutrition Sciences. “Research consistently finds that government regulation of advertising is the among the most cost-effective interventions for obesity prevention.”

Regulation saves money in healthcare costs that are avoided, and it doesn’t cost much to change the law to protect the rights of children in this way, says Lawrence.

Jane Martin, executive manager of the Obesity Policy Coalition (OPC), agrees. “Getting junk food out of junior sport would be a good start, followed by restrictions on advertising of unhealthy food in the highest-rating children’s programs between 6 pm and 9 pm.”

04. HAS INDUSTRY SELF-REGULATION WORKED?

In the face of strong evidence that junk food ads are part of the obesity problem, the food industry has created voluntary codes to restrict the advertising of unhealthy foods “directed primarily at children”.

In 2008, the National Preventative Health Taskforce recommended legislation be introduced if voluntary self-regulation failed to phase out junk food marketing within four years.

In 2012, the Australian Food and Grocery Council (AFGC) claimed self-regulation had been a success, pointing to an independent review that found “the majority of signatory companies are going beyond the requirements of self-regulatory initiatives”.

However, an Australian Communications and Media Authority (ACMA) report in 2012 noted that research done by the AFGC found there was no reduction in the rate of ‘non-core’ food advertising by all AFGC companies, and said there was insufficient evidence to determine whether the codes had affected the rate of food and beverage advertising on commercial free-to-air TV.

The Obesity Policy Coalition believes the voluntary codes have had little impact because they define television “primarily directed at children” as P-, C- and
G-rated shows that air in the morning or early evening, and rarely cover shows watched by kids during the family timeslots between 6 pm and 9 pm.

Independent surveys in Europe, Asia, Australia and North America have also found that self-regulation codes by the food and beverage industry have made little change in the past five years to the amount of advertising seen by children.

05. WHAT CAN PARENTS DO?

According to Kerin O’Dea, professor of population health and nutrition at the University of South Australia, the community can make incremental healthy changes, and these can cause a positive shift in community perceptions and behaviour.

In addition to regulation of advertising and marketing, health experts CHOICE spoke to want to see ...

- State governments mandate, and enforce, healthy foods in school canteens and vending machines.
- Physical education teachers employed (rather than class teachers taking sport) and the current requirement for schools to offer 120 minutes of moderate to vigorous exercise a week to be enforced.
- Mandatory kilojoule labelling in fast food stores extended nationally.
- Better food labelling that is easier to understand.

What can parents do?

- Explain to kids how too much high-kilojoule, low-nutrition food can contribute to weight gain, which can then lead to health issues such as diabetes and heart disease.
- Reinforce healthy eating messages with simple guidelines like ‘Go For 2 & 5’ (two serves of fruit and five of veggies per day).
- Distinguish between ‘everyday foods’ (healthy foods) and ‘sometimes foods’ (junk foods).
- Reduce sugary drinks (fruit juice and soft drinks) and treats in lunchboxes.
- Offer smaller serving sizes.
- Sit down to dinner together with the TV off.
- Restrict screen time to two hours a day.
- Keep an eye on what your kids watch and the apps they are downloading.
- Teach kids about how advertising and marketing works so they are not simply passive consumers of media messages.

What can communities do?

- Teaching kids to cook and participating in school kitchen garden projects will help kids learn about nutrition and where food comes from.
- Many schools are resistant to converting to healthy canteens and vending machines, saying they need the money to fund school programs – but when parents and schools find out there are cases where canteens with healthy food experienced higher sales, they are more inclined to make healthy changes.
- A Melbourne mum launched a change.org petition calling on Little Athletics to drop McDonald’s as a sponsor after her daughter was given a McDonald’s voucher as an award. At the time of writing, the petition has more than 12,000 signatures.
- For more information on food advertising and resources for parents, see Junkbusters, The Parents’ Jury, Obesity Policy Coalition, or the Healthy Kids Association.

Reproduced with permission from choice.com.au

Personal responsibility won’t solve Australia’s obesity problem

Almost two thirds of Australians are now overweight or obese. In fact, obesity and unhealthy diets now contribute to more disease and illness in Australia than smoking. This makes finding solutions to our obesity problem a big issue for all of us, write Gary Sacks and Adrian Cameron.

The scandalous removal of the website launching the new Australian food labelling system and its accompanying conflict-of-interest concerns are only weeks old. And now Liberal MP Ewan Jones tells us we don’t even need the scheme because:

It’s not the government’s fault that I’m fat, it’s my fault and I live with the consequences.

This raises the important question of whether a reliance on personal responsibility – a key agenda of the current government, led by a prime minister who walks the talk – is really appropriate in the area of obesity prevention.

Why not rely on personal responsibility?

While there is an inherent truth that weight gain is heavily dependent on what we put in our own mouths, the argument for personal responsibility as the obesity solution falls down pretty quickly when we ask the question, “Has the prevalence of obesity in Australia tripled in the last 30 years because we’ve all lost personal responsibility?”.

Of course the answer is no, with all the evidence pointing to changes in the food environment. Since the 1980s, we have seen an ever increasing supply of cheap, tasty, energy-dense food that is very effectively marketed and widely available.

These changes have been the primary driver of population weight increases, and the effects have been heightened by our sedentary lifestyles.

Nanny state vs informed choice

In the case of the Health Star Rating food labelling initiative, Mr Jones has mistaken the provision of useful nutrition information for a nanny state intervention.

A nanny state is defined as one in which the government makes decisions for people that they might otherwise make for themselves. With food labelling, no personal eating decisions are actually being made by the government – these are still clearly a personal responsibility.

The Health Star Rating system isn’t about “telling you ... everything you eat is wrong”, to use the words of the MP, it is the simple provision of nutrition information in a format that might help us all make informed choices. This is surely useful, particularly when set against the barrage of marketing for unhealthy foods.

The UK government has seen the sense of this argument and set up a whole ministry whose goal is to nudge the population toward better choices.

Leaving it up to the free market

The MP, some of his colleagues and their friends at the anti-nanny-state Institute of Public Affairs would rather leave obesity to the free market, and the personal responsibility of the people of Australia to fix. Perhaps then, we should contemplate what that strategy might achieve.

We don’t have to wonder for long though, because we are living it. With a market-driven food system based on ever-increasing consumption, our very costly level of obesity has been a predictable outcome.

While we might like to think that the choice of what we put in our mouth is our own and that demand dictates supply, the actual choices we are presented with and the way they are marketed are heavily influenced by the food industry.

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au

Issues in Society | Volume 380

Obesity and Overweight
food industry. Supermarkets, for example, where many of our food choices are determined, are thought to have been the single biggest influence on eating habits over recent decades.

The food industry commonly argues for reduced regulation. This is clearly driven by a push to maximise their own profits and their obligation to maximise returns to shareholders.

It is understandable for food companies to oppose the provision of readily understandable nutrition information if it has the potential to impact their bottom line. For this reason, it is in the interests of food companies to frame the obesity issue as one of personal responsibility. In this way, they hope to deflect attention from themselves and minimise government intervention.

**Government intervention to reduce obesity**

So, if the market is unlikely to help us here (and all evidence suggests that to be the case), are regulatory interventions likely to be any more successful?

Most of the biggest success stories in Australian public health (immunisation, smoking rates, road safety) that benefit us all have been heavily reliant on government intervention. In the case of seat belts, the laws clearly impact directly on personal choice. But the benefits of having our government ‘nanny’ look after us are very clear.

In the area of obesity, interventions such as restrictions on food advertising to children, taxes on unhealthy food, and improvements to food labelling are likely to be highly effective, while saving the government money.

The responsibility for reducing the national waistline is clearly a joint one between individuals and government. When we hear politicians attempting to frame the issue as a matter solely of personal responsibility, we need to wonder whether they are acting in the public interest or if they’re singing the gold-seeking tune of the private sector.

Gary Sacks is a Senior Research Fellow, WHO Collaborating Centre for Obesity Prevention at Deakin University.

Adrian Cameron is a Senior Research Fellow, WHO Collaborating Centre for Obesity Prevention at Deakin University.

**THE CONVERSATION**

Fat nation: why so many Australians are obese and how to fix it

In 1980 just 10% of Australian adults were obese; by 2012 this figure had risen to 25%, among the highest in the world. The food industry lobby and their friends in government would have us believe this comes down to reduced personal responsibility for what we eat and how much we move. **Phillip Baker** discusses

We might, then, expect to find evidence that people are becoming less responsible. But statistics show the opposite: we are much more likely to drive more safely, drive sober, and not smoke, for example. Yet when it comes to food, something is different. Our changing food environment has undermined our capacity to be responsible in the first place.

**Commercialisation of food**

Once, not so long ago, food was scarce. As humans we were programmed to over-consume calories when food was plentiful and to store it as fat for when it was not. So we have to acknowledge that in our hunter-gatherer past, consuming as much food as possible was personally responsible – those who didn’t would likely perish. And this has been hard-wired into our DNA.

Today, our environment is fundamentally different – cheap, energy-dense foods are abundant. In this light, obesity is just the superficial and normal human response to an increasingly 'obesogenic' food environment. One with deeply-rooted commercial and political drivers.

There is nothing more obesogenic than our commercial food supply. Today, industrial agriculture produces raw food ingredients at very low cost per calorie output. With globalisation, ingredients can be sourced from wherever in the world production costs are lowest (such as Malaysian palm oil) or heavily subsidised (American sugar).

Food science has been harnessed by 'Big Food' companies to produce highly palatable and durable foods rich in sugar, salt and fat. Serving sizes have grown remarkably – good for our wallets, perhaps, but not so good for our waistlines.

On the retail end, supermarkets have proliferated as the purveyors of processed foods, driving down prices through their buying power and using data-driven product promotion.

We also have less time for sourcing, preparing and eating food. And the food industry has responded with 'ready-to-heat' meals, 'ready-to-eat' snack foods and 'fast-food' restaurants (see graph below).

The McDonaldisation of our society stems not only from our biological drive to crave energy dense food, but from our need to compress the time in which we source and consume it.

**Information asymmetry**

The concept of information symmetry states that markets work best when both sellers and buyers have full information about the costs and benefits of their buying and selling behaviours. And when it comes to Australian processed food labels, information is stacked heavily in favour of the seller.

Food companies collect reams of information about consumers (just think of supermarket loyalty cards), allowing for targeted advertising, pricing points and product placement. Yet most Australians find existing food labels confusing. To make an 'informed choice' we have to interpret not only nutrition information panels, but also an array of (sometimes misleading) health claims.

Junk food advertising is also big business in Australia: in 2009 A$402 million and $149 million was spent on advertising food and non-alcoholic beverages respectively. McDonald’s alone increased its advertising spend from $6 million in 1983 to $55 million in 2005.

Why do companies advertise? Because it drives consumer behaviour in powerful ways. Especially when it comes to children and their pester power, much to the disdain of many parents.

Coming back to information asymmetry, advertising is less about communicating information as it is about...
conveying symbolic and social meaning – products come to be associated with fun, happiness, sex appeal and prestige rather than information about their underlying costs and benefits in terms of health.

The end result is we’re trying to exercise personal responsibility in a food environment that’s engineered to undermine it. Food is available everywhere at any time. It is full of sugar, fat and salt – nutrients we’re hard-wired to crave. Per calorie, it has never been cheaper.

The information we have to inform our choices is heavily skewed by advertising and confusing labels. Government has done little about it. And we – as a nation – are fat.

Reducing our collective waistline

Here are some ideas – for us as citizens and for government – to turn the situation around.

1. **Re-think the role of government**

   The conceptual cousin of the personal responsibility mantra is the ‘nanny-state’ argument, that there is no role for government intervention that restricts the freedoms of Australian citizens. In reality, such arguments are nothing to do with regulating us as individuals. It’s just Orwellian doublespeak to oppose food industry regulation.

   The true role of government is not to restrict individual freedoms, it is to enable them by creating an environment – through policy and legislation – in which we are truly free to exercise our personal responsibility.

2. **Change the food environment**

   Without changing food environments through hard policy and legislation, it’s unlikely we will make any progress tackling obesity. Successful tobacco control efforts demonstrate that a variety of intertwining measures need to be taken.

3. **Tax the junk**

   We need to change the economics of our food supply. A tax on sugary, salty and fatty processed foods is one way forward. Following the lead of many countries overseas we could begin with a tax on sugar-sweetened beverages – relatively simple to implement, and likely to be effective.

4. **Improve food labelling**

   We need a food labelling system that enables personal responsibility. Let’s compare three options.

   First is the food industry’s current ‘daily intake guide’ (which it continues to push), calculated as the percentage one product serving contributes to the daily intake of an average adult of 8,700 kilojoules.

   But food manufacturers are allowed to set the serving sizes, which are often unrealistic. And because the measure isn’t standardised, it’s difficult to make any meaningful comparison between products.

   Second is the proposed star system. It’s a half-way point between what industry and public health advocates want, although its future is uncertain.

   Third is the traffic light system. Research indicates that nine-out-of-ten Australians support such a scheme. It was designed by health experts to promote an easy-to-understand message that encourages consumers to buy more food items with green lights and fewer items with amber and red lights.

   Which one do you think will make it easier for consumers, especially less educated ones, to make an informed and personally responsible choice?

5. **Ditch junk food advertising to kids**

   Over 75% of Australians support a ban on junk food advertising in children’s television, and nearly 20% support a total ban. We know from tobacco control that this will be a key step in curbing obesity and evidence supports this.

6. **Change the political environment**

   Perhaps the most potent way our food system undermines personal responsibility is when the food industry lobbies against the policies that would enable it in the first place.

   Government needs to ensure our regulatory institutions are not conflicted. And it’s now time to recognise that industry self-regulation doesn’t work.

   Finally, we, as citizens, can become politically active. Addressing this conflict brings into play not only the important roles of public health advocacy groups like the Obesity Policy Coalition, but also citizens’ movements like the Parents Jury, to demand action.

Phillip Baker is a Post-Doctoral Fellow at the Australian National University.

---

Traffic light labelling. UK Department of Health

Australia New Zealand Food Standards Code (FSC)
Health Star Rating System
EXPLORING ISSUES

WORKSHEETS AND ACTIVITIES

The Exploring Issues section comprises a range of ready-to-use worksheets featuring activities which relate to facts and views raised in this book.

The exercises presented in these worksheets are suitable for use by students at middle secondary school level and beyond. Some of the activities may be explored either individually or as a group.

As the information in this book is compiled from a number of different sources, readers are prompted to consider the origin of the text and to critically evaluate the questions presented.

Is the information cited from a primary or secondary source? Are you being presented with facts or opinions?

Is there any evidence of a particular bias or agenda? What are your own views after having explored the issues?

CONTENTS

BRAINSTORM  54
WRITTEN ACTIVITIES  55
MULTIPLE CHOICE  56
Brainstorm, individually or as a group, to find out what you know about overweight and obesity.

1. Explain the difference between the terms ‘overweight’ and ‘obesity’.

2. What are some of the factors that can contribute to overweight and obesity?

3. What are some of the major detrimental health impacts of being overweight or obese?

4. There are a number of accurate ways to tell if your weight is healthy. Explain the following different forms of weight measurement: Body mass index (BMI), waist circumference, and waist to hip or waist to height ratio.
Complete the following activity on a separate sheet of paper if more space is required.

Statistics show that more than 1 in 4 adults in Australia are now obese, ranking Australia seventh among developed countries for rates of obesity for people aged 15 years and over. To avoid overweight and obesity it is important to balance your diet (energy intake) with the energy being used for physical activity.

Make a record of the foods you have eaten each day over the past five days (include breakfast, lunch, dinner, snacks and any drinks – including water). Do the same record keeping again for your activity (include active and sedentary activities). Review your lists and identify whether or not your energy intake and physical activity levels are balanced and fall within the recommended guidelines.

**DIETARY INTAKE**

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

**LEVELS OF PHYSICAL ACTIVITY**

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Complete the following multiple choice questionnaire by circling or matching your preferred responses.

1. Which of the following waist circumference measurements are regarded as overweight and an indicator of serious chronic disease risk? (select one for men and one for women)
   a. Above 94 cm in men
   b. Above 64 cm in women
   c. Above 80 cm in men
   d. Above 60 cm in women
   e. Above 64 cm in men
   f. Above 80 cm in women

2. What is a low-energy diet?
   a. When the total daily energy intake is limited to 1,800–2,500 kJ.
   b. When the daily energy intake is reduced by 9,000–11,000 kJ.
   c. When the recommended daily energy intake is about 4,200–5,000 kJ.
   d. When the daily energy intake is reduced by 2,000–4,000 kJ.
   e. When the daily energy intake is limited to less than 1,800 kJ.
   f. When the recommended daily energy intake is about 9,000–11,000 kJ.

3. According to Australia’s physical activity and sedentary behaviour guidelines, how many minutes of moderate-vigorous intensity physical activity are recommended every day for young people (aged 13-17)?
   a. 10 minutes
   b. 20 minutes
   c. 30 minutes
   d. 60 minutes
   e. 90 minutes
   f. 120 minutes

4. Australia’s physical activity and sedentary behaviour guidelines recommend that, in order to reduce health risks, children aged 5-12 years should limit use of electronic media for entertainment to no more than how many minutes every day?
   a. 10 minutes
   b. 20 minutes
   c. 30 minutes
   d. 60 minutes
   e. 90 minutes
   f. 120 minutes

5. Match the following terms to their correct definition.
   1. Energy
      a. The amount of kilojoules that a person uses to breathe, circulate blood, digest food and be physically active.
   2. Energy-dense
      b. The number of kilojoules/calories consumed each day from carbohydrates, fats, proteins and alcohol.
   3. Energy expenditure
      c. These types of foods and drinks contain a high level of kilojoules per unit weight or volume.
   4. Energy intake
      d. Not a food or nutrient but it is released from food components; measured in kilojoules or calories.

**MULTIPLE CHOICE ANSWERS**

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
Obesity and other non-communicable diseases (NCDs) such as cardiovascular diseases, cancers and diabetes are now the world’s biggest killers, causing an estimated 35 million deaths each year, 60% of all deaths globally, with 80% in low- and middle-income countries (Better Health Channel, *Obesity*). (p.1)

For Australian children, there has been an increase in the proportion of 5-17 year olds who are overweight or obese since 1995, with 25.7% of children overweight or obese in 2011-12 (*ibid*). (p.1)

An analysis of world population data shows the number of people across the world who are overweight or obese has grown by 28% in adults and 47% in children in the last 33 years (Peeters, A, *More than two billion people worldwide are overweight or obese*). (p.3)

More than half of the planet’s obese people live in the United States (more than 15%), China and India (15% combined), Russia, Brazil, Mexico, Egypt, Germany, Pakistan, and Indonesia (*ibid*). (p.3)

In children, prevalence of overweight and obesity increased from around 17% (1980) to around 24% (2013) for developed countries and from around 8% to 13% for developing countries (*ibid*). (p.3)

Australian data shows almost 2 in 3 adults and more than 1 in 4 children are now overweight or obese (*ibid*). (p.3)

Australia and New Zealand are ranked the 30th and 23rd most overweight countries in the world (*The Lancet, Global Burden of Disease Study 2013*). (p.4)

Over 30% more people living in outer regional and remote areas are obese than people living in major cities (AIHW, *Overweight and obesity*). (p.4)

More than 40 million children under the age of 5 were overweight in 2011 (WHO, *Obesity and overweight*). (p.5)

At least 2.8 million adults die each year as a result of being overweight or obese (*ibid*). (p.5)

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended (*ibid*). (p.5)

Obesity is a leading cause of diabetes and cardiovascular disease (OECD, *Australia needs to tackle its rising levels of obesity, says OECD*). (p.7)

Between 1995 and 2011-12, the average adult man’s weight increased by 3.6 kg, while the average adult woman’s weight increased by 4.0 kg (ABS, *Profiles of Health, Australia, 2011-13*). (p.9)

Over half (55.7%) of Australians are trying to lose weight (National Heart Foundation of Australia, *Overweight and obesity statistics*). (p.10)

In 2008, the annual financial cost of obesity was estimated at AUD $8.3 billion with an additional AUD $49.9 billion in the form of lost wellbeing, bringing the combined cost of obesity to AUD $58.2 billion (Obesity Australia, *Obesity: A National Epidemic and its Impact on Australia*). (p.11)

Energy intake from food varies greatly between individuals, for example, the average intake for children ranges from about 6,000 kJ for children aged 2-3 to about 10,000 kJ for adolescents aged 14-16. The average energy intake for adults was about 10,000 kJ for men and about 7,000 kJ for women aged 18 and over (AIHW, *Causes of overweight and obesity*). (p.15)

Physical activity is important for weight control, but about 60% of people don’t get enough, according to the ABS (Bray, K, *What makes you fat*?). (p.18)

Consistently sleeping too little (less than 6 hours) or too long (more than 8 hours) has been shown to increase the risk of obesity (*ibid*). (p.18)

Carrying extra weight around your middle is considered more of a health hazard than fat on the hips or thighs. This is because fat around your middle is likely to be mostly visceral fat, which behaves differently in the body (Johnson, C, *Fact File: How being overweight or obese affects your health*). (p.19)

Depression was nearly twice as common among those with obesity compared to those who were not obese (Scott, S, and Bennett, G, *Long-term study finds Australian adults increasingly at risk of diabetes and obesity*). (p.27)

In 2011-12, Australians aged 2 years and over consumed an estimated 3.1 kg of foods and beverages (including water) per day, made up from a wide variety of foods across the major food groups (ABS, *Australian Health Survey: Nutrition First Results – Foods and Nutrients, 2011-12*). (p.32)

On a typical day in Australia, 1 in 4 teenage males consume a burger compared with around only 1 in 14 for the whole population (*ibid*). (p.32)

Research shows the more radical the diet approach, the more likely you are to give up because of boredom or unpleasant side-effects including bad breath, constipation, and even gall bladder disease (Collins, C, *Health Check: what’s the best diet for weight loss*?). (p.34)

For health benefits, children aged 5-17 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day (DOH, *Australia’s Physical Activity and Sedentary Behaviour Guidelines*). (pp. 37-38)

80% of 5-17 year olds are not meeting the Australian physical activity guidelines of at least 60 minutes of exercise each day (Active Healthy Kids Australia, *Aussie kids graded D-in first ever physical activity report card*). (p.40)

80% of Australians aged between 12 and 17 look at screens more than the recommended limit of 2 hours per day (*ibid*). (p.40)

Research has shown advertising plays an important role in promoting unhealthy eating habits, influencing the brands children choose and encouraging them to like energy-dense salty, sugary or fatty foods (Herron, M, *Junk food advertising to kids*). (p.46)

Junk food advertising is big business in Australia: in 2009 AUD $402 million and $1.49 million was spent on advertising food and non-alcoholic beverages respectively (Baker, P, *Fat nation: why so many Australians are obese and how to fix it*). (p.51)
**Balanced diet**
A balanced diet emphasises choosing a variety of foods from the following five food groups every day, balanced by physical activity: bread, cereals, rice, pasta, noodles; vegetables, legumes; fruit; milk, yogurt, cheese; and meat, fish, poultry, eggs, nuts, legumes.

**Body mass index (BMI)**
BMI is calculated from reported height and weight information, using the formula weight (kg) divided by the square of height (m), i.e. $\frac{\text{kg}}{m^2}$.

**Calorie**
The amount of energy in food is measured in terms of kilojoules or kilocalories. Kilocalories are commonly known as calories and abbreviated as kcal. One calorie (kcal) has the same energy value as 4.186 kilojoules (kJ), while one kilojoule is equivalent to 0.24 calories.

**Cholesterol**
There are two types of cholesterol in the body: high density or HDL cholesterol, which is also known as ‘good’ cholesterol and low density or LDL cholesterol, known as ‘bad’ cholesterol. High levels of cholesterol in the blood can increase the risk of developing heart disease. Foods containing saturated fats have been found to increase the level of ‘bad’ cholesterol in the blood.

**Chronic disease**
A disease that is long-lasting or recurrent. Examples include some cancers, heart disease, and type 2 diabetes.

**Diet**
Commonly used to mean any type of restricted eating pattern, however the word also means the food and drinks usually consumed and so by definition, everyone follows a diet.

**Energy**
Energy is not a food or nutrient but is released from food components. The energy obtained from food is measured in kilojoules or calories. Energy-dense foods and drinks contain a high level of kilojoules per unit weight or volume. Energy expenditure is the amount of energy (kilojoules) that a person uses. Energy is used by people to breathe, circulate blood, digest food, and be physically active. Energy intake is the number of kilojoules/calories consumed each day from carbohydrates, fats, proteins and alcohol.

**Fats**
Fats are the most energy-dense nutrient of foods and thereby contribute to being overweight. Animal fats are high in saturated fat and are the most dangerous to health. Monounsaturated fats (avocado; olive, peanut and canola oil) are considered the best oils and, if used moderately, may lower levels of bad cholesterol. Polyunsaturated fats (margarine, corn, sunflower, safflower and soybean oils) are considered healthier than saturated fats but decrease levels of good cholesterol if consumed in excess. Trans fat is a type of unsaturated fat that acts like saturated fat, causing your blood cholesterol levels to rise. Trans fats occur naturally in small amounts in meat and some dairy products, but are mainly found in manufactured processed foods.

**Kilojoule**
A kilojoule is a unit of measure of energy, in the same way that kilometres measure distance. Food energy can also be measured in terms of the nutritional or ‘large’ calorie (Cal) or kilocalorie (kcal). One calorie or kilocalorie has the same energy value as 4.186 kilojoules (kJ).

**Obesity**
Defined as an excess of total body fat and is indicated by a BMI of ≥30 kg/m².

**Overweight**
Defined as having a body weight greater than is desirable for good health and is indicated by a body mass index (BMI) between 25 to 29.9 kg/m².

**Physical activity**
Broad term meaning any sustained bodily movement that uses up energy. Physical activity includes all activity that you do each day, including structured or planned activities and unstructured or lifestyle activities.

**Portion**
An amount of a food that each considers to be sufficient for one person at one time and can vary depending on the person and the type of food. Portions can be large or small in size. Portion sizes have increased considerably over the last two decades.

**Processed foods**
Foods that have been altered from their natural state, usually for the purposes of safety, convenience, taste and aesthetics. Commercial food processing commonly includes canning, freezing, pickling or smoking. While these processes have their benefits it is important to be aware that some processed foods can be major contributors to high intakes of salt, sugar and fat in the Australian diet.

**Sedentary**
A habitual lack of physical activity.

**Subcutaneous fat**
Fat which is found beneath the skin.

**Visceral fat**
Visceral fat is also known as organ fat and is packed in between internal organs.

**Waist measurement**
A measure of a person’s waist circumference. The correct position to measure waist circumference is at the horizontal position halfway between the lowest rib and the top of the hipbone. This position is roughly in line with the belly button.
Websites with further information on the topic

Australia’s Healthy Weight Week  www.healthyweightweek.com.au
Australian Food and Grocery Council  www.afgc.org.au
Australian Institute of Health and Welfare  www.aihw.gov.au
Australian Medical Association  www.ama.com.au
Better Health Channel  www.betterhealth.vic.gov.au
Coalition on Food Advertising to Children  www.cfac.net.au
Dietitians Association of Australia  www.daa.asn.au
eatforhealth.gov.au  www.eatforhealth.gov.au
Fat Free TV  www.fattree.tv.com.au
Foodwatch  www.foodwatch.com.au
Food Standards Australia New Zealand  www.foodstandards.gov.au
Junkbusters  www.junkbusters.com.au
Nutrition Australia  www.nutritionaustralia.org
Obesity Australia  www.obesityaustralia.org
Obesity Policy Coalition  www.opc.org.au
The Parents’ Jury  www.parentsjury.org.au

ACKNOWLEDGEMENTS
The publisher is grateful to all the contributors to this book for granting permission to reproduce their works.

COPYRIGHT DISCLAIMER
While every care has been taken to trace and acknowledge copyright the publisher tenders its apology for any accidental infringements or where copyright has proved untraceable. The publisher would be pleased to come to a suitable arrangement with the rightful owner.

ILLUSTRATIONS AND PHOTOGRAPHS
Photographs and illustrations courtesy of iStockphoto, except pages 35, 41, 47, 49 and 50 © Don Hatcher; and page 45 © Simon Kneebone.

THANK YOU
› CHOICE
› Obesity Australia
› Better Health Channel
› Australian Institute of Health and Welfare.

DISCLAIMER
The Spinney Press is an independent educational publisher and has no political affiliations or vested interests with any persons or organisations whose information appears in the Issues in Society series. The Spinney Press seeks at all times to present variety and balance in the opinions expressed in its publications. Any views quoted in this book are not necessarily those of the publisher or its staff.

Advice in this publication is of a general nature and is not a substitute for independent professional advice. Information contained in this publication is for educational purposes only and is not intended as specific legal advice or to be used to diagnose, treat, cure or prevent any disease. Further, the accuracy, currency and completeness of the information available in this publication cannot be guaranteed. The Spinney Press, its affiliates and their respective servants and agents do not accept any liability for any injury, loss or damage incurred by use of or reliance on the information made available via or through its publications, whether arising from negligence or otherwise.

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
INDEX

A
advertising 46-48, 50, 51, 52
children, aimed at 46-48, 50, 52
regulation 46-48
alcohol 16, 23, 26, 33

B
blood pressure, high 1, 4, 8, 19, 20, 21, 22-23, 27, 40
body mass index (BMI) 1, 3, 4, 5-6, 8-9, 10, 19, 21, 24-25, 28, 34

C
cancer 1, 2, 3, 4, 5, 6, 7, 11, 19, 20, 21, 22, 23, 36, 41
carbohydrates 15, 17, 18, 30-31, 33, 34
cardiovascular disease 1, 3, 6, 7, 8, 11, 16, 18, 21, 24-25, 26, 36 see also heart disease
cholesterol 23, 24-25

D
depression 21, 27
diabetes 1, 4, 5, 6, 7, 16, 17, 18, 19, 21, 22, 24, 25-26, 27, 48
type 2 1, 2, 8, 11, 17, 21, 22, 27, 36, 41, 46
diet 3, 5, 6, 15, 16, 17-18, 21, 30-31, 32, 33, 34-35, 36, 49
balanced 15, 16, 30-31, 46
unhealthy 3, 6, 46, 49
diets 17, 31, 32, 33, 34-35
fad 31, 34
low-energy (LED) 35
very low-energy (VLED) 35
reduced-energy (RED) 34, 35
disease chronic 1, 15, 22, 23, 24-26, 27
non-communicable 1, 6
risk of 20, 22-23

E
energy expenditure 11, 15, 17
intake 5, 6, 15, 16, 17, 32-33, 34-35, 36, 52
reducing 34-35
exercise see physical activity

F
fats 15, 17, 19, 20, 30, 31, 33
healthy 30, 31
visceral 19, 20
fatty liver see liver disease, fatty foods
avoidance 32, 33
discretionary 15, 28, 29, 33, 46, 47
environment, changing 49, 51, 52
fast 47, 48, 51
groups 29, 32, 33, 34
healthy 2, 6, 11, 17, 46, 48
labelling 4, 29, 36, 48, 49, 50, 51, 52
processed 2, 4, 16, 17, 30, 31, 51
snack 18, 29, 31, 35, 46, 51
serving sizes 48, 51, 52
unhealthy 46, 47, 49, 50
marketing of 2, 46-48
rates of 2, 4, 12, 13
reducing 6, 11, 50
risk of 2, 18, 20, 27
solutions 47, 49, 51-52
trends in 1-14
worldwide 3-4, 5-6

G
government intervention 47, 49-50, 52

H
healthy eating 1, 2, 6, 15, 34, 36, 46, 47, 48
heart attack 7, 19, 22, 23, 24
disease 1, 4, 5, 6, 21, 24, 40, 41, 48
see also cardiovascular disease
hypertension 6, 19, 21, 22 see also blood pressure, high

I
industry regulation 46, 47, 50, 52
ingredients, raw 30, 51
insulin 18, 20, 22
resistance 1, 6, 16, 21, 22, 23, 25

J
junk food 4, 17, 18, 46-48, 51, 52
advertising 46-48, 51, 52

L
lipids, abnormal 19, 22, 23, 24
liver disease, fatty 20, 21, 22, 23, 24, 26

M
macronutrients 30-31
microbiome 16-17
micronutrients 6, 30, 31

N
’nanny state’ 47, 49, 50, 52
National Physical Activity Guidelines 37-39, 40, 41
nutrients 2, 6, 15, 17, 29, 30, 32, 33, 35, 52
nutrition information panels 36, 49, 50
see also food, labelling

O
obesity 1-2, 3-4, 5-6, 7, 8-9, 10, 11, 12, 13-14, 15, 16-18, 19-20, 21, 22-23, 24-26, 27, 28, 36, 40, 46, 50
causes of 2, 5, 11, 15, 16-18
children 1, 2, 4, 13, 18, 27, 32, 46
complications of 11, 21, 48
cost of 2, 11, 46, 49
increases in 3, 7, 41
prevalence of 1, 3, 4, 8, 11, 13, 49
prevention 6, 11, 47, 49

P
personal responsibility 49-50, 51, 52
physical activity 2, 5, 6, 11, 15, 16, 17, 18, 29, 37-39, 40, 41-45, 46
recommendations 37, 39
report card 40
sedentary behaviour 37-39, 40
sugar, WHO guidelines 36

S
sedentary lifestyle 2, 11, 46, 49
sleep 17, 18, 22, 37
apnoea 2, 11, 19, 21, 22
soft drink 17, 32, 33, 34, 48
stress 2, 17, 18
stroke 1, 4, 6, 19, 21, 22, 23, 24

U
underweight 5, 8, 14, 24, 25, 26, 28

W
waist circumference 1, 19, 27
weight see also obesity, overweight, underweight

This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au