



Public Health
England

Protecting and improving the nation's health



Physical Activity for the Management and Prevention of Disease -Key Evidence and Practice

Dr Zoe Williams



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My Clinical Champion
code is: C39

To access the survey:

Open the web browser on your mobile device

Insert the following URL into your address bar and
press go

ccpasurvey.uk



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What happens next?

Researchers from Loughborough University will email you in 4 weeks time with a link to the 1st follow-up evaluation survey.

Please look out for the email and support the evaluation.

Your feedback is extremely important to help us determine if the training is meeting its goals!

A little about me

- **GP Southwark – SE London**
- **Director – British Society Lifestyle Medicine**
- **Clinical Champion Physical Activity - Public Health England**
- **Clinical Associate - Obesity service development - Southwark CCG**
- **Clinical Champion – RCGP Physical Activity and Lifestyle**
- **Media Medic**



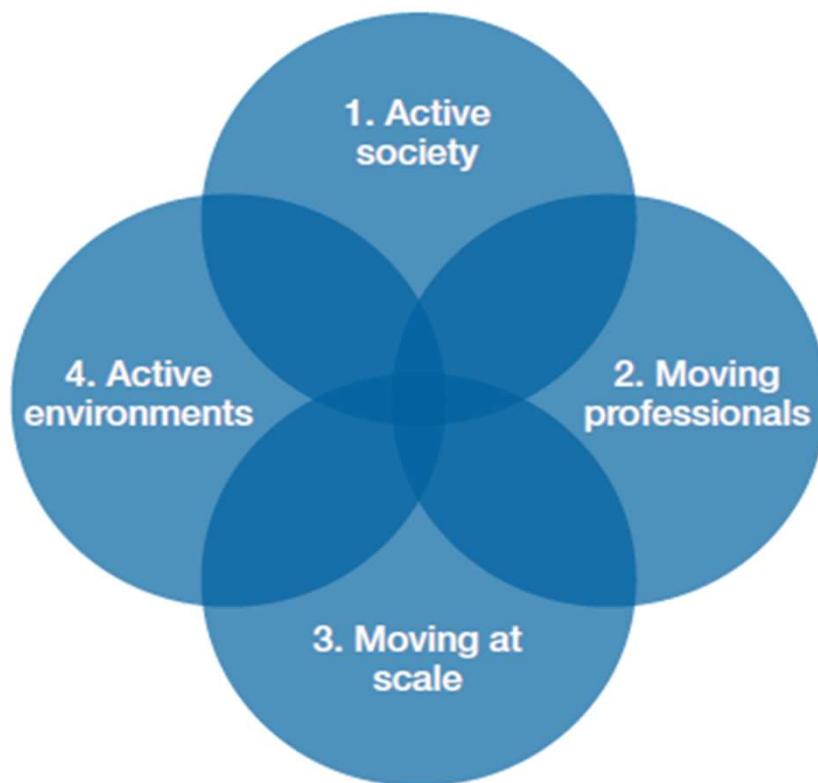
A little about me



Getting to know you...

National approach to physical activity

**National framework domains,
*Everybody Active, Every Day***



**National Strategy outcomes,
*Sporting Future***



Objectives

1. Definitions, guidelines and evidence base for physical activity and inactivity.
2. Understand the importance of physical activity for prevention and management of disease.
3. Develop understanding and knowledge in integrating physical activity and brief interventions into clinical practice.
4. Learn how to utilise the behaviour change model to apply very brief interventions into clinical practice.
5. Gain experience in the use of motivational interviewing through role play.

Discussion

What motivates you to be physically active?

How many times in the past two weeks have you:

- asked patients about smoking?
- asked patients about physical activity?

What motivates or prevents you from asking patients about physical activity?



Images courtesy NHS Image Bank

Physical activity: Why is it important?

What are the benefits of physical activity?

If physical activity were a drug, what conditions would we market it for?

The ‘Miracle cure’ and ‘best buy in public health’?

“What if there was **one** prescription that could **prevent and treat** dozens of diseases, such as diabetes, hypertension and obesity?”

Would you prescribe it to your patients?”

Certainly!

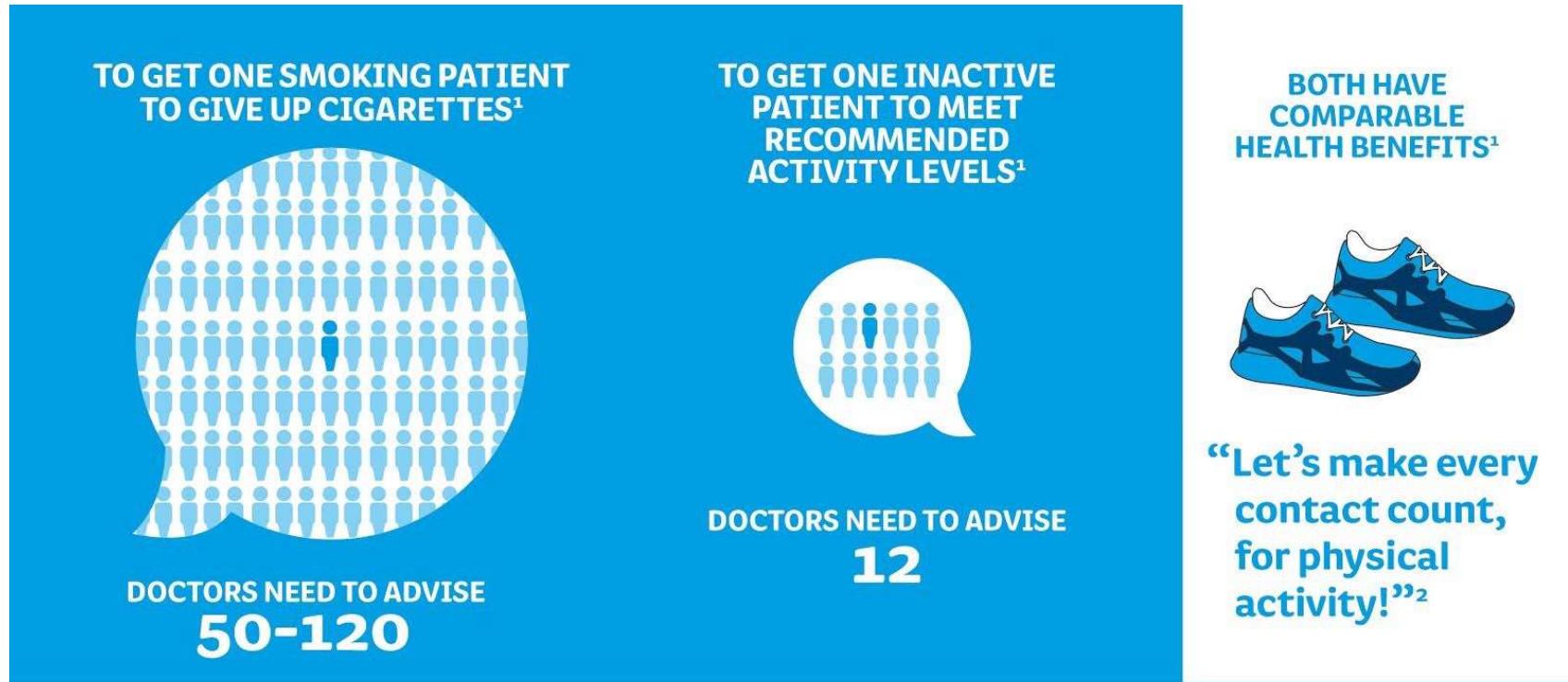
Robert E. Sallis, M.D., FACSM,

Exercise is Medicine Advisory Board Chairman



Photo © Andrea Williams. "Purple Trainers", Creative Commons License

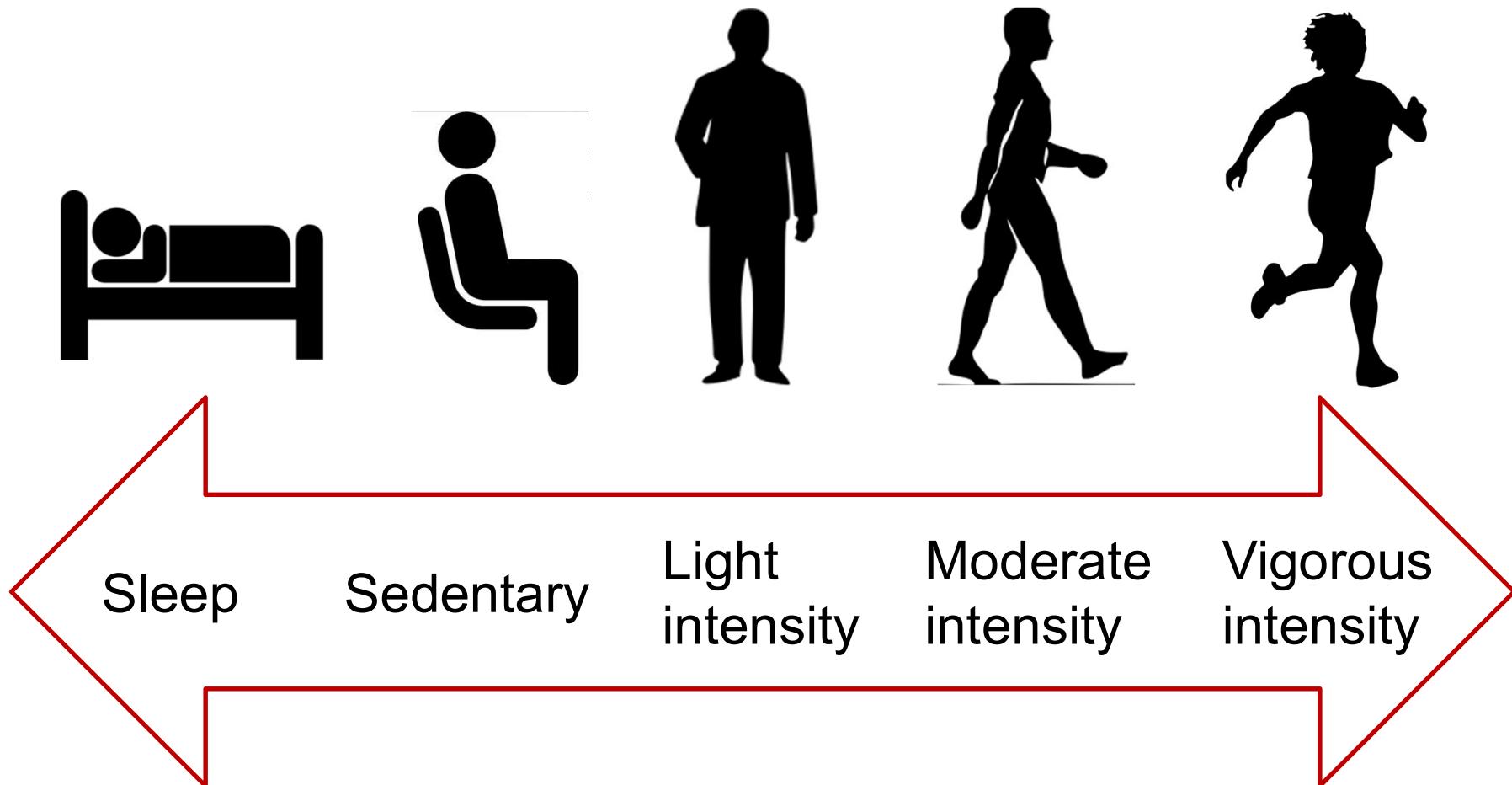
How efficacious is health professional advice?



1. Thornton JS et al. Br J Sports Med 2016; doi:10.1136/bjsports-2016-096291.

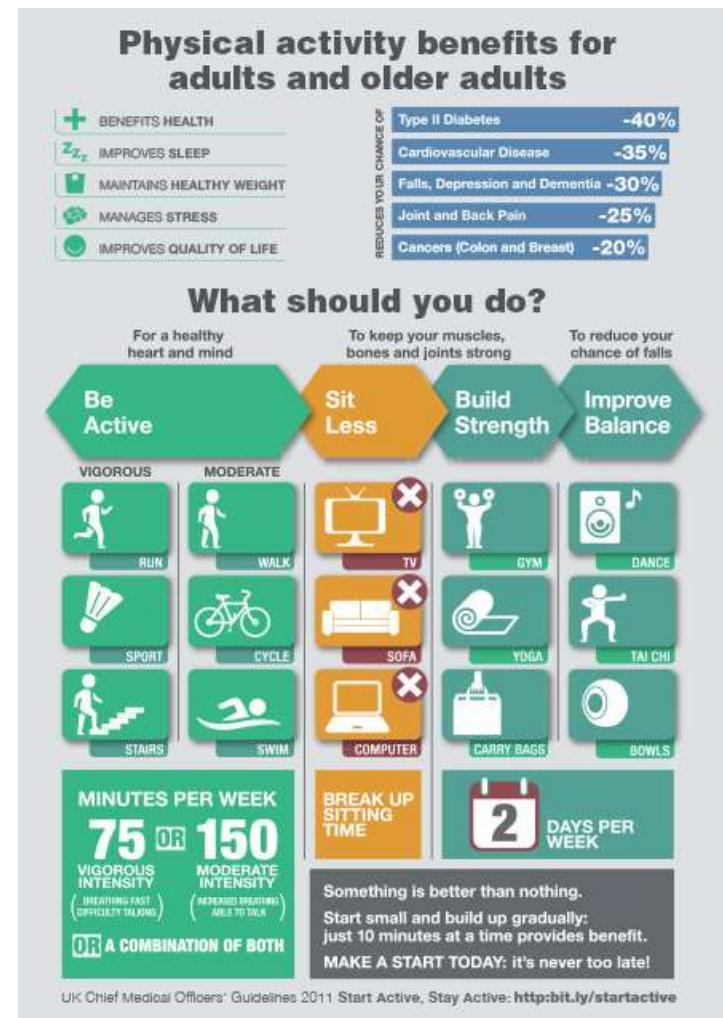
2. Gates AB. Br J Sports Med 2016; 50(6): 322-3.

Physical activity: what counts?



Q1: What are the UK Chief Medical Officers' guidelines on physical activity for adults?

1. 150 minutes of moderate intensity activity in durations of at least ten minutes/week
 - Or 75 minutes of vigorous intensity activity
 - Or a combination of both
2. Muscle-strengthening activity at least 2 days/week
3. Limit time spent sitting for extended periods
4. For older adults (65+) - Balance and co-ordination activities at least two days/week



Q1: What are the UK Chief Medical Officers' guidelines on physical activity for adults?

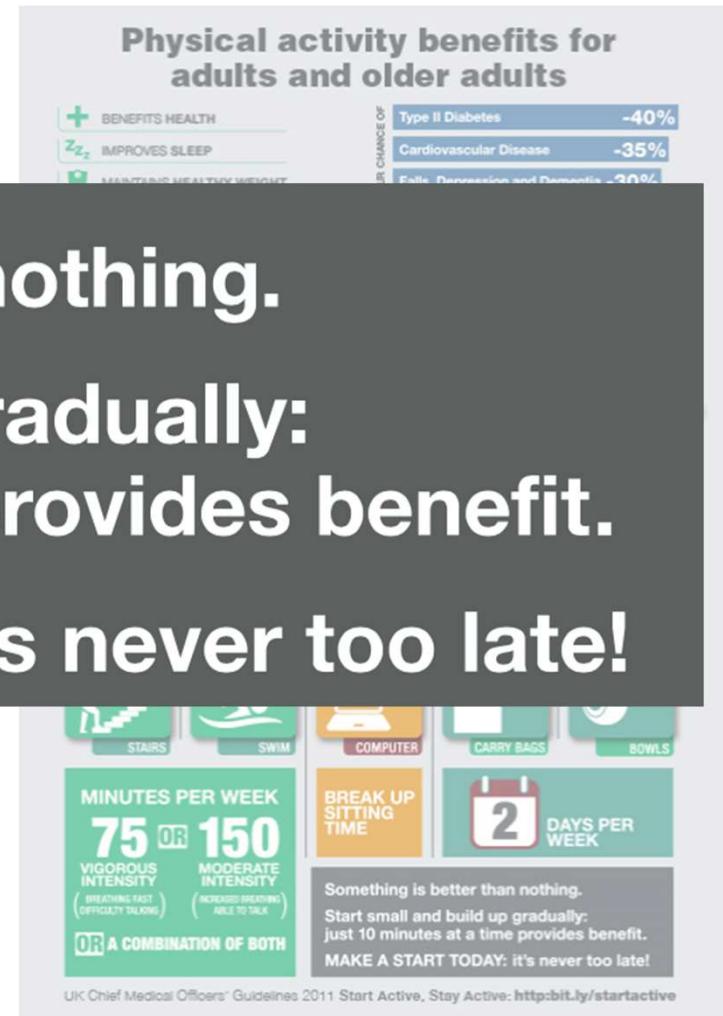
1. 150 minutes of moderate intensity activity in

Something is better than nothing.

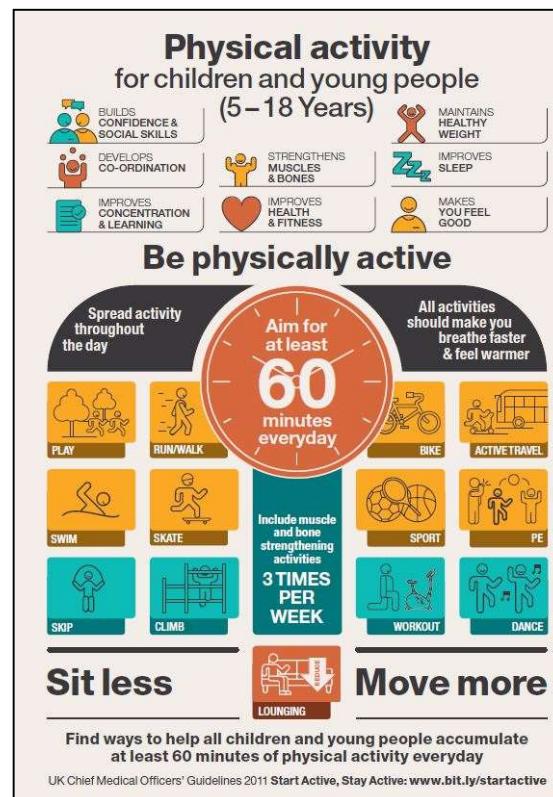
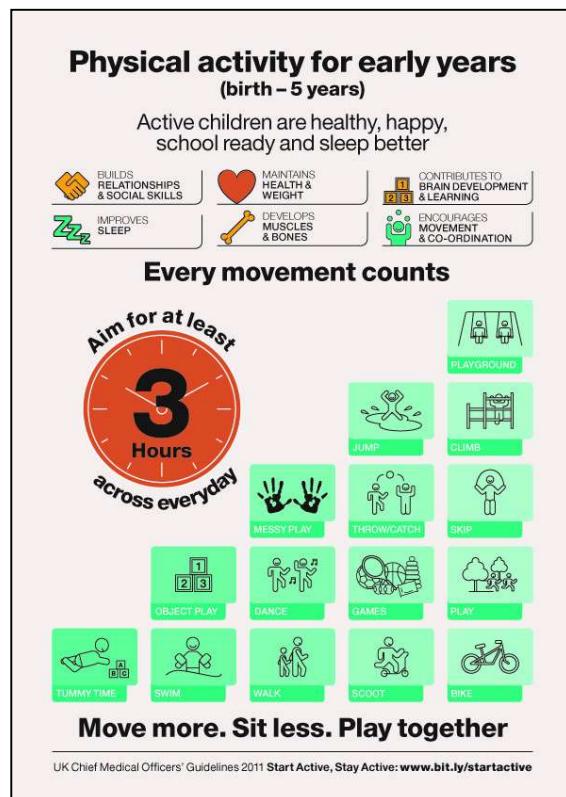
**Start small and build up gradually:
just 10 minutes at a time provides benefit.**

MAKE A START TODAY: it's never too late!

4. For older adults (65+): Balance and coordination activities at least two days/week



Other UK Chief Medical Officers' guidelines infographics



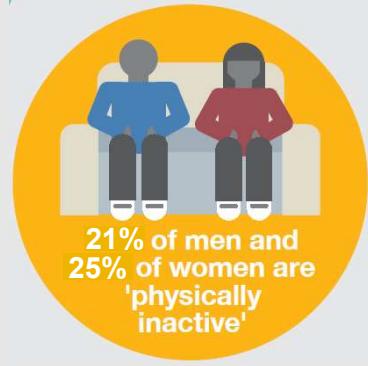
How many people do not meet the UK CMOs' guidelines?



34% of men are not active enough for good health



42% of women are not active enough for good health



21% of men and
25% of women are
'physically inactive'



49% of disabled adults are physically inactive compared to **15%** of non-disabled adults

How inactive is England by region?

Region	Inactive
Yorkshire and the Humber	24.7%
North East	24.6%
North West	24.1%
West Midlands	24.1%
East Midlands	22.5%
London	22.2%
East of England	21.6%
South East	20.2%
South West	19.2%

PHE Physical Activity tool available from <https://fingertips.phe.org.uk/profile/physical-activity>

Why do we move so little?



Image courtesy H Ridgley



Image © Dick Marwede, Untitled, Creative Commons License

Q2: How does the UK compare with the following countries for inactivity?

USA

France

Netherlands

Germany

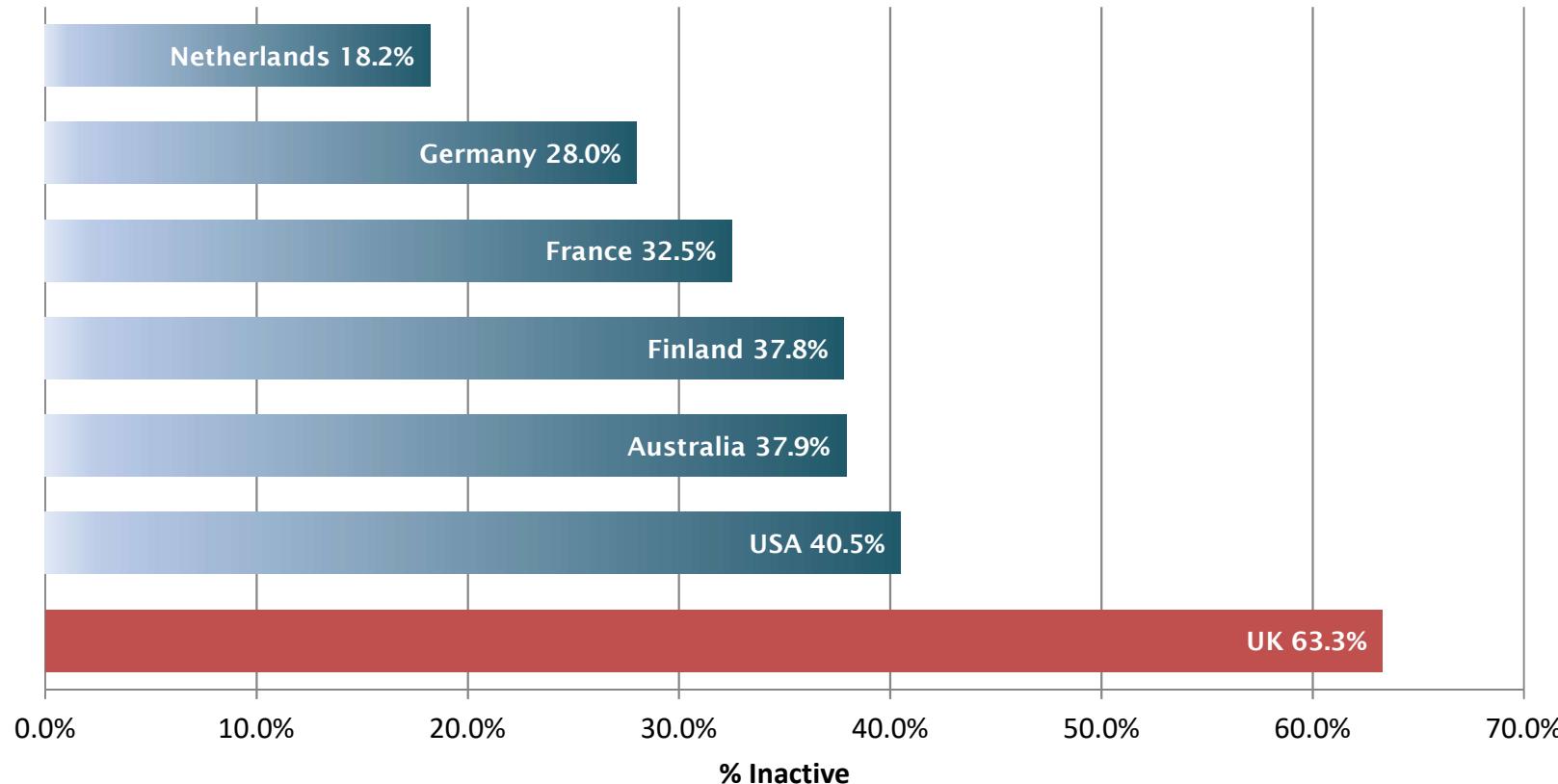
Australia

Finland



Proportion who are inactive

International comparison of physical inactivity (at ages 15 and over)

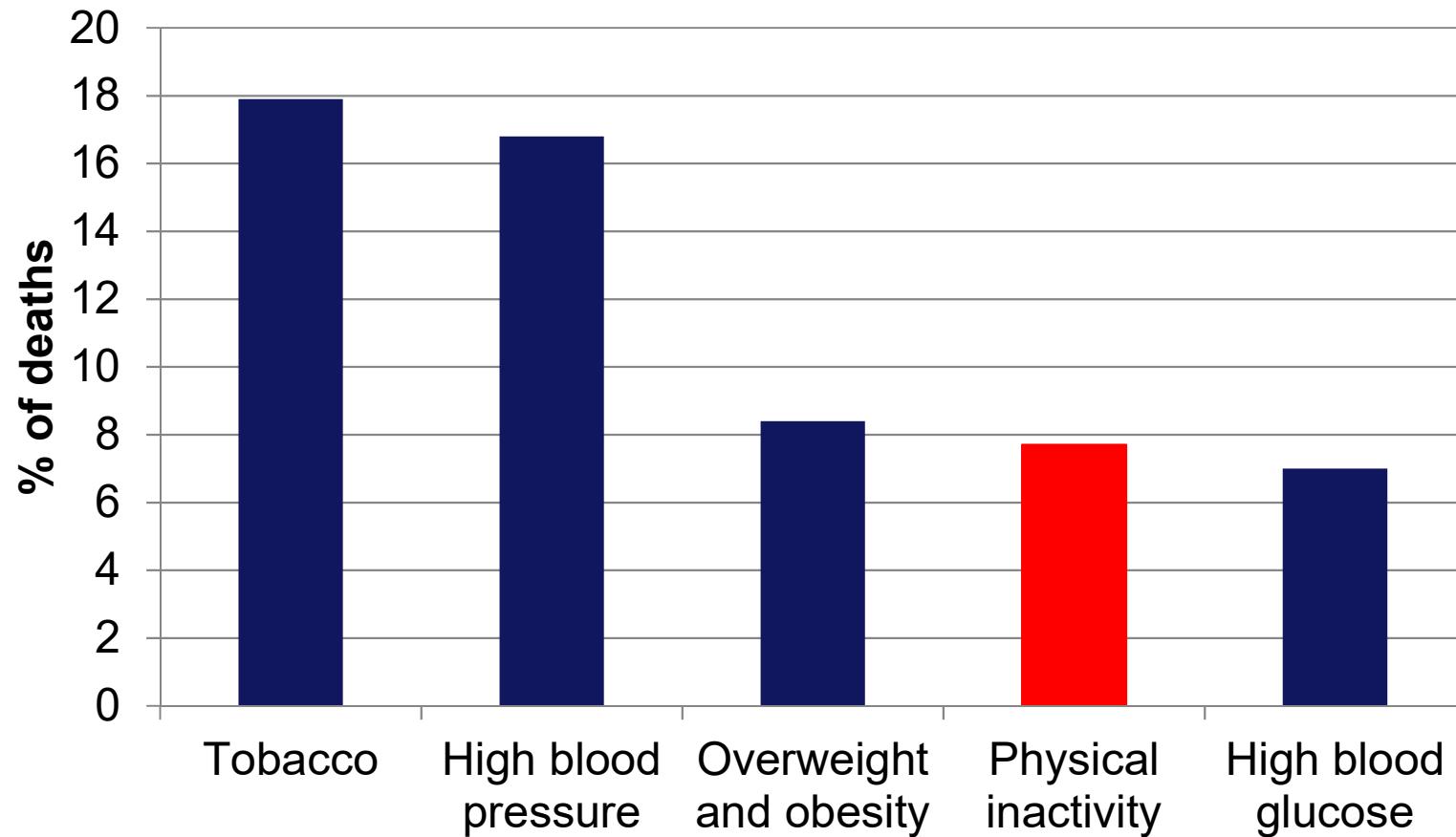


Note: Comparator = Not meeting any of the following per week: (a) 5 x 30 mins moderate-intensity activity; (b) 3 x 20 mins vigorous-intensity activity; (c) equivalent combination achieving 600 metabolic equivalent-min.

Q3: How does inactivity compare with other non-communicable disease risk factors for mortality?

- Overweight and obesity
- High blood glucose
- High blood pressure
- Tobacco use
- Physical inactivity

Top five non-communicable disease risk factors for mortality, high income countries



Inactivity is killing us

Decreasing activity levels since 1960s:

- Adults are over 20% less active
- By 2030 we will be 35% less active

Physical inactivity is responsible for:

- 1 in 6 UK deaths
- Up to 40% of many long-term conditions
- Around 30% of later life functional limitation and falls

Estimated £7.4 billion annual cost

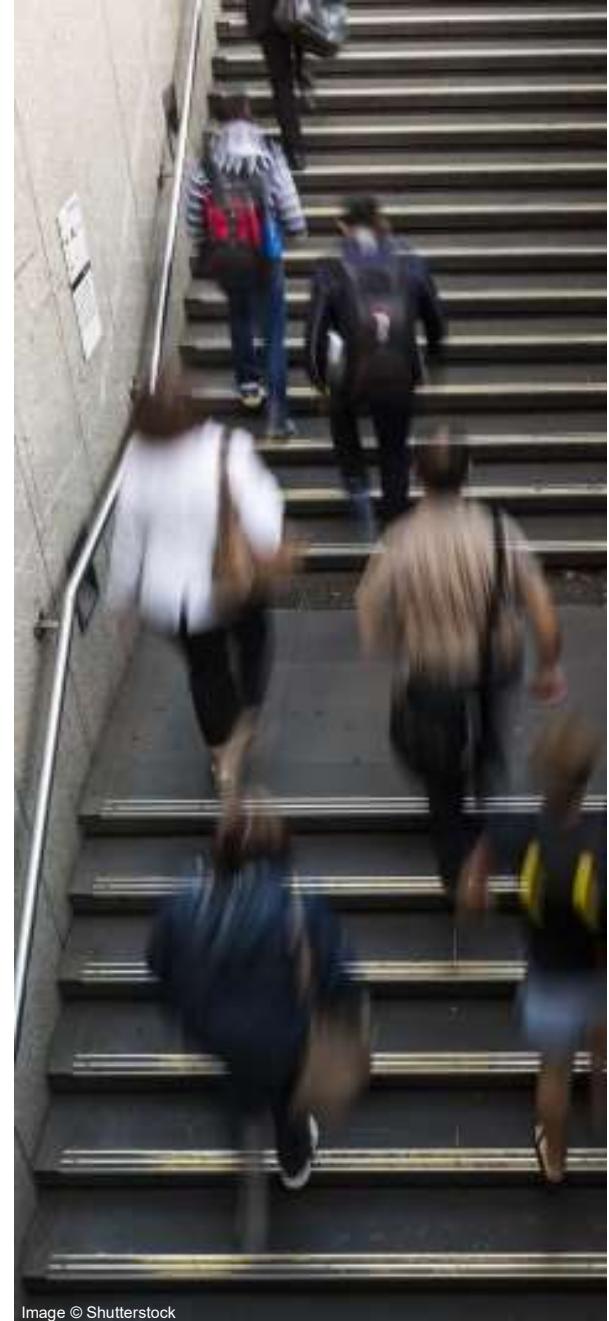
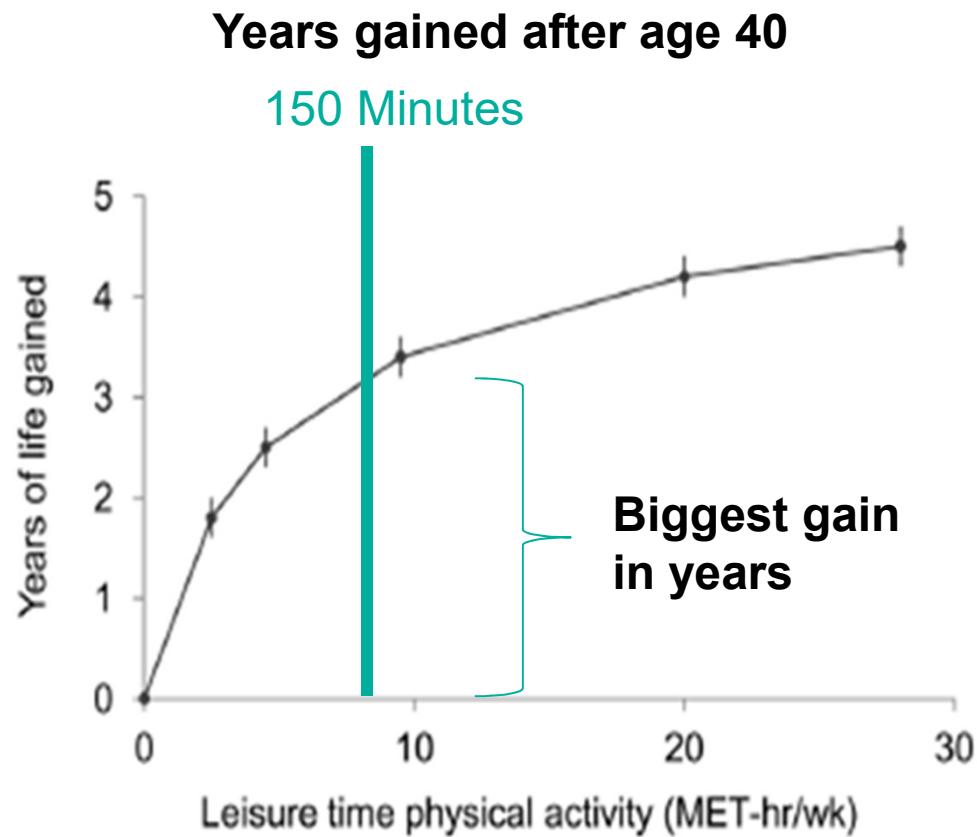


Image © Shutterstock

Physical activity: Who gains the most?

Greatest gains are in those who go from doing nothing to doing something.



Key points

Low physical activity is the fourth leading modifiable cause of death globally.

Getting inactive people to become active has greater health benefits than getting active people to do more activity – get *everybody active, every day*.

Something is better than nothing.
Start small and build up gradually: just 10 minutes at a time builds up benefit.



Q4: Physical activity reduces risk of which of the following conditions by at least 20%?

- | | |
|-----------------|--------------------------------|
| Early death | Hip fracture |
| CHD and stroke | Depression |
| Type 2 diabetes | Hypertension |
| Colon cancer | Alzheimer's disease |
| Breast cancer | Functional limitation, elderly |

Physical activity reduces the mortality and morbidity risk of disease

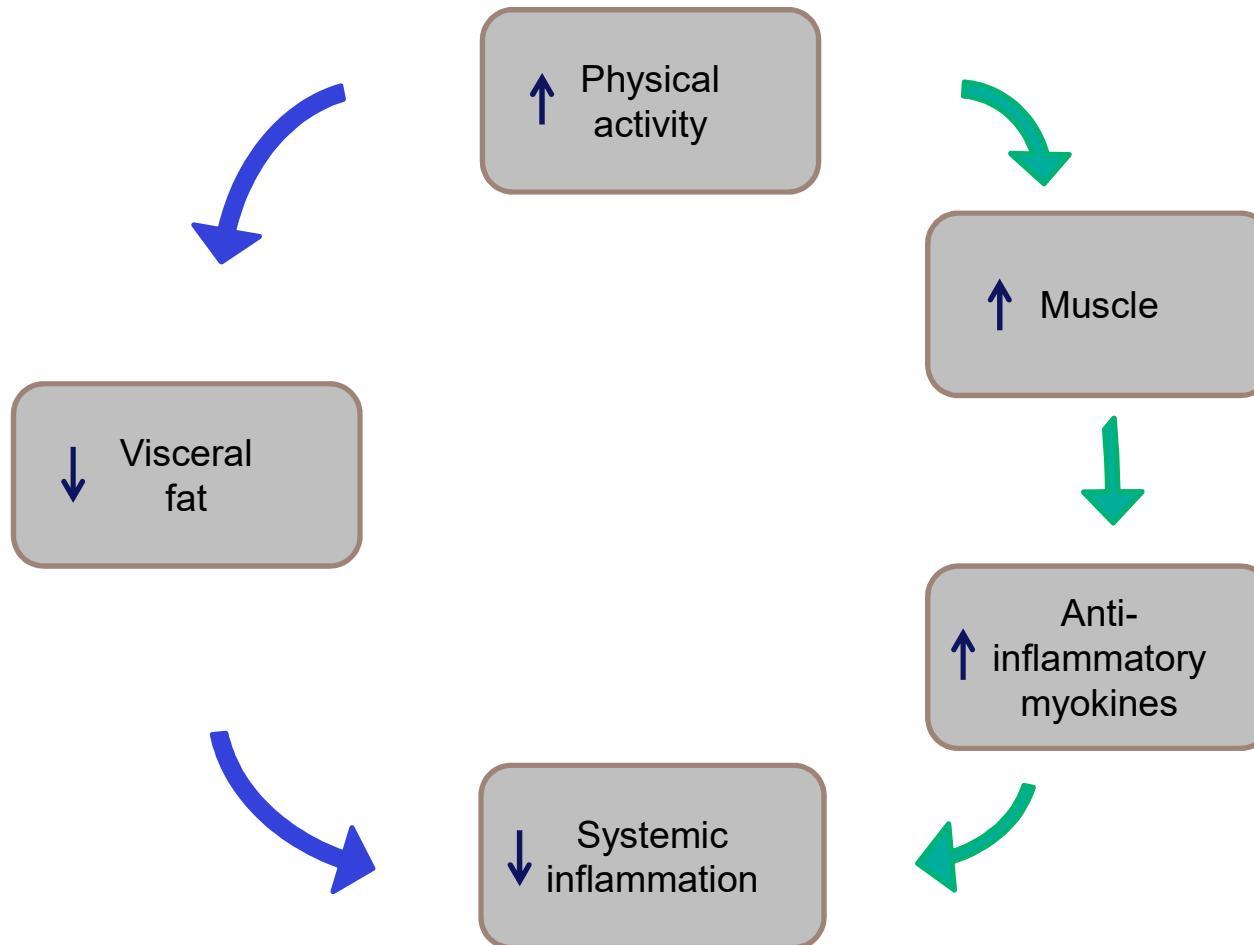
Disease	Risk reduction	Strength of evidence
Osteoarthritis disability	22-80%	Moderate
Alzheimer's disease	20-30%	Moderate
Hip fracture	36-68%	Moderate
Depression	20-30%	Moderate
Early death	20-35%	Strong
CHD and stroke	20-35%	Strong
Type 2 diabetes	35-40%	Strong
Colon cancer	30-50%	Strong
Breast cancer	20%	Strong
Hypertension	33%	Strong
Functional limitation, elderly	30%	Strong
Prevention of falls	30%	Strong

How is physical activity protective?

Chronic low-grade systemic inflammation is accelerated and in some cases the cause of:

- Diabetes
- Cardiovascular disease
- Cancers
- Dementia (secondary to visceral fat)
- Depression and anxiety
- Arthritis and many other conditions

How is physical activity protective?



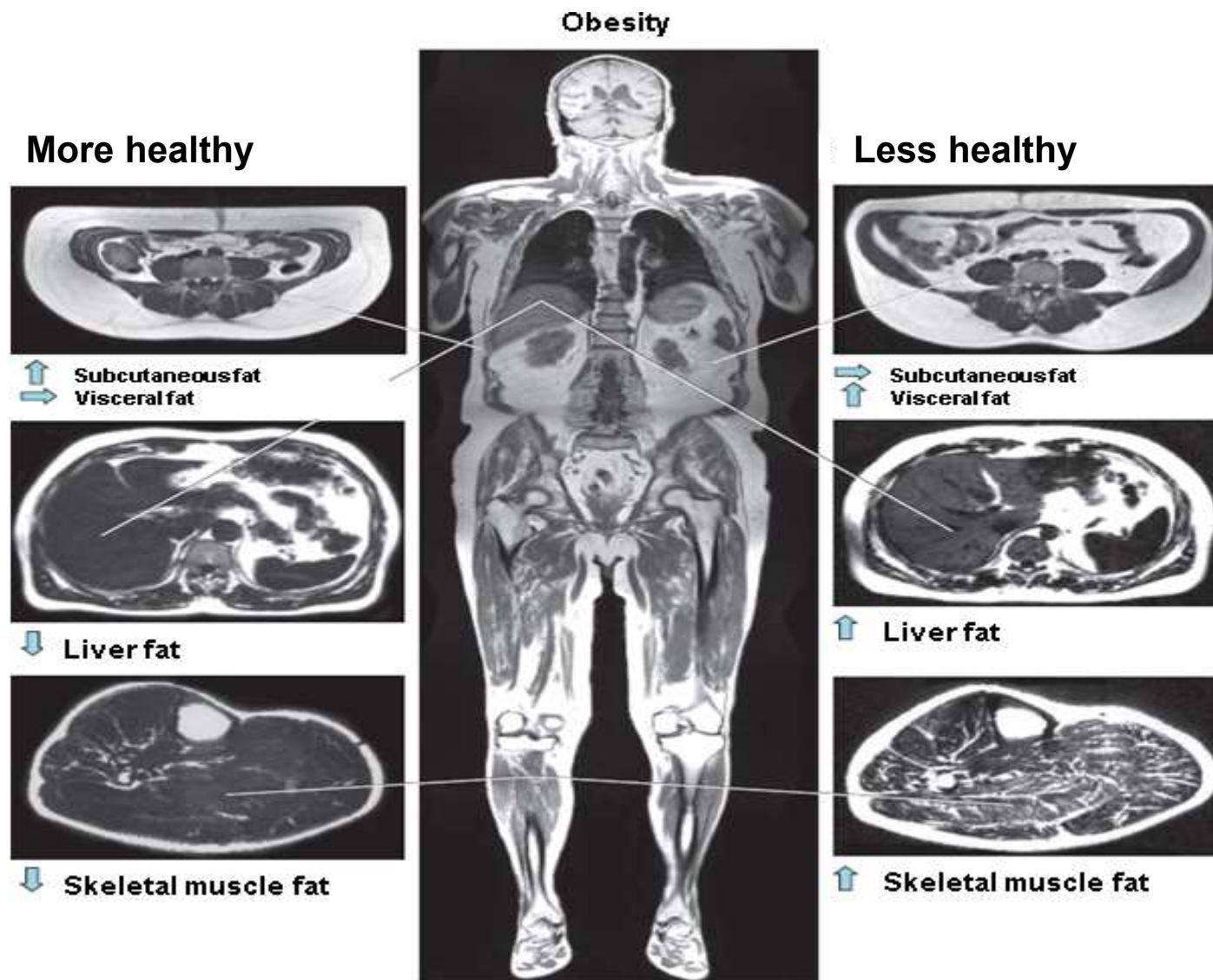
What about treatment?

In addition to prevention, **physical activity helps treat:**

- Cancer
- Diabetes mellitus
- Cardiovascular disease
- Osteoarthritis and lower back pain
not 'wear and tear', but 'wear and repair'
- COPD and asthma
- Depression and anxiety

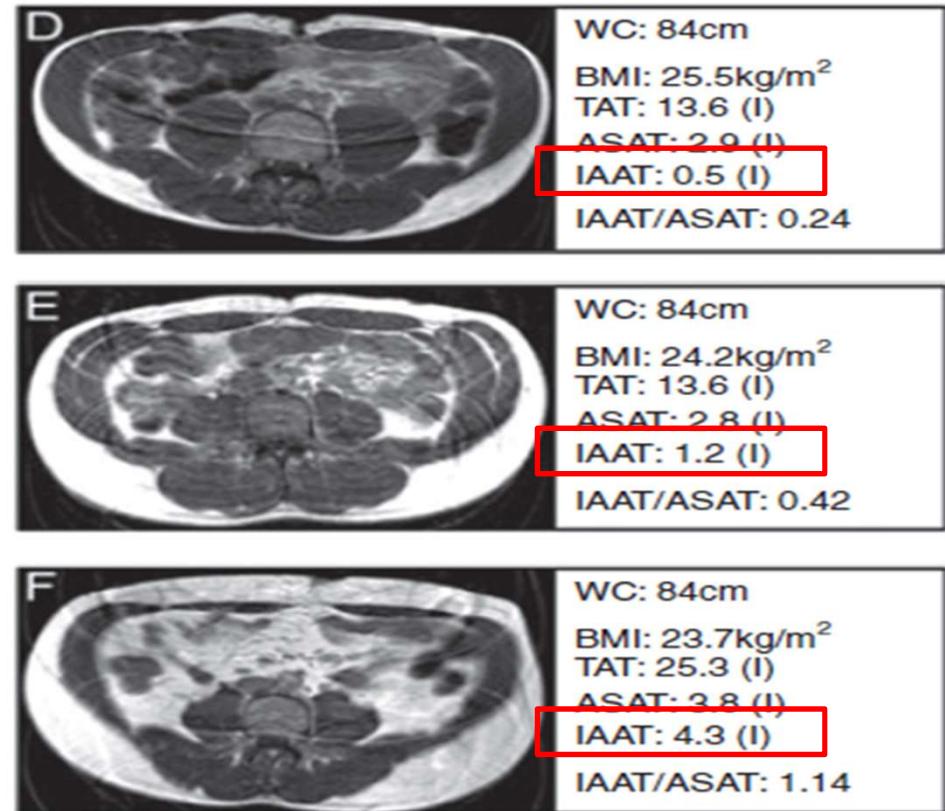


Different visceral fat for the same BMI



Different visceral fat for the same waist circumference

- Low waist circumference alone is not an accurate measure of risk
- Low waist circumference **AND** low levels of intra-abdominal fat are better markers of good health



ASAT = subcutaneous **IAAT** = intra-abdominal
abdominal adipose tissue adipose tissue

Sedentary behaviour

Sedentary behaviour refers to activities that typically occur whilst sitting or lying down (not sleeping) and generally require very low levels of energy expenditure.

Spending large amounts of time being sedentary is an independent risk factor for ill-health (e.g. all-cause and cardiovascular mortality, diabetes, some cancers and metabolic dysfunction).



Photo © Samuel Silva, "It was a lazy Sunday again", Creative Commons License

UK CMOs' recommend minimising prolonged periods of sitting.
Sit less, break up sitting time!

Why is sitting so bad?

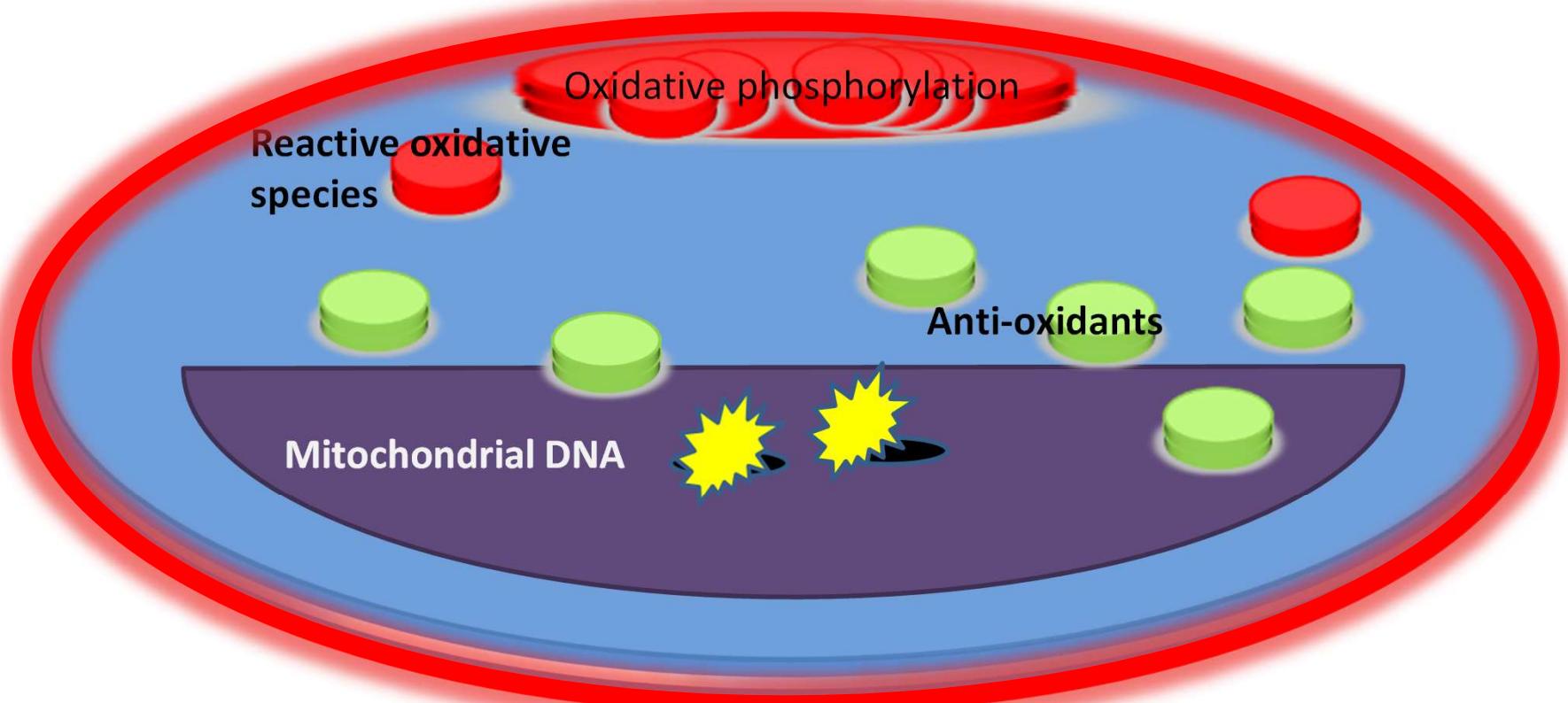
Prolonged sedentary behaviour disrupts:

- Skeletal muscle metabolism
- Lipid metabolism
- Glucose metabolism
- Circulation (venous thrombosis risk)
- Systemic inflammation



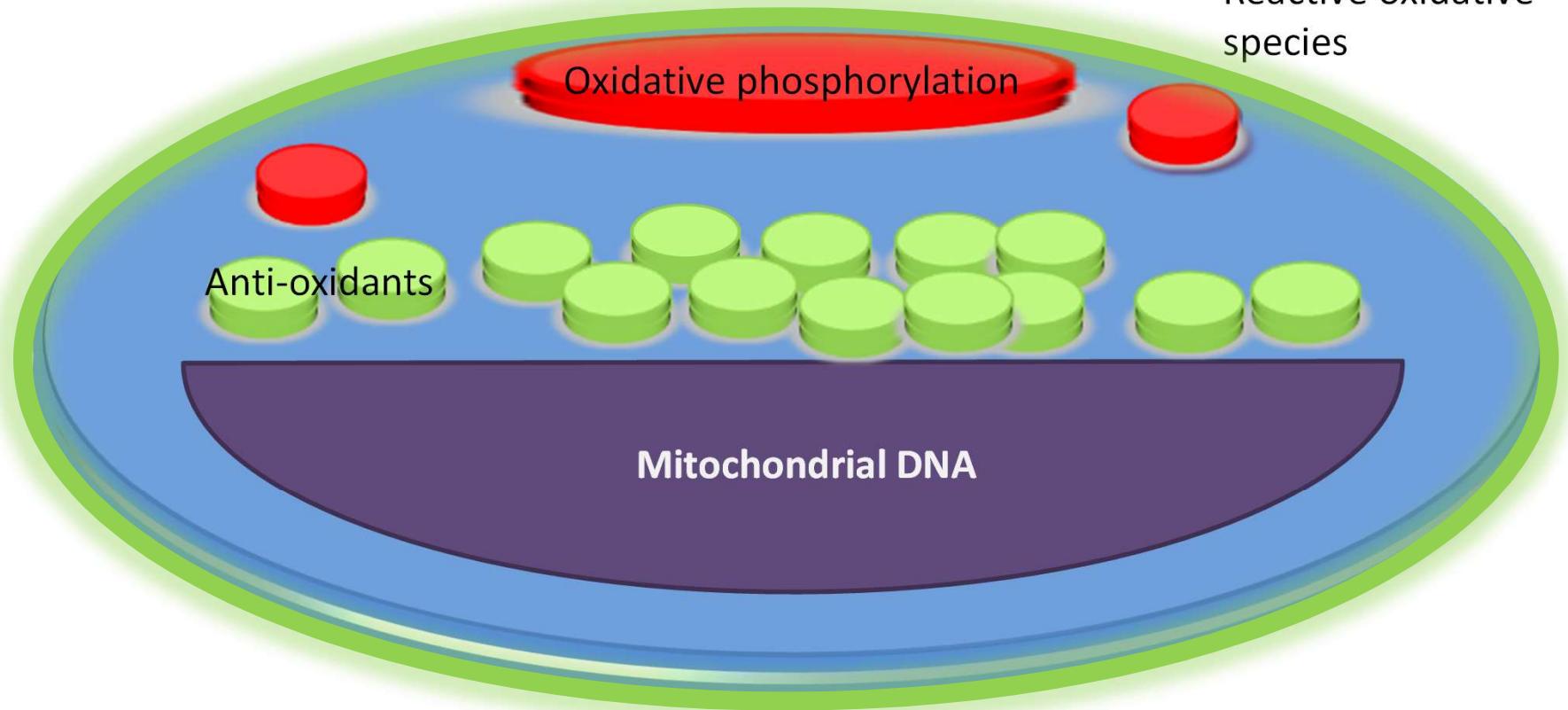
Just two minutes of walking has a physiological effect, e.g.
improving postprandial glucose and insulin responses to food

Sedentary



Mitochondria

Physically Active



Mitochondria

Clinical tips

Consider mentioning physical activity in all consultations. *Make every contact count!*

Just very brief advice, such as ‘giving permission’ can be effective, especially in patients with long-term conditions. Arrange a follow up visit to re-discuss behaviour change and review goals

NICE guidelines for chronic conditions available including ‘Physical activity: brief advice for adults in primary care’

‘Moderate intensity’ activity differs by individual (it may be light walking for previously sedentary adults) – make it achievable



Questions so far?



5 As behaviour change model for brief advice

ASK

ASSESS

ADVISE

ASSIST

ARRANGE

Workshop Activity

Working in groups of three, allow six minutes per motivational interview consultation opportunity. Assume that the initial part of the consultation has been completed satisfactorily and the remaining six minutes are an opportunity to talk about physical activity.

Each person select whether you will be:

- 1. Health care professional**
- 2. Patient**
- 3. Observer** – will feedback to the group

After each case, spend a few minutes feeding back and then swap.

Case 1

- John, 45 year old bus driver
- 3x elevated readings of HbA1c over past six months
 - *HbA1c = Marker of control of diabetes over 4 months*
- Attended DESMOND and saw dietitian – made some dietary changes
- No significant improvement in HbA1c
- Discuss further options for diabetes management
- John shares that he used to play football “when I was a lad”

Case 2

- Lucy, 49 year old accountant
- Breast cancer, post mastectomy adjuvant chemotherapy
- Attended with husband (protective)
- Lacking energy, asking for a ‘tonic’
- Husband almost cancelled appointment as “shouldn’t leave the house”
- Has a Labrador dog called ‘Molly’

Case 3

- Raj is a 73 year old widower who lives on his own
- Doesn't leave the house very often now
- Spends a lot of time at home sitting watching tv
- 2 daughters worried about his blood pressure and mood
- Used to enjoy walking with his wife

Some available resources

Clinical resources:

- Chief Medical Officers' Physical Activity [guidelines](#) and [infographics](#)
- NICE Physical Activity [pathway and guidance](#)

Key resources:

- Free BMJ E-learning modules: [Physical activity and health](#) by Dr William Bird; [Motivational interviewing](#) by Prof. Stephen Rollnick
- 'Active 10' [website](#), [mobile phone app](#) and [evidence briefing](#)
- 'Let's talk about Physical Activity' infographic

Further reading:

- Welsh Deanery / Brian Johnson: [Motivate2Move](#)
- Royal Society of Public Health (RSPH): [Physical activity impact pathway](#)
- Public Health England and RSPH: [Everyday Interactions Toolkit](#)

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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