Physical Inactivity

Edited by Justin Healey
Physical Inactivity is Volume 443 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
Only about a third of children and under half of adults are meeting Australia’s Physical Activity and Sedentary Behaviour Guidelines. Most children exceed the recommended amount of screen-based activity time, while time spent sitting at leisure goes up in adults as they get older.

Inactivity increases overweight and obesity, raising the risk of chronic and life-threatening diseases like cardiovascular disease, dementia, type 2 diabetes and some cancers. Regular physical activity not only reduces health risks, it improves social and emotional health and wellbeing.

Which groups of inactive Australians are most at risk of lifestyle-related illness? What levels and types of activity and exercise are required for optimal health at each life stage, and how can we incorporate regular activity into our daily lives? This book explains the risks and consequences of physical inactivity, and in turn promotes the benefits of being active. It’s time to move it or lose it.

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.
INSUFFICIENT PHYSICAL ACTIVITY

An overview of National Health Survey findings from the Australian Institute of Health and Welfare

Low levels of physical activity are a major risk factor for ill health and mortality from all causes. People who do not do sufficient physical activity have a greater risk of cardiovascular disease, type 2 diabetes and osteoporosis. Being physically active improves mental and musculoskeletal health and reduces other risk factors such as overweight and obesity, high blood pressure and high blood cholesterol.

WHO IS INSUFFICIENTLY ACTIVE?

Based on self-reported data from the ABS 2014-15 NHS, over 1 in 2 Australian adults (56%) did not participate in sufficient physical activity.

Children and adolescents

Australia’s Physical Activity and Sedentary Behaviour Guidelines recommend children and young people (aged 5-17) accumulate at least 60 minutes of moderate activity.

HOW IS PHYSICAL ACTIVITY MEASURED?

Physical activity is any bodily movement produced by the muscles which results in energy expenditure. Although most measures of physical activity focus on deliberate activity during leisure time, other forms of activity such as walking or cycling for transport, work-related activity, and daily household tasks such as housework or gardening all contribute to total physical activity.

Australia’s Physical Activity and Sedentary Behaviour Guidelines (2014) recommend that adult Australians aged 18-64:

- Be active on most, preferably all, days every week
- Accumulate 150 to 300 minutes of moderate intensity physical activity or 75 to 150 minutes 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
- Minimise the amount of time spent in prolonged sitting
- Break up long periods of sitting as often as possible

There are different guidelines for children and young people and for older adults.

In the Australian Bureau of Statistics (ABS) 2014-15 National Health Survey (NHS), people were asked to report the intensity, the duration and the number of sessions spent on physical activity during the week preceding the survey.

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The most recent data available on physical activity in children and adolescents is the ABS 2011-12 Australian Health Survey. In 2011-12, about 3 in 10 (29%) children (aged 5-11) and less than 1 in 10 (8.2%) adolescents (aged 12-17) met the recommended amount of physical activity every day. Toddlers and pre-schoolers (aged 2-4) spent an average of around 6 hours per day engaged in physical activity.9

Adults (18-64 years)

For prevalence reporting we refer to ‘insufficient physical activity’ for 18-64 year olds as not completing at least 150 minutes of moderate intensity physical activity, or 75 minutes of vigorous intensity physical activity, across 5 or more sessions each week, as this closely matches the Australian Guidelines.

For trend reporting we report ‘insufficient physical activity’ based on intensity and duration only (no sessions) due to complexities relating to how physical activity data have been collected over various surveys.

Around 1 in 2 adults aged 18-64 (52%) did not participate in sufficient physical activity. Women were more likely than men to be insufficiently active (54% compared to 51%).

The rate of insufficient physical activity increases with age (Figure 1). Among 18-24 year olds, 45% of men and 51% of women were insufficiently active. For those aged 55-64, 54% of men and 60% of women were insufficiently active.

Inequalities

Adults aged 18-64 living in Inner regional or Outer regional and remote areas are, on average, more likely to be insufficiently active (at 58% and 60% respectively) than those living in Major cities (50%) (Figure 2).7

The proportion of people aged 18-64 who are insufficiently active increases with socioeconomic disadvantage. In 2014-15, 60% of men and 66% of women...
living in the most disadvantaged areas were insufficiently active, compared with 38% of men and 43% of women living in the least disadvantaged areas.

**Trends in insufficient physical activity**

There is currently no long-term trend data for the level of physical activity in the adult population, using the measures reported by the ABS. Data presented here are based on trends in the proportion of adults who were physically inactive, based on intensity and duration, from the last three national health surveys (see source data).

Low levels of physical activity are a major risk factor for ill health and mortality from all causes. People who do not do sufficient physical activity have a greater risk of cardiovascular disease, type 2 diabetes and osteoporosis.

There was a slight decrease in the proportion of adults who were insufficiently active between 2007-08 and 2014-15. In 2007-08 the proportion of adults who were insufficiently active was 49%, decreasing to 44% in 2014-15 (age-standardised; Figure 3).

**Older Australians (65 years or older)**

Australia’s Physical Activity Guidelines recommend older Australians (65 years and older) should be active every day in as many ways as possible, and accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all days.

In this section, we refer to ‘insufficient physical activity’ for people aged 65+ as not accumulating 30 minutes of moderate intensity physical activity on at least 5 days each week.

In 2014-15, 3 in 4 (75%) older Australians (aged 65+) were insufficiently active. This rate was similar for males (74%) and females (77%). For women the rate of insufficient physical activity increases with age, but the same trend is not found in men. Among 65-74 year olds, 73% of men and 72% of women were insufficiently active. For those aged 85+, 79% of men and 89% of women were insufficiently active.

**REFERENCES**

5. DoVA (Department of Veterans’ Affairs) and DoH 2005. *Choose health: be active – a physical activity guide for older Australians.* Canberra: Commonwealth of Australia and the Repatriation Commission.

**FURTHER INFORMATION**


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SEDENTARY BEHAVIOUR AND PHYSICAL INACTIVITY

WHAT IS SEDENTARY BEHAVIOUR?
Sedentary behaviour requires very low energy expenditure. Sedentary behaviours typically include sitting, reclining or lying down, but do not include sleeping. Extended periods of sedentary behaviour are detrimental to health. Sedentary behaviour is associated with poorer health outcomes, such as an increased risk of developing type 2 diabetes.

Examples of sedentary behaviour include:
- Sitting/lying down leisure, e.g. while watching television or playing electronic games.
- Sitting while driving or travelling in a vehicle/transport.
- Sitting/lying down while reading, studying or working at a desk or computer.

Wherever possible, everyone should limit long periods of sedentary behaviour by incorporating regular activity breaks throughout the day, and in particular, to limit the amount of time spent using screen-based devices e.g. phones, tablets, and watching television.

SEDENTARY BEHAVIOUR VERSUS PHYSICAL INACTIVITY
Being ‘physically inactive’ means not doing enough physical activity – that is, not meeting the age/life stage recommendations in the physical activity guidelines.

Being ‘sedentary’ means sitting or lying down for long periods. You can do enough physical activity to meet the guidelines and still be considered sedentary if you are spending a large amount of your day sitting or lying down at home, work, during study, for travel or during leisure time.

CAUSES OF PHYSICAL INACTIVITY
According to the World Health Organization, “participation in physical activity is influenced not only by individual and family characteristics, such as knowledge, motivation and social support, but also by wider social and cultural values, as well as environmental and economic conditions. These factors determine how accessible, affordable, acceptable and safe it is for individuals to be physically active and thus can either enable or hinder participation”.

People most at risk of physical inactivity include girls, women, older adults, people of low socioeconomic status, people with disabilities and chronic diseases; marginalized populations are often less active than others because they have less access to appropriate places and programmes to support them.

Economic development, as evidenced in middle- and high-income countries, impacts on activity with its associated transitions to more sedentary occupations and recreation, as well as the increased use of motor transport.

WHAT IS PHYSICAL ACTIVITY?
There are ways people can engage in being physically active: walking, cycling, sports and other active forms of recreation such as yoga, tai chi, dance. Physical activity can also be achieved though active transport (walking, cycling), physical duties at work, and around the home, such as through cleaning, carrying or caring duties.

All forms of physical activity provide health benefits – but only if undertaken regularly and of sufficient duration and intensity.

SOURCES
CHILDHOOD PHYSICAL INACTIVITY REACHES CRISIS LEVELS AROUND THE GLOBE

An international report by the Active Healthy Kids Global Alliance compares 49 countries, noting that 75 per cent of countries have failing physical activity grades.

Childhood physical inactivity has reached crisis levels with many children around the world – including in Australia – not moving enough to maintain healthy growth and development, according to a global report.

Compared to 48 other countries, Australia’s grades lag on measures of Overall Physical Activity, Active Transport, Screen Time and Physical Fitness and the overall grade of D- in 2018 shows no improvement from the previous reports in 2016 and 2014.

The report (Global Matrix 3.0) was developed by the Active Healthy Kids Global Alliance (AHKGA) to assess the global trends in childhood physical activity and includes data from the Active Healthy Kids Australia’s (AHKA) 2018 Report Card on Physical Activity for Children and Young People.

“When we look at the outcomes of this report for Australian children – who are living in one of the best countries in the world in terms of economic wealth and environmental conditions conducive to play, active sports and exercise – we see that much more needs to be done at a behavioural level to improve kids’ activity,” AHKA Co-Chair from the University of South Australia, Dr Natasha Schranz says.

“We need to make a conscious decision to turn this around, if we are to improve the health of new generations of Australian children.”

The report shows that modern lifestyles, including increases in screen time, the urbanisation of communities and the increasing automation of previously manual tasks, are contributing to what is now a pervasive public health problem that must be recognised as a priority in Australia and around the world.

“Research shows us that in Australia, less than one in five children get the recommended 60 minutes of huff and puff (aerobic) activity each day and most children engage in more screen time than recommended, every day,” Dr Schranz says.

In Adelaide for the Movement to Move Event, president of the AHKGA and senior scientist at the CHEO Research Institute in Ottawa, Dr Mark Tremblay says we have a collective responsibility to address these cultural and social norms, particularly screen time, because inactive children are at risk of adverse physical, mental, social and cognitive health problems.

“This generation will face a range of challenges, including the impacts of climate change, increasing globalisation, and the consequences of rapid technological change,” Dr Tremblay says.

“They will need to be purposely physically active in order to grow into healthy, resilient adults who can survive and thrive in a changing world.”

The report found that countries with the most active children and youth overall, including Slovenia and Japan, each rely on very different approaches to get kids moving, but what is consistent among all of them, is that physical activity is driven by pervasive cultural and social norms. Being active is not just a choice, but a way of life.

Slovenia, for instance, which obtained the best grades for Overall Physical Activity (A−), Family and Peers (B+), and Government (A), places an importance on sport, viewing it as an effective tool in fostering national identity. It also has a national school-based surveillance system in place to measure physical fitness of children 6-19 years old. These measures have increased youth physical activity levels to 80 per cent.

Japan, which had the best grades for Active Transportation (A−) and Physical Fitness (A), and no grades lower than C−, has a highly established walking-to-
Australia’s researchers are calling for awareness, advocacy, and the creation of supportive physical and social environments which collectively can help shift the norm and make physical activity a part of every child’s life.

Priorities include:
- All Australian families need to be able to access practical advice, examples and opportunities that will support children to meet the 24-hour movement guidelines every day.
- National funding for comprehensive school physical activity programs that would support and allow for engagement in high quality physical activity across the school day.
- National funding for routine and regular surveillance of physical activity and fitness (e.g. aerobic and muscular) of all Australians, including consensus on measurement methods among states and their government departments.

Director of Active Living Trevor Shilton from the Heart Foundation says while there are clear guidelines in place on how much and what kind of activity children should be doing every day, the results of the AHKA 2018 report indicate we need to be putting more effort into promoting the guidelines and the valuable health information that underpins them.

“We know very clearly now that active physical habits formed in childhood have benefits for children that last a lifetime,” Director Shilton says.

“We need to find ways to carve out time every day in our hurried lives for moving – walking instead of driving, dancing instead of sitting, engaging with the outdoors instead of spending more and more hours with passive screen-based activity.

“Parents and carers can lead in this effort by taking children to parks, teaching kids some of the active games from their own school days and modelling more active behaviours in their own lives.”

ABOUT THE GLOBAL COMPARISONS

The global comparisons were led by the Active Healthy Kids Global Alliance (AHKGA; www.activehealthykids.org), a not-for-profit organisation dedicated to powering the movement to get kids moving. Each country’s research process to determine grades was based on the framework from the Canadian ParticipACTION Report Card on Physical Activity for Children and Youth. Ten common indicators were compared: Overall Physical Activity, Organised Sport and Physical Activity, Active Play, Active Transportation, Sedentary Behaviours, Physical Fitness, Family and Peers, School, Community and Environment, and Government. Report Cards from each of the 49 countries, as well as the results of the global comparisons, were presented at the opening plenary of the Movement to Move Conference in Adelaide, Australia and published in the Journal of Physical Activity and Health.

All country Report Cards and grades and many other Global Matrix 3.0 resources are available at: www.activehealthykids.org


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Australian children and young people do not move enough each day. We know this from convincing evidence that shows only a small portion of kids get enough daily ‘huff and puff’ activity. We do not prioritise movement like we should – movement needs to be a part of our everyday experience and something that is the default, not the exception.

Active kids are fitter, have stronger muscles and bones, concentrate better in class and are more confident, and these are just some of the many benefits physical activity provides. There is no denying that something must be done soon to increase kids’ physical activity levels. But we all live in a world where individuals are spending more and more time sitting, especially in front of screens.

How do we make the cultural shift that’s needed to get us all to stand up and start moving?

Active Healthy Kids Australia (AHKA) is a collaboration of 13 physical activity researchers from nine universities with the primary goal to advocate for ways to increase physical activity and decrease sedentary behaviour among Australian children and young people.

The vehicle we use to help drive this change is the AHKA Report Card on Physical Activity for Children and Young People. The Report Card synthesises the best available Australian evidence in order to assign grades to physical activity indicators, providing a national snapshot of current trends and levels of physical activity among young Australians.

As with previous Report Cards (released in 2014 and 2016), current data indicate no change in children’s overall physical activity levels, with Australia again receiving a poor grade of D–. Australia is also lagging at the back of the pack on an international level: Using data from the Active Healthy Kids Global Alliance’s ‘Global Matrix 3.0’, Australia, tied at 32nd place out of 49 countries for our Overall Physical Activity grade.
The main story from this year’s Report Card is similar to that of previous years, there has not been a lot of movement for most of the grades.

We again see poor grades (D– to D+) for physical activity behaviours (Active Transport and Screen Time), strategies and investments, and traits (Physical Fitness and Movement Skills).

It is encouraging however that Australia scored better grades for settings and sources of influence (Family and Peers, School, Community and Built Environment; C+ to A–) and other physical activity behaviours (Participation in Organised Sport and Participation in Physical Activity in School; B– to B).

The theme of this year’s Report Card highlights the seemingly forgotten component of our national physical activity guidelines – that children should engage in muscle and bone strengthening activities on at least three days per week.

Recently highlighted declines in the jumping ability of Australian children and young people indicate that ‘it’s time for a jump start’ for muscular fitness. We need immediate action in order to get our kids moving more everyday – they need to engage in activities that will get them ‘huffing and puffing’ as well as strengthening and developing their muscles and bones to ensure they are healthy heading into adulthood.

AHKA acknowledges that there is no single person, organisation, sector or group that can shift the progressively sedentary culture of our nation.

We strongly advocate for a coordinated national response through the collaboration of all Australians: government, non-government organisations, communities, sporting organisations and groups, schools, teachers, parents, coaches, friends, families, and most importantly, children.

Physical activity needs to be prioritised every day, and it should not be viewed as something we feel like we must do, rather it should be viewed as something we all want and choose to do for fun, enjoyment, and better health across the lifespan.

REPORT CARDS

The vehicle that AHKA uses to help increase awareness and drive this need for change is the Report Card on Physical Activity for Children and Young People. The Report Card synthesises the best available Australian evidence in order to assign grades to physical activity indicators, and provides a national snapshot of the current levels of physical activity in Australian children and young people.


More kids trying sport, but activity levels still fall short

Australian Sports Commission announces key findings in its latest report on children’s participation in organised physical activity

More Australian children have participated in sport over the past 12 months, but the vast majority are still not meeting recommended activity levels – and parents could be the biggest influence in getting their kids more active.

These are some of the key findings of the Australian Sports Commission’s (ASC) latest AusPlay research – Children’s Participation in Organised Physical Activity Outside of School Hours.

In an encouraging sign, participation for Australian kids aged under 15 is on the rise overall. A total 74 per cent of children participated at least once in organised sport or physical activity outside school hours in 2017, a jump of four per cent from the previous year. Only 25 per cent of Aussie kids are participating in these activities at least three times a week, although that too is up from 20 per cent in 2016.

ASC CEO Kate Palmer said: “It’s encouraging to see more kids sampling sport and physical activity, but the reality is fewer than 20 per cent are meeting daily recommendations for activity.

“Australia’s obesity crisis is well known, so sport and physical can play a role in helping address that. Sport and physical activity is also integral to the holistic development of children physically, mentally and socially.

“Every Australian child deserves the opportunity to participate in sport and physical activity so it’s important we continue to identify and reduce barriers.”

Peak participation for kids is between the ages of 9-11, but falls in the 12-14 age bracket. The top two barriers at this age, as cited by parents, is that kids don’t like physical activity (37 per cent) and it’s not a priority (18 per cent).

“It’s encouraging to see more kids sampling sport and physical activity, but the reality is fewer than 20 per cent are meeting daily recommendations for activity.”

Cost can present a barrier to participation, with 84 per cent of children from high income families engaged in organised physical activity compared to 58 per cent from low income families. Children in major cities (76 per cent) are also more likely to participate than children from regional areas (69 per cent).

Palmer pointed out the influence parents can have on their child’s activity levels. While parents spend approximately $2.1 billion a year on children’s participation in sport and physical activity, spending time on their own activity could have a big impact. Figures show 75 per cent of children who have at least one active parent participate in sport and physical activity outside school hours, compared to 56 per cent of children with at least one inactive parent.

“Parents often sacrifice their own time for physical activity because they’re dedicated to the best interests of their kids, but this data clearly shows a child’s greatest sporting role model is often their mum or dad. A child with an active parent is much more likely to be active themselves. If a parent can find time for their own activity, they’ll be positively influencing their child’s activity levels too.

“Sport and physical activity is an extremely valuable investment in young lives.”

Swimming is the most popular sport for boys (29.8 per cent) and girls (33.9 per cent), while in team sports, football is most popular with boys (21.9 per cent) and netball for girls (13.3 per cent). While this data focused on organised activity outside school hours, Palmer said the ASC would continue to work with sports and the education sector to re-emphasise sport in schools.

“The ASC has been able to positively contribute to activity during school hours by managing the national Sporting Schools program, which has funded more than 6,500 primary schools to sample from more than 30 sports since its inception in 2015.”

“It’s vital the sport sector works together to ensure fair access to physical activity for all Australians so that everyone can share in the enormous benefits it brings.”

The AusPlay survey commenced in 2015 and is the largest and most comprehensive survey of its kind conducted in Australia.

Find the latest report Children’s Participation in Organised Physical Activity Outside of School Hours, below, or read more about AusPlay here: www.clearinghouseforsport.gov.au/research/smi/ausplay/results/national


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Regular physical activity is a well-established protective factor for the prevention and treatment of the leading non-communicable diseases (NCDs), namely heart disease, stroke, diabetes and breast and colon cancer. It also helps prevent other important NCD risk factors such as hypertension, overweight and obesity, and is associated with improved mental health, delay in the onset of dementia and improved quality of life and wellbeing.

Beyond health, increasing participation in physical activity has multiple social and economic benefits and can contribute to achieving the 2030 Sustainable Development Goals (SDGs).

HOW ACTIVE ARE WE?
Globally, 23% of adults and 81% of adolescents (aged 11-17 years) do not meet the WHO global recommendations on physical activity for health. Notably, the prevalence of inactivity varies considerably within and between countries, and can be as high as 80% in some adult subpopulations.

Physical inactivity in adults is highest in the Eastern Mediterranean and the Americas, Europe and Western Pacific regions, and is lowest in the South-East Asia Region. As countries develop economically, levels of inactivity increase owing to the influence of changing patterns of transportation, use of technology, urbanisation and cultural values.

REASONS FOR PHYSICAL INACTIVITY
The current levels of physical inactivity are partly due to people being less active during leisure time and an increase in sedentary behaviour during occupational and recreational activities.

Also, a decline in walking and cycling in favour of using motor vehicles as well as a change in the urban design of towns and cities has been associated with declining physical activity levels.

Increased urbanisation has resulted in several environmental factors which may discourage participation in physical activity such as:

- Violence
- High-density traffic
- Low air quality, pollution
- Lack of parks, sidewalks and sports/recreation facilities.

Globally, 23% of adults and 81% of adolescents (aged 11-17 years) do not meet the WHO global recommendations on physical activity for health.
WHAT IS WHO DOING?

In 2018 WHO launched a new Global Action Plan on Physical Activity 2018-2030 – More people active for a healthier world. The plan sets out four objectives and recommends 20 policy actions that are feasible and applicable to all countries. The policies aim to make it easier for all people to be more active by addressing the cultural, environmental and individual determinants of physical inactivity.

It calls for population-based, multi-sectoral, multi-disciplinary, and culturally relevant policies to be implemented to increase physical activity levels in all countries and globally and presents this as a ‘systems-based’ roadmap. Working in partnerships, WHO will support countries to implement the recommendations and will monitor global progress and impact.

The WHO Member States in WHA 66.10 have agreed on a voluntary global non-communicable diseases (NCD) target for a reduction of 10% in physical inactivity by 2025 and the new global action plan extended this target to 15% reduction in physical inactivity by 2030.

Australia’s global physical inactivity ranking

A quarter of the world’s population is not active enough to stay healthy, according to findings from a World Health Organization study, published in The Lancet Global Health journal. Australia’s ranking sits in the bottom half of national results.

➢ About half as many people are physically active in affluent countries as those in poorer countries. Many people in developing countries are involved in physical labour every day, while those with greater wealth usually have a more sedentary lifestyle.

➢ The WHO study examined self-reported activity levels in 1.9 million people aged from 18 years during 2016.

➢ Australia ranked in the bottom half of the 168 countries – 97 out of 168 countries involved in the study for the number of people being sufficiently active.

➢ 30.4% of Australian adults didn’t reach the recommended level of physical activity for staying healthy in 2016.

➢ 27% of men and 33.6% of women were rated as insufficiently active among the Australian participants.

➢ Overall, Australia sits behind the global average of 27.5% of people doing an insufficient amount of activity.

➢ Countries performing better than Australia include Uganda (the top-ranking country at 5.5%), China (14.1%), Canada (28.6%) and Mexico (28.9%).

➢ Countries faring worse than Australia include the lowest-rated country Kuwait (67%), United States (40%), United Kingdom (35.9%) and Japan at 35.5%.

➢ The minimum amount recommended by the WHO is 150 minutes of moderate physical activity a week, or 75 minutes of vigorous physical activity per week.

➢ 1.4 billion adults across the globe were found not to be physically active enough to keep in good health, with 1 in 3 women and 1 in 4 men not exercising sufficiently or even moving about enough.

➢ Insufficiently active people are at an increased risk of poor health, including heart and artery disease, type 2 diabetes, falls, mental health conditions, dementia and some cancers.

➢ The WHO research indicates there has been little progress in improving physical activity levels between the last survey in 2001 and 2016.

➢ High-income Western countries actually experienced an overall increase from 31% in 2001 to 37% in 2016; middle-income countries measured at 26% and low-income at 16% in 2016.

➢ The new Global Action Plan on Physical Activity sets a target to reduce physical inactivity by 10% by 2025 and 15% by 2030.

SOURCES


➢ Australian Medical Association (27 September 2018). Too many people in the world not active enough to stay healthy.

Compiled by The Spinney Press.
Physical inactivity increases the risk of a range of diseases, such as cardiovascular disease, type 2 diabetes and some cancers. More than half of Australian adults are either not active at all or do not meet the recommended guidelines (ABS 2013). The impact of both these factors was quantified in the Australian Burden of Disease Study (ABDS) 2011 which showed that physical inactivity is one of the leading risk factors of disease burden (AIHW 2016a). Disease burden measures the health loss from living with, or dying prematurely from, a disease or injury.

This report provides further information on physical inactivity as a risk factor for disease burden in Australia. It updates and extends the findings from the ABDS 2011 to include a revised list of diseases linked to physical inactivity, updated estimates of their association, and a broader definition of physical activity. Scenario modelling is used to show the potential benefits of increasing physical activity across Australia.

Health impact of physical inactivity
The enhanced analysis in this report indicates that 2.6% of the total disease burden in 2011 was due to physical inactivity. This finding, similar for both men and women, has been revised downwards from the 5.0% estimate reported in ABDS 2011 due to updated methods.

When physical inactivity is combined with overweight and obesity, the burden increases to 9% – equal with tobacco smoking, the leading risk factor for disease burden in Australia.

Health benefits from an extra 15-30 minute long brisk walk, 5 days per week
An extra 15 minutes of brisk walking, 5 days each week, could reduce disease burden due to physical inactivity by an estimated 13%. If this time increased to 30 minutes, the burden could be reduced by 26%. All ages would benefit, particularly people aged 65 and over.

Physical inactivity was linked to 7 diseases in this study, and found to contribute to substantial proportions of the disease burden.

The report suggests that small sustained increases in daily exercise, particularly for those who are sedentary, could produce sizeable future health gains for the population. Leisure and transport are the main ways people are physically active, making them best placed for targeted interventions to increase physical activity in the population.

Physical inactivity responsible for 10%-20% of disease burden for related diseases
Physical inactivity was linked to 7 diseases in this study, and found to contribute to substantial proportions of the disease burden:
- 19% for diabetes
- 16% for bowel cancer and 16% for uterine cancer
- 14% for dementia
- 11% for breast cancer and 11% for coronary heart disease
- 10% for stroke.

Decreasing burden with increasing socioeconomic position
People in the lowest socioeconomic group experienced rates of disease burden due to physical inactivity at 1.7 times that of the highest socioeconomic group. There was a clear pattern of decreasing burden with increasing socioeconomic position.

Slight reduction in physical inactivity burden over time
The rate of disease burden due to physical inactivity reduced by 12% between 2003 and 2011, after accounting for population increase and ageing.

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A quick walk on your lunch break could significantly help Australia’s physical inactivity problem

The report, *Impact of physical inactivity as a risk factor for chronic conditions: Australian Burden of Disease Study*, looks at the health impact — or ‘burden’ — of a lack of physical activity in terms of years of healthy life lost through living with an illness or injury, or through dying prematurely.

Using data from 2011, the report found that 2.6% of the total disease burden in Australia was due to physical inactivity.

“And when physical inactivity is combined with overweight and obesity, the burden increased to 9% — equal with tobacco smoking, which is the leading risk factor for disease burden in Australia,” said AIHW spokesperson Michelle Gourley.

But the impact could be significantly reduced with just small changes to our levels of physical activity.

“We found that if everyone did an extra 15 minutes of brisk walking, 5 days each week, this would reduce disease burden due to physical inactivity in the population by about 13%,” Ms Gourley said.

This amount of activity could be achieved by taking a walk on your lunch break, or getting off the bus or train a few stops earlier.

“And if the extra activity rose to 30 minutes, the burden could be reduced by 26%.”

The benefit would be felt especially among those who are currently sedentary, as well as those aged 65 and over.

Physical inactivity was associated with 7 diseases in this study. The diseases most closely linked to physical inactivity — and which stand to gain the biggest reductions in burden from increased levels of physical activity — are diabetes (for which physical inactivity was responsible for 19% of the burden), bowel and uterine cancer (16% each), and dementia (14%).

Physical inactivity was responsible for 11% of the breast cancer and coronary heart disease burden, and 10% of the stroke burden.

Overall, the burden of physical inactivity is higher among people in lower socioeconomic groups, with people in the lowest group experiencing rates of burden at 1.7 times that of the highest group.
BODY MAP: PHYSICAL INACTIVITY AND THE RISKS TO YOUR HEALTH

This body map highlights the health risks associated with inactivity. Courtesy of Carol Maher and Tim Olds, first published as an interactive map on *The Conversation*

Physical inactivity has consistently been shown to be one of the most powerful, modifiable risk factors for all causes of death and disease, alongside smoking and obesity. This body map brings together scientific evidence on the links between lack of physical activity and disease.

**BRAIN**

1. **Alzheimer’s**
   82% higher risk of getting Alzheimer’s if physically inactive
   A person living in the developed world has around a 13% chance of getting Alzheimer’s disease in their lifetime. If they are physically inactive, their risk of getting Alzheimer’s is around 82% higher than a person who is physically active.
   Source: Hamer

2. **Parkinson’s**
   22% higher risk of getting Parkinson’s if physically inactive
   A person living in the developed world has around a 1.7% chance of getting Parkinson’s disease in their lifetime. If they are physically inactive, their risk of getting Parkinson’s is around 22% higher than a person who is physically active.
   Source: Hamer

**PSYCHOLOGICAL**

3. **Optimism**
   213% increased risk of reporting low optimism if physically inactive
   If a person living in the developed world is physically inactive, they have a 213% increased risk of reporting low optimism than a person who is physically active.
   Source: Pavley

4. **Happiness**
   52% increased risk of reporting low happiness if physically inactive
   If a person living in the developed world is physically inactive, they have a 52% increased risk of reporting low happiness compared with a person who is physically active.
   Source: Richards

5. **Depression**
   150% increased risk of being depressed if physically inactive
   If a person living in the developed world is physically inactive, they have a 150% increased risk of being depressed than a person who is physically active.
   Source: Harvey

6. **Brain function**
   79% increased risk of poorer cognitive performance (brain function) if physically inactive
   If a person living in the developed world is physically inactive, they have a 79% increased risk of poorer cognitive performance than a person who is physically active.
   Source: Singh-Manoux

**HEART**

7. **Suicide attempts**
   54% increased risk of suicide attempt if physically inactive
   If a person living in the developed world is physically inactive, they have a 54% increased risk of suicide attempt than a person who is physically active.
   Source: Taliaferro

8. **Anxiety**
   38% increased risk of having anxiety symptoms if physically inactive
   If a person living in the developed world is physically inactive, they have a 38% increased risk of having anxiety symptoms than a person who is physically active.
   Source: Da Silva

9. **Stroke**
   37% higher risk of having a stroke if physically inactive
   A person living in the developed world has around an 18% chance of having a stroke in their lifetime. If they are physically inactive, their risk of having a stroke is around 37% higher than a person who is physically active.
   Source: Lee

10. **Constriction of the carotid artery**
    24% increased risk of having carotid artery stenosis (constriction of the carotid artery) if physically inactive
    If a person living in the developed world is physically inactive,
they have a 24% increased risk of having carotid artery stenosis than a person who is physically active.

Source: Stein

### 11. Heart attack
82% higher risk of having a coronary event (heart attack) if physically inactive

A person living in the developed world has around a 34% chance of having a coronary event (heart attack or coronary insufficiency) in their lifetime. If they are physically inactive, their risk of having a coronary event is around 82% higher than a person who is physically active.

Source: Janssen

### 12. Heart disease
57% higher risk of developing cardiovascular disease (heart disease) if physically inactive

A person living in the developed world has around a 58% chance of developing cardiovascular disease in their lifetime. If they are physically inactive, their risk of developing cardiovascular disease is around 57% higher than a person who is physically active.

Source: Richardson

### 13. High blood pressure
23% higher risk of developing hypertension (high blood pressure) if physically inactive

A person living in the developed world has around an 85% chance of developing hypertension in their lifetime. If they are physically inactive, their risk of developing hypertension is around 23% higher than a person who is physically active.

Source: Stein

### 14. Peripheral artery disease
53% increased risk of having peripheral artery disease if physically inactive

If a person living in the developed world is physically inactive, they have a 53% increased risk of having peripheral artery disease than a person who is physically active.

Source: Stein

### CANCER

#### 15. Head and neck cancers
18% higher risk of getting head and neck cancer if physically inactive

A person living in the developed world has around a 1.3% chance of getting head and neck cancer in their lifetime. If they are physically inactive, their risk of getting head and neck cancer is around 18% higher than a person who is physically active.

Source: Moore

#### 16. Oesophageal cancer
72% higher risk of getting oesophageal cancer if physically inactive

A person living in the developed world has around a 1.3% chance of getting oesophageal cancer in their lifetime. If they are physically inactive, their risk of getting oesophageal cancer is around 72% higher than a person who is physically active.

Source: Moore

#### 17. Lung cancer
35% higher risk of getting lung cancer if physically inactive

A person living in the developed world has around a 6.1% chance of getting lung cancer in their lifetime. If they are physically inactive, their risk of getting lung cancer is around 35% higher than a person who is physically active.

Source: Moore

#### 18. Liver cancer
37% higher risk of getting liver cancer if physically inactive

A person living in the developed world has around a 0.7% chance of getting liver cancer in their lifetime. If they are physically inactive, their risk of getting liver cancer is around 37% higher than a person who is physically active.

Source: Moore

#### 19. Pancreatic cancer
122% higher risk of getting pancreatic cancer if physically inactive

A person living in the developed world has around a 1.4% chance of getting pancreatic cancer in their lifetime. If they are physically inactive, their risk of getting pancreatic cancer is around 122% higher than a person who is physically active.

Source: Michaud

#### 20. Breast cancer
11% higher risk of getting breast cancer if physically inactive

A woman living in the developed world has around a 13% chance of getting breast cancer in her lifetime. If she is physically inactive, her risk of getting breast cancer is around 11% higher than a woman who is physically active.

Source: Moore

30% higher risk of getting kidney cancer if physically inactive

A person living in the developed world has around a 1.5% chance of getting kidney cancer in their lifetime. If they are physically inactive, their risk of getting kidney cancer is around 30% higher than a person who is physically active.

Source: Moore

#### 22. Stomach cancer
28% higher risk of getting stomach cancer if physically inactive

A person living in the developed world has around a 1.2% chance of getting stomach cancer in their lifetime. If they are physically inactive, their risk of getting stomach cancer is around 28% higher than a person who is physically active.

Source: Moore

#### 23. Colon cancer
19% higher risk of getting bowel cancer if physically inactive

A person living in the developed world has around a 8.6% chance of getting bowel cancer in their lifetime. If they are physically inactive, their risk of getting bowel cancer is around 19% higher than a person who is physically active.

Source: Moore

#### 24. Bladder cancer
15% higher risk of getting bladder cancer if physically inactive

A person living in the developed world has around a 1.5% chance of getting bladder cancer in their lifetime. If they are physically inactive, their risk of getting bladder cancer is around 15% higher than a person who is physically active.

Source: Moore
25. Rectal cancer
15% higher risk of getting rectal cancer if physically inactive
A person living in the developed world has around a 0.2% chance of getting rectal cancer in their lifetime. If they are physically inactive, their risk of getting rectal cancer is around 15% higher than a person who is physically active.
Source: Moore

26. Prostate cancer
5% lower risk of getting prostate cancer if physically inactive
A man living in the developed world has around a 17% chance of getting prostate cancer in his lifetime. If he is physically inactive, his risk of getting prostate cancer is around 5% lower than a man who is physically active.
Source: Moore

27. Endometrial cancer
21% higher risk of getting endometrial cancer if physically inactive
A woman living in the developed world has around a 2.0% chance of getting endometrial cancer in her lifetime. If she is physically inactive, her risk of getting endometrial cancer is around 27% higher than a woman who is physically active.
Source: Moore

28. Myeloma
20% higher risk of getting myeloma if physically inactive
A person living in the developed world has around a 0.9% chance of getting myeloma in their lifetime. If they are physically inactive, their risk of getting myeloma is around 20% higher than a person who is physically active.
Source: Moore

29. Leukaemia
25% higher risk of getting leukaemia if physically inactive
A person living in the developed world has around a 1.7% chance of getting leukaemia in their lifetime. If they are physically inactive, their risk of getting leukaemia is around 25% higher than a person who is physically active.
Source: Moore

30. Melanoma
21% lower risk of getting melanoma if physically inactive
A person living in the developed world has around a 5.7% chance of getting melanoma in their lifetime. If they are physically inactive, their risk of getting melanoma is around 21% lower than a person who is physically active.
Source: Moore

31. Osteoporosis
56% higher risk of having a fracture due to osteoporosis if physically inactive
A person living in the developed world has around a 40% chance of having a fracture due to osteoporosis in their lifetime. If they are physically inactive, their risk of having a fracture due to osteoporosis is around 56% higher than a person who is physically active.
Source: Gregg

32. Osteoarthritis
21% lower risk of getting osteoarthritis if physically inactive
A person living in the developed world has around an 14% chance of getting osteoarthritis in their lifetime. If they are physically inactive, their risk of getting osteoarthritis is around 21% lower than a person who is physically active. Note the higher risk of osteoarthritis is associated mainly with heavy physical activity.
Source: McAlindon

33. Chronic obstructive pulmonary disease
89% higher risk of having COPD if physically inactive
A person living in the developed world has around a 1.7% chance of getting chronic obstructive pulmonary disease in their lifetime. If they are physically inactive, their risk of dying from COPD is around 89% higher than a person who is physically active.
Source: Moy

34. Diabetes
70% higher risk of getting type 2 diabetes if physically inactive
A person living in the developed world has around a 36% chance of getting type 2 diabetes in their lifetime. If they are physically inactive, their risk of getting type 2 diabetes is around 70% higher than a person who is physically active.
Source: Janssen

35. Chronic kidney disease
69% higher risk of dying from chronic kidney disease if physically inactive
A person living in the developed world has around a 22% chance of getting chronic kidney disease in their lifetime. If they are physically inactive, their risk of dying from chronic kidney disease is around 69% higher than a person who is physically active.
Source: Beddhu

36. General health
114% increased risk of reporting poorer general health if physically inactive
If a person living in the developed world is physically inactive, they have a 114% increased risk of reporting poorer general health than a person who is physically active.
Source: Brown

For the original online interactive version of this body map – with links to all reference citations – go to: https://theconversation.com/interactive-body-map-physical-inactivity-and-the-risks-to-your-health-68157

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THE CONVERSATION
THE DANGERS OF SITTING: WHY SITTING IS THE NEW SMOKING

FACT SHEET ADVICE FROM BETTER HEALTH CHANNEL

SUMMARY

- Sitting or lying down for too long increases your risk of chronic health problems, such as heart disease, diabetes and some cancers.
- Too much sitting can also be bad for your mental health.
- Being active is not as hard as you think. There are lots of simple ways to include some physical activity in your day.

Living a sedentary lifestyle can be dangerous to your health. The less sitting or lying down you do during the day, the better your chances for living a healthy life.

If you stand or move around during the day, you have a lower risk of early death than if you sit at a desk. If you live a sedentary lifestyle, you have a higher chance of being overweight, developing type 2 diabetes or heart disease, and experiencing depression and anxiety.

HOW DOES A SEDENTARY LIFESTYLE AFFECT YOUR BODY?

Humans are built to stand upright. Your heart and cardiovascular system work more effectively that way. Your bowel also functions more efficiently when you are upright. It is common for people who are bedridden in hospital to experience problems with their bowel function.

When you are physically active, on the other hand, your overall energy levels and endurance improve, and your bones maintain strength.

Legs and gluteals (bum muscles)

Sitting for long periods can lead to weakening and wasting away of the large leg and gluteal muscles. These large muscles are important for walking and for stabilising you. If these muscles are weak you are more likely to injure yourself from falls, and from strains when you do exercise.

Weight

Moving your muscles helps your body digest the fats and sugars you eat. If you spend a lot of time sitting, digestion is not as efficient, so you retain those fats and sugars as fat in your body.

Even if you exercise but spend a large amount of time sitting, you are still risking health problems, such as metabolic syndrome. The latest research suggests you need 60-75 minutes per day of moderate-intensity activity to combat the dangers of excessive sitting.

Hips and back

Just like your legs and gluteals, your hips and back will not support you as well if you sit for long periods. Sitting causes your hip flexor muscles to shorten, which can lead to problems with your hip joints.

Sitting for long periods can also cause problems with your back, especially if you consistently sit with poor posture or don’t use an ergonomically designed chair or workstation. Poor posture may also cause poor spine health such as compression in the discs in your spine, leading to premature degeneration, which can be very painful.

Anxiety and depression

We don't understand the links between sitting and mental health as well as we do the links between sitting and physical health yet, but we do know that the risk of both anxiety and depression is higher in people that sit more.

This might be because people who spend a lot of time sitting are missing the positive effects of physical activity and fitness. If so, getting up and moving may help.

Cancer

Emerging studies suggest the dangers of sitting include increasing your chances of developing some types
of cancer, including lung, uterine, and colon cancers. The reason behind this is not yet known.

**Heart disease**

Sitting for long periods has been linked to heart disease. One study found that men who watch more than 23 hours of television a week have a 64 per cent higher risk of dying from cardiovascular disease than men who only watch 11 hours of television a week.

Some experts say that people who are inactive and sit for long periods have a 147 per cent higher risk of suffering a heart attack or stroke.

**Diabetes**

Studies have shown that even five days lying in bed can lead to increased insulin resistance in your body (this will cause your blood sugars to increase above what is healthy). Research suggests that people who spend more time sitting have a 112 per cent higher risk of diabetes.

**Varicose veins**

Sitting for long periods can lead to varicose veins or spider veins (a smaller version of varicose veins). This is because sitting causes blood to pool in your legs.

Varicose veins aren’t usually dangerous. In rare cases, they can lead to blood clots, which can cause serious problems (see deep vein thrombosis, below).

**Deep vein thrombosis**

Sitting for too long can cause deep vein thrombosis (DVT), for example on a long plane or car trip. A deep vein thrombosis is a blood clot that forms in the veins of your leg.

DVT is a serious problem, because if part of a blood clot in the leg vein breaks off and travels, it can cut off the blood flow to other parts of the body, including your lungs, which can cause a pulmonary embolism. This is a medical emergency that can lead to major complications or even death.

**Stiff neck and shoulders**

If you spend your time hunched over a computer keyboard, this can lead to pain and stiffness in your neck and shoulders.

**HOW SEDENTARY ARE WE?**

Physical inactivity contributes to over three million preventable deaths worldwide each year (that’s six per cent of all deaths). It is the fourth leading cause of death due to non-communicable diseases.

It’s also the cause of 21-25 per cent of breast and colon cancers, 27 per cent of diabetes cases, and around 30 per cent of ischaemic heart disease. In fact, physical inactivity is the second highest cause of cancer in Australia, behind tobacco smoking.

The Australian Health Survey 2011-12 results show:

- 60 per cent of Australian adults do less than the recommended 30 minutes of moderate intensity physical activity each day.
- Only one third of Australian children, and one in 10 young people (aged 5-17), do the recommended 60 minutes of physical activity every day.
- Fewer than one in three children and young people have no more than two hours of screen time each day.
- Almost 70 per cent of Australian adults can be classed as either sedentary or having low levels of physical activity.

**Children and young people**

The Australian Health Survey found that toddlers and pre-schoolers (aged 2-4 years) spent an average of six hours a day doing some form of physical activity, and one and a half hours having some form of screen time. These numbers changed dramatically when the survey looked at children and young people (aged 5-17 years). They spend just one and a half hours a day doing physical activities, and over two hours each day on screen time.

The time spent on physical activity grew smaller as the young people got older, while the time spent on screen-based activities grew higher.

Just under half of all children and young people (aged 2-17) had at least one type of screen (such as a television, computer, or game console) in their bedroom. That figure grew to three quarters for young people aged 15-17.

The 15-17 year age group were the least likely to walk 12,000 steps each day, with only 7 per cent reaching that goal. Younger children, aged 5-11, were much more likely to walk more during their day (at around 23 per cent).

**Adults**

The Australian Health Survey found that young adults achieved the highest level of activity of all adults, with...
53 per cent of 18-24 year olds being classed as sufficiently active. People tended to become less active as they aged. The lowest level of activity was among those aged 75 or over, with that group achieving around 20 minutes of activity each day.

Only one in four people aged 75 or over were classed as sufficiently active against Australia’s Physical Activity and Sedentary Behaviour Guidelines.

People were more likely to have done sufficient exercise if they:
- Were wealthier
- Classified their health as ‘excellent’
- Were in the underweight or normal range of body mass index, rather than the obese range
- Did not smoke or had given up smoking
- Did not have a job where they sat down a lot, such as clerical or administrative work
- Watched less television and used the internet less than average (13 hours and 9 hours per week, respectively).

Adults took an average of 7,400 steps per day. Less than one in five adults took 10,000 steps each day.

**HOW CAN YOU SAVE YOUR HEALTH FROM THE DANGERS OF SITTING?**

If you’re not getting enough activity in your day, it’s not too late to turn it around and gain great health benefits in the process.

**Build more activity into your day**

Some ways you can incorporate activity into your day are:
- Walk or cycle, and leave the car at home
- For longer trips, walk or cycle part of the way
- Use the stairs instead of the lift or escalator, or at least walk up the escalator
- Get off the bus one stop early and walk the rest of the way
- Park further away from wherever you’re going and walk the rest of the way
- Calculate how long it takes you to walk one kilometre – you may find you can reach your destination faster by walking than if you wait for public transport.

**Be active (and safe)**

If you’re new to physical activity, or if you have a health condition, speak to your doctor before you start any new activities. They can help you decide the best activities for you. Read more about physical activity and how to get started (www.betterhealth.vic.gov.au/health/healthyliving/physical-activity-how-to-get-started).

Search for your local Registered Exercise Professional or Registered Fitness Business for professional advice and ongoing support (www.fitness.org.au).

If you’re getting active outdoors, remember to protect yourself from the sun by applying sunscreen and wearing sun-protective clothing, including a hat.

**Be active at work**

You can move around at work more than you think:
- Take the stairs instead of the lift
- Walk over and talk to your colleagues instead of emailing them
- Take your lunch break away from your desk and enjoy a short walk outside if you can
- Organise walking meetings.

**Be active indoors**

Don’t let bad weather stop you from being active! You can do body weight exercises such as squats, sit-ups, and lunges.

You can also try indoor activities such as:
- Dancing
- Swimming at an indoor pool
- Yoga
- Pilates
- Martial arts
- Squash
- Indoor rock climbing.

**REDUCE YOUR SEDENTARY BEHAVIOUR**

Here are some simple ideas to keep you moving while you’re at home:
- When you’re tidying up, put items away in small trips rather than taking it all together
- Set the timer on your television to turn off an hour earlier than usual to remind you to get up and move
- Walk around when you’re on the phone
- Stand up and do some ironing during your favourite television shows
- Rather than sitting down to read, listen to recorded books while you walk, clean, or work in the garden
- Stand on public transport, or get off one stop early and walk to your destination.

If you work in an office:
- Stand up while you read emails or reports
- Move your rubbish bin away from your desk so you have to get up to throw anything away
- Use the speaker phone for conference calls and walk around the room during the calls.

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Chapter 2 Participation in physical activity

Physical activity: WHO guidelines

Fact sheet information courtesy of the World Health Organization

Key Facts
- Insufficient physical activity is one of the leading risk factors for death worldwide.
- Insufficient physical activity is a key risk factor for non-communicable diseases (NCDs) such as cardiovascular diseases, cancer and diabetes.
- Physical activity has significant health benefits and contributes to preventing NCDs.
- Globally, 1 in 4 adults is not active enough.
- More than 80% of the world’s adolescent population is insufficiently physically active.
- Policies to address insufficient physical activity are operational in 56% of WHO member states.
- WHO member states have agreed to reduce insufficient physical activity by 10% by 2025.

What is physical activity?
WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits.

How much of physical activity is recommended?
WHO recommends:

Children and adolescents aged 5-17 years
- Should do at least 60 minutes of moderate- to vigorous-intensity physical activity daily.
- Physical activity of amounts greater than 60 minutes daily will provide additional health benefits.
- Should include activities that strengthen muscle and bone, at least 3 times per week.

Adults aged 18-64 years
- Should do at least 150 minutes of moderate-intensity physical activity throughout the week, or do at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity.
- For additional health benefits, adults should increase their moderate-intensity physical activity to 300 minutes per week, or equivalent.
- Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Adults aged 65 years and above
- Should do at least 150 minutes of moderate-intensity physical activity throughout the week, or at least 75 minutes of vigorous-intensity physical activity.
throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity.

- For additional health benefits, they should increase moderate-intensity physical activity to 300 minutes per week, or equivalent.
- Those with poor mobility should perform physical activity to enhance balance and prevent falls, 3 or more days per week.
- Muscle-strengthening activities should be done involving major muscle groups, 2 or more days a week.

The intensity of different forms of physical activity varies between people. In order to be beneficial for cardiorespiratory health, all activity should be performed in bouts of at least 10 minutes duration.

**BENEFITS OF PHYSICAL ACTIVITY AND RISK OF INSUFFICIENT PHYSICAL ACTIVITY**

Regular physical activity of moderate intensity – such as walking, cycling, or doing sports – has significant benefits for health. At all ages, the benefits of being physically active outweigh potential harm, for example through accidents.

Some physical activity is better than doing none. By becoming more active throughout the day in relatively simple ways, people can quite easily achieve the recommended activity levels.

Regular and adequate levels of physical activity:

- Improve muscular and cardiorespiratory fitness;
- Improve bone and functional health;
- Reduce the risk of hypertension, coronary heart disease, stroke, diabetes, various types of cancer (including breast cancer and colon cancer), and depression;
- Reduce the risk of falls as well as hip or vertebral fractures; and
- Are fundamental to energy balance and weight control.

Insufficient physical activity is one of the leading risk factors for global mortality and is on the rise in many countries, adding to the burden of NCDs and affecting general health worldwide. People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active.

**LEVELS OF INSUFFICIENT PHYSICAL ACTIVITY**

Globally, around 23% of adults aged 18 and over were not active enough in 2010 (men 20% and women 27%). In high-income countries, 26% of men and 35% of women were insufficiently physically active, as compared to 12% of men and 24% of women in low-income countries.

Some physical activity is better than doing none. By becoming more active throughout the day in relatively simple ways, people can quite easily achieve the recommended activity levels.

Low or decreasing physical activity levels often correspond with a high or rising gross national product. The drop in physical activity is partly due to inaction during leisure time and sedentary behaviour on the job and at home. Likewise, an increase in the use of ‘passive’ modes of transportation also contributes to insufficient physical activity.

Globally, 81% of adolescents aged 11-17 years were insufficiently physically active in 2010. Adolescent girls were less active than adolescent boys, with 84% versus 78% not meeting WHO recommendations.
Several environmental factors which are linked to urbanisation can discourage people from becoming more active, such as:

- Fear of violence and crime in outdoor areas
- High-density traffic
- Low air quality, pollution
- Lack of parks, sidewalks and sports/recreation facilities.

**HOW TO INCREASE PHYSICAL ACTIVITY?**

Countries and communities must take action to provide individuals with more opportunities to be active, in order to increase physical activity.

*People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active.*

Policies to increase physical activity aim to ensure that:

- In cooperation with relevant sectors physical activity is promoted through activities of daily living;
- Walking, cycling and other forms of active transportation are accessible and safe for all;
- Labour and workplace policies encourage physical activity;
- Schools have safe spaces and facilities for students to spend their free time actively;
- Quality physical education supports children to develop behaviour patterns that will keep them physically active throughout their lives; and
- Sports and recreation facilities provide opportunities for everyone to do sports.

Policies and plans to address physical inactivity have been developed in about 80% of WHO member states, though these were operational in only 56% of the countries in 2013. National and local authorities are also adopting policies in a range of sectors to promote and facilitate physical activity.

**WHO RESPONSE**

The Global Strategy on Diet, Physical Activity and Health, adopted by the World Health Assembly in 2004, describes the actions needed to increase physical activity worldwide. The Strategy urges stakeholders to take action at global, regional and local levels to increase physical activity.

The *Global Recommendations on Physical Activity for Health*, published by WHO in 2010, focus on primary prevention of NCDs through physical activity.

It proposes different policy options to reach the recommended levels of physical activity globally, such as:

- The development and implementation of national guidelines for health-enhancing physical activity;
- The integration of physical activity within other related policy sectors, in order to ensure that policies and action plans are coherent and complementary;
- The use of mass media to raise awareness of the benefits of being physically active;
- The surveillance and monitoring of actions to promote physical activity.

*Global recommendations: physical activity for health*

To measure physical activity in adults, WHO has developed the *Global Physical Activity Questionnaire* (GPAQ). This questionnaire helps countries monitor insufficient physical activity as one of the main NCD risk factors. The GPAQ has been integrated into the WHO STEPwise approach, which is a surveillance system for the main NCD risk factors.
A module to assess insufficient physical activity among schoolchildren has been integrated into the Global school-based student health survey (GSHS). The GSHS is a WHO/US CDC surveillance project designed to help countries measure and assess the behavioural risk factors and protective factors in 10 key areas among young people aged 13 to 17 years.

In 2013, the World Health Assembly agreed on a set of global voluntary targets which include a 25% reduction of premature mortality from NCDs and a 10% decrease in insufficient physical activity by 2025.

The Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020 guides member states, WHO and other UN Agencies on how to effectively achieve these targets. A sector specific toolkit is under development by WHO to assist member states implement actions and achieve the targets.

WHO has established several partnerships to help support member states in their efforts to promote physical activity – these include the United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations Sport for Development and Peace (UNOSPD).

How much physical activity is needed for good health?

The global recommendations on physical activity for health released by the World Health Organization outline the type, intensity, frequency and duration of physical activity for optimal health benefits for youth, adults and older adults.

Regular participation in physical activity is recommended for all ages and abilities to provide multiple health benefits.

For adults and older adults
- 75 minutes per week vigorous intensity – more is better and provides additional health benefits, or
- 150 minutes per week moderate intensity – something is better than nothing, or
- A combination of both.

For children
Aim for at least 60 minutes every day.

For older adults with poor mobility
Perform physical activity to enhance balance and prevent falls on 3 or more days per week.

Everyone
Perform muscle-strengthening activities involving major muscle groups, on 2 or more days a week.

Start small and increase gradually.

PHYSICAL ACTIVITY: NATIONAL HEALTH SURVEY FINDINGS

RESULTS FROM THE NATIONAL HEALTH SURVEY, REPRODUCED COURTESY OF THE AUSTRALIAN BUREAU OF STATISTICS

Physical activity can be undertaken in many different forms and occur in different places including at home and at work.

The benefits of regular physical activity or exercise include reducing the risk of health conditions such as heart disease, Type 2 diabetes, certain forms of cancer, depression and some injuries. In addition, physical activity and exercise are an important contributor for achieving and maintaining a healthy body mass.

Definitions
Consistent with previous cycles of the National Health Survey (NHS), the types of exercise covered were walking for fitness, recreation and sport, walking for transport, moderate exercise and vigorous exercise. In 2017-18, data was additionally collected for the first time on workplace activity. ‘Workplace activity’ consists of two domains: moderate and vigorous activity, which was undertaken on a typical work day. Moderate exercise consists of activity that causes a moderate increase in heart rate or breathing, while vigorous exercise causes a large increase in a person’s heart rate or breathing.

Australia’s Physical Activity and Sedentary Behaviour Guidelines (2014) outlined that people should be active on most, if not all, days and recommend that:

- For young persons aged 15-17 years, at least 60 minutes of moderate to vigorous intensity physical activity every day. The guidelines also recommend that young persons aged 15-17 years do muscle-strengthening activities on at least 3 days per week.
- For adults aged 18-64 years, 150-300 minutes of moderate intensity physical activity or 75-150 minutes of vigorous intensity physical activity, or an equivalent combination of both, per week. The guidelines also recommend that adults aged 18-64 years do muscle-strengthening activities on at least 2 days per week.
- For adults aged 65 years and over, at least 30 minutes of physical activity on most, preferably all days. For the NHS, we interpret this recommendation as carried out at least 30 minutes of physical activity on at least 5 or more days.

In this chapter, results are presented separately with and without workplace physical activity. Results without workplace physical activity are directly comparable with previous time periods. The term exercise is used to refer to results without workplace physical activity. Furthermore, where we refer to ‘no exercise’, this means that respondents engaged in 0 minutes of exercise in the last week.

Overall Australians aged 15 years and over exercised 42 minutes per day on average, the largest part of which consisted of walking for transport and walking for exercise (24.6 minutes).

YOUNG PERSONS AGED 15-17 YEARS
Around nine in ten (88.9%) young persons aged 15-17 years engaged in some form of exercise in the last week.

Less than one in fifty (1.9%) 15-17 year olds met both the physical activity and muscle-strengthening aspects of the guidelines, however around one in ten (10.3%) 15-17 year olds participated in 60 minutes of exercise every day and around one in six (15.8%) did strength or toning activities on three or more days in the last week; meeting the individual recommendations within the guidelines.

The proportion of 15-17 year olds engaging in 60 minutes of exercise every day has almost doubled since 2014-15 (5.5%), whereas strength or toning on three or more days in the last week has not increased significantly (13.1% in 2014-15).

Young males (15-17 year olds) were almost three times more likely than females (14.1% compared with 4.9% respectively) to have engaged in 60 minutes of exercise every day. Young males were also almost two and half times more likely than females to have participated in three or more days of strength or toning activities (22.4% compared with 8.4%).

ADULTS AGED 18-64 YEARS
The majority (83.5%) of 18-64 year olds engaged in some form of deliberate voluntary exercise (not including workplace physical activity). However, only 15.0% of these participants met both the physical activity and muscle-strengthening aspects of the guidelines.

Whilst a low proportion met the guidelines, more than half (55.4%) of 18-64 year olds undertook 150 minutes or more of exercise in the last week, excluding workplace physical activity, thereby meeting at least one of the recommendations of the physical activity.

Persons aged 18-64 years – Whether met guidelines or undertook 150 minutes or more of exercise(1), 2017-18

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guidelines. This proportion has remained unchanged since 2011-12 (54.5%). In 2017-18, similar proportions of men and women engaged in 150 or more minutes in the last week (56.1% and 54.7% respectively).

If workplace activity is included, the proportion of 18-64 year olds who met the guidelines increased to 17.0%. The proportion of 18-64 year olds who undertook 150 minutes or more of exercise in the last week also increased (65.5%). With the inclusion of workplace physical activity, the proportion of men who engaged in 150 minutes or more of exercise in the last week exceeded that of women (69.7% compared with 61.3%).

The proportion of people who engaged in 150 minutes or more of exercise in the last week decreased with age whether workplace physical activity was included or not. Nearly two thirds of 18-24 year olds (64.1%) undertook 150 minutes or more of exercise (74.1%) if workplace physical activity was included) compared with 50.7% (59.3% if workplace physical activity was included) for 55-64 year olds.

Overall Australians aged 15 years and over exercised 42 minutes per day on average, the largest part of which consisted of walking for transport and walking for exercise (24.6 minutes).

In 2017-18, one quarter (24.9%) of 18-64 year olds did strength or toning activities on two or more days in the last week as recommended in the guidelines; this was a similar proportion to 2014-15 (24.1%). A higher proportion of men than women did two or more days of strength and toning activities (26.6% compared with 23.3%), which was similar to 2014-15 (25.9% and 22.3% respectively).

More than two thirds (69.6%) of 18-64 year olds did not conduct any strength or toning activities; the same proportion was found in 2014-15 (69.6%). The low uptake of strength and toning activities contributes to the low proportion of 18-64 years olds meeting the entire physical activity guidelines (15.0% with exercise only and 17.0% including workplace physical activity).

**ADULTS AGED 65 YEARS AND OVER**

Adults aged 65 years and over are recommended to participate in 30 minutes of physical activity on most, preferably all days. This is interpreted as carried out physical activity daily and on at least 5 of the days for 30 minutes or more.

Whilst almost three quarters (71.1%) of adults aged 65 years and over engaged in some form of exercise in the last week, just over a quarter (26.1%) of older adults engaged in 30 minutes or more of exercise on 5 or more days in the last week. This was similar to results from 2014-15 and 2011-12 (24.9% and 23.8% respectively).
2017-18, there was no difference between men and women engaging in 30 minutes of exercise on 5 or more days in the last week (27.8% and 24.6% respectively).

HOW DID EXERCISE VARY ACROSS AREAS?
Adults living in areas of most disadvantage were more likely to engage in no exercise (28.5%) and less likely to meet the physical activity guidelines (10.2%) than their counterparts living in the least disadvantaged areas (10.4% and 21.5% respectively).

Those living in Outer Regional and Remote Australia were less likely to exercise than those living in Major Cities of Australia. More than a quarter (27.9%) of adults living in Outer Regional and Remote Australia engaged in no exercise compared with around one in six (15.9%) living in Major Cities of Australia. Adults living in Major Cities of Australia were also more likely to have met the physical activity guidelines (16.2%) in comparison to those living in Outer Regional and Remote Australia (12.2%).

TYPE OF PHYSICAL ACTIVITY AT WORK ON A TYPICAL WORK DAY
In addition to questions around the amount of time spent in physical activity, people who usually worked were asked to describe their usual work day. Nearly one in two (43.7%) 18-64 year olds described their day as mostly sitting, while 22.8% described their day as mostly walking, 19.5% as mostly standing and 13.6% as mostly heavy labour or physically demanding work.

Men and women had similar rates for mostly sitting or standing at work, however, men were almost four times more likely than women to report mostly heavy labour or physically demanding work (20.6% compared with 5.3%). The typical work day also varied by age with adults aged 18-24 years less likely to mostly sit (21.8%) and more likely to mostly stand (30.0%) or mostly walk (30.6%) than their older counterparts.

ENDNOTES

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Australia’s Physical Activity and Sedentary Behaviour Guidelines and the Australian 24-Hour Movement Guidelines

This article from the Department of Health contains Australia’s Physical Activity and Sedentary Behaviour Guidelines for adults and older Australians and the Australian 24-Hour Movement Guidelines for the Early Years; and the Australian 24-Hour Movement Guidelines for Children and Young People, including links to brochures and other resources.

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

- **Australian 24-Hour Movement Guidelines for the Early Years (Birth to 5 years)**

- **Australian 24-Hour Movement Guidelines for Children and Young People (5-17 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**

- **Australian 24-Hour Movement Guidelines for Children and Young People (5-17 years): An Integration of Physical Activity, Sedentary Behaviour, and Sleep – Guideline Development Report**

- **Development of Evidence-based Physical Activity recommendations for Adults (18-64 years)**

- **Development of Evidence-based Physical Activity for Adults**

- **National physical activity recommendations for older Australians: Discussion Document**
  www.health.gov.au/internet/main/publishing.nsf/content/phd-physical-rec-older-disc

**NATIONAL PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR, AND SLEEP RECOMMENDATIONS FOR CHILDREN (BIRTH TO 5 YEARS)**

The Australian 24-Hour Movement Guidelines for the Early Years (Birth to 5 years) show there is an important relationship between physical activity and health outcomes, including the risk of chronic disease and obesity. The guidelines recommend:

- Engaging in at least 180 minutes of moderate-intensity physical activity per week for children aged 5 to 17 years.
- Limiting sedentary behaviour, including screen time, to no more than 2 hours per day, and engaging in regular physical activity to offset sitting time.
- Improving sleep hygiene, including ensuring adequate sleep for children's age groups.

The following Review Reports provide a summary of the scientific evidence that supports each of the guidelines:

- **24-Hour Movement Guidelines for the Early Years**
  https://bmcpublichealth.biomedcentral.com/articles/supplements/volume-17-supplement-5

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relationship between how much sleep, sedentary behaviour and physical activity young children get in a 24-hour period.

These recommendations are for all children aged birth to 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:

### Sedentary behaviour recommendations
- **Infants (birth to one year)** should not be restrained for more than 1 hour at a time (e.g. in a stroller, car seat or high chair). Infants should also not spend any time watching television or using other electronic media (DVDs, computer and other electronic games) and instead, when sedentary, the caregiver is encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.
- **Toddlers (aged 1-2 years)** should not be restrained for more than 1 hour at a time (e.g. in a stroller, car seat or high chair) or sit for extended periods. For those toddlers younger than 2 years, screen time is not recommended during sedentary periods. For those aged 2 years, screen time should be no more than 1 hour in total throughout the 24-hour period – less is better. When toddlers are sedentary, the caregiver is encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.
- **Pre-schoolers (aged 3-5 years)** should not be restrained, for more than 1 hour at a time (e.g. in a stroller or car seat) or sitting for extended periods. Sedentary screen time should be no more than 1 hour in total throughout the 24-hour period – less is better. When pre-schoolers are sedentary, caregivers are encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.

### Physical activity recommendations
For healthy growth and development in:
- **Infants (birth to one year)** physical activity particularly through supervised interactive floor-based play in safe environments should be encouraged from birth. For those not yet mobile, 30 minutes of tummy time including reaching and grasping, pushing and pulling, and crawling spread throughout the day during awake periods is encouraged.
- **Toddlers (1 to 2 years)** should spend at least 180 minutes a day doing a variety of physical activities including energetic play such as running, jumping and twirling spread throughout the day – noting more is better.
- **Pre-schoolers (3 to 5 years)** should spend at least 180 minutes a day in a variety of physical activities, of which 60 minutes is energetic play such as running, jumping and kicking and throwing, spread throughout the day – noting more is better.

### Sleep
- **Infants (birth to one year)** are recommended to have 14 to 17 hours (for those aged 0-3 months) and 12 to 16 hours (for those aged 4-11 months) of good quality sleep, including naps during the 24-hour period.
- **Toddlers (aged 1-2 years)** are recommended to have from 11 to 14 hours of good quality sleep, including naps during the 24-hour period with consistent sleep and wake-up times.
- **Pre-schoolers (aged 3-5 years)** are recommended to have 10 to 13 hours of good quality sleep, which may include a nap, with consistent sleep and wake-up times.

### Future research and surveillance
The evidence supporting the development of 24-Hour Movement Guidelines is strong. As such the World Health Organization is considering the adoption of this 24-hour approach as part of the development of global guidelines.

### Factsheets
- **24-Hour Movement Guidelines for the Early Years (Birth to 5 years)**

### Further information
- **Frequently asked questions**
NATIONAL PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR, AND SLEEP RECOMMENDATIONS FOR CHILDREN AND YOUNG PEOPLE (5-17 YEARS)

Being physically active is good for children and adolescent health, and creates opportunities for making new friends and developing physical and social skills. These guidelines are for all children and young people aged 5-17 years who have started school, irrespective of cultural background, gender or ability.

An outline of the guidelines are described below. The Guidelines for Healthy Growth and Development for Children and Young People: A guide for parents and educators brochure (www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDADA5BCA257BF0001E720D/$File/brochure-24hr-guidelines-5-17yrs.pdf) provides further information, tips and guidance about physical activity, sedentary behaviour including ‘recreational screen time’ and sleep.

For optimal health benefits, children and young people (aged 5-17 years) should achieve the recommended balance of high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day. A healthy 24 hours includes:

Physical activity

- Accumulating 60 minutes or more of moderate to vigorous physical activity per day involving mainly aerobic activities.
- Several hours of a variety of light physical activities;
- Activities that are vigorous, as well as those that strengthen muscle and bone should be incorporated at least 3 days per week.
- To achieve greater health benefits, replace sedentary time with additional moderate to vigorous physical activity, while preserving sufficient sleep.

Sedentary behaviour

- Break up long periods of sitting as often as possible.
- Limit sedentary recreational screen time to no more than 2 hours per day.
- When using screen-based electronic media, positive social interactions and experiences are encouraged.

Sleep

- An uninterrupted 9 to 11 hours of sleep per night for those aged 5-13 years and 8 to 10 hours per night for those aged 14-17 years.
- Have consistent bed and wake-up times.

For a complete version including the Preamble see the 24-Hour Movement Guidelines for Children and Young People (5-17 years) (www.health.gov.au/internet/main/publishing.nsf/content/health-24-hours-phys-act-guidelines).

Further information

- Research and statistics
- Other resources and links

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 well-being. 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 brochure, More than half of all Australian adults are not active enough (www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDA5BCA257BF0001E720D/$File/brochure%20PA%20Guidelines_A5_18-64yrs.pdf), 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.

Factsheets

- Adults (18-64 years)
- Tips and Ideas for Adults (18-64 years)

Further information

- Frequently asked questions
- Research and statistics
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.

Being physically active for 30 minutes every day is achievable and even a slight increase in activity can make a difference to your health and wellbeing. Hard copies of this resource are no longer available.

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 (www.health.gov.au/internet/main/publishing.nsf/content/phd-physical-choose-health) 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.

Further information

- Choose Health: Be Active – A physical activity guide for older Australians
- Tips and Ideas for Older Australians (65 years and older)

Acknowledgement

The 24-Hour Movement Guidelines for Children and Youth and the 24-Hour Movement Guidelines for the Early Years were developed by the Canadian Society for Exercise Physiology and adapted by the Commonwealth of Australia.

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PHYSICAL ACTIVITY ACROSS THE LIFE STAGES

FOLLOWING IS THE EXECUTIVE SUMMARY FROM A REPORT BY THE AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE

Participating in regular physical activity and limiting the amount of time being sedentary can have significant health benefits – it reduces the risk of chronic conditions and other disease risk factors such as overweight and obesity, and also improves social and emotional health and wellbeing.

While there are many opportunities to be physically active every day, our social, environmental and cultural context – as well as the settings in which we live, work and play – are important determinants of physical activity participation.

Australia’s Physical Activity and Sedentary Behaviour Guidelines (the Guidelines) set out a series of recommendations on the amount of physical activity (both aerobic and strength-based) and sedentary activity that is consistent with optimal health. The Guidelines differ by age, with recommendations across the life stages for the age groups birth-5 years, 5-12, 13-17, 18-64 and 65 and over.

This report presents information on Australians’ physical and sedentary activity participation rates against the Guidelines. It presents information across different population groups, including by Indigenous status, remoteness, socioeconomic groups and sex, and considers the barriers to physical activity across the life stages.

Few Australians of all ages are meeting the physical activity guideline

Overall, 30% of children aged 2-17 and 44% of adults aged 18 and over met the physical activity guideline. Children aged 2-5 were most likely to meet the guideline (61%) while children aged 13-17 were least likely to meet the guideline (7.9%).

Meeting the guideline decreased with increasing age for both children and adults:
- From 61% of 2-5 year olds to 26% of 5-12 year olds to 7.9% of 13-17 year olds.
- From 48% of 18-64 year olds to 25% of those aged 65 and over.

Additionally, among adults aged 18-64, fewer than 1 in 4 (24%) met the strength-based activity guideline and less than 1 in 5 (19%) met both the physical and strength-based activity guidelines.

Most children exceed the recommended amount of sedentary screen-based activity, in particular adolescent boys

Only 1 in 4 (25%) children aged 2-5; 1 in 3 (33%) children aged 5-12; and 1 in 5 (20%) children aged 13-17 met the sedentary screen-based behaviour guideline.

Adolescents aged 13-17 were least likely to meet the sedentary screen-based activity guideline. Despite participation in physical activity being similar between adolescent boys and girls, 85% of 13-17 year old boys did not meet this guideline, compared with 74% of adolescent girls.

‘Not enough time’ and health issue remain a barrier

Almost 4 in 10 adults aged 18-64 (37%) reported Not enough time or Too many other commitments as the main barriers to participating in sport or recreational physical activities.

As age increased, poor health or injury was more frequently cited as the main barrier – increasing from almost one-fifth (18%) of those aged 35-44 to almost half (48%) of adults aged 65 and over.

### SUMMARY OF AUSTRALIA’S PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR GUIDELINES

<table>
<thead>
<tr>
<th>Ages 2-5</th>
<th>Ages 5-12</th>
<th>Ages 13-17</th>
<th>Ages 18-64</th>
<th>Ages 65 &amp; over</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical activity</strong></td>
<td>At least 180 minutes per day</td>
<td>At least 60 minutes per day</td>
<td>At least 60 minutes per day</td>
<td>At least 150 minutes over 5 sessions per week</td>
</tr>
<tr>
<td><strong>Sedentary or screen-based activity</strong></td>
<td>Should not be restrained for more than 60 minutes at a time</td>
<td>No more than 120 minutes of screen use</td>
<td>No more than 120 minutes of screen use</td>
<td>Minimise and break up prolonged periods of sitting</td>
</tr>
<tr>
<td><strong>Strength</strong></td>
<td>N/A</td>
<td>Muscle-strengthening activities 3 times a week</td>
<td>Muscle-strengthening activities 3 times a week</td>
<td>Muscle-strengthening activities 2 times a week</td>
</tr>
</tbody>
</table>

1. This group includes those aged 5 who are not yet in full-time schooling (for example, pre-schoolers).
2. This group includes those aged 5 who are in full-time schooling.
3. Examples include being restrained in a stroller, car seat or high chair.

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Participation rates varied across socioeconomic groups, particularly among adults
Among Australian adults, those in the highest socioeconomic group were more likely to meet the physical activity guideline, compared with those in the lowest socioeconomic group:

- 6 in 10 (60%) Australians aged 18-64 in the highest socioeconomic group, compared with only 37% in the lowest socioeconomic group.
- 46% of Australians aged 65 and over in the highest socioeconomic group, compared with 28% in the lowest socioeconomic group.

This pattern was not found in children aged 2-5 and 5-17.

Indigenous children were more active than non-Indigenous children
Indigenous children aged 5-12 and young people aged 13-17 were more likely to meet the physical activity guideline, compared with non-Indigenous children:

- 60% of Indigenous 5-12 year olds, compared with 45% of their non-Indigenous counterparts.
- 33% of Indigenous 13-17 year olds, compared with 19% of their non-Indigenous counterparts.

Among young children aged 2-5, similar proportions of Indigenous (64%) and non-Indigenous (69%) children met the physical activity guideline.

Physical activity participation varied between Indigenous and non-Indigenous adults
Indigenous adults aged 18-64 and Indigenous women aged 65 and over were less likely to meet the physical activity guideline, compared with their non-Indigenous counterparts:

- 38% of Indigenous adults aged 18-64, compared with 46% of non-Indigenous adults of this age.
- Non-Indigenous women aged 65 and over (38%) were twice as likely to meet the physical activity guideline, compared with Indigenous women of this age (16%).

However, the proportions were similar for:

- Indigenous men (41%) and non-Indigenous men (44%) aged 65 and over who met the physical activity guideline.
- Indigenous adults (9.4%) and non-Indigenous adults (10%) aged 65 and over who met the strength-based activity guideline.

Adults aged 65 and over spend more leisure time sitting and less in physical activity than younger adults
Adults aged 65 and over are more likely to have reduced working hours or to be retired, leading to increased leisure time for both physical and non-physical activities. As a result, this population group are spending more time sitting at leisure on a usual weekday (6 hours), compared with adults aged 18-64 (4 hours and 29 minutes); and less time on physical activities per day, at 29 minutes for those aged 65 and over compared with 39 minutes for those aged 18 to 64.

Moving forward
Australia’s Physical Activity and Sedentary Behaviour Guidelines are set with the intention of maintain-
HOW DOES PARTICIPATION IN PHYSICAL ACTIVITY CHANGE ACROSS THE LIFE STAGES?

Percentage of people who meet Australia’s physical activity guidelines

- **30%**
  - Aged 2-17

- **44%**
  - Aged 18 and over

Percentage of children who exceed the guidelines for sedentary or screen-based behaviour

- **75%**
  - Aged 2-5

- **65%**
  - Aged 5-12

- **80%**
  - Aged 13-17

Top 5 barriers to participating in sport or recreational physical activities

**Aged 18-64**
- Not enough time/ too many commitments: 37%
- Poor health or injury: 18%
- Physical job: 9%
- Don’t like sport/ physical activity: 6%
- Not a priority: 6%

**Aged 65 +**
- Poor health or injury: 48%
- Increasing age/ too old: 18%
- Not enough time/ too many commitments: 11%
- Disability: 11%
- Not a priority: 6%


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Physical activity: benefits to your body

**THIS MYDR FACT SHEET EXPLAINS THE HEALTH BENEFITS OF BEING ACTIVE**

We have used the terms physical activity and exercise interchangeably here, as both will have beneficial effects on the body if done regularly.

**Physical activity** is the term used to describe any kind of everyday activity where the body’s movement burns calories. Examples would be sweeping the yard, walking the dog, vacuuming, and walking upstairs.

**Exercise** is a form of physical activity. Exercise usually describes a pre-planned physical activity that involves a series of repetitive movements that are performed to strengthen or develop a particular part of the body, including the cardiovascular system. Examples of exercise would be playing tennis, running, cycling, walking, swimming or rowing.

1. **Brain**
   Exercise has been shown to ease anxiety, improve mood and fight depression. It promotes the release of a mood-lifting brain chemical called serotonin and the release of endorphins, natural feel-good painkilling substances. Exercise also improves cognitive function (ability to process thoughts) and decreases the risk of dementia.

2. **Skin**
   Moderate exercise stimulates circulation and so brings oxygen and nutrients to the skin. Sweating, which is increased by exercise, allows the body to excrete wastes via the surface of the skin.

3. **Lungs**
   Regular exercise increases lung capacity and strengthens the respiratory muscles. Exercise also reduces risk of lung cancer.

Physical activity is the term used to describe any kind of everyday activity where the body’s movement burns calories.

4. **Heart**
   Regular exercise strengthens and builds the heart muscle so it pumps more effectively. Regular physical activity or exercise reduces your chance of getting heart disease.

5. **Breasts**
   Regular exercise has been shown to reduce women’s risk of developing breast cancer.

6. **Immune system**
   Moderate exercise boosts the immune system, but over-exercising and frequent strenuous exercise dampen down the immune response.

7. **Blood pressure**
   Regular physical activity can significantly reduce the risk of developing high blood pressure and can help to lower blood pressure in those who already have high blood pressure.

8. **Bloodstream**
   Regular exercise also increases the level of HDL cholesterol (‘good cholesterol’) in your blood and reduces the level of LDL ‘bad) cholesterol. This keeps your arteries clear of fatty deposits (plaque) made up of cholesterol and other substances. This reduces the risk of clots in the coronary arteries, which can lead to heart attack, and clots in the arteries supplying the brain, which can lead to stroke.

Exercise is a form of physical activity. Exercise usually describes a pre-planned physical activity that involves a series of repetitive movements that are performed to strengthen or develop a particular part of the body, including the cardiovascular system.

9. **Diabetes**
   Regular exercise can prevent and help control type 2 diabetes. Exercise helps insulin to work better and also makes your cells more sensitive to the effects of insulin – two ways to improve how your body deals with sugar.

10. **Colon**
    Regular exercise reduces the risk of colorectal (bowel) cancer, possibly by its effect of speeding up the movement of food through the bowels.

11. **Reproductive organs**
    Regular moderate to vigorous aerobic exercise has been shown to improve both libido (sex drive or desire) and sexual performance. It can also improve fertility, although excessive amounts of exercise may suppress libido, and in women, if coupled with excessive weight loss may cause menstrual disturbances and infertility. Exercise also reduces the risk of prostate cancer and ovarian cancer.

12. **Bones**
    Weight-bearing exercise (e.g. walking, stair climbing, weightlifting) helps preserve bone mass and thus protects against osteoporosis.

13. **Muscles**
    Exercise builds and strengthens muscles, which can protect the bones from injury, and support and protect joints affected by arthritis. Strong muscles also give stability and improve balance and coordination. Exercise also improves blood supply to the muscles and increases their capacity to use oxygen. Resistance training prevents the age-related loss of muscle mass known as sarcopenia.

14. **Joints**
    Exercise lubricates the joints, and reduces joint pain and stiffness. It also helps people with arthritis by increasing flexibility and muscle strength.

15. **Balance**
    Regular exercise and physical activity strengthen the
muscles and improve balance and coordination, leading to fewer falls in the elderly.

**REFERENCES**

Physical activity: what are the benefits?
This article from the Department of Health explains the benefits of physical activity as well as offering tips and ideas for how to be active every day

Physical activity can take many different forms, in many different places. You can be active at home, at school, at work and in the community, as part of leisure time, travel, active play, organised and non-organised sports, games or physical education. Information on how to be more active is available below:

- Early years (birth to 5 years)

- Children and young people (5-17 years)

- Adults (18-64 years)

- Older Australians (65 years and older)

WHAT ARE THE BENEFITS?

For INFANTS (birth to 1 year), toddlers (1 to 3 years) and pre-schoolers (3 to 5 years), being physically active every day is fun and can:

- Help achieve and maintain a healthy weight.
- Build strong bones and muscles.
- Improve balance, movement and coordination skills.
- Promote social skills through interactions with people.
- Support brain development.
- Encourage self-confidence and independence.

For CHILDREN AND YOUNG PEOPLE, being physically active every day can have:

Social benefits, like:
- Opportunities for fun with friends and family.
- Reduced anti-social behaviour, including aggressive and disruptive actions.
- Helping to develop cooperation and teamwork skills.

Emotional and intellectual benefits, such as:
- Improved self-esteem and confidence.
- Help with management of anxiety and stress.
- Improved concentration.

Health benefits, such as:
- Promotion of healthy growth and development.
- Strong muscles and bones.
- Improved physical fitness, including coordination.
and movement skills.

- Reduced risk of disease and unhealthy weight gain.

**For ADULTS (18 to 64 years), regular physical activity can:**

- Reduce the risk of, or help manage, type 2 diabetes.
- Reduce the risk of, or help manage, cardiovascular disease (CVD).
- Maintain and/or improve blood pressure, cholesterol and blood sugar levels.
- Reduce the risk of, and assist with rehabilitation from, some cancers.
- Prevent unhealthy weight gain and assist with weight loss.
- Build strong muscles and bones.
- Create opportunities for socialising and meeting new people.
- Help to prevent and manage mental health problems.
- Help to develop and maintain overall physical and mental well-being.

**For OLDER ADULTS (65 years and older):**

*Being physically active makes you look and feel better.*

- Gives you more energy.
- Helps you sleep better.
- Helps you to relax.
- Helps you to meet people and make friends.
- Is fun.
- Tones your body.

*Being physically active is good for your mind.*

- Reduces stress and anxiety.
- Improves concentration.

- Improves self-confidence.
- Reduces feelings of sadness.

*Being physically active is good for your body.*

- Helps to control:
  - Weight (and reduces body fat);
  - Blood pressure;
  - Cholesterol;
  - Type 2 diabetes; and
  - Bone and joint problems (e.g. arthritis).
- Reduces the risk of:
  - Heart disease;
  - Stroke; and
  - Some cancers.
- Helps to manage pain.
- Helps to maintain and increase joint movement.
- Helps to prevent falls and injury.

If you are new to physical activity, have a health problem, or are concerned about the safety of being (more) active, speak with your doctor or health professional about the most suitable activities for you.

*Move more, sit less, every day!*
WHAT’S THE MINIMUM AMOUNT OF EXERCISE YOU NEED TO STAY HEALTHY?

Good news: there’s a form of activity out there that’ll suit you. And many of them can be incorporated into your daily routine, according to this ABC Life report by Grace Jennings-Edquist and Jennifer Wong.

While some of us are setting big exercise goals at the start of the year, like preparing for a marathon, others are simply aiming to put in the bare minimum needed to stay fit and healthy.

If your fitness goals for the year are simply to ward off ill health and maintain your day-to-day fitness, you might be wondering: How much exercise do you really need to do? And does walking around the block count?

We asked four experts, and we were pleased to hear it’s possible to get results without slogging away for hours each day.

GET TO KNOW THE GUIDELINES

Australia’s national exercise guidelines (yes, the government has done the work for us) suggest accumulating 150 to 300 minutes of ‘moderate-intensity’ physical activity, or 75 to 150 minutes of ‘vigorous-intensity’ physical activity, each week (or an equivalent combination of both).

That’s an absolute minimum of two and a half hours of moderate-intensity activity, or one and a half hours of high-intensity activity, per week to stay healthy. (Ideally, you’d be doing double that.)

The guidelines also recommend doing muscle-strengthening activities at least two days each week, and minimising the amount of time spent sitting.

These guidelines apply to adults aged 18–64; there are different guidelines for other age groups.

MAKE WALKING AND OTHER INCIDENTAL ACTIVITIES COUNT

If you’ve been avoiding exercise because you hate sports, the good news is: there’s a form of activity out...
Many can be incorporated into your daily routine – no gym membership required.

Riding a bike, hiking with friends, or using an elliptical trainer while watching TV are all options. Just make sure you’re doing them at a brisk enough pace that requires some effort.

Depending on your distance from the office, “walking to and from work is a great thing to do because it builds it into your day and it just becomes routine,” says Professor Wendy Brown from the University of Queensland’s School of Human Movement Studies and lead author on the report that led to the current guidelines.

If you already have a pedometer and aim for 10,000 steps per day, you’re probably already hitting the minimum exercise targets, says Professor Timothy Olds, from the Health Sciences School of the University of South Australia.

“In 30 minutes, you’d probably do 3,000 steps, and of the 10,000 steps, it may be that 4,000 of those are what we call background steps, like steps you take around the house,” he says.

Timothy Fairchild, an accredited exercise physiologist and Associate Dean (Research) at Murdoch University’s School of Psychology and Exercise Science, agrees.

“If someone hits 10,000 steps a day, then I’d be guessing that they’d be hitting their minimum number of physical activity targets,” Dr Fairchild says.

**SMALLER CHUNKS OF EXERCISE COUNT**

If the idea of a 60-minute slog at the gym intimidates you, you’ll be pleased to hear adults can meet the minimum physical activity requirements by adding short bursts of exercise together. Each burst should be at least 10 minutes long.

If the idea of a 60-minute slog at the gym intimidates you, you’ll be pleased to hear adults can meet the minimum physical activity requirements by adding short bursts of exercise together. Each burst should be at least 10 minutes long.

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If lifting weights isn’t for you, consider finding a workout online, says Ms White. She recommends a routine involving body weight exercises such as squats, lunges, push-ups, planks and hip extensions.

“All you need to do is google ‘body weight exercises’. And if you’re open to picking up some resistance bands, then you’ve opened up another world of exercises you can do at home.”

Pilates and yoga also count, whether you attend a class or find one you like online.

While the guidelines don’t say exactly how long these muscle-strengthening workouts should last, Dr Brown suggests a 15 to 20-minute routine.

“If you did that really religiously twice a week, it would prevent your muscles from disappearing by the time you reach 60,” she says.

SPREAD YOUR ACTIVITY THROUGHOUT THE WEEK

Being active on most, and preferably all, days of the week is best, the guidelines say. But if you’re only doing two or three sessions, it’s best to spread them throughout the week.

“The one recommendation we would say is you shouldn’t have any more than one day back-to-back where you haven’t performed exercise,” says Dr Fairchild.

So if you exercise on a Monday, you can skip Tuesday, but you should exercise on Wednesday.

SIT LESS AND MOVE MORE

The guidelines recommend minimising the amount of time we spend sedentary (sitting or lying down for long periods), and breaking up long periods of sitting, to help guard against a host of health issues including weight gain, type 2 diabetes and heart disease.

Using a standing desk, walking to get your lunch, or incorporating walking meetings into your day can all help.

Limiting your screen time at home can also encourage movement. How about taking your dog for a brisk walk instead of watching that second episode?

TAKE IT SERIOUSLY

Ultimately, these exercise goals really are achievable – but you have to take the time to review how much activity you’re really getting, and schedule it in if needed, the experts tell *ABC Life*.

“We have to move more. And we’re just not doing it,” Dr Brown says.

“My advice would be: start to take it seriously.”

Professor Olds says the benefits of exercise extend far beyond weight loss and aesthetics.

“Exercise affects so many different health aspects: physical health, mental health, everything from diabetes to depression, from asthma to eczema. It’s extraordinarily powerful, the effect of exercise,” he says.

“We’ve had a look at the effect of sitting, the effect of sleep, the effect of physical activity – and every time, for every disease, for quality of life, for academic performance, for physical health, for mental health, depression, stress, anxiety, it’s physical activity.

“It’s the big-ticket item. When you take into account all the other things, physical activity is the overwhelmingly powerful thing.”

WE ASKED FIVE EXPERTS: IS WALKING ENOUGH EXERCISE?

ALEXANDRA HANSEN FROM THE CONVERSATION POSED THIS QUESTION TO FIVE SPECIALISTS IN THE FIELD

We humans need to exercise in order to stay healthy. Exercise protects against disease and early death, and keeps us mobile and able to perform daily tasks. Walking is an easy, free and enjoyable form of exercise. But is a nice stroll enough to confer the life-saving benefits we know come from exercise? We posed this question to five specialists in the field. Four out of five experts said yes. Here are their detailed responses:

JACKSON FYFE, SPORT SCIENTIST: NO

Walking is of course better than no exercise at all, but to maximise health benefits, a combination of aerobic-type (running, cycling, swimming) and strength-type exercise (lifting weights or bodyweight exercises) should be performed regularly.

We know being unfit shortens life, and countering the losses of muscle strength/power and bone density as we age can improve our ability to perform daily tasks, while reducing the risk of falls and associated complications.

Walking alone is simply not sufficient for most people, although it may provide a platform to more specific, intense exercise. So moderate- to high-intensity aerobic and strength training should also be incorporated into regular exercise programs. Of course, this does not mean walking does not have benefits, but there are aspects of the health-promoting effects of exercise that walking alone cannot provide.

CAROL MAHER, PHYSIOTHERAPIST: YES

Physical activity is linked to important and wide-ranging health benefits, such as reduced risk of heart disease, excess weight and obesity, type 2 diabetes, depression and anxiety, osteoporosis and many cancers. Walking at a moderate pace (5 km/hour) can largely achieve these benefits, especially if it’s done in continuous bouts (say, 10 minutes or more at a time).

Of course, the benefit is even greater if you can get some higher intensity exercise in such as brisk walking or walking up a hill, and throw into the mix some physical activity that challenges your strength and balance.

There are aspects of the health-promoting effects of exercise that walking alone cannot provide.

JULIE NETTO, OCCUPATIONAL THERAPIST: YES

Walking brings many benefits. Walking is an activity that can easily be graded up or down to tailor to your personal goals. You can easily change pace or intensity, or the distance covered. Using Nordic poles (hiking sticks) can also modify the activity so it’s more than just a lower limb exercise. Walking on different gradients and surfaces or carrying a load while walking can add variety and challenge to your workout. In terms of convenience, you can easily walk on a treadmill too.
Walking has been shown to have many physical health benefits and holds promise in alleviating depression. There are also socially supportive aspects to walking, where you could get to know people in your neighbourhood or community, especially if you’re a dog owner.

One minute of vigorous sport is worth 3.5 minutes of walking. To reduce your risk of dying by 20%, for example, you would need to walk for 56 minutes a day. You’d get the same benefit by running for 16 minutes.

KEVIN NETTO, BIOMECHANIST: YES

If you can walk independently and maintain a speed of 4-6 km/h for half an hour per day, then walking is sufficient exercise. Walking can protect against chronic diseases, and there is less risk of injury compared to other forms of exercise.

It’s also free (shoes and active wear aside), and your family, friends and pets can be included. In fact, these have been shown to be a great motivator to continue walking for exercise (the pet and friends, not the active wear).

Walking in challenging environments can be difficult, with pollution and climate being factors that detract from participation. A treadmill may suffice but who likes walking in one spot! Investigate walking groups that use shopping centres or other indoor areas in the early morning in situations where it’s too hot or wet to walk outdoors. Most importantly, enjoy the experience ... exercise can be the best medicine you ever take.

TIM OLDS, PROFESSOR OF HEALTH SCIENCES: YES

You’ll get there by walking, but running will get you there so much faster. The average Australian adult walks recreationally for about 30 minutes a day, and that makes up about 40% of all of their physical activity. We used to walk much more. In a study simulating life in the early Australian colony of Sydney, researchers recorded people walking 4-6 hours each day.

A moderate walk requires about three times your resting metabolic rate, running and sport require much more – typically about seven times. Both walking and vigorous sport will reduce your risk of dying prematurely at any age. But you have to spend much more time walking: one minute of vigorous sport is worth 3.5 minutes of walking. To reduce your risk of dying by 20%, for example, you would need to walk for 56 minutes a day. You’d get the same benefit by running for 16 minutes.

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Tim Olds, Professor of Health Sciences, University of South Australia.

Humans have a natural tendency to store fat – it’s a survival mechanism to protect us against the possibility of famine, and some fat is essential for our general health. The trouble is that today many people have access to an abundance of food, especially energy-dense fatty and sugary foods, yet they undertake little energy-burning physical activity. This means that many people have an imbalance between their energy intake (food and drink) and their energy expenditure (general metabolism and physical activity).

The net result is an energy surplus, which is efficiently stored as body fat by a physiology that developed in times when famine was a likely and life-threatening risk. The storage of this excess fat causes many people in the developed world to become overweight or, to be more accurate, ‘over-fat’, which in more extreme cases is classified as obesity. There is an associated health risk with being over-fat and even more so with obesity, as it increases our risk of heart disease, diabetes, and some forms of cancer.

Maintaining a healthy level of body fat is a matter of balancing calorie intake (food) with expenditure (our basal metabolism and exercise/physical activity). To reduce body fat, you have to expend more calories than you take in, and this can be achieved either by eating fewer calories and/or by expending more energy through greater levels of physical activity.

**FUEL FOR AEROBIC EXERCISE**

Fat and carbohydrate (mainly glucose and related molecules) are the two main types of fuel used to support your body’s metabolism. They come from food and drink, and following the process of digestion are absorbed into your blood stream to either be transported to sites for immediate use or storage for later use.

Fat is stored as adipose tissue around your body, including under your skin, in muscles, and around vital organs. Carbohydrate is stored as glycogen (formed by joining many glucose molecules together) in your liver and muscle cells.

Fat and carbohydrate are continually used to maintain your basic daily metabolism as you constantly require energy for brain activity, the pumping of your heart and the functions of your internal organs. However, muscle contractions that occur during exercise require a considerable amount of additional energy, and vigorous exercise can increase your energy use by 10-fold. This additional energy expenditure will therefore increase your use of fat and carbohydrate, some of which will come from your body’s stores.

‘Burning fat’ or ‘fat-burning’ means using stored fat as a fuel to support body function. Reducing total body fat (which is what most people desire when they say...
that they want to 'lose weight') involves burning more calories each day (whether from stored fat or stored glucose) than are replaced by calories consumed as food. In a large part, weight loss is achieved by meeting this goal, often with the assistance of exercises that burn fat and exercises that build muscle.

**WHICH EXERCISE USES MORE ENERGY?**

To use energy and substantially increase the use of fat and carbohydrate, you need to undertake exercise that uses the large muscles of your arms and legs, and to perform it for a prolonged duration. For example, walking, jogging, swimming, cycling or doing aerobics for 30 minutes or more. The biggest factor determining how many calories (that is, the amount of energy) you use during exercise is how much you do. Walking 3km uses almost the same amount of energy as running 3km. But of course, walking the 3km will take longer than running it.

A second factor that influences the amount of energy you use is the exercise intensity. Jogging for 30 minutes will use more energy than walking for 30 minutes, the primary reason being because you will travel a greater distance in 30 minutes of jogging than in 30 minutes of walking.

Exercise intensity also influences the proportion of energy that you get from fat and carbohydrate. Low-intensity exercise, such as walking, predominantly uses fat with some carbohydrate. The harder you exercise, the more energy you use per minute, and the greater the proportion derived from carbohydrate. Very vigorous exercise predominantly uses carbohydrate (muscle glycogen), but this does not mean that it is not effective when trying to reduce your fat stores. By depleting your glycogen stores, some of the carbohydrate you eat will be used to replenish the glycogen, and you are less likely to store excess carbohydrate in your diet as fat.

So you need to find a balance between exercising as hard as you can and doing it for a reasonable duration (30 to 60 minutes per day). For example, it would be better to walk for one hour than to jog for 5 minutes. But it would also be more effective to walk briskly (or jog) than walk slowly.

**CHOOSING YOUR EXERCISE**

The most important factor is for you to choose an exercise (or a variety of exercises) that you will do on a regular basis – ideally at least 5 times a week, and preferably every day. You should then perform it at an intensity that you can sustain for at least 30 to 60 minutes a day. For fat loss, a target of one hour per day is a desirable objective.

People who are new to regular exercise, or who are returning to exercise after a break, can start with lower amounts and build up towards doing low- to moderate-intensity aerobic exercise for at least 20 to 30 minutes on 4 to 5 days each week. This is a practical and safe way (low risk of injury) to burn body fat. Varying the type of exercise by doing, for example, a combination of walking, cycling, swimming and going to the gym is likely to prevent boredom and ensure that you get the holistic benefits from doing different body movements.

**MODERATE-INTENSITY EXERCISE**

As indicated above, exercising for longer at a lower intensity is better than only managing a very short time...
at a higher intensity. This approach to exercise also has significant additional health benefits such as reducing the risk of heart disease and type 2 diabetes.

If combined with healthy eating that aims for a slight energy deficit, rather than an energy surplus, low to moderate intensity, moderate duration aerobic exercise can be an effective tool in weight reduction and weight management. But you must ensure that you undertake the exercise regularly, and aim for at least 150 minutes of exercise per week. For more effective fat loss, try to attain about 300 minutes a week.

THE ROLE OF HIGH-INTENSITY AEROBIC EXERCISE

For people who already have an established level of physical fitness, a higher intensity or longer duration of aerobic exercise may be indicated in order to burn fat. However, this approach is not usually practical in people who are beginning or returning to regular aerobic exercise.

Even though high intensity exercise tends to burn the body’s stores of glucose rather than its stores of fat, in high intensity aerobic exercise that lasts say 30 minutes, the total calories burned, irrespective of the source of these calories (glucose or fat), will be higher than the calories burned in 30 minutes of moderate intensity aerobic exercise. That is, the harder you exercise in your given amount of time the more calories you will burn, and that includes after you’ve finished and when you’re recovering.

So, if you have moved beyond a beginner exerciser’s level of fitness, then aiming to do regular aerobic exercise at high intensity (‘as hard as you can’), may be a more useful guideline than simply continuing to exercise at moderate intensity. (Before starting high-intensity aerobic exercise, seek individual advice from your doctor, and be aware of the pitfalls of over-exercising, including an increased risk of injury.)

TIPS FOR CONTROLLING BODY FAT

Give yourself a chance: increase your metabolic rate
Irrespective of dietary modification, an exercise-focused lifestyle will increase your metabolic rate, and will inherently burn more calories than a sedentary lifestyle. In contrast, it is believed that markedly reducing the amount of calories that you eat will signal a state of potential starvation to your body. In this context, your body adjusts by slowing down your metabolism and trying to conserve fat.

Tone your muscles to burn more calories
Using strength-training exercise to increase your percentage of muscle tissue compared to fatty tissue shifts your body composition in favour of energy-hungry muscle cells.

Muscle cells consume more calories than do fat cells, at rest. One of the best ways to increase your percentage of muscle tissue, and hence your metabolic rate, is to do a strength-training routine 2 or 3 times every week, in addition to your regular aerobic exercise.

To reduce total body fat (‘lose weight’), burn more energy than you consume as food, but don’t focus exclusively on calorie restriction
To reduce total body fat, focus on increasing your physical activity rather than drastically decreasing the energy you consume as food. As fatty foods are energy dense, selecting low-fat options is a sensible way to limit unnecessary calories in your food. Don’t cut out fat altogether: current advice recommends that you moderate total fat intake but limit saturated fats – the type of fats present in foods of animal origin such as meat and butter.

As a guide, a recommended rate of weight reduction is around 0.5 to 1 kg per month. Losing more than 0.5 to 1 kg a week can indicate that you are losing fluid and muscle rather than body fat. If you are overweight or obese and are considering a restricted-calorie diet, speak to a dietitian for individual advice.

How much exercise?
One of the major determinants of how many calories you use during exercise is the amount of exercise that you do. Exercising for an hour a day will use twice as many calories as exercising for 30 minutes. And you may like to divide the time up into 2 sessions of 30 minutes or 3 sessions of 20 minutes.

To avoid re-gaining lost body fat, continue exercising regularly and keep a check on your daily energy balance
Continuing regular exercise is important in maintaining a high metabolic rate. This approach will give you the best chance of maintaining the new body you have gained through an active lifestyle that includes strength training and aerobic exercise, and calorie-wise healthy eating.

Exercising for health
Even if your exercise programme produces only a slow reduction in weight, it doesn’t mean that it is a waste of time. Many studies have shown that regular exercise can reduce your risk of heart disease and other health problems independently of weight loss.

REFERENCES

OBESITY AND EXERCISE
BY PROF. JOHN DIXON ON BEHALF OF OBESITY AUSTRALIA

Increased physical activity, indeed all voluntary movement, burns stored energy including fat. Without additional dietary changes the influence of exercise on weight loss is limited however, due to a compensatory increase in hunger and food intake. Yet coupled with a diet where food intake is reduced, exercise does modestly enhance the loss of weight, and continued exercise is an important component in keeping weight off (weight maintenance).

‘Exercise’ is but one component of voluntary physical activity or movement.
- We increase activity by reducing the time that we are sedentary in activities such as driving a car, sitting at a desk, looking at a screen, reading a book or engaged in a sedentary hobby.
- We increase activity by making smart active transport choices: taking the stairs, leaving the car in the garage and walking; riding a bike; using public transport; getting a desk you can stand at; and walking to your colleagues’ office rather than using email. There are many ways to move more.
- And of course we can perform exercise, but the ‘e-word’ can mean different things to different people. Planned physical activity has so many disguises and for those with obesity, especially severe obesity, there are many barriers to performing what the fitness world would consider exercise. Exercise needs to be adapted to the individual with the aim of increasing fitness, function, and assisting with achieving and maintaining weight loss.

If possible, we aim for every adult to perform 150-300 minutes of moderate physical activity every week, including short periods of activity of even 10-20 minutes, rather than insisting on normal periods of 40-60 minutes initially. This makes it easier to achieve the weekly target. The type and intensity of activity should be individualised to suit the person and avoid personal barriers to some activities. It will also depend on age, fitness, mobility, and state of health.

Physical activity has a wonderful array of benefits beyond weight management. It improves cognitive function; helps reduce the risk of diabetes and heart disease; preserves muscle and therefore function with weight loss, especially in older folk; helps prevent the physical disability associated with obesity; and preserves quality of life. In summary, physical activity promotes a healthier, longer, more functional life independent of weight achieved.

Obesity is strongly associated with: arthritis in the knees, especially in women; various causes of foot pain; and a higher risk of back pain. While obesity is only weakly associated with other forms of arthritis, it can aggravate the pain and disability caused by these conditions. Specific advice should be sought to help with designing activities for those with specific conditions and disabilities.


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Making any lifestyle change can be challenging. Many people find that having a goal in mind gives them something to work towards, motivates them to stay on track and provides a measure of how well they are doing.

If you’re trying to become more physically active, realistic, well-planned goals keep you focused and motivated.

Ensure you read through the pre-exercise self-screening tool before you embark on a physical activity or exercise program, particularly if you are over 40 years, overweight, haven’t exercised in a long time or suffer from a chronic medical condition.

**Setting physical activity goals**

Several key principles can be applied to help you set your physical activity goals.

These include:
- Pinpoint your ultimate goal
- Find out how to achieve your ultimate goal
- Set small, specific mini-goals
- Monitor your progress regularly
- Adapt to changing circumstances
- Don’t be too hard on yourself.

**Pinpoint your ultimate fitness goal**

Suggestions include:
- **Be realistic** – Your ultimate fitness goal could be to be fit enough to participate in a competition on a set date or to do 10 laps of the pool. Whatever the case, make this goal realistic. Remember that most of us will never be world-famous athletes or supermodels. Think about what is achievable for you. Write down your goals.
- **Be specific** – Don’t make your ultimate goal a general statement like: ‘I want to lose weight’. Make it measurable. Exactly how many kilograms do you want to lose?
- **Choose a goal that is meaningful and important to you, not to anybody else.** For example, if your partner wants you to lose weight, but you’re happy as you are, you may find it difficult to commit to your exercise routine in the long term.

**Find out how to achieve your ultimate fitness goal**

Once you have decided on your health and fitness goal, you need to consider how you will reach that goal. Different fitness goals require different approaches. For example, weight loss requires you to regularly burn more kilojoules than you consume.

**You are more likely to reach your ultimate goal if you break it down into small, short-term mini-goals.** Short-term goals are specific, daily actions or behaviours that lead you to your ultimate goal.

An effective strategy may include:
- Choose aerobic activities such as walking
- Exercise for at least 30 minutes on all or most days of the week
- Cut back on junk food
- Eat smaller food portions
- Increase the amount of fresh fruits and vegetables, lean meats, low-fat dairy products and wholegrain foods in your daily diet.

**Set small, specific fitness goals**

You are more likely to reach your ultimate goal if you break it down into small, short-term mini-goals. Short-term goals are specific, daily actions or behaviours that lead you to your ultimate goal.

Suggestions include:
- Know your starting point, so you can pick activities that are comfortable and realistic for you, and build slowly at a pace that feels right for you.
- Set a reasonable timeframe. For example, if you
want to lose 20kg, then a realistic weight loss of 1kg of body fat every one to two weeks means that you need to allow yourself around 20 to 40 weeks.

• Consider your exercise routines as mini-goals. For example, one mini-goal might be to exercise on all or most days of the week. The more mini-goals you achieve, the more motivated you will become.

If you are unsure how to best achieve your particular fitness goals, ask an expert. For example, see your doctor, browse through the Better Health Channel fact sheets or consult an exercise physiologist, physiotherapist or appropriately qualified and certified personal trainer.

**Monitor your physical activity regularly**

Make your mini-goals measurable. Decide how you are going to monitor your progress and record every detail in a training diary.

Suggestions include:

• Measure your progress in concrete ways. For example, if you are weight training, write down the weight and repetitions for each exercise. If you are exercising to lose weight, keep track of your weight loss.

• Choose appropriate ways to measure your progress. For example, bathroom scales don’t distinguish between muscle and fat. It may be better to take your measurements with a tape measure, or just notice how your clothes fit.

• Find as many different ways to monitor your progress as you can and write down your progress regularly, such as once a week. For example, if you are exercising to lose weight, you might like to record your exercise sessions, daily diet and weekly measurements. Include incidental achievements like feeling more energetic or fitting into a smaller pair of jeans. Give yourself plenty of ways that you can succeed.

• Celebrate your progress.

**Adapt your physical activity to changing circumstances**

Life can interrupt your training schedule. Suggestions for adapting to such changes include:

• Think about ways to cope with interruptions. For example, you may not be able to exercise in your usual way when on holidays, but you can always walk or use the hotel fitness facilities.

• If you get injured or become ill, don’t abandon your fitness goals. Instead, adjust your ultimate goal’s time frame. Come up with micro-goals to keep you on track while you recover. For example, you may be too ill to exercise, but you can improve your diet. Write down these micro-goals in your training diary to keep up your motivation.

• If your fitness goal seems beyond you, adjust your mini-goals and stay motivated.

**Make your mini-goals measurable. Decide how you are going to monitor your progress and record every detail in a training diary.**

**Physical activity – don’t be too hard on yourself**

Sometimes, you may find that your fitness goal is too ambitious. For example, maybe you are losing 0.5kg a week instead of 1kg, and sometimes you may not lose any weight (remember muscle weighs more than fat), so make sure you focus on how you feel. You know yourself much better than a set of scales does.

• The first few months of a new exercise program are always the most challenging. Adjust your short-term goals, persist and have faith that things will get easier with time.

• Celebrate your achievements, no matter how small. Making a commitment to a healthier lifestyle is a tremendous achievement, even if your fitness goal is a little harder to reach than you first thought. Flip back to the start of your training diary and appreciate how far you’ve come.

• Have a secondary fitness goal in mind. For example, if your ultimate goal is to lose 20kg, an ability to jog for 20 minutes may be your secondary goal. Achieving this secondary goal is still a great success.

• Don’t give up. You’re worth the effort.

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**ACTIVITY AND EXERCISE TIPS**

Some physical activity is always better than none at all; and more activity is better than a little – but you don’t have to exercise to the point of being in pain to get a health benefit. You should aim for at least 30 minutes of moderate-intensity activity on most – but preferably all – days of the week.

### GETTING STARTED

- Make time to be physically active; schedule it like you would if it were an appointment.
- Set a starting date; write the date down and stick to it.
- Use an activity planner for plotting the times and days you are doing each activity.
- Set short-term *and* long-term goals, don’t be vague about them. Make your goals specific, measurable and achievable.
- Build up your physical activity gradually. If you are starting a new activity or have been inactive for a long period of time, start at an easily manageable level and gradually increase it.
- Choose activities that are right for you – something you already enjoy, or alternatively something different that you have always wanted to try.
- Plan physical activity with other people, to help you stick to your plan and achieve your goals.
- Be patient and persistent; don’t give up before you start seeing the benefits.
- Try and make your activity fun. It can make you feel good about yourself as well as being a chance to enjoy some time to yourself or have fun with other people.

### AT HOME

- Do some gardening.
- Work out to fitness videos on YouTube.
- Wash your car.
- Play with the kids in the yard.
- Stand up and walk around when using your phone.
- When watching television or other screen device, stand up and do your household chores e.g. folding clothes and ironing.
- Put your remote control away to force yourself to get up to use manual controls on a television or stereo.
- Embrace chores around the home; try to do your housework vigorously.
- Stand when catching up on news via the newspaper, phone or tablet.
- Walk or ride when you need to do things within a certain distance to home.

### AT WORK

- Get off at public transport at least one bus/train/tram stop earlier and walk.
- Park your car further away from work and walk some of the way.
- If the distance is not too great and the environment suitable, try walking or cycling to work.
- Walk briskly on your commute and between meetings.
- Have a break from your screen over lunch, try and squeeze in at least a ten-minute walk.
- Take the stairs, not the elevator or escalator.
- Organise standing or walking meetings with colleagues.
- Stand up when on the phone, or when you are reading emails, documents or reports.
- If you are in a large office work environment, set up printers, rubbish bins, drawers, etc away from your desk so you need to get out of your chair more often.
- Walk to colleagues’ desks instead of phoning or emailing them.
- Set a reminder on your computer to stand up regularly.
- Drink more water throughout the day.
- Stand up and take a break from your computer/desk every 30 minutes.
- Use a height-adjustable standing desk while working.
- Eat lunch away from your desk.

### WHEN TRAVELLING

- Leave your car at home; use public transport and get off at least one bus/train/tram stop earlier and walk.
- Walk or cycle at least part of the way to your destination.
- Park your car further away from your destination and walk the rest of the way.
- Plan regular breaks during long car trips.
- Stand up while using public transport.
- Buy yourself a pedometer and use it to motivate you to walk a minimum of 10,000 steps a day.

### ON WEEKENDS

- Run or walk in your local park.
- Catch up with friends and go for a walk.
- Go bowling.
- Have a long bike ride.
- Go to the park with your children or friends.
- Go to your local swimming pool.

### SPORT AND RECREATION

- Work out at least twice a week in the gym; if you don’t like the gym, try these activities:
- Active recreation like bushwalking, surfing or cycling.
- Active transport like walking to public transport, or walking or cycling to your destination.
- Ball sports such as soccer, netball and tennis.
- Salsa or ballroom dancing, or dance classes.
- Strength training like Pilates and yoga.
- Rock climbing, if you are game to stretch yourself.
- Brisk walking/jogging, hiking or orienteering in nature.
- Trampolining.
- Playing frisbee in the park with friends.
- Jump/skipping rope.

### SOURCES

Healthdirect Australia. *How to start exercising.*
Queensland Health. *30 fun ways to get 30 minutes of physical activity today.*
Cancer Council Victoria. *Be physically active.*
ABC Health & Wellbeing. *Why the exercise guidelines take a stand on sitting.*
National Heart Foundation of Australia. *Am I active enough?*
Sport Australia. *Find your 30 at home/work/on the weekend.*

Compiled by The Spinney Press.
MINIMISE SITTING AND SCREEN TIME

The importance of physical activity for health benefits are widely understood; however, the health benefits of sitting less are not as commonly recognised, according to the Department of Health.

New research has shown that sitting for long periods increases your chance of developing chronic disease.¹ So, regardless of how much physical activity you do, try to reduce the amount of time you spend sitting when at work, watching TV, reading or playing electronic games.

If you do have to sit for your job or to study, make sure you take regular breaks from sitting by standing up and moving around.

Breaks in sitting time do not need to involve moderate or vigorous intensity physical activity. Standing up, stretching and doing light activities can be beneficial.

Whether or not you’re a healthy weight, and whether or not your weight changes, simply sitting less will help to improve your health and wellbeing.

Try these tips for sitting less at work:

• Stand while reading or talking on the phone.
• Make regular trips to the kitchen to refill your water glass.
• Collect your printing from the printer more often.
• Schedule reminders on your calendar or phone to stand and stretch.
• Go and see the person in the office next door rather than send them an email.

One way to minimise sitting time is to minimise screen time. Screens have become a big part of our lives. Many of us now spend hours every day looking at computer, television, video game, tablet and phone screens. Try to reduce your screen time, especially at times of the day when you could be doing physical activity.

There is good evidence that children in particular should limit screen time for entertainment to no more than two hours a day.¹

Try to reduce your screen time, especially at times of the day when you could be doing physical activity.

Here are some tips to help minimise screen time:

• Turn the TV off when the show you were watching has finished.
• Don’t have the TV on in the background when you are doing other things (especially during meal times).
• Schedule TV time – choose your favourite programs and only watch those.
• Limit your time spent surfing the net and social networking.
• Choose between watching TV, electronic games or computer time.

For more information:

• Screen time and children
• Establishing physical activity habits
• Australia’s Physical Activity and Sedentary Behaviour Guidelines and the Australian 24-Hour Movement Guidelines

ENDNOTES

1. Australia’s Physical Activity and Sedentary Behaviour Guidelines Children (5-12 years), Young People (13-17 years) and Adults (18-64 years). Department of Health 2013.

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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 52
WRITTEN ACTIVITIES 53
RESEARCH ACTIVITIES 54
MULTIPLE CHOICE 55
Brainstorm, individually or as a group, to find out what you know about physical inactivity.

1. What is physical inactivity, and why is it a problem? Provide examples.

2. Explain the difference between the terms ‘physical activity’ and ‘exercise’.

3. What does the term ‘sedentary behaviour’ refer to in relation to physical activity? Provide examples.

4. What is aerobic exercise? Provide examples of different types of aerobic exercise in your answer.

5. What is obesity? Explain why it is a problem.
Complete the following activities on a separate sheet of paper if more space is required.

“Modern lifestyles, including increases in screen time, the urbanisation of communities and the increasing automation of previously manual tasks, are contributing to what is now a pervasive public health problem that must be recognised as a priority in Australia and around the world.”

Active Healthy Kids Australia, *Childhood physical inactivity reaches crisis levels around the globe.*

1. Make a list of the physical activities you undertake during a typical week – break it down on a day by day basis. Using the list you have made, place the activities into the following categories: medium intensity (activities that require some effort but conversation is still possible); high intensity (activities that make you breathe harder or ‘huff and puff’); and muscle-strengthening (activities that involve body weight, weight lifting or resistance training).

2. Considering your list and results above in Question 1, write one to two paragraphs comparing your physical activity levels to the recommendations set out in Australia’s Physical Activity and Sedentary Behaviour Guidelines.

3. Write one to two paragraphs setting out some short-term mini physical activity goals to suit your lifestyle. Make sure your mini-goals are measurable. Even if your current physical activity level fits the guidelines, set some new, measurable goals. Pick realistic activities and time frames and explain how you are going to monitor your progress.
Complete the following activities on a separate sheet of paper if more space is required.

“We’ve had a look at the effect of sitting, the effect of sleep, the effect of physical activity – and every time, for every disease, for quality of life, for academic performance, for physical health, for mental health, depression, stress, anxiety, it’s physical activity.”

Jennings-Edquist, G, and Wong, J, What’s the minimum amount of exercise you need to stay healthy?

Research online ways in which physical activity can have beneficial effects on specific regions of the body. Under each heading use your research findings to explain how and why specific types of exercise are beneficial to the functions of each area of the body. Include web links to your sources for each answer.

BRAIN

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

LUNGS AND RESPIRATORY SYSTEM

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

HEART AND CIRCULATORY SYSTEM

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

BONES AND MUSCLES

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________
Complete the following multiple choice questionnaire by circling or matching your preferred responses. The answers are at the end of the next page.

1. Australia’s physical activity guidelines for adults aged 18-64 years recommend accumulating how many minutes of moderate-intensity physical activity each week?
   a. None
   b. 10-30 minutes
   c. 30-60 minutes
   d. 60-130 minutes
   e. 150-300 minutes
   f. 320-500 minutes

2. What are the two main sources of metabolic fuel used to support your body’s energy? (Select those that apply)
   a. carbohydrates
   b. iron
   c. fats
   d. water
   e. amino acids
   f. proteins

3. How many hours do the national guidelines recommend for uninterrupted sleep per night for young people aged 14-17 years?
   a. 6-8 hours
   b. 7-9 hours
   c. 8-10 hours
   d. 9-11 hours
   e. 10-12 hours
   f. 11-14 hours

4. Fat is stored in what type of connective tissue around the body?
   a. reticular tissue
   b. osseous tissue
   c. adipose tissue
   d. areolar tissue
   e. granulation tissue
   f. epithelial tissue

5. What does the term ‘HIIT’ stand for in relation to physical activity?
   a. heart-rate intensity individual training
   b. high-intensity interactive training
   c. health-improvement interval training
   d. high-intensity interval training
   e. high-intensity impact training

6. What is the recommended screen time per day for young people aged 13-17?
   a. No more than 30 minutes
   b. No more than 60 minutes
   c. No more than 90 minutes
   d. No more than 120 minutes
   e. No more than 150 minutes
7. Australia’s Physical Activity and Sedentary Behaviour Guidelines recommend muscle-strengthening activities how many times a week for children and young people aged 5-17?

a. 1 time a week
b. 2 times a week
c. 3 times a week
d. 4 times a week
e. 5 times a week
f. Every day of the week

8. Respond to the following statements by circling either ‘True’ or ‘False’:

a. Muscle tissue burns more calories than body fat, even when resting. True / False
b. Bathroom scales are a good way to distinguish between muscle and fat. True / False
c. Walking 3km uses almost the same amount of energy as running 3km. True / False
d. Regular physical activity is a protective factor for the treatment of non-communicable diseases. True / False
e. Physical inactivity contributes to over three million preventable deaths worldwide each year. True / False
f. Globally, 81% of young people (aged 11-17 years) do not meet the WHO global recommendations on physical activity for health. True / False
FAST FACTS

- Low levels of physical activity are a major risk factor for ill health and mortality from all causes. People who do not do sufficient physical activity have a greater risk of cardiovascular disease, type 2 diabetes and osteoporosis. Being physically active improves mental and musculoskeletal health and reduces other risk factors such as overweight and obesity, high blood pressure and high blood cholesterol (Australian Institute of Health and Welfare, *Insufficient physical activity*). (p.1)

- Childhood physical inactivity has reached crisis levels with many children around the world – including in Australia – not moving enough to maintain healthy growth and development, according to a global report. Compared to 48 other countries, Australia's grades lag on measures of Overall Physical Activity, Active Transport, Screen Time and Physical Fitness and the overall grade of D- in 2018 shows no improvement from the previous reports in 2016 and 2014 (Active Healthy Kids Global Alliance, *Childhood physical inactivity reaches crisis levels around the globe*). (p.5)

- Active kids are fitter, have stronger muscles and bones, concentrate better in class and are more confident, and these are just some of the many benefits physical activity provides (Active Healthy Kids Australia, *Report card on physical activity for children and young people*). (p.7)

- Regular physical activity is a well-established protective factor for the prevention and treatment of the leading non-communicable diseases (NCDs), namely heart disease, stroke, diabetes and breast and colon cancer. It also helps prevent other important NCD risk factors such as hypertension, overweight and obesity, and is associated with improved mental health, delay in the onset of dementia and improved quality of life and wellbeing (World Health Organization, *Physical inactivity: a global public health problem*). (p.10)

- A quarter of the world's population is not active enough to stay healthy, according to findings from a World Health Organization study, published in *The Lancet Global Health* journal. Australia's ranking sits in the bottom half of national results (The Spinney Press, *Australia's global physical inactivity ranking*). (p.11)

- 1.4 billion adults across the globe were found not to be physically active enough to keep in good health, with 1 in 3 women and 1 in 4 men not exercising sufficiently or even moving about enough (*ibid*). (p.11)

- 2.6% of the total disease burden (in 2011) was due to physical inactivity... When physical inactivity is combined with overweight and obesity, the burden increases to 9% – equal with tobacco smoking, the leading risk factor for disease burden in Australia (Australian Institute of Health and Welfare, *Impact of physical inactivity as a risk factor for chronic conditions*). (p.12)

- Living a sedentary lifestyle can be dangerous to your health. The less sitting or lying down you do during the day, the better your chances for living a healthier life (Better Health Channel, *The dangers of sitting: why sitting is the new smoking*). (p.17)

- Physical inactivity contributes to over three million preventable deaths worldwide each year (that’s six per cent of all deaths). It is the fourth leading cause of death due to non-communicable diseases (*ibid*). (p.18)

- The term ‘physical activity’ should not be confused with ‘exercise’, which is a subcategory of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness (World Health Organization, *Physical activity: WHO guidelines*). (p.20)

- Globally, 81% of adolescents aged 11-17 years were insufficiently physically active in 2010. Adolescent girls were less active than adolescent boys, with 84% versus 78% not meeting WHO recommendations (*ibid*). (p.21)

- Overall Australians aged 15 years and over exercised 42 minutes per day on average, the largest part of which consisted of walking for transport and walking for exercise (24.6 minutes). However, only a minority met the physical activity guidelines with 1.9% of 15-17 year olds, 15.0% of 18-64 year olds and 17.2% of 65 year olds and over meeting the 2014 Physical Activity Guidelines in 2017-18 (Australian Bureau of Statistics, *Physical activity facts*, from National Health Survey: First results, Australia 2017-18). (p.26)

- Australia’s Physical Activity and Sedentary Behaviour Guidelines and the Australian 24-Hour Movement Guidelines are supported by a rigorous evidence review process that considered: the relationship between physical activity (including the amount, frequency, intensity and type of physical activity) and health outcome indicators, including the risk of chronic disease and obesity; and the relationship between sedentary behaviour/sitting time and health outcome indicators, including the risk of chronic disease and obesity; and the relationship between good sleep hygiene and improved health (Department of Health, *Australia’s Physical Activity and Sedentary Behaviour Guidelines and the Australian 24-Hour Movement Guidelines*). (p.27)

- If you are new to physical activity, have a health problem, or are concerned about the safety of being (more) active, speak with your doctor or health professional about the most suitable activities for you (Department of Health, *Physical activity: what are the benefits?*). (p.37)

- One way to minimise sitting time is to minimise screen time. Screens have become a big part of our lives. Many of us now spend hours every day looking at computer, television, video game, tablet and phone screens. Try to reduce your screen time, especially at times of the day when you could be doing physical activity (Department of Health, *Minimise sitting and screen time*). (p.50)
GLOSSARY

Aerobic activity
Continuous movement involving large muscle groups that is sustained for a minimum of 10 minutes, e.g. walking, cycling, swimming and dancing.

Exercise
Subcategory of physical activity that is planned, structured, repetitive and purposeful in the sense that it results in improvement and maintenance of one or more components of physical fitness.

Incidental physical activity
Unstructured activity taken during the day, such as walking for transport, housework and the performance of activities of daily living.

Insufficient physical activity
Refers to physical activity levels that do not meet the current physical activity recommendations.

Moderate level physical activity
Physical activity at a level that causes the heart to beat faster, accompanied by some shortness of breath, but during which a person can still talk comfortably.

Muscular fitness
Refers to the strength, power and endurance of the muscles – the ability of the muscles to generate force maximally (strength), quickly (power), and without fatigue (endurance).

Non-organised sport
Activities not organised by a club or recreation association, e.g. running or walking.

Obesity
Marked degree of overweight, defined for population studies as a body mass index (BMI) of 30 or over. See also overweight.

Organised sport
Activities organised by a club or recreation association such as a sporting body, social club, church group or gym.

Overweight
Defined as a body mass index of 25 or over. See also obesity.

Physical activity
Any activity that gets your body moving, makes your breathing become quicker and your heart rate faster; the expenditure of energy generated by moving muscles in the body. A broad term that includes playing sport; exercise and fitness activities such as dance, yoga and tai chi; everyday activities such as walking to work, household chores and gardening; and many other forms of active recreation.

Physical fitness
The ability to carry out daily tasks with vigour and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and respond to emergencies. Physical fitness includes a number of components consisting of cardiorespiratory endurance (aerobic power), skeletal muscle endurance/strength/ power, flexibility, balance, speed of movement, reaction time and body composition.

Physical inactivity
Absence of sufficient level of physical activity required to meet the current physical activity recommendations.

Physical literacy
Lifelong holistic learning acquired and applied in movement and physical activity contexts. It reflects ongoing changes integrating physical, psychological, social and cognitive capabilities. A physically literate person is able to draw on their integrated physical, psychological, social and cognitive capabilities to support health promoting and fulfilling movement and physical activity – relative to their situation and context – throughout the lifespan.

Screen-based activities
Sedentary behaviours that involve the use of electronic media, such as watching television, playing video games, or using a computer (collectively called ‘screen time’).

Sedentary activities
Activities that involve sitting or lying down and requiring very little energy expenditure. Sedentary activities can occur at work (e.g. sitting at a desk), in the home (e.g. watching television, reading, or playing video games) and during transport (e.g. sitting in a car or on a bus).

Sedentary behaviour
Sedentary means sitting or lying down for long periods at a time (except when sleeping) and is associated with poorer health. A person may incorporate physical activity into their day, yet can still be considered sedentary if they spend a large amount of their day sitting or lying down at work, home, or while studying, travelling or during their leisure time. Minimising the time spent sitting or lying down each day achieves better health outcomes. Common sedentary behaviours include TV viewing, video game playing, computer use (collectively called ‘screen time’), driving vehicles and reading.

Strength (resistance) training
Activities that are focused on improving the power, strength and size of skeletal muscles. Body weight resistance training involves exercises such as push-ups and pull-ups. Machine and free weights (e.g. dumbbells) can also be used for resistance in strength training.

Sufficient physical activity
Defined as 150 minutes or more of moderate and/or vigorous activity per week.

Vigorous physical activity
Physical activity at a level that causes the heart to beat a lot faster and shortness of breath that makes talking difficult between deep breaths.
Websites with further information on the topic

10,000 Steps (CQU University Australia)  www.10000steps.org.au
Active Healthy Kids Australia  www.activehealthykidsaustralia.com.au
Australian Bureau of Statistics  www.abs.gov.au
Australian Institute of Health and Welfare  www.aihw.gov.au
Australian Sports Commission  www.sportaus.gov.au
Better Health Channel  www.betterhealth.vic.gov.au
Department of Health  www.health.gov.au
myDr  www.mydr.com.au
National Heart Foundation of Australia  www.heartfoundation.org.au
Obesity Australia  www.obesityaustralia.org
World Health Organization (Physical activity page)  www.who.int/ncds/prevention/physical-activity/en/
INDEX

A
age groups
adolescents 1-2, 20, 21, 31
adults (18-64 years) 1, 2, 18-19, 20, 23, 24-25, 26, 29-30, 31, 37
children 1-2, 5-6, 7-8, 9, 18, 20, 23, 25, 29, 31, 33, 36
birth to 5 years 27-28, 31, 36
infants (birth to 1 year) 36
older people (65 years plus) 3, 20-21, 23, 24, 25-26, 30, 31, 32, 37
young people 1-2, 5-6, 7-8, 9, 18, 23, 24, 25, 26, 29, 36

anxiety 14, 17, 34, 37
arthritis 16, 34, 37, 46
Australian 24-Hour Movement Guidelines 27-30, 31-33
Australia’s Physical Activity and Sedentary Behaviour Guidelines 1-3, 19, 24, 26, 27-30, 31-33

B
back 17
balance 34-35
blood cholesterol/pressure 1, 15, 34, 37
body fat 43-45
bones/joints 8, 16, 34, 37
brain 14, 34

C
cancers 10, 11, 12, 13, 15-16, 17-18, 20, 24, 31, 34, 37
cardiovascular disease 1, 12, 20, 37 see also heart disease

D
dementia 10, 11, 12, 13, 34
depression 14, 17, 24, 34
diabetes 1, 4, 10, 11, 12, 13, 16, 17, 18, 20, 24, 34, 37, 46
diseases 14-16, 17-18
burden 12, 13
chronic conditions 12, 27, 31
non-communicable 10, 11, 18, 20, 21, 23

E
exercise 20, 24-26, 38-40, 43-45, 46
see also physical activity
aerobic 43, 45
definition 34
fat-burning 43-45
program 47-48
energy, which uses more 44
tips 49

G
gender
boys 21, 31
girls 21, 31

men 1, 2, 3, 21, 25, 26
women 1, 2, 3, 21, 25, 26

Global Action Plan on Physical Activity 11
Global Recommendations on Physical Activity for Health 10, 20-23

H
health, general 16
heart disease 10, 11, 12, 13-15, 17-18, 34, 37, 46 see also cardiovascular disease
hips 17

I
immune system 34

Indigenous people 32

L
legs (and gluteals) 17

M
mental health 10, 11, 14, 17, 24, 34, 37
movement
guidelines 27-30, 31-33
skills 8
muscles 8, 34
muscular fitness 8
strengthening activities 1, 8, 20, 21, 23, 24, 31, 38-40

O
osteoarthritis 20-50 see also exercise
benefits of 10, 12, 21, 34-35, 36-37
definition of 4, 20, 34
forms of 1, 4, 49
global recommendations 10-11, 20-23
goals, setting 47-48
guidelines 1-3, 19, 24, 26, 27-30, 31-33
home-based 49, 50
‘huff and puff’ 7, 8
increasing daily 19, 22
indoors 19
insufficient 1-3, 11, 20-23
life stages, across 31-33
measuring 1
moderate intensity 1, 11, 18, 20, 21, 23, 24, 38-40, 44-45, 46, 49
monitoring your 48
organised, children’s 9
recommendations 27-30
safety 19
strength-based 31
tips 49
vigorous intensity 1, 11, 20, 21, 23, 24, 38-40
workplace-based 19, 24-26, 49, 50

physical fitness 5, 8
physical inactivity 1-19
adults, in 10
areas
cities 2, 26
disadvantaged 23, 26
regional and remote 2, 26
body, risks to 14-16
causes of 4
childhood 5-6, 7-8, 9
health risks/impacts 12, 13, 14-16, 21
levels of, global 10-11, 21-22
ranking, Australia’s global 11
reasons for 10

R
reproductive organs 34

S
schools 6, 8, 9, 23
screen time (devices, television) 4, 5, 6, 8, 18, 28, 31, 33, 50
sedentary behaviour 1-19, 31, 33
definition 4
guidelines 1-3, 19, 24, 26, 27-30, 31-33
levels, Australians 18-19
lifestyle-related 17-19
body, impacts on 17-18
reducing your 19
sitting 1, 4, 17-19, 26, 32, 40, 50
skin 34
sleep 27, 28, 29

socioeconomic
disadvantage 2-3, 25
groups 12, 13, 32

sports and recreation 6, 8, 9, 49
barriers to participating in 31, 33
organised 9, 25

standing 49, 50
steps, per day 19, 39, 49
neck and shoulders 18
stroke 10, 12, 13, 14, 34, 37
suicide attempts 14

T
transport, active 5, 8, 49

U
urbanisation 10, 22

V
veins 18

W
walking 12, 13, 19, 22, 26, 38-39, 41-42, 49
weight loss 17, 37, 43-45, 46
World Health Organization (WHO) 4, 10-11, 20-23

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