


Supporting References

The following reference list provides sources for the facts presented in Health Matters: Physical Activity which are not hyperlinked/referenced in the text.

1. Health Benefits of physical activity

Data	Sources
One in 3 adults in England live with a long-term health condition and they are twice as likely to be amongst the least physically active.	Department of Health (DH): Long-term conditions compendium of Information: 3rd edition (2012)
However, evidence shows that regular physical activity can help prevent or manage many common conditions	Department of Health and Social Care (DHSC): UK Chief Medical Officers' Physical Activity Guidelines (2019)
Muscle strength, bone health and the ability to balance underpin physical function. Each attribute contributes independently to overall health and functional ability, and in combination they provide lifelong benefits.	DHSC: UK Chief Medical Officers' Physical Activity Guidelines (2019)
 <p>The diagram is titled 'Physical activity' and is set against a red background. It features six icons in white rounded rectangles, each with a red icon and text below it. The icons are: a heart for 'Active living', a bicycle for 'Active travel', a person with a dog for 'Active recreation', a person with a tennis racket for 'Active sport', a person walking for 'Informal sport', and a person with a tennis racket for 'Organised sport'. The top left corner of the diagram area has the 'Public Health England' logo and the top right corner has the 'Health Matters' logo.</p>	<p>Source: Diagram from Helping to get the nation moving (CSPN, 2009)</p> <p>Diagram associated with Be Active, Be Healthy (2009) (Government Physical Activity Strategy)</p>
<p>Regular physical activity provides a range of physical and mental health and social benefits, many of which are increasing issues for individuals, communities and society. These include:</p> <ul style="list-style-type: none"> • reducing the risk of many long-term conditions • helping manage existing conditions • ensuring good musculoskeletal health • developing and maintaining physical and mental function and independence • supporting social inclusion • helping maintain a healthy weight • reducing inequalities for people with long-term conditions 	DHSC: UK Chief Medical Officers' Physical Activity Guidelines (2019)

2. Physical activity guidelines for adults

Data	Source
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UK Chief Medical Officers' physical activity guidelines

Doing some physical exercise is good and every minute counts so it's never too late to start.

Build strength and improve balance
keep muscles, bones and joints strong

Be active
including moderate, vigorous and very vigorous activities

Minimise sedentary time
break up periods of inactivity

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)

Muscle strength, bone health and the ability to balance underpin physical function. Each attribute contributes independently to overall health and functional ability, and in combination they provide lifelong benefits.

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)

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Term	Definition
Muscle function	Muscle function is necessary to permit movement and maintain posture. Sensory receptors in the muscles monitor the tension and length of the muscles and provide the nervous system with crucial information about the position of the body parts.
Bone health	Bone health includes bone quality that refers to the capacity of bones to withstand a wide range of loading without breaking. Bone health also includes bone mineral content, structure, geometry and strength.
Balance	A performance-related component of physical fitness that involves the maintenance of the body balance while stationary or moving.

PHE: [Summary of a rapid evidence review for the UK Chief Medical Officers' update of the physical activity guidelines\(2019\)](#)

Public Health England | Health Matters

What counts as strengthening and balance activities

at least 2 days a week
Aim to do muscle strengthening and balance activities at least 2 days a week

going to the gym yoga carrying heavy shopping

ball games racquet sports aerobic circuit training

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)

Exercises that improve leg strength, balance and coordination can help people maintain and improve muscle strength and avoid falls as they age. Improving flexibility can improve posture, reduce aches and pains, lower risk of injury, and help with continuing to carry out everyday tasks.

NHS: [How to improve your strength and flexibility \(2019\)](#)

Therefore, muscle and bone strengthening and balance activities (MBSBA) are important across the life course for difference reasons:

- to develop strength and build healthy bones during childhood and young adulthood
- to maintain strength in adulthood to delay the natural decline in muscle mass and bone density that occurs from around 50 years of age, maintaining function in later life

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)

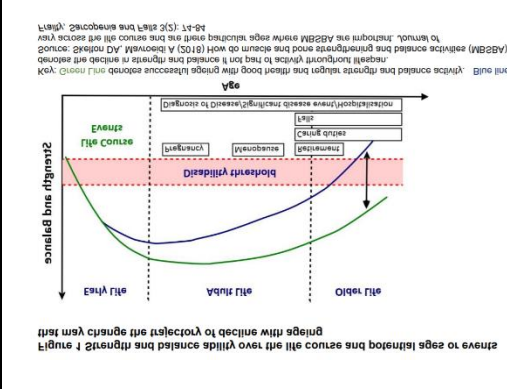
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Benefits of muscle and bone strengthening activities at different ages

These activities are important across the life course for different reasons:

- at ages 18 to 24 years**: helps to maximise bone and muscle gains
- at ages 40 to 50 years**: helps to maintain strength and slows the natural decline in muscle mass and bone density
- at ages over-65 years**: helps to preserve strength and maintain independence

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)



PHE: [Summary of a rapid evidence review for the UK Chief Medical Officers' update of the physical activity guidelines\(2019\)](#)

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Cardiovascular physical activity

The UK Chief Medical Officers' physical activity guidelines recommend that each week, adults should aim for:

- at least **150 minutes** of moderate intensity physical activity
- or **75 minutes** of vigorous intensity physical activity
- or even shorter durations of very vigorous intensity physical activity
- or a combination of moderate, vigorous and very vigorous intensity physical activity

DHSC: [UK Chief Medical Officers' Physical Activity Guidelines\(2019\)](#)

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What counts as moderate intensity cardiovascular physical activity

Being able to talk but not sing indicates moderate intensity activity

WHO: [What is moderate-intensity and Vigorous-intensity Physical Activity \(2018\)](#)

NHS: [Physical activity guidelines for adults \(2018\)](#)

PHE: [Health matters – getting every adult active every day \(2016\)](#)

PHE: [Summary of a rapid evidence review for the UK Chief Medical Officers' update of the physical activity guidelines\(2019\)](#)

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What counts as vigorous intensity cardiovascular physical activity

Having difficulty talking without pausing is a sign of vigorous activity

WHO: [What is moderate-intensity and Vigorous-intensity Physical Activity \(2018\)](#)

NHS: [Physical activity guidelines for adults \(2018\)](#)

PHE: [Health matters – getting every adult active every day \(2016\)](#)

Evidence suggests that muscle strength, bone strength and balance ability increase in childhood and peak in early adulthood, eventually followed by a decline.	PHE: Summary of a rapid evidence review for the UK Chief Medical Officers' update of the physical activity guidelines (2019)
For sedentary time, the guidelines state that: adults should aim to minimise the amount of time spent being sedentary, and when physically possible should break up long periods of inactivity with at least light physical activity	PHE: Summary of a rapid evidence review for the UK Chief Medical Officers' update of the physical activity guidelines (2019)

3. Adults with long-term conditions

Data	Source
In England, 15 million people are living with one or more long-term health conditions.	DHSC: 2010-2015 government policy: long term health conditions (2015)
Regular physical activity is associated with a reduced risk of a range of diseases including some cancers and dementia. There is also evidence that it can help to prevent some and manage many common chronic conditions and diseases, many of which are on the rise and affecting people at an earlier age, such as: <ul style="list-style-type: none"> • some cancers • obesity • type 2 diabetes • cardiovascular diseases (CVD) including coronary heart disease and stroke • hypertension • osteoarthritis and lower back pain • mental health conditions including depression and anxiety • dementia • chronic obstructive pulmonary disease (COPD) and asthma • musculoskeletal (MSK) conditions 	Department of Health and Human services – USA: Physical Activity guidelines advisory committee scientific report (2018) CDC's National Center for Chronic Disease Prevention and Health Promotion: Physical Activity Prevents Chronic Disease
Physical activity is as good or better than treatment with drugs for many conditions, such as type 2 diabetes and lower back pain, and has a much lower risk of any harm.	British Journal of Pharmacology: Exercise acts as a drug; the pharmacological benefits of exercise (2012)
<p>Public Health England Health Matters</p> <p>Physically active people have lower health risks</p> <p>Regular physical activity can reduce health risks</p> <ul style="list-style-type: none"> Cognitive decline ↓40% Type 2 diabetes ↓35% Hypertension ↓33% Depression ↓48% All-cause mortality ↓30% Bone fractures ↓66% Breast cancer ↓20% Coronary heart disease and stroke ↓25% Colorectal cancer ↓19% <p>Source: Physical Activity Guidelines Advisory Committee Scientific report (2018); Department of Health & Human Services – USA</p>	Department of Health and Human services – USA: Physical Activity guidelines advisory committee scientific report (2018)

4. Adults with disabilities

Data	Source
Whole section	PHE: Physical activity for general health benefits in disabled adults (2018)

5. Physical activity during pregnancy and postpartum

Data	Source
<p>The benefits of physical activity during pregnancy include:</p> <ul style="list-style-type: none"> - reduction in hypertensive disorders - improved cardiorespiratory fitness - lower gestational weight gain - reduction in risk of gestational diabetes - The benefits of physical activity in the postpartum period (up to one year) include: <ul style="list-style-type: none"> - reduction in depression - improved emotional wellbeing - improved physical conditioning - reduction in postpartum weight gain and a faster return to pre-pregnancy weight <p>Physical activity can safely be recommended to women during and after pregnancy and has not been found to have any negative impacts on breastfeeding postpartum.</p>	<p>DHSC: UK Chief Medical Officers' Physical Activity Guidelines(2019)</p>

6. Wider role and benefits of physical activity

Data	Source
<p>Wider benefits come primarily from physical activities undertaken in a community setting, such as walking, cycling, active recreation, sport and play. They include:</p> <ul style="list-style-type: none"> • improved learning and attainment • increasing productivity in the workplace • managing stress • self-efficacy • improved sleep • the development of social skills • better social interaction <p>The relevance and importance of these benefits vary according to life stage and other factors.</p>	<p>DHSC: UK Chief Medical Officers' Physical Activity Guidelines(2019)</p>

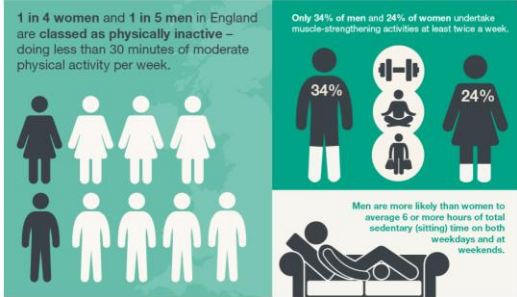
	<p>Sport England: Sport Outcomes evidence review, summary of the review and findings (2017)</p>
<p>Social prescribing enables individuals presenting through primary health care to be signposted and connected to local organisations, groups and activities. There are social prescribing schemes that focus on physical activity and staff with knowledge of the resources available in the local community match individuals to opportunities and support them to engage in activities. In some social prescribing schemes, health trainers and health champions signpost and support clients to become involved in community activities.</p>	<p>PHE: A guide to community-centred approaches for health and wellbeing (2015)</p>

7. Wider economic benefits

Data	Source
<p>In terms of wider economic benefits, physical activity can lead to cost savings for the health and social care system. This is because in some cases, long term conditions can lead to greater dependency on home, residential and ultimately nursing care. However, physical activity supports greater independence and reduced requirement of support, including these statutory services, therefore leading to financial cost savings.</p>	<p>DHSC: UK Chief Medical Officers' Physical Activity Guidelines(2019)</p>

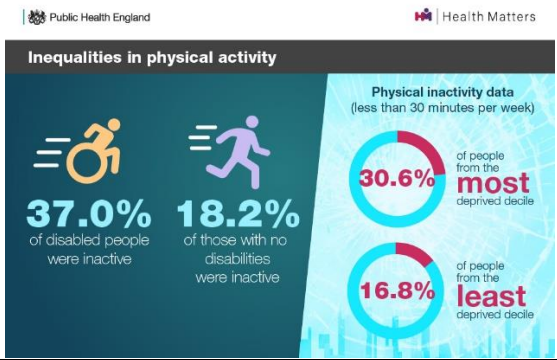
8. The scale of physical activity

Data	Source
<p>In England, there are decreasing physical activity levels</p>	<p>Health Survey for England 2016; Ng SW , Popkin B (2012); Lee I-M, <i>et al.</i> (2012); Wen CP, Wu X (2012); WHO (2010); Ossa D & Hutton J (2002); Murray <i>et al.</i> (2013)</p>
<p>Over 20% less active than in the 1960s</p>	<p>PHE, DHSC: Everybody active, every day (2014)</p>

<p>In England:</p> <ul style="list-style-type: none"> • 1 in 3 (34%) men are not active enough for good health • almost 1 in 2 (42%) women are not active enough for good health • 1 in 5 (21%) men are classed as physically inactive • 1 in 4 (25%) women are classed as physically inactive • 44% of disabled adults are physically inactive <p>only 34% of men and 24% of women undertake muscle-strengthening activities at least twice a week</p>	<p>Health Survey for England 2016; Ng SW , Popkin B (2012); Lee I-M, <i>et al.</i> (2012); Wen CP, Wu X (2012); WHO (2010); Ossa D & Hutton J (2002); Murray <i>et al.</i> (2013)</p>
<p>How active are we?</p>  <p>1 in 4 women and 1 in 5 men in England are classed as physically inactive – doing less than 30 minutes of moderate physical activity per week.</p> <p>Only 34% of men and 24% of women undertake muscle-strengthening activities at least twice a week.</p> <p>Men are more likely than women to average 6 or more hours of total sedentary (sitting) time on both weekdays and at weekends.</p>	<p>PHE: Health Matters – getting every adult active every day (2016)</p>
<p>Physical inactivity is associated with:</p> <ul style="list-style-type: none"> • 1 in 6 deaths in the UK • up to 40% of many long-term conditions, including preventable conditions such as type 2 diabetes, cardiovascular disease and some cancers • around 30% of later life functional limitation and falls 	<p>PHE: Physical activity – applying All Our Health (2019)</p>
<p>According to the World Health Organization (WHO), physical inactivity is in the top 5 non-communicable disease (NCD) risk factors for mortality in high income countries</p>	<p>WHO: Physical Inactivity – a global health problem (2018)</p>
<p>The WHO Global Non-Communicable Disease Action Plan 2013-2020 sets targets for improvements in the prevalence of NCD risk factors, including physical inactivity. The Richmond Group of Charities commissioned the BHF Centre on Population Approaches for Non-Communicable Disease Prevention to run a research project, which translates these WHO targets into a UK health context.</p>	<p>WHO: The PROMISE Study Final Report (2016)</p>
<p>This was conducted in a 2-stage process: a modelling project to estimate the NCD burden in England between 2010 and 2025 if the WHO 25 by 25 targets are met, and a policy review of the potential prevention-based population-</p>	<p>WHO: Know the NCD targets (2014)</p>

level interventions that are available, including those for reducing physical inactivity.	
Read the UK PROMISE study to find out more about the potential of these interventions.	WHO: The PROMISE Study Final Report (2016)

9. Physical activity and health inequalities

Data	Source
<p>There are inequalities in physical activity across socioeconomic status and the protected characteristics, including:</p> <ul style="list-style-type: none"> • age • gender • disability • race • sexual orientation and gender identity 	PHE: Physical activity – applying All Our Health (2019)
These compound or exacerbate other inequalities and lead to physical inactivity being more prevalent in certain groups.	NHS: Health Survey for England (2017)
The World Health Organization (WHO) has guidelines that provide evidence-based recommendations to practitioners on how to recognise and manage comorbid physical and mental health conditions.	WHO: Management of physical health conditions in adults with severe mental disorders (2018)
 <p>The infographic displays the following data:</p> <ul style="list-style-type: none"> 37.0% of disabled people were inactive 18.2% of those with no disabilities were inactive 30.6% of people from the most deprived decile were physically inactive (less than 30 minutes per week) 16.8% of people from the least deprived decile were physically inactive (less than 30 minutes per week) 	PHE: Fingertips Tool [data partitioned by disability and socioeconomic class] (2019)
A rapid review of the evidence base on physical activity for general health benefits for disabled adults found that no evidence exists that suggests appropriate physical activity is a risk. It also found analogous health benefits for disabled people of engaging in physical activity as for the rest of the adult population.	PHE: Physical activity for general health benefits in disabled adults (2018)


10. The barriers to physical activity for those with long-term conditions

Data	Source
Insight work has found that 61% of people with long-term conditions and 68% of people with multimorbidities are not content with their physical activity levels and wish to be more active.	Richmond Group: People with long-term conditions and attitudes towards physical activity (2016)
The research found that people with long-term conditions experience both internal and external barriers to exercise. Internal barriers come from within those with long-term conditions themselves, and external barriers are factors external to those with long-term conditions, which make it harder for them to exercise. The latter are often practical or logistical.	The Richmond Group of Charities: People with long-term conditions and attitudes towards physical activity (2016)
Internal barriers are perceived to be greater than external barriers and include: <ul style="list-style-type: none"> • pain before, during or after physical activity • feeling tired before, during or after physical activity • breathlessness before, during or after physical activity • lack of motivation • not knowing what types of activity are right for them or their condition • fear of hurting themselves • feeling embarrassed • feeling unsafe in public spaces 	The Richmond Group of Charities: People with long-term conditions and attitudes towards physical activity (2016)
Both exercise and physical activity are seen as “not for people like me” amongst inactive participants with multiple long-term conditions. However, the research found that the majority of people with a long-term health condition want to be active.	The Richmond Group of Charities: People with long-term conditions and attitudes towards physical activity (2016)

11. Physical activity resources, programmes and campaigns for the public

12. Physical activity initiatives and training for healthcare professionals

Data	Source
More than 1 in 10 people visit their GP every 2 weeks and there are 1.2 million health-related visits to a community pharmacy every year.	Sport England: Moving Healthcare Professionals (2015)
Those who are regularly engaging with healthcare professionals have, or are at risk of,	Sport England: Moving Healthcare Professionals (2015)

developing health conditions and are more likely to be inactive	
1 in 4 people would be more active if advised by a healthcare professional, so healthcare professionals play a unique role in supporting people to be more physically active.	PHE: Physical activity – applying All Our Health (2019)
<p>However, a survey of 1,000 GPs found that:</p> <ul style="list-style-type: none"> 80% of GPs are not confident about the physical activity guidelines and do not incorporate them into their clinical care less than half (44%) are confident in raising physical activity with patients <p>over half (55%) had done no specific training on physical activity</p>	Chatterjee et al (2017) Knowledge, use, and confidence in national physical activity and health guidelines and tools. British Journal of General Practice . Lowe et al. (2017)
<p>A survey of 552 physiotherapists found that:</p> <ul style="list-style-type: none"> the activity status of patients is not routinely assessed 60% knew the 150 minutes recommendation, but only 16% knew all 3 elements of the guidelines they did not routinely signpost to further sources of physical activity support 	BMJ: Physiotherapy and physical activity : a cross-sectional survey exploring physical activity promotion, knowledge of physical activity guidelines and the physical activity habits of UK physiotherapists. (2017)
	BMJ: Physiotherapy and physical activity : a cross-sectional survey exploring physical activity promotion, knowledge of physical activity guidelines and the physical activity habits of UK physiotherapists. (2017)
Healthcare professionals may also feel that they cannot speak to patients about physical activity when they are seeing them about certain symptoms they are experiencing due to their long-term condition, such as fatigue and pain. They may also face time difficulties with regards to fitting a conversation about physical activity into a 10-minute appointment.	BMJ: Physiotherapy and physical activity : a cross-sectional survey exploring physical activity promotion, knowledge of physical activity guidelines and the physical activity habits of UK physiotherapists. (2017)

13. Call to action

Data	Source
The General Practice Physical Activity Questionnaire (GPPAQ)	DHSC: General practice physical activity questionnaire (GPPAQ) (2013)

<p>The NHS Long Term Plan sets out that through social prescribing, the range of support available to people will widen, diversify and become accessible across the country. Over 1,000 social prescribing link workers will be in place by 2020 to 2021, so that over 900,000 people can benefit from social prescribing by 2023 to 2024.</p>	<p>NHS: Long Term Plan (2019)</p>
<p>This is reiterated in the Prevention Green Paper</p>	<p>DHSC, Cabinet Office: Advancing our health – prevention in the 2020s – consultation document (2019)</p>
<p>PHE is working with Sport England to support their Local Delivery Pilots</p>	<p>Sport England: Local Delivery Pilots (2017)</p>