

# The cost of physical inactivity

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- The cost of physical inactivity to the Australian economy is estimated to be \$13.8 billion.
  - It is estimated that 16,178 Australians die prematurely each year due to physical inactivity.
  - Productivity loss due to physical inactivity equates to 1.8 working days per worker per year.

# Contents

- 3 What is physical inactivity?
- 4 What causes physical inactivity?
- 5 Physical inactivity – a major risk factor for ill health and mortality
- 6-8 How do you measure the costs of physical inactivity?
  - a. Healthcare costs
  - b. Economy-wide productivity costs
  - c. Mortality costs
- 9 What is the cost of physical inactivity in Australia?
- 10 The benefits of physical activity and how to achieve them
- 11 Sedentary behaviour

## What is physical inactivity?

**The National Physical Activity guidelines (NPA guidelines) for Australians recommend 30 minutes of moderate-intensity physical activity on most days of the week as the minimum requirement for good health.**

To be considered 'physically active' the National Physical Activity Survey states you should participate in at least 150 minutes of moderate-intensity physical activity over at least five sessions in a week.

Any individual that does not meet this level of exercise is considered to be physically inactive.



# What causes physical inactivity?

# Physical inactivity – a major risk factor for ill health and mortality

**The World Health Organisation notes that levels of inactivity are high in virtually all developed and developing countries<sup>1</sup>. In developed countries more than half of adults are insufficiently active.**

In rapidly growing large cities of the developing world, physical inactivity is an even greater problem.

Physical inactivity is largely a natural response to our environment.

Urbanisation has resulted in several environmental factors which may discourage participation in physical activity:

- population over-crowding;
- high-density traffic; and
- lack of parks, footpaths and sports / recreation facilities.

The World Health Organisation notes that our culture increasingly values cars, television, computers, and convenience, making physical activity a less natural part of our lives. Some communities are designed with housing far from schools, shopping or workplaces making walking or biking for transportation infeasible.

More and more employees have sedentary jobs decreasing the amount of activity incurred during daily routines.

21st century life is increasingly becoming busier, with time poor individuals finding it difficult to undertake sufficient exercise.



**The World Health Organisation<sup>2</sup> estimates that physical inactivity causes 1.9 million deaths per year worldwide, about 10 to 16 per cent of breast cancer, colon cancer and diabetes cases, and about 22 per cent of coronary heart disease (ischemic heart disease).**

The Australian Institute of Health and Welfare (AIHW) also notes that “people who do not do sufficient physical activity have a greater risk of cardiovascular disease, colon and breast cancers, Type 2 diabetes and osteoporosis”.

Being physically active helps to improve mental and musculoskeletal health and reduces other risk factors such as being overweight, high blood pressure and high blood cholesterol<sup>3</sup>.

Like other health risk factors, physical inactivity can have an adverse effect on organisations as well as individuals. Specifically, physical inactivity can impact on employee productivity by causing increased absenteeism and presenteeism, which impose direct economic costs to employers.

Furthermore, physical inactivity can lead to larger healthcare costs and costs associated with disability and premature mortality.

This is the 2nd report by Medibank Private and KPMG-Econtech investigating the economic costs of Physical Inactivity.

This report considers the costs to employers, individuals and the economy more broadly from reduced productivity and premature mortality.

It also updates our previous work on direct healthcare costs for the current year.



<sup>1</sup> World Health Organisation (WHO) “Physical Inactivity: A Global Public Health Problem”.

<sup>2</sup> World Health Organisation (2003), *Global Strategy on Diet, Physical Activity and Health*.

<sup>3</sup> AIHW website, <http://www.aihw.gov.au/riskfactors/inactivity.cfm>

# How do you measure the costs of physical inactivity?

## The modelling approach used in this research to estimate the costs of physical inactivity to the Australian economy is separated into three parts:

- Healthcare costs
- Economy wide productivity costs
- Mortality costs

### a. Healthcare Costs

The increased number of medical conditions, as result of physical inactivity, leads to increased medical costs.

These are the direct healthcare costs incurred to treat the symptoms of (and sometimes cure) these medical conditions.

These healthcare costs would be shared between governments, through public health care, private health insurance companies and by individuals who need to make some out-of-pocket payments.

These direct healthcare costs are offset by expenses associated with participation in physical activity including sports injuries and fitness-related expenses which have been determined to be \$884 million in the research calculations.

This gives an estimated direct net cost of physical inactivity of **\$719 million per annum** to Australia as shown in Table 1.

### Direct Net Cost of Physical Inactivity in Australia, 2007/08 (\$ million/annum)

Table 1

Disease	Direct Health Cost attributable to physical inactivity
Coronary Heart Disease	\$399
Stroke	\$174
Type 2 diabetes	\$226
Breast cancer	\$45
Colon cancer	\$66
Depression symptoms	\$190
Falls	\$503
<b>Total gross cost</b>	<b>\$1,603</b>
<b>Offset by direct costs of being physically active</b>	<b>\$884</b>
<b>Total net cost of inactivity</b>	<b>\$719</b>

### b. Economy wide productivity costs

Like other health risk factors, physical inactivity can have an adverse effect on organisations as well as individuals.

Specifically, physical inactivity can impact on employee productivity by causing increased absenteeism and presenteeism, which impose direct economic costs on employers.

Presenteeism is defined as the lost productivity that occurs when employees come to work but, as a consequence of illness or other conditions, are not fully functioning.

In comparison, absenteeism occurs when employees do not come to work.

The direct costs of physical inactivity to the employer are the value of lost labour input.

KPMG-Econtech estimates the overall average labour productivity loss caused by physical inactivity corresponds to a direct loss of **1.8 working days per worker per year** for an average Australian worker<sup>4</sup> or a cost of around **\$458 per employee per year**<sup>5</sup>.

It is estimated that in 2007/08, physical inactivity caused GDP to be around **\$9.3 billion** lower than would otherwise be the case.

### c. Mortality Costs

Physical inactivity can lead to medical conditions that lead to reduced life expectancy.

Table 2 shows the number of deaths estimated in 2008 due to Physical Inactivity. This mortality cost is often overlooked, but is an important element in considering not only the social but also financial costs of physical inactivity.

### Number of deaths due to physical inactivity (2008)

Table 2

Age	Male	Female
15 - 24	4	2
25 - 64	1,651	936
65 - 74	1,589	958
75+	4,599	6,439
<b>Total</b>	<b>7,843</b>	<b>8,335</b>

Source: AIHW and KPMG - Econtech

This reduced life expectancy has two effects: economic and social.

### Economic cost of reduced life expectancy

The first is an economic effect of a decline in the size of the labour force. This effectively means that less worker years are available to the labour force and hence less output can be produced for the economy.

Table 3 shows that physical inactivity cost Australia \$3.8 billion in 2007/08 in potential lost future output.

### Direct Mortality Costs of Physical Inactivity in Australia, 2007/08 (\$ million)

Table 3

Age	Total
15 - 24	\$26
25 - 64	\$3,050
65 - 74	\$334
75+	\$402
<b>Total</b>	<b>\$3,812</b>

Source: KPMG - Econtech

<sup>4</sup> Assumes 240 working days per annum.

<sup>5</sup> Assumes average weekly earnings of \$1,158.40 (Source: 2008 Yearbook Australia, ABS, pp 255) for 52 weeks.

# How do you measure the costs of physical inactivity? *continued...*

## Social cost of reduced life expectancy and reduced quality of life

The second effect is a social cost to society of reduced life expectancy. This is generally an unquantifiable cost, since the value of life, in a social sense, is a subjective question. This second effect is more to do with the emotional trauma experienced by the family and friends left behind due to the loss of their loved one and the personal reduction in happiness the individual feels because they pass away early.

There are also 'quality of life' costs associated with physical inactivity. These social costs relate to the cost to the ill person and their family in terms of their reduction of quality of life due to such issues as pain, disability, anxiety, and suffering.

Table 4 shows the disability-adjusted life years (DALYs) for major risk health factors in Australia noting that physical inactivity is the fourth highest risk factor in terms of DALYs, behind tobacco use.

A DALY is equivalent to the loss of one year of *healthy* life and it allows the burden of disease in a population to be measured as the gap between current health and an ideal situation where everyone lives to old age, free of disease and disability<sup>6</sup>.

### DALYS by risk factor in Australia (2003)

Table 4

	DALYS
Tobacco	204,788
High blood pressure	199,315
High body mass	197,632
Physical inactivity	174,431
High blood cholesterol	163,591
Alcohol	61,091
Low fruit and vegetable intake	55,259
Illicit drugs	51,463
Occupational exposures	51,362
Intimate partner violence	29,378
Child sexual abuse	23,377
Air pollution - long term	19,738
Unsafe Sex	14,897
Air pollution - short term	7,781
Osteoporosis	4,386
Ozone	3,974
Particulates	3,807

**Joint effect of all risk factors 847,307**

# What is the cost of physical inactivity in Australia?

Table 5 summarises the total economic cost of physical inactivity. In 2008, the total economic cost of physical inactivity is estimated to be \$13.8 billion.

### Total economic cost of physical inactivity, 2008 (\$ million)

Table 5

Physical inactivity costs	Total
Healthcare	\$719
Productivity	\$9,299
Mortality	\$3,812
<b>Total</b>	<b>\$13,830</b>

Source: KPMG - Econtech



These costs are based on conservative estimates of the cost of physical inactivity. This is because they exclude two costs.

The first is the cost of individuals being outside the workforce due to physical inactivity. These individuals we term "permanent absenteeism" since the impact of chronic disease, attributed by physical inactivity, keeps these individuals outside of the workforce.

The second is the value of unpaid work. Unfortunately no data was available on the number of permanently absent individuals, nor on the value of unpaid work, hence KPMG-Econtech was unable to estimate these costs.

<sup>6</sup> Mathers C., Theo Y., Stevenson C. and Begg S. (2001), the burden of disease and injury in Australia, World Health Organization, 79(11).

# The benefits of physical activity and how to achieve them

**There are a number of benefits of physical activity alluded to in this report. These primarily relate to the reduced risk of attracting chronic diseases.**

For example, the US Department of Health and Human Services notes that regular physical activity has beneficial effects on most (if not all) organ systems, and consequently helps to prevent a broad range of health problems and diseases<sup>7</sup>. This includes improving cardiovascular fitness which decreases the risk of cardiovascular disease.

Physical activity also maintains muscle strength, joint structure, joint functioning and bone health which is important for skeletal

development in young people and protects against falls and fractures among the elderly.

Furthermore, regular physical activity has a beneficial effect on symptoms of depression and anxiety which help to reduce mental health disorders.

Finally, regular physical activity is associated with lower mortality rates for both older and younger adults.



## Sedentary Behaviour

**Despite the known benefits of physical activity, new research presented in the report indicates that long periods of sedentary behaviour in between exercise can negate the benefits of physical activity. The implications of this new research are twofold.**

Firstly, those who are physically active may still be at risk of attracting chronic disease.

This is because the benefits they receive from being physically active are offset to some extent by long periods of sedentary time.

Secondly, those who are physically inactive will be at even greater risk of attracting chronic disease. Hence office workers and other occupations where individuals are sitting for long periods of time are at a higher risk.

This suggests that exercise alone may be insufficient to fully eradicate the costs estimated in this report.

Medibank Private is conducting new research into this area, to educate the public not only on the benefits of physical activity but also the importance of regular movement throughout our days. This research is expected to be released in mid 2009.



<sup>7</sup> USDHHS (2002) "Physical Activity Fundamental To Preventing Disease". June 20 2002.

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