



PHYSICAL ACTIVITY & HEALTH

This briefing note summarises some key facts and figures on the physical activity & health relationship in adults.

Opportunities for Physical Activity

Opportunities for people to be physically active exist in four major domains of one's day-to-day life:

- At work, for example if a job involves manual labour;
- For transport, for example walking or cycling to school, work or to the shops;
- In domestic duties at home, for example housework, gardening or do-it-yourself;
- In leisure time, for example, in sports, exercise or recreational activities.

Despite the numerous opportunities for people to be physically active the majority of the population in the UK do very little or no physical activity in any of these domains.¹

Health Risks of Physical Inactivity

Evidence clearly demonstrates that an inactive lifestyle has a substantial negative effect on both individual and public health¹. Many of the leading causes of disease and disability in our society are associated with physical inactivity, such as Coronary Heart Disease (CHD), strokes, obesity, type II diabetes, hypertension, colorectal cancer, stress, anxiety, osteo-arthritis, osteoporosis and low back pain.²

Estimates have shown that 37% of CHD deaths can be attributed to physical inactivity. This compares to 19% of CHD deaths attributable to smoking and 13% attributable to high blood pressure.³

Health Benefits of Physical Activity

Strong evidence confirms that there are many potential health benefits of physical activity.¹⁻³⁰ Regular moderate physical activity:

- **Reduces the Risk of Premature Mortality:**

In the year 2005 approximately 120,709 men and 80,995 women died prematurely[†] from all-causes in the United Kingdom.⁴

© Based on individuals meeting the recommended levels of physical activity for their age

† Premature mortality is before the age of 75 years

- Achieving the recommended levels of moderate intensity physical activity can reduce premature mortality by between 20-30%.¹

- **Reduces Cardiovascular Disease (CVD):**

Cardiovascular Disease is one of the main causes of premature death in the UK. In 2005, CVD caused over 56,000 premature deaths.⁴ Thirty two percent of premature deaths in men and twenty four of premature deaths in women are from CVD.⁵

Coronary Heart Disease (CHD) by itself is the single most common cause of death in the UK, accounting for 21% of premature deaths in men and 12% of premature deaths in women.⁵

- Improved cardio-respiratory fitness through regular physical activity decreases the risk of cardiovascular disease mortality in general and coronary heart disease mortality in particular.⁶
- Individuals who are active are 1.9 times less likely to have a heart attack than their inactive contemporaries.⁷
- The benefits of physical activity and fitness extend to patients with established cardiovascular disease. In patients with chronic ischaemic heart disease, exercise has been shown to reduce mortality as part of cardiac rehabilitation and may have a role in patients with stable angina.⁸

- **Reduces the risk of developing some Cancers:**

Colo-rectal cancer accounts for 3% of premature deaths in men and women in the UK. In 2004, over 6000 women died prematurely from breast cancer in the UK, accounting for 8% of premature deaths.⁵

- Physical activity is associated with a reduction in overall risk of cancer; high levels of physical activity being associated with lower risk of developing cancer than lower levels of physical activity.⁹
- The most active individuals have on average a 40-50% lower risk of developing colon cancer than the least active individuals.¹⁰
- Physical activity is associated with a reduced risk of breast cancer in post-menopausal women. Women with higher levels of physical activity have a 30% lower risk of breast cancer than the least active. The higher the level of physical activity, the lower the risk of breast cancer.¹
- Physical activity has also been shown to have a small protective effect on endometrial cancer.¹¹
- For optimal protection against cancer, physical activity should be maintained throughout the lifetime. Regular moderate to vigorous intensity physical activity appears to be required for a significant protective effect.¹

- **Reduces the risk of developing Type II Diabetes:**

According to Diabetes UK there are around 2.2 million people in the UK diagnosed with diabetes. This may be a conservative estimate as it is suggested that nearly half of diabetes may go undiagnosed.¹²

- Regular physical activity has a protective effect against developing type II diabetes, lowering the risk of developing non-insulin dependent diabetes mellitus by 33-50%.¹
- Physical activity may also reduce the risk of developing type II diabetes in groups of people with impaired glucose tolerance (IGT). The Finnish Diabetes Prevention Study found that for every 22 people with IGT who received a nutritional counselling and exercise advice intervention, one case of diabetes could be prevented.¹³ Physical activity of a moderate and vigorous intensity and duration is associated with decreased risk conversion of impaired glucose tolerance to diabetes, even in the absence of weight loss and independently of other identified risk factors.¹⁴
- Regular physical activity can produce small, but significant improvements in blood glucose control in people with type II diabetes.⁶

▪ **Helps prevent or reduce Hypertension:**

According to the Health Survey for England, 39% of men and 28% of women have hypertension.^{15*} For adults aged 40-69 years, each 20mmHg increase in usual systolic blood pressure or 10mmHg increase in usual diastolic blood pressure, doubles the risk of death from CHD.⁵ Epidemiological studies indicate that uncontrolled elevated blood pressure can also lead to stroke, congestive heart failure and end-stage renal disease.¹⁶

- Regular physical activity helps to reduce both systolic and diastolic blood pressure in individuals with elevated blood pressure by approximately 3.8mmHg and 2.6mmHg respectively.¹⁶
- Blood pressure reductions associated with aerobic exercise have been found to exceed that of meta-analyses that explored the effects of sodium reduction, potassium supplementation and alcohol reduction on systolic and diastolic blood pressure.¹⁶
- A systematic review of a number of intervention studies concludes that it appears as though 40 minutes of moderate to vigorous aerobic-based physical activity 3-5 days/week is required to improve vascular function and reduce blood pressure in obese children.¹⁷

▪ **Helps to prevent or reduce Osteoporosis**

* Hypertension is defined here as a systolic blood pressure of 140mmHg or over, or a diastolic blood pressure of 90mmHg or over).

Currently 2% of women over 50 years old live with osteoporosis in the UK, rising to over 25% of women at 80 years of age. One in two women and one in five men will suffer a fracture after the age of 50; the lifetime risk of fracture in women at age 50 is greater than the risk of breast cancer or cardiovascular disease.¹⁸

Around 30% of over 65 year olds and 42% of over 75 year olds living in the community will fall each year. For those aged 75 or older, one in three of these falls will result in fracture. UK based research has shown mortality of 18% at 3 months following a hip fracture. Eighty percent of older women report they would rather die than experience the reduced quality of life that follows a serious hip fracture. The impact of hip fracture on health-related quality of life is considerable and long lasting. Twelve months after a hip fracture 60% of patients are limited in activities of daily living such as feeding and dressing and 80% are unable to do one or more strenuous activities of daily living such as gardening and climbing stairs.¹⁸

- Physical activity as a way to prevent osteoporosis is based on evidence that it can regulate bone maintenance and stimulate bone formation including the accumulation of mineral, in addition to strengthening muscles, improving balance, and thus reducing the overall risk of falls and fractures.¹⁹
- Physical activity that stresses the bone can increase bone mineral density in young people, maintain it in young adults and slow its decline in old age.¹
- Physical activity interventions can help prevent falls among the elderly by up to 25%.¹

▪ **Helps to control weight and lower the risk of becoming Obese**

According to the Health Survey for England (2005)¹⁵ about 43% of men and 32% of women are overweight and an additional 22% of men and 24% of women are obese.³

- People with higher levels of physical activity generally report lower body weight, body mass index and skin-fold measures.²⁰
- Using HSE data, prevalence of overweight and obesity among men with low levels of physical activity is 71.7%. This falls to 59.7% among men with high activity levels. A similar pattern is seen among women; 63% of women with low activity levels are overweight and obese compared with 47% of women with high activity levels.²⁰

▪ **Promotes Psychological Well-Being**

According to the Office of National Statistics²¹, mixed anxiety and depression is experienced by 9.2% of adults in Britain. This is followed by general anxiety at 4.7 %

³ Overweight - Body Mass Index (BMI) of 25-30kg/m²; Obese -BMI of more than 30kg/m²

and depression (without the symptoms of anxiety) at 2.8%. Mental health problems such as anxiety and depression are also prevalent among children, in 2004, one in ten children aged 5-16 had a clinically diagnosed mental health problem.²²

- Regular physical activity appears to relieve symptoms of depression and anxiety and improve mood. Evidence suggests that the effects of exercise are similar to those of psychotherapeutic interventions for patients suffering with depression.²³
- Physical activity may also help people with generalised anxiety disorder, phobias, panic attacks and stress disorders and can have a positive effect on psychological well-being in people with schizophrenia.¹
- Physically active people feel happier and more satisfied with life. Furthermore, being physically active has a positive effect on self-esteem and self-perceptions such as body image.¹

▪ **Enhances and Protects Brain Function**

Dementia currently affects over 700,000 people in the UK, this represents 1 person in every 88 of the UK population. It is predicted that this figure will rise to 1,000,000 people living with dementia in the UK by the year 2025. Delaying the onset of dementia by 5 years would reduce UK deaths directly attributable to dementia by 30,000 a year.²⁴

- Studies have shown a causal relationship between fitness training and improved cognition, more efficient brain function and spared brain volume in older adults.²⁵
- Physical activity may have the potential to prevent, delay, or slow the progression of dementia.²⁶
- Review level evidence shows that older adults who exercise regularly are less likely to experience cognitive decline. Possible mechanisms proposed in the association between physical activity and cognitive decline include vascular disease, inflammation and neurogenesis.²⁷
- More evidence is needed on the relationship between physical activity and cognitive health before definitive exercise recommendations can be publicised.²⁶

▪ **Can help in the Management of Painful Conditions**

- Physical activity can help prevent osteoarthritis by strengthening articular cartilage* and subchondral bone†. Physical activity can also enhance the role of synovial fluid, strengthen the muscles that protect and stabilise joints and reduce obesity.¹ Among people suffering from osteoarthritis, a broad range of physical activities can help reduce pain, stiffness and disability and increase general mobility, gait, aerobic fitness and muscular strength.¹
- For those suffering with back pain, evidence from selected systematic reviews and major clinical studies shows that fitness programmes and advice to stay

* The cartilage that covers the ends of bones at a joint

† The layer of bone that underlies and supports the articular cartilage

active can reduce pain, improve function and can prevent lower back pain becoming chronic.²⁸

- Some of the symptoms of fibromyalgia[‡] are improved by short-term aerobic fitness training. The most consistent improvements have been noted in pain threshold using pressure, global well-being and aerobic performance.²⁹
- Exercise is an inexpensive, low risk option compared with other more invasive therapies for intermittent claudication and can provide significant benefit to patients with leg pain.³⁰

- **Improves Health Related Quality of Life (HRQL)**
 - A large cross-sectional study has shown that the odds of reporting at least 14 unhealthy days in the last month among those meeting physical activity recommendations was about half of the odds among those least active.³¹
 - A nested cohort study revealed significantly higher relative risks of reporting poor perceived health after a 10 year follow-up among those subjects in the lowest leisure time physical activity categories at baseline.³²
 - A Systematic review found that when reviewing cross-sectional evidence, higher physical activity levels were consistently associated with higher/better scores in various HRQL dimensions.³³

- **Other benefits**
 - Youth who participate in organised sports are less likely to smoke cigarettes and use drugs than non-sports participants. It has also been found that participants of organised sports also have lower rates of anti-social behaviour and teenage pregnancy than non-sports participants.³⁴

Health Risks of Physical Activity

Although physical activity has numerous health benefits, there are potential adverse effects associated with being physically active, ranging from those that cause minor inconvenience to those that are life threatening. However, the risks associated with taking part in physical activity at levels that promote health are low. The health benefits of physical activity far outweigh the risks.

- Most musculoskeletal injuries related to physical activity are likely to be preventable by gradually working up to a desired level of activity and by avoiding an excessive amount of activity.

[‡] A chronic disorder characterized by widespread musculoskeletal pain, fatigue and a range of other symptoms

- High lifetime exposure to walking, running/jogging and athletics is associated with increased risk of hip pain, although participation in other activities such as swimming and badminton is associated with no increased risk of hip pain.¹
- Vigorous physical activity can acutely and transiently increase the risk of acute myocardial infarction and sudden cardiac death in susceptible individuals, although the overall benefit of regular physical activity is lower all-cause mortality.³⁵

Summary

The World Health Report (2002) estimated that approximately 3% of disease burden in developed countries is due to physical inactivity and that over 20% of heart disease and 10% of stroke in developed countries is due to physical inactivity. Physical inactivity is one of the top 10 leading causes of death and disability in the developed world.²

Given the prevalence of physical inactivity and the compelling evidence on the health benefits of regular moderate to vigorous physical activity, physical activity is probably the 'best buy' in public health. There are few public health initiatives that have greater potential for improving health and well-being than increasing the activity levels of the population in England.¹

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