



Information Guide

Following the Research



Physical activity guidelines across the lifecourse

What this guide is about

In 2011, the Chief Medical Officers of the four home countries produced guidelines outlining the amount of physical activity that we should all do to improve our health and fitness. The report, entitled *Start Active, Stay Active*, highlights that being physically active is important no matter how old (or young) you are.

After explaining a few terms, we give you these guidelines for the various age categories used. Please refer to the original report for more information.

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Introduction

What is physical activity?

In 1996, the US Surgeon General defined physical activity as:

"Bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level."

This is a very broad definition, and theoretically includes every movement you make, ranging from brushing your hair and scratching your nose, to mountain climbing and running marathons!

ACSM (2014) have further refined this definition and view physical activity as:

"Any bodily movement produced by the contraction of skeletal muscles that results in a substantial increase in caloric requirements over resting energy expenditure".

We all perform physical activity in order to sustain life and to carry out the many acts required for daily living. However, the amount of physical activity carried out is largely down to personal choice and as such, varies considerably from person-to-person and for a given person over time.

What types of physical activity are there?

Physical activity includes all forms of activity, such as work-related physical activity, leisure-time active recreation (such as going to an exercise class, active play or dancing), everyday activities (such as active travel or commuting, housework, gardening and DIY), or sport.

Most physical activities are carried out with little regard for improving physical fitness and are often structured to be efficient and conserve energy expenditure; for example, driving to the shops rather than walking, and taking the lift or escalators rather than the stairs. This is evident from the increase in prevalence of *hypokinetic diseases*, diseases which have inactivity and sedentary behaviour as a risk factor, such as coronary heart disease (CHD) and type 2 diabetes.

How do physical activities differ?

Activities differ in how hard they are (intensity), how long they are carried out (duration), and how many times they are performed (frequency) - they therefore differ in how much energy is expended and their effects on physical fitness.

For example, Ainsworth et al (2000) assign riding in a car or bus a MET value of 1, and walking at a slow pace (2 miles per hour) on a level and flat surface a MET value of 2.5. A MET, or metabolic equivalent, is a physiological measure of the energy cost of physical activities. One MET is defined as the amount of energy consumed whilst sitting at rest; therefore a MET value of 2.5 (for slow walking) indicates you would expend 2.5 times more energy than you would sitting at rest (in the car or bus, for example).

One MET represents the energy cost of sitting quietly and equates to an energy expenditure of roughly 1 kilocalorie per kilogram body weight per hour. For somebody weighing 60 kilograms, they would expend 1 kilocalorie per minute sitting in a car or 2.5 kilocalories per minute walking at a slow pace. The same figures for someone weighing 90 kilograms would be approximately 1.5 kcals/minute for sitting in the car and 3.75 kcals/minute for slow walking.

Thus, making small changes to your activity levels in everyday life can potentially result in significant long-term benefits:

For example, if a 90 kilogram commuter was to walk slowly to their train station rather than drive there, a journey adding just 30 minutes of slow walking to their day, they would burn an extra 112 kcals a day. This equates to almost 560 kcals over the course of the working week, or 27,000 kcals over the course of a year (assuming they commute for 48 weeks in a year) – this is equivalent to almost 8 pounds or just over 3.5 kg of fat. This small change can thus lead to significant benefits later on, especially if you introduce other such small changes to gradually make your lifestyle more active.

Is physical activity the same as exercise?

ACSM (2014a) define exercise as:

"A type of physical activity consisting of planned, structured, and repetitive bodily movement done to improve and/or maintain one or more components of physical fitness".

Exercise is by definition a physical activity - it involves bodily movement caused by skeletal muscles and it results in energy expenditure above basal levels. Exercise differs from physical activity in two important respects; firstly, exercise is planned and structured, and secondly, the intention of exercise is to improve or maintain physical fitness.

What is the difference between moderate and vigorous intensity physical activity?

In the guidelines that follow, there is frequent mention of 'moderate' or 'vigorous' intensity when referring to how hard a physical activity should feel to impart health benefits.

Moderate-intensity physical activity requires a moderate amount of effort, and will result in you breathing faster - but you should still be able to hold a conversation; you will also experience a noticeable increase in heart rate, feel warmer and maybe even sweat on hot or humid days.

This intensity is relative to the individual and will occur at different workloads. For example, a frailer, older adult with low functional capacity might experience moderate-intensity when walking at a very slow pace for a short time, whereas moderate-intensity for a younger, more active adult will involve a much faster walk or run for a longer duration.

Vigorous physical activity requires a large amount of effort, and will result in you having a substantial increase in heart rate, rapid breathing and a shortness of breath, so you cannot hold a conversation comfortably.

In the last section we introduced the concept of METs - the ratio of an individual's working metabolic rate relative to their resting metabolic rate. It is said that being moderately active involves activity in which energy consumption is 3-6 times higher when compared to sitting quietly, and more than 6 times higher when being vigorously active:

- Moderate-intensity physical activity = 3-6 METs.
- Vigorous-intensity physical activity = 6+ METs.

Physical activity guidelines for Early Years (under-5s)

Physical activity should be encouraged from birth, particularly through floor-based play and water-based activities in safe environments.

Children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day.

All under 5s should minimise the amount of time spent being sedentary (being restrained or sitting) for extended periods (except time spent sleeping).

Department of Health (2011) *Start Active, Stay Active.*

Physical activity guidelines for Children and Young People (5-18 years)

All children and young people should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day.

Vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week.

All children and young people should minimise the amount of time spent being sedentary (sitting) for extended periods.

Department of Health (2011) *Start Active, Stay Active.*

Physical activity guidelines for Adults (19-64 years)

Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.

Alternatively, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or a combination of moderate and vigorous intensity activity.

Adults should also undertake physical activity to improve muscle strength on at least two days a week.

All adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

Department of Health (2011) *Start Active, Stay Active*

Physical activity guidelines for Older Adults (65+ years)

Older adults who participate in any amount of physical activity gain some health benefits, including maintenance of good physical and cognitive function. Some physical activity is better than none, and more physical activity provides greater health benefits.

Older adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.

For those who are already regularly active at moderate intensity, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or a combination of moderate and vigorous activity.

Older adults should also undertake physical activity to improve muscle strength on at least two days a week.

Older adults at risk of falls should incorporate physical activity to improve balance and co-ordination on at least two days a week.

All older adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

Department of Health (2011) *Start Active, Stay Active.*

Links

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Department of Health (2011) *Start Active, Stay Active*.

<https://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers>

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