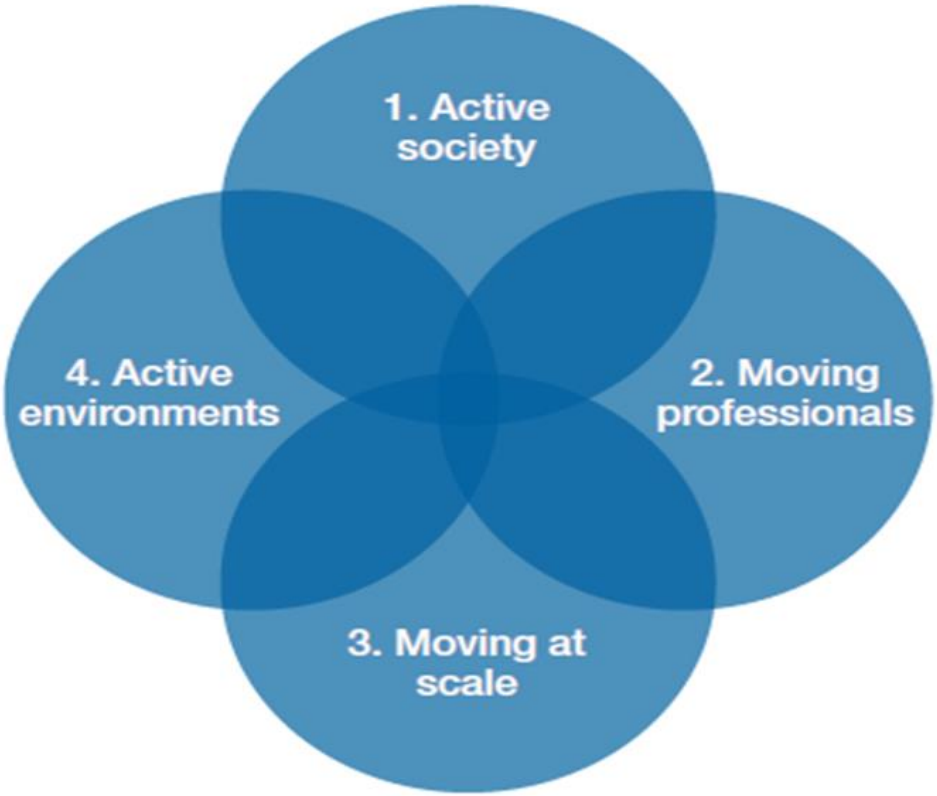
Public Health England

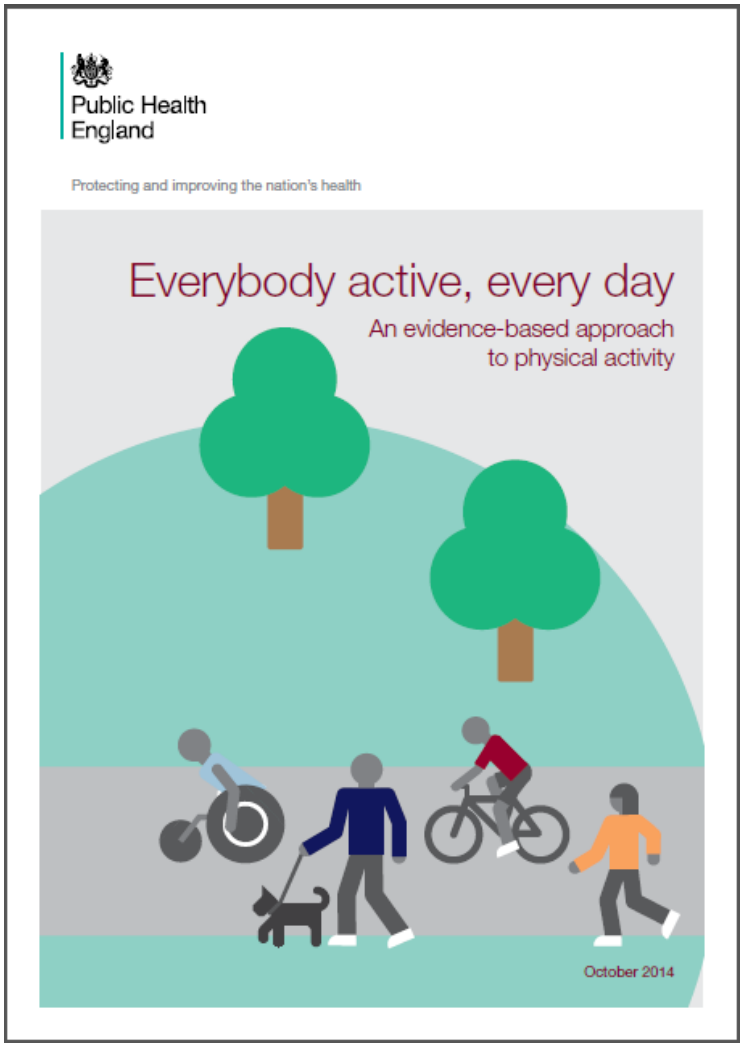
Protecting and improving the nation's health

The Physical Activity Clinical Champions Network

Dr ……..

Everybody Active, Every Day





Public Health England (2014) Everybody Active, Every Day

Objectives

1. Become familiar with the definitions, guidelines and statistics for physical activity and inactivity

2. Understand the importance of physical activity for widespread disease prevention and treatment

3. Have an understanding of the biophysiology to support the above, at organ and cellular level

4. Brief interventions – Know how to convert what you have learnt into effective practice in consultations

5. Motivational Interviewing - a brief introduction

A little about me

Getting to know you…

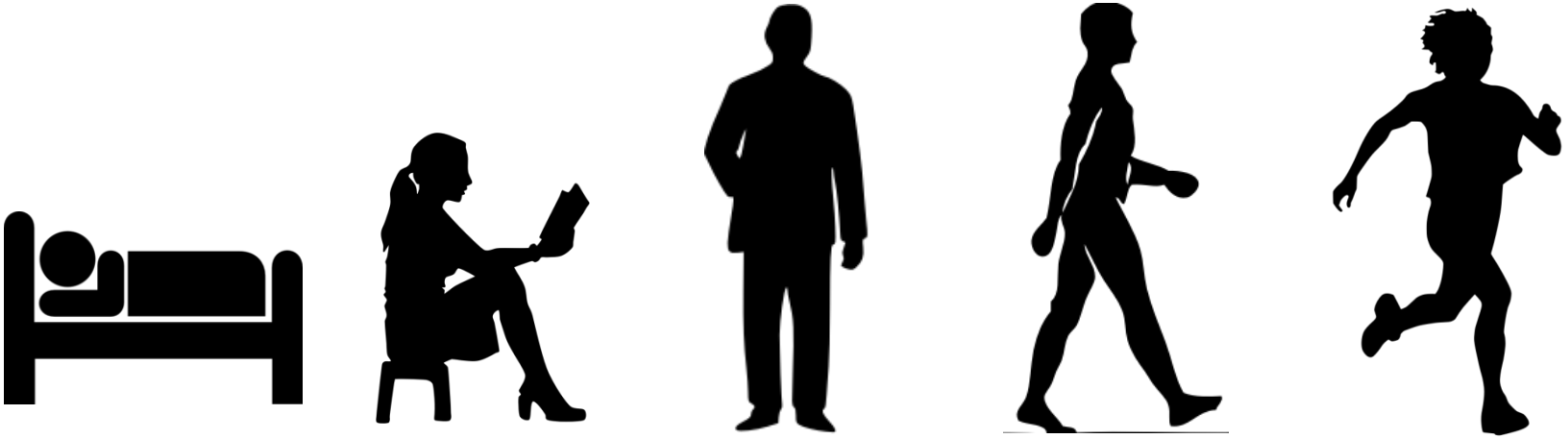
Discussion

How many times in the past 2 weeks have you:

- Asked patients about smoking?
- Asked patients about physical activity?
- Taken patients' blood pressure?

If you addressed some more than others, why?

Physical activity: What counts?



Sleep | Sedentary | Light intensity | Moderate intensity | Vigorous intensity

Tremblay et al. (2010) Appl Physiol Nutr Metab

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

Department of Health (2011) Start Active, Stay Active

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Or 75 minutes of vigorous intensity activity

Or a combination of both

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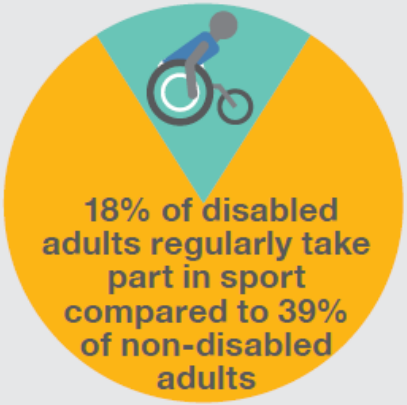
More is better. Some is better than none.

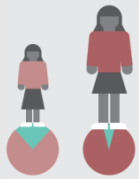
Department of Health (2011) Start Active, Stay Active

How inactive is England?

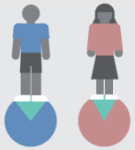
33% of men are not active enough for good health

45% of women are not active enough for good health





23% of girls aged 5-7 meet the recommended levels of daily physical activity, by ages 13-15 **only 8%** do



21% of boys and **16% of girls** aged 5-15 achieve recommended levels of physical activity

47% of boys and **49% of girls** in the lowest economic group are 'inactive' compared to **26%** and **35%** in the highest

Source: Health Survey for England 2012 (HSE); Active People Survey 8, April 2103-April 2014 (APS); National Travel Survey July 2014 (NTS)

Why do we move so little?

Photo: © Woodlouse, "Hazda Archery", Creative Commons License

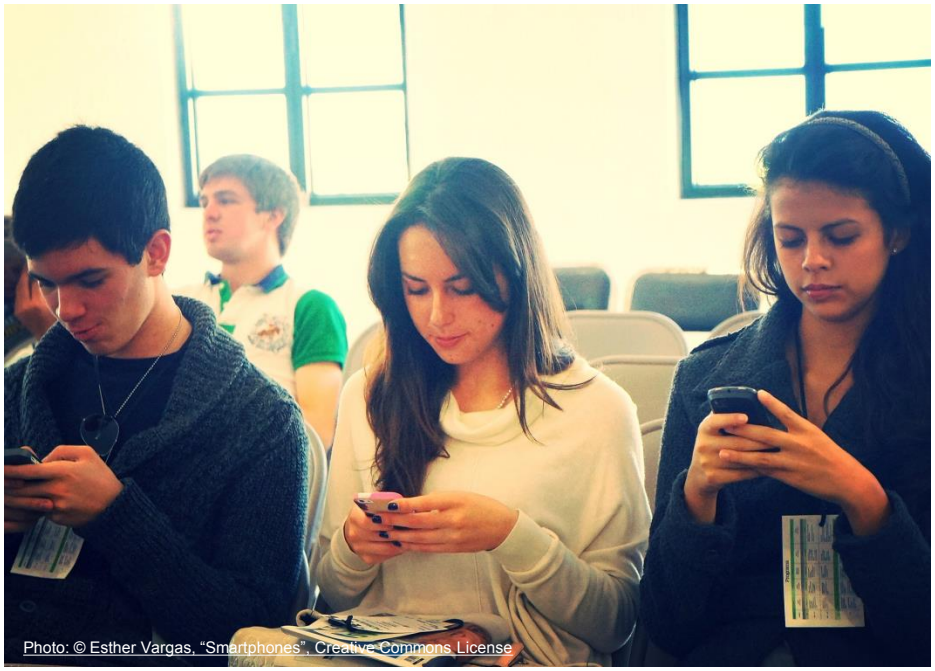


Photo: © Esther Vargas, "Smartphones", Creative Commons License

Q2: How does the UK compare with the following countries for not being active?

USA

France

Netherlands

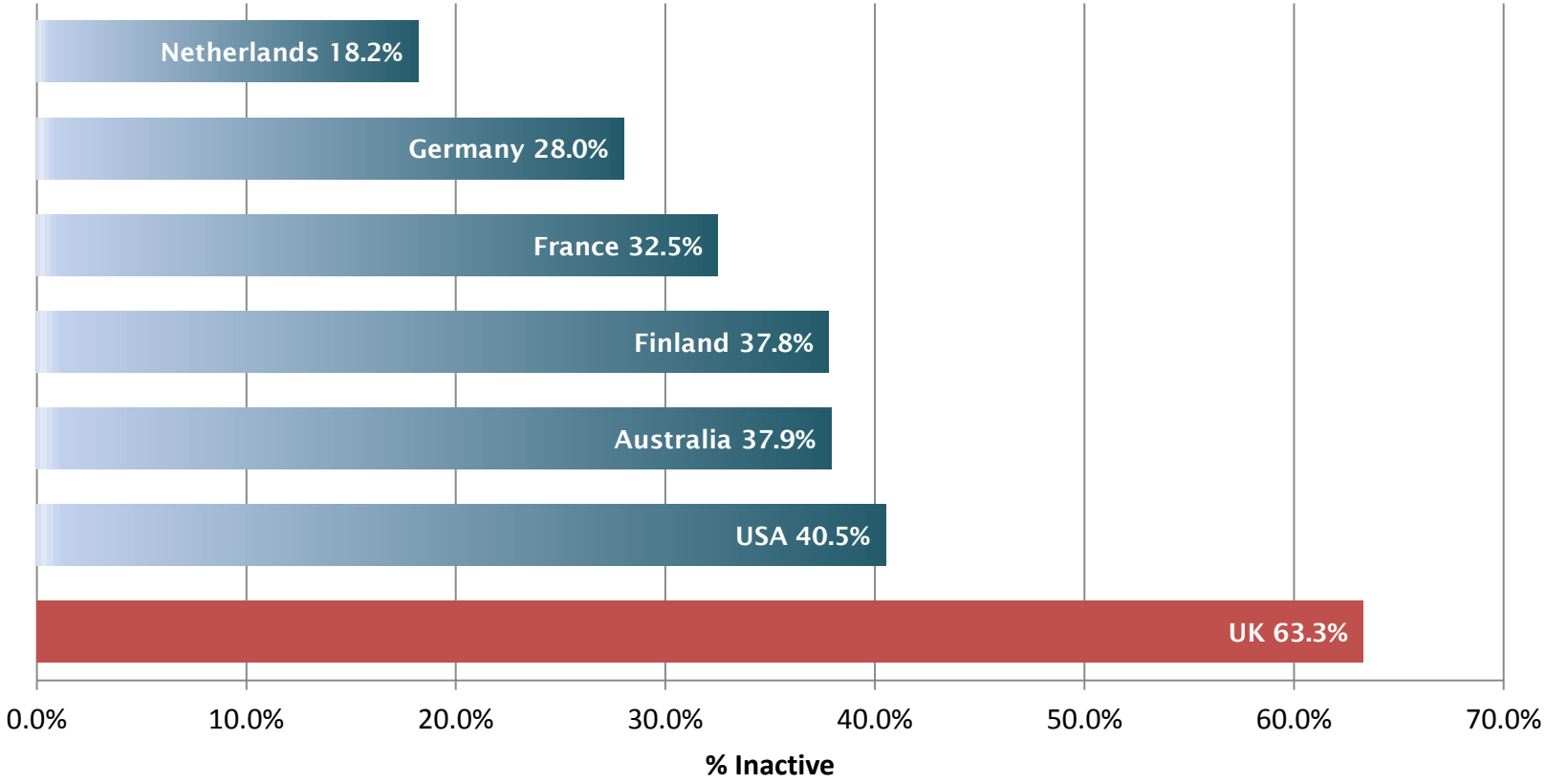
Germany

Australia

Finland

Proportion who are **not active**

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.

Public Health England (2014) *Everybody Active, Every Day*; Based on Hallal PC *et al.* (2012) Global physical activity levels: surveillance progress, pitfalls, and prospects. *The Lancet*.

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

Overweight and obesity

High blood glucose

Tobacco use

Alcohol use

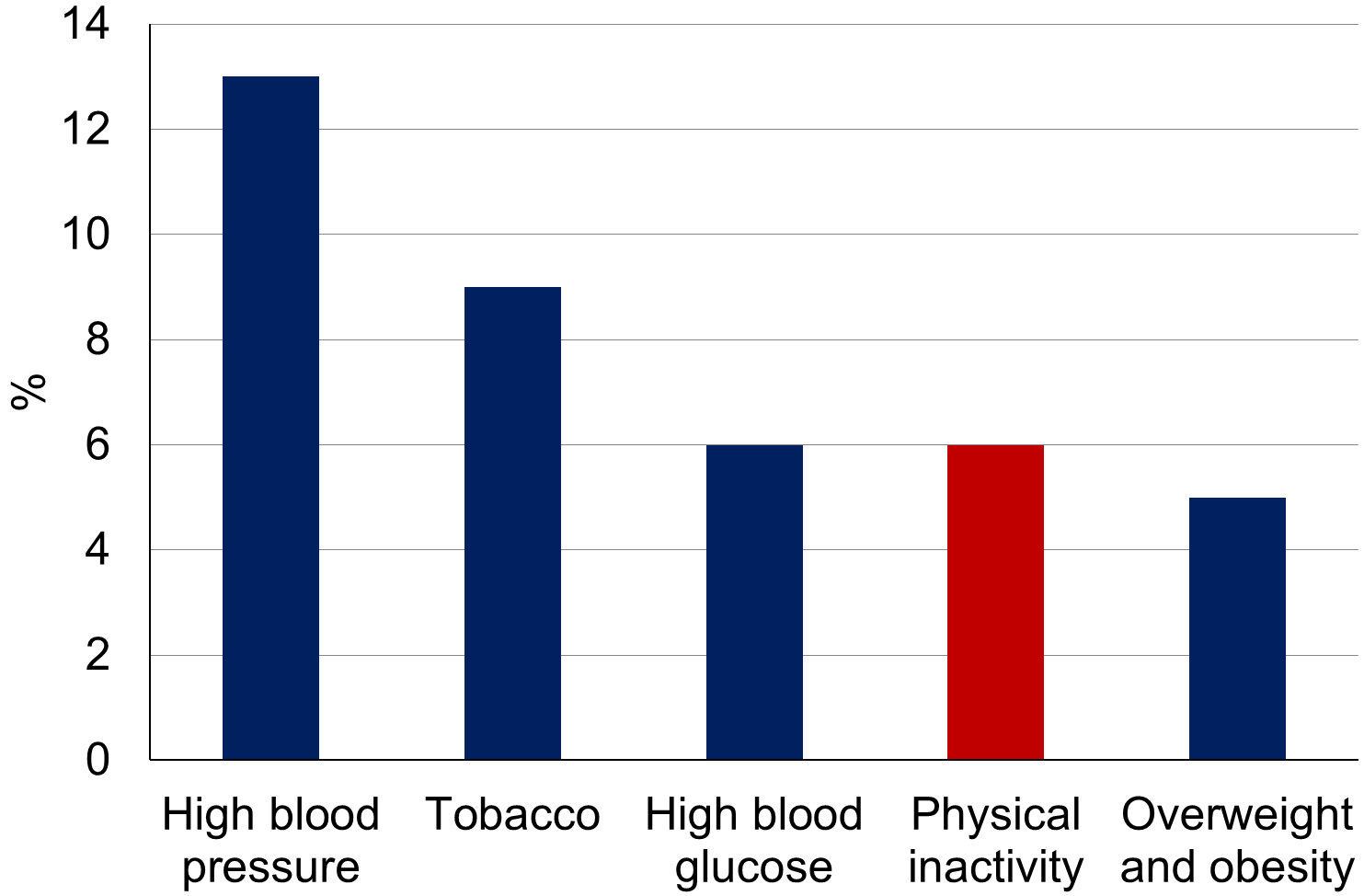
Drug use

High blood pressure

Diet low in vegetables

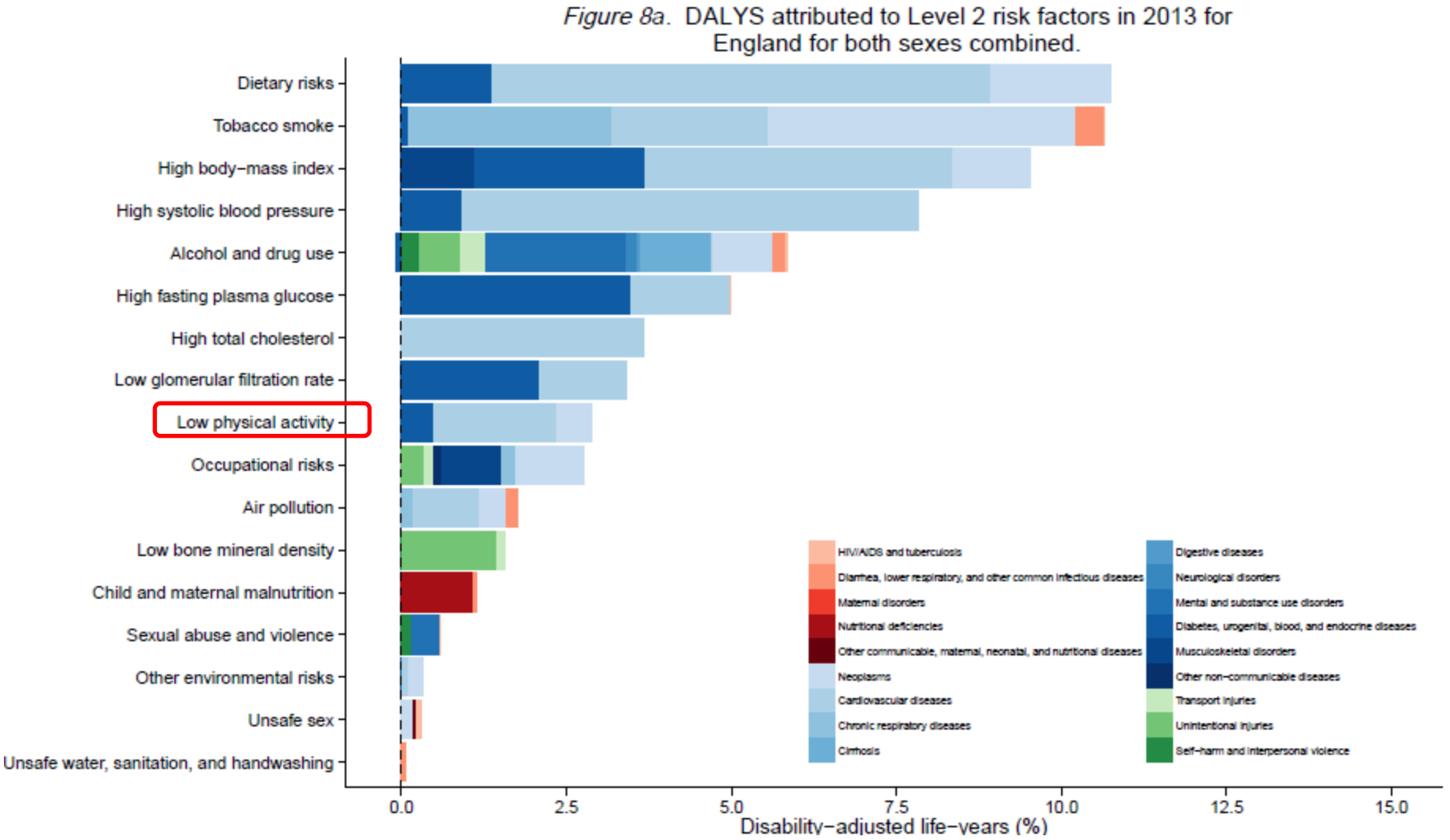
High total cholesterol

Top 5 non-communicable disease risk factors for mortality



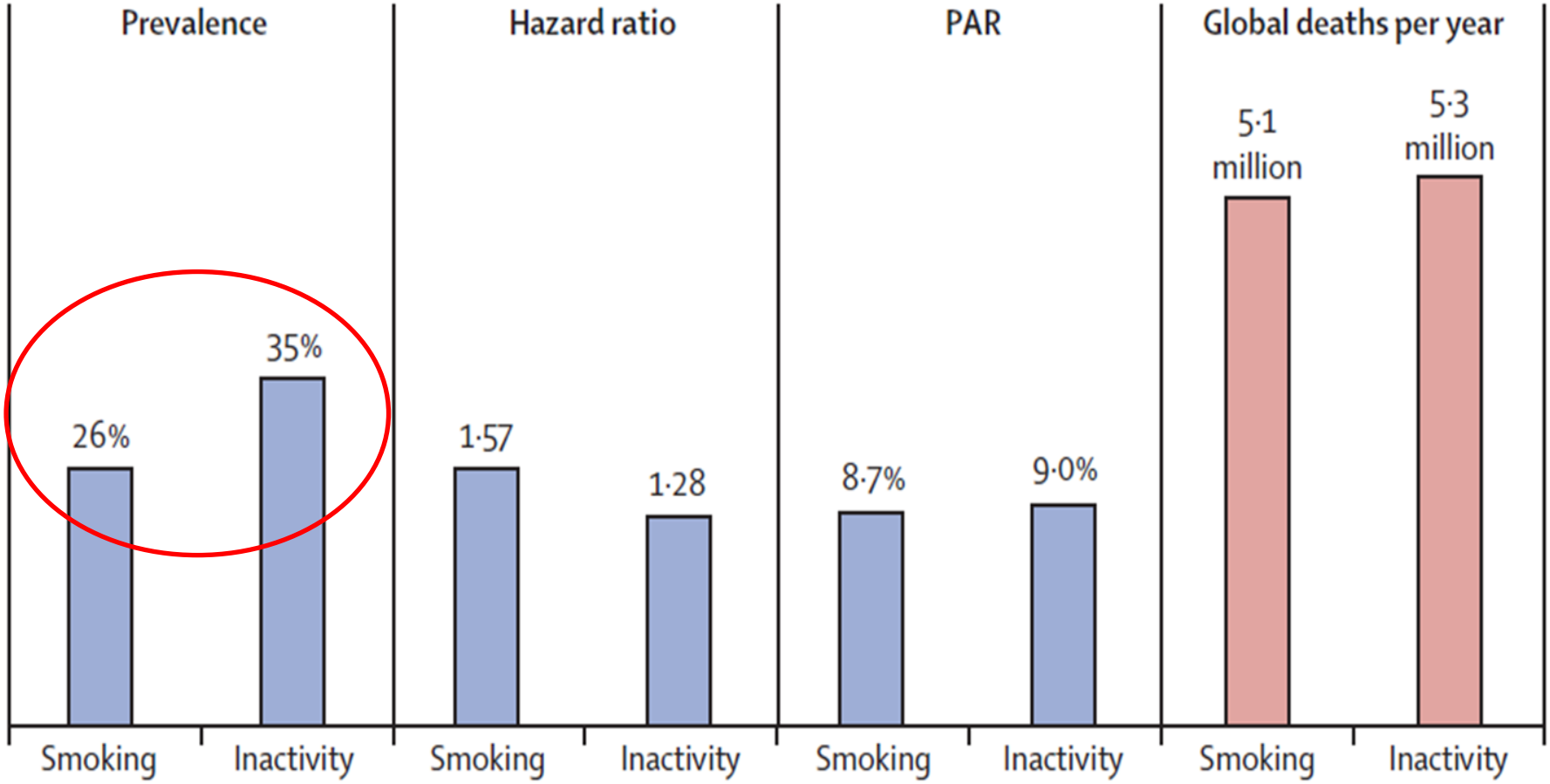
WHO (2009) Global health risks: mortality and burden of disease attributable to selected major risks

Top non-communicable disease risk factors



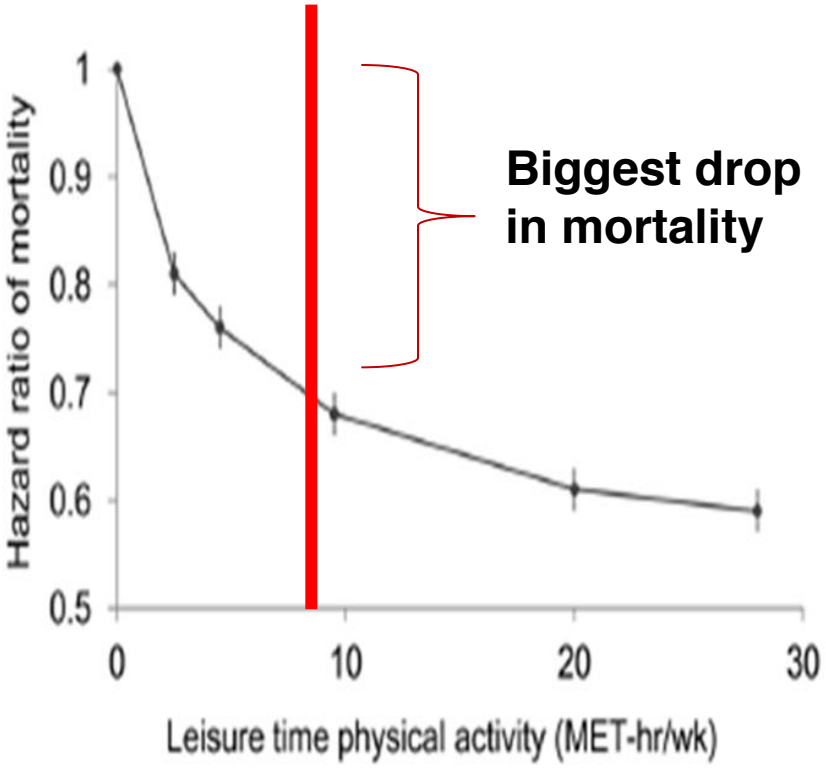
Newton *et al.* (2015) Changes in health in England, with analysis by English regions and areas of deprivation, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*

Inactivity vs. smoking
Global mortality

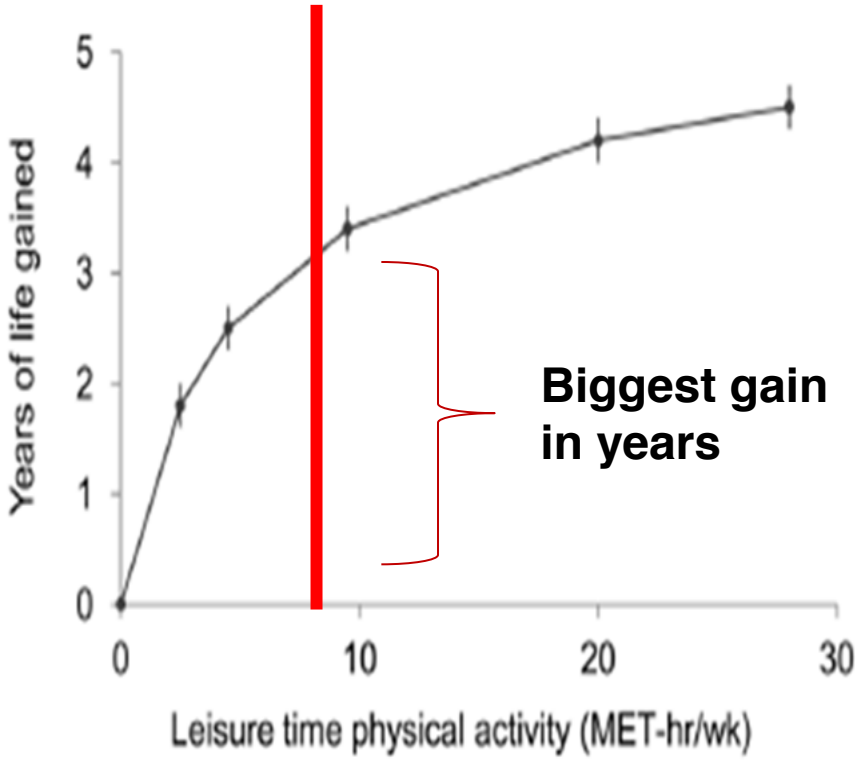


Physical activity: Who gains the most?

Mortality after age 40



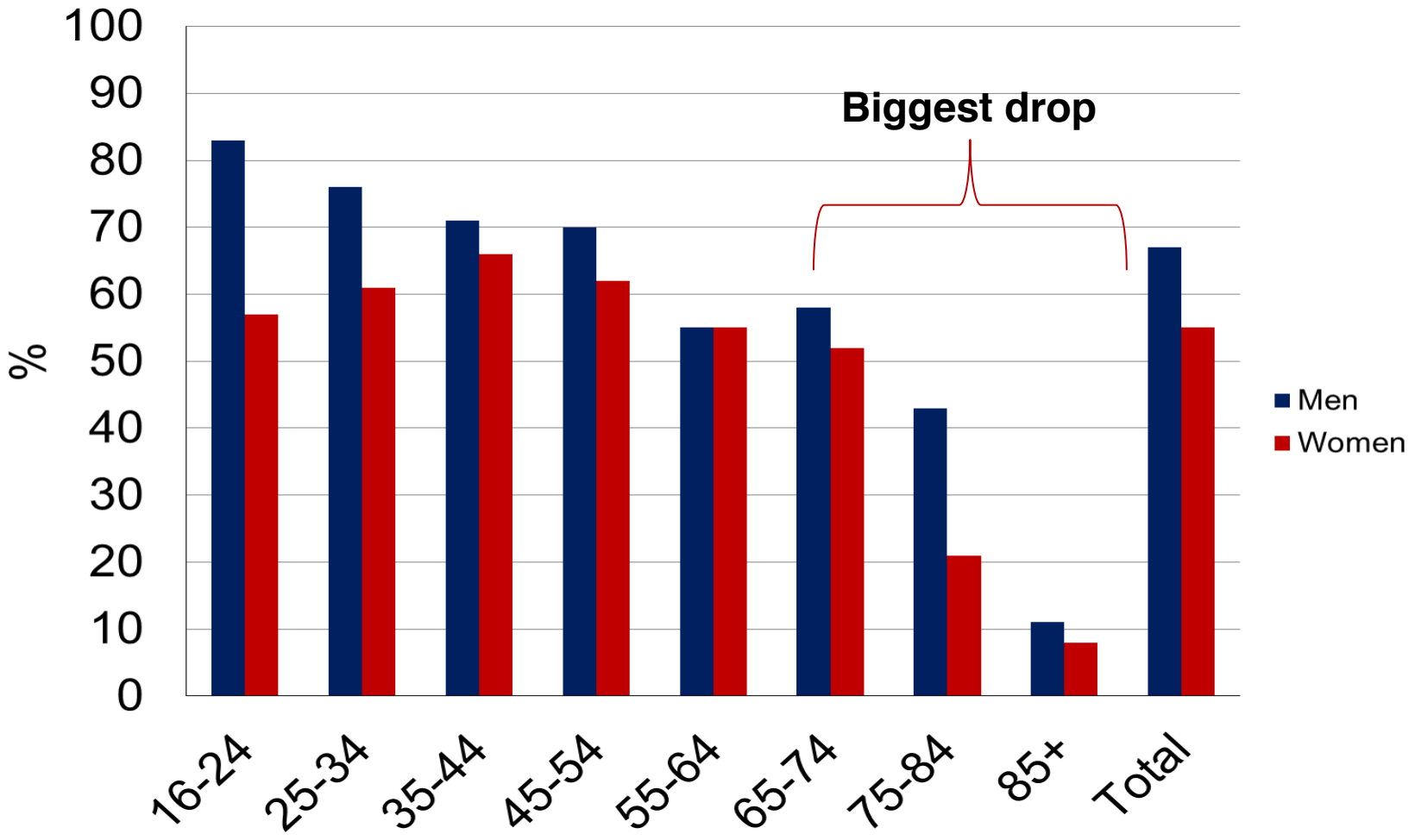
Years gained after age 40



Moore et al. (2012) PLOS Medicine

We do less activity as we age

% meeting moderate-to-vigorous PA recommendations



Health Survey for England (2012)

Physical activity and the ageing population

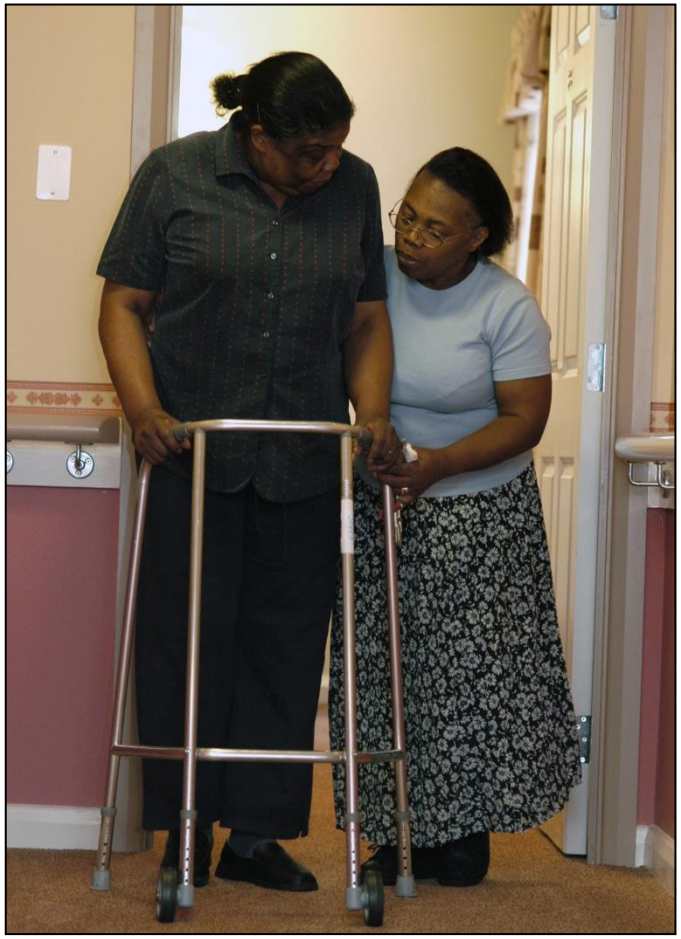


Photo: © Api, "Nordic Walking Grannies", Creative Commons License

Case 1

- Mary, 87 retired nurse, med review
- HTN, well controlled on Amlodipine, otherwise NAD
- Very concerned about own health
- Husband passed away last year, Alzheimer's
- Quite frail, doesn't often leave the house
- Afraid of becoming a burden on her family

Key points

- Low physical activity is the 4th leading modifiable cause of death globally and 7th leading modifiable cause of ill health in England.

- UK guidelines recommend150 minutes of moderate or 75 minutes of vigorous activity per week for adults or a combination of both; although benefits achieved with each 10 minute bout of activity

- Adults become much less active after age 60

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

- **Just move**

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

Early death

CHD and stroke

Type 2 diabetes

Colon cancer

Breast cancer

Hip fracture

Depression

Hypertension

Alzheimer's disease

Functional limitation, elderly

Physical activity: Our greatest defence

Physical Activity contribution to reduction in risk of mortality and long term conditions		
Disease	**Risk reduction**	**Strength of evidence**
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
Hip Fracture	36-68%	Moderate
Depression	20-30%	Moderate
Hypertension	33%	Strong
Alzheimer's Disease	20-30%	Moderate
Functional limitation, elderly	30%	Strong
Prevention of falls	30%	Strong
Osteoarthritis disability	22-80%	Moderate

Start Active, Stay Active (2011) based on US Department of Health and Human Services Physical Activity Guidelines Advisory Committee Report (2008), Washington D.C.

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

Bird (2014) Physical activity in the treatment of long-term conditions. BMJ Learning

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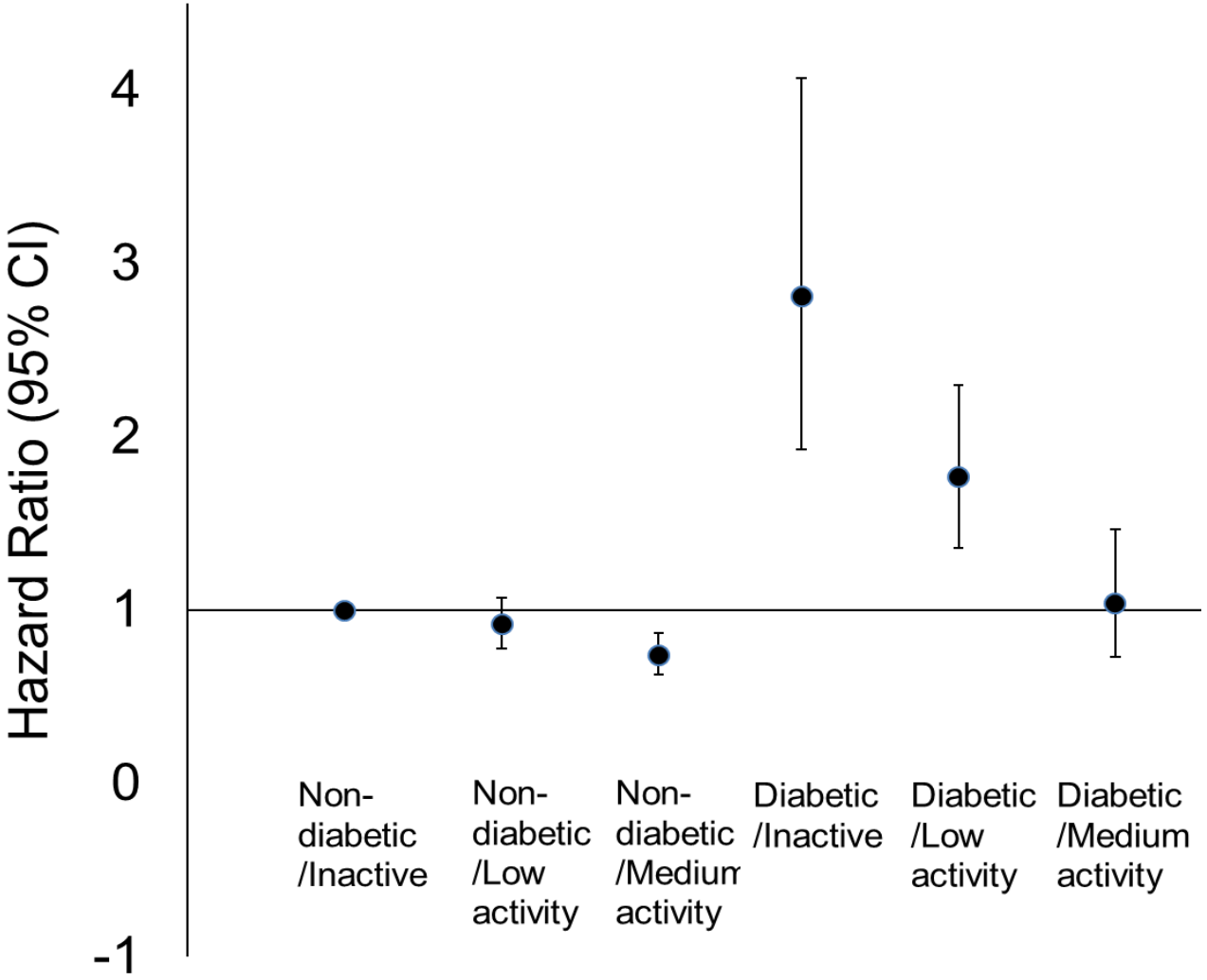
Bird (2014) Physical activity in the treatment of long-term conditions. BMJ Learning

Case 2

- John, 45 year old bus driver
- 3 x elevated readings of HBA1c (6.6%, 7.1%, 6.9%) over past 6 months
- Attended DESMOND and Dietician – 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”

Diabetes - physical activity and cardiovascular mortality



Moe et al. (2013) Diab Care

We know the benefits…

But do UK health and social care charities take physical activity **seriously** in preventing and treating illness?

Yes!


British Heart Foundation


asthma
UK


British Lung Foundation


age UK


STOP
BREAST CANCER
FOR GOOD
BREAST CANCER
BREAKTHROUGH


DIABETES UK
CARE. CONNECT. CAMPAIGN.

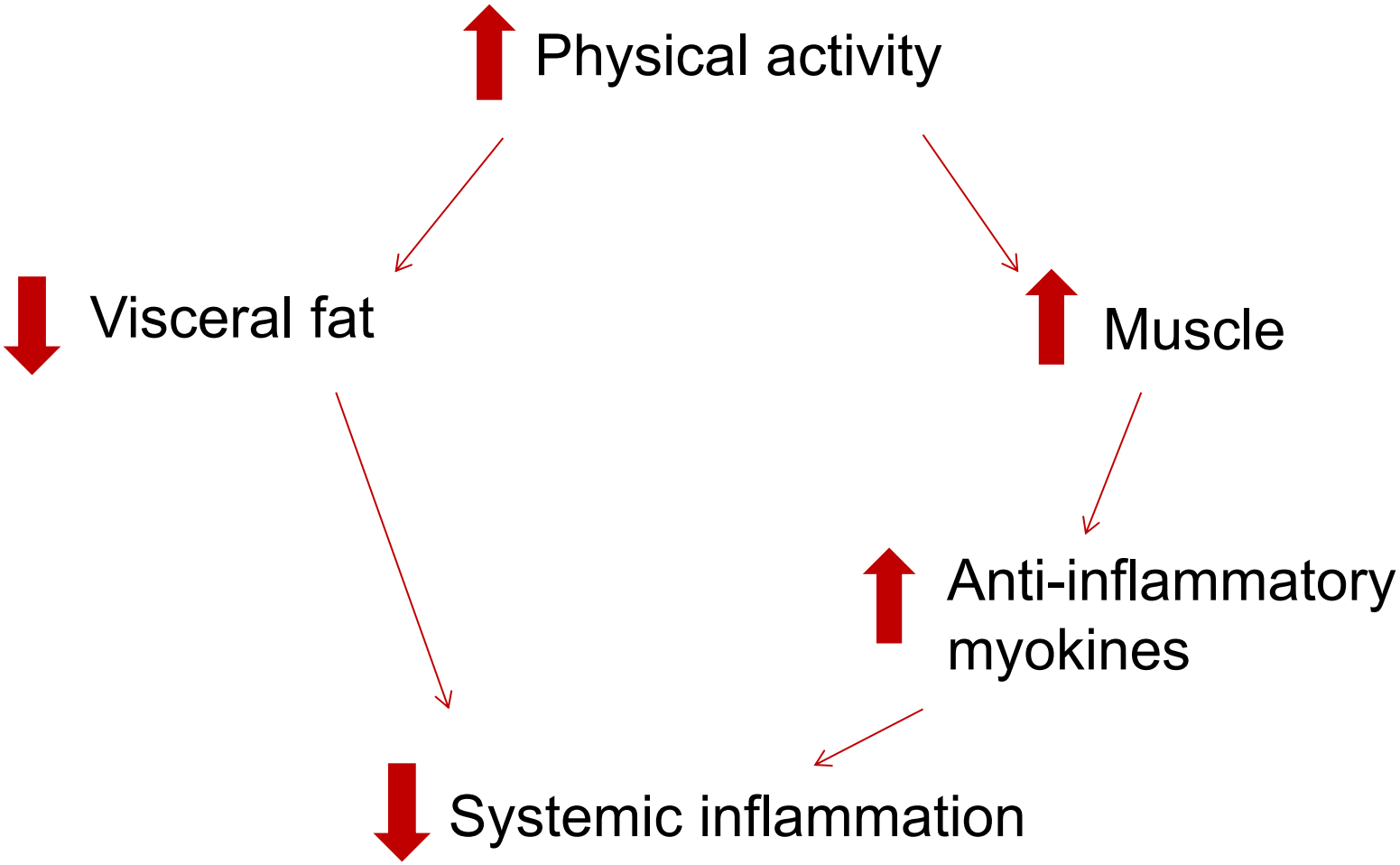

the neurological alliance


WE ARE MACMILLAN.
CANCER SUPPORT


Stroke
association


Rethink Mental Illness.

How is physical activity protective?



Lee et al. (2005) J Appl Physiol

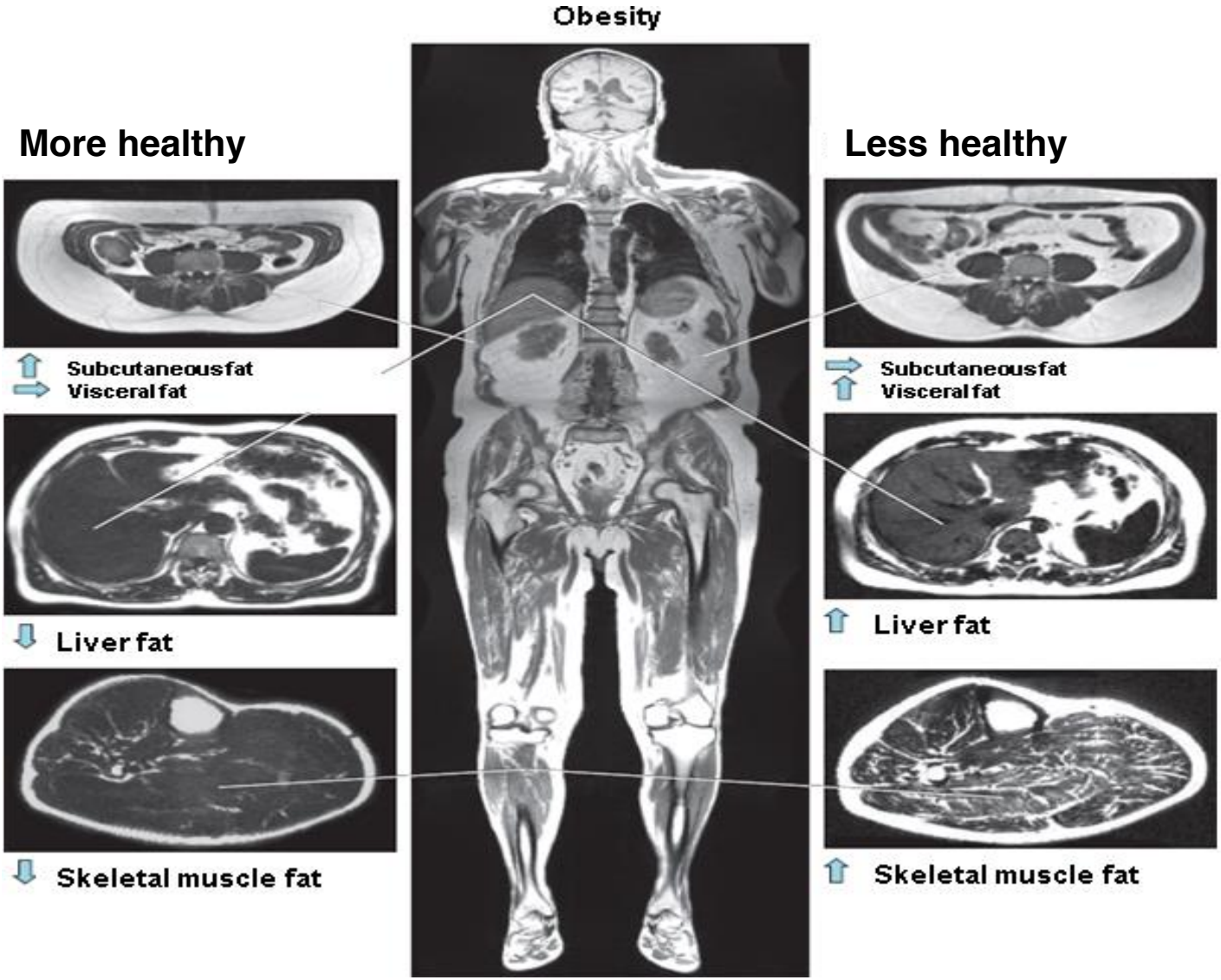
How is physical activity protective?

Chronic low-grade systemic inflammation thought to be the **root cause** of:

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

Bird (2014) Physical activity in the treatment of long-term conditions. BMJ Learning

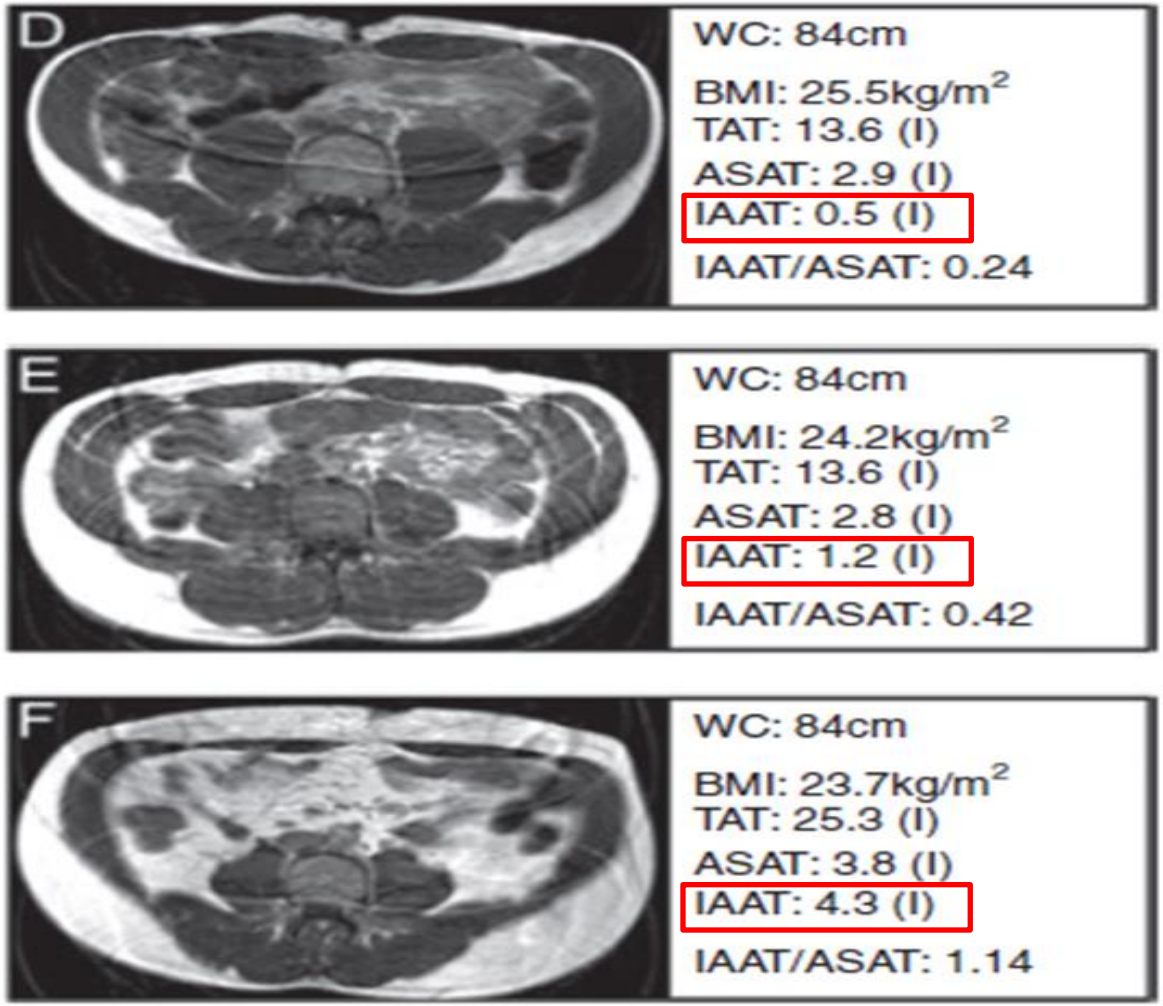
Different visceral fat for the same BMI



Different visceral fat for the same waist circumference

ASAT = subcutaneous abdominal adipose tissue

IAAT = intra-abdominal adipose tissue



Q5: Which of the following are classed as sedentary behaviour?

Sleeping

Lying down watching TV

Standing

Walking slowly

Sitting at a desk

Sitting while cycling

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Lying down watching TV

Standing

Walking slowly

Sitting at a desk

Sitting while cycling

Sedentary behaviour

A state of **muscle inactivity** associated with metabolic risk factors, cardiovascular disease, and mortality **regardless of engagement in moderate-to-vigorous activity**

No standard recommendation *(yet)* for 'ideal sitting time'

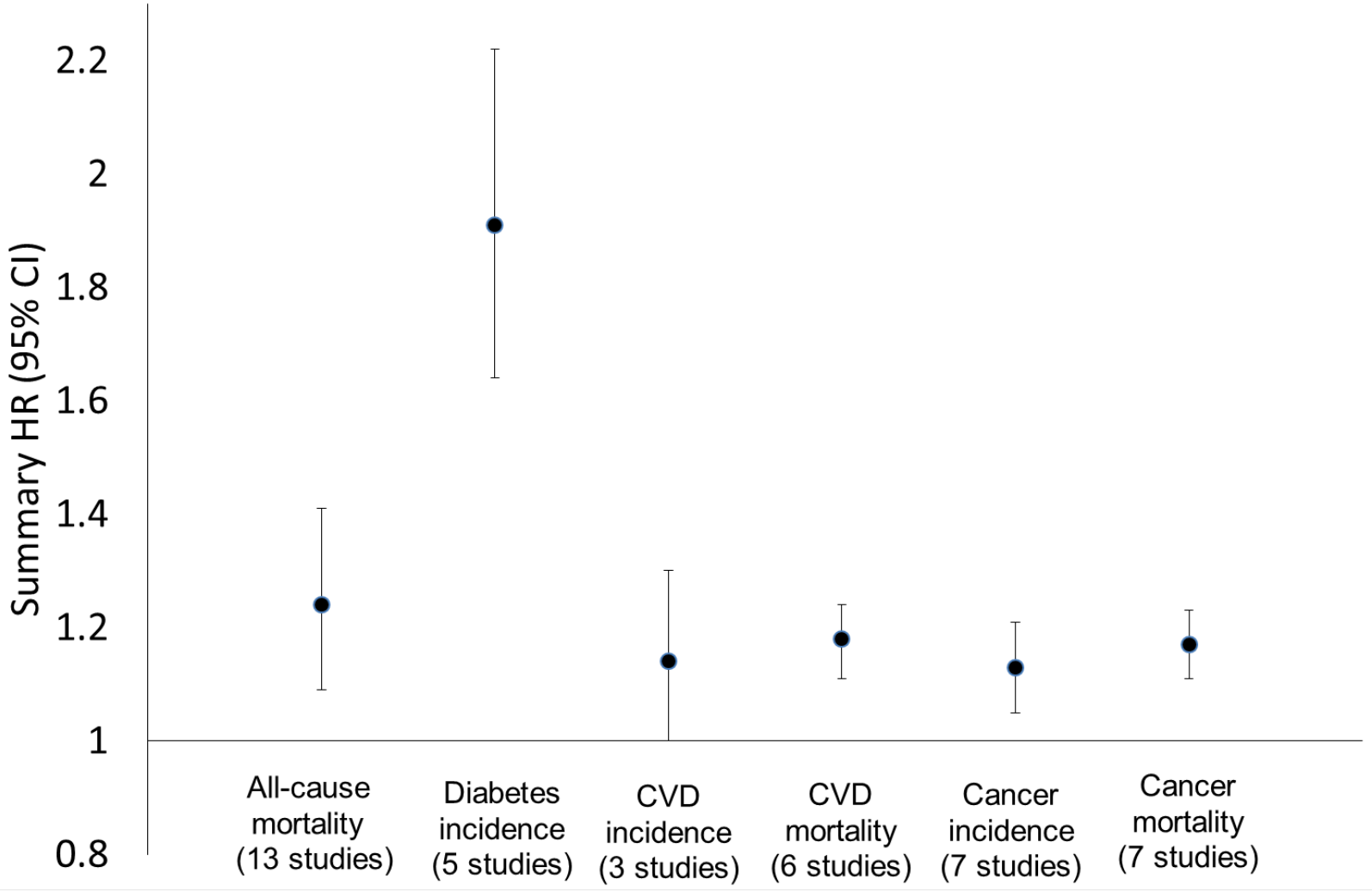
Breaking-up sitting **every 20 minutes** with just 2 minutes of light or moderate walking can improve postprandial glucose and insulin responses to food

Key is to avoid prolonged periods of sitting – **move often**

What about GP's???

Hamilton et al. 2007, Diabetes; Healy et al. 2011, Eur Heart J; Koster et al. 2012, Plos One; Dunstan et al. 2012; Diab Care

Health risks of sitting, independent of physical activity



Biswas et al. (2015) Annals Intern Med

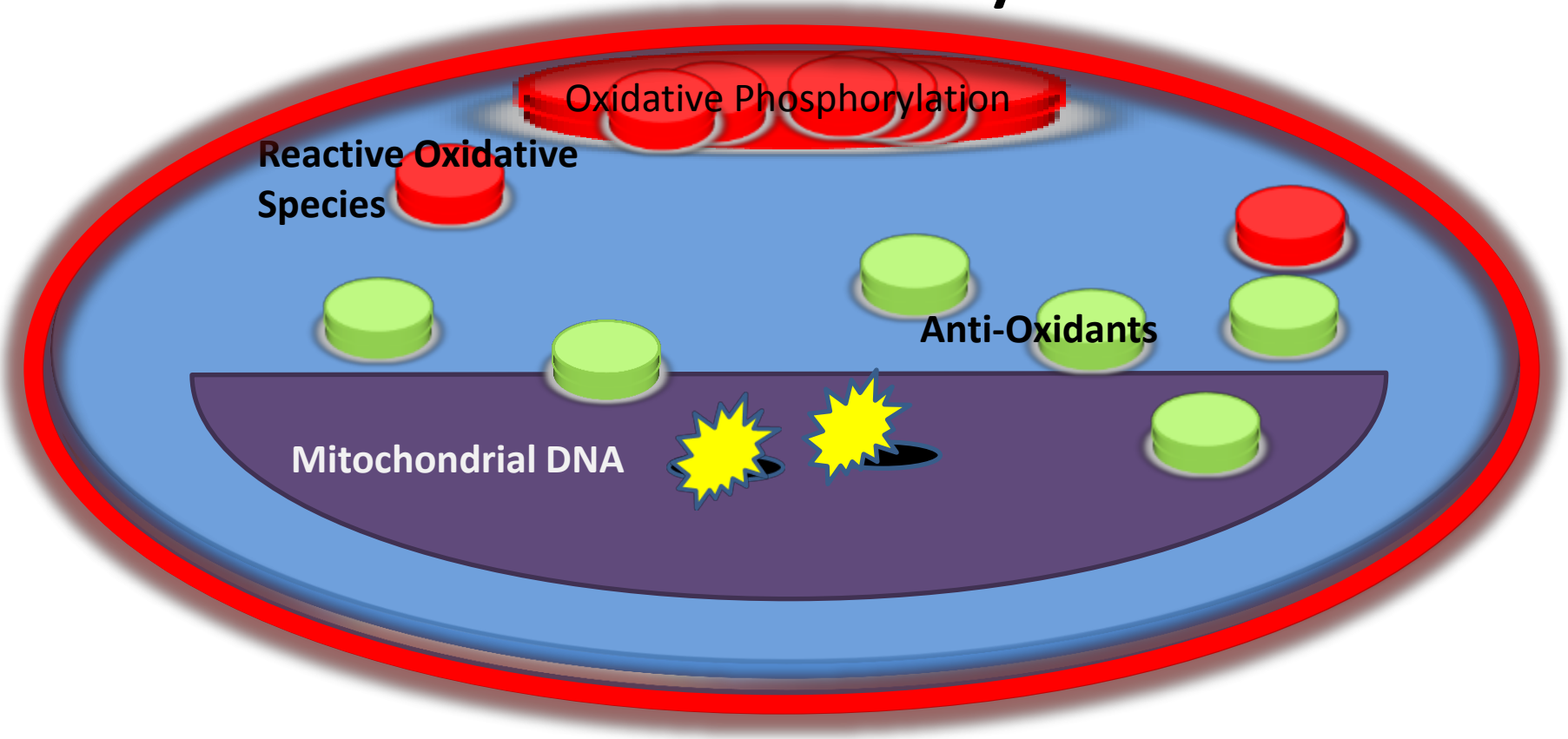
Why is sitting so bad?

Prolonged sitting disrupts:

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

Healy et al. 2008, Diab Care; Healy et al. 2011, Eur Heart J; Dunstan et al. 2012, Diab Care; Howard et al. 2013, Med Sci Sports Exerc; Tremblay et al. 2010; Appl Physiol Nutr Metab; Latouche et al. 2013, J Appl Physiol

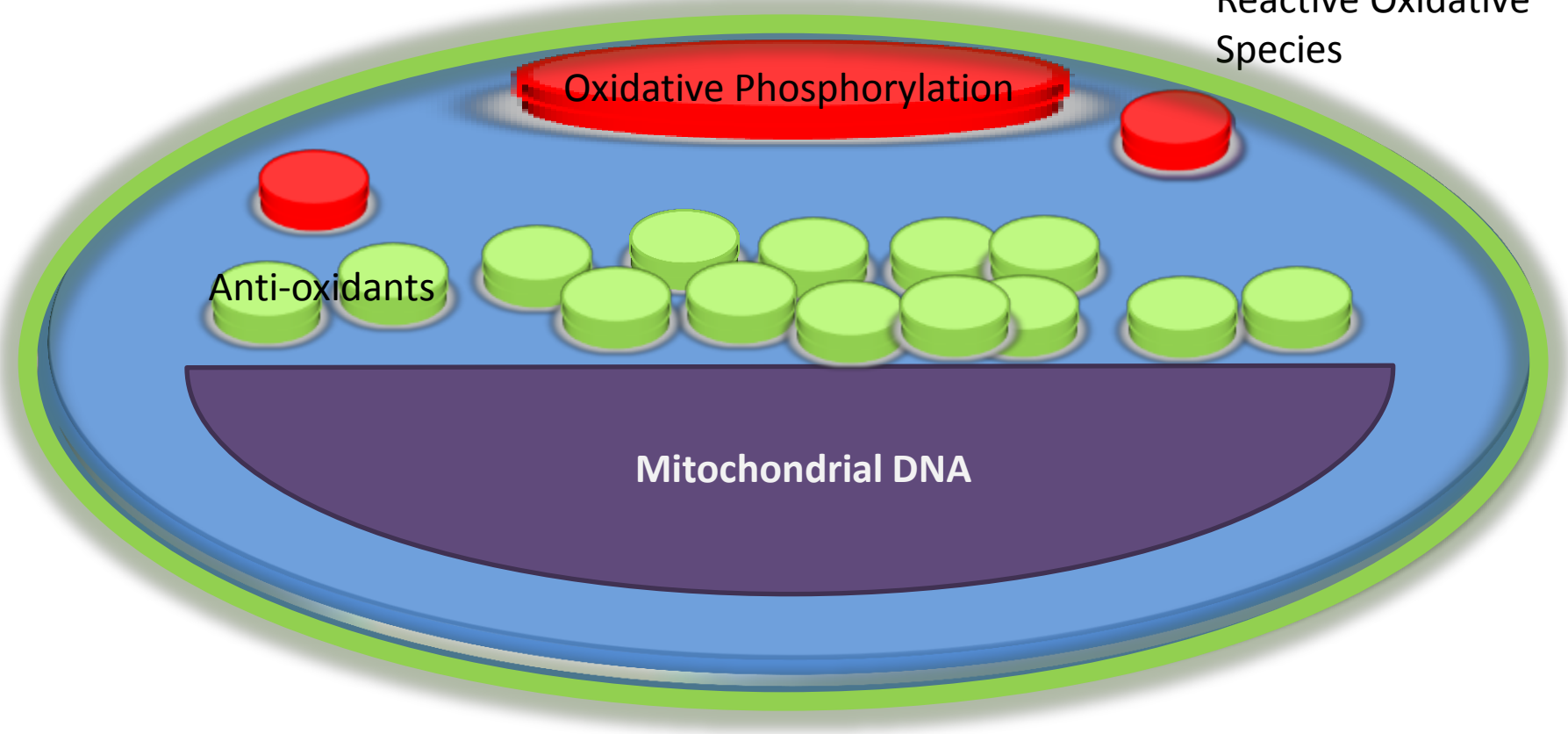
Sedentary



Mitochondria

Intelligent Health

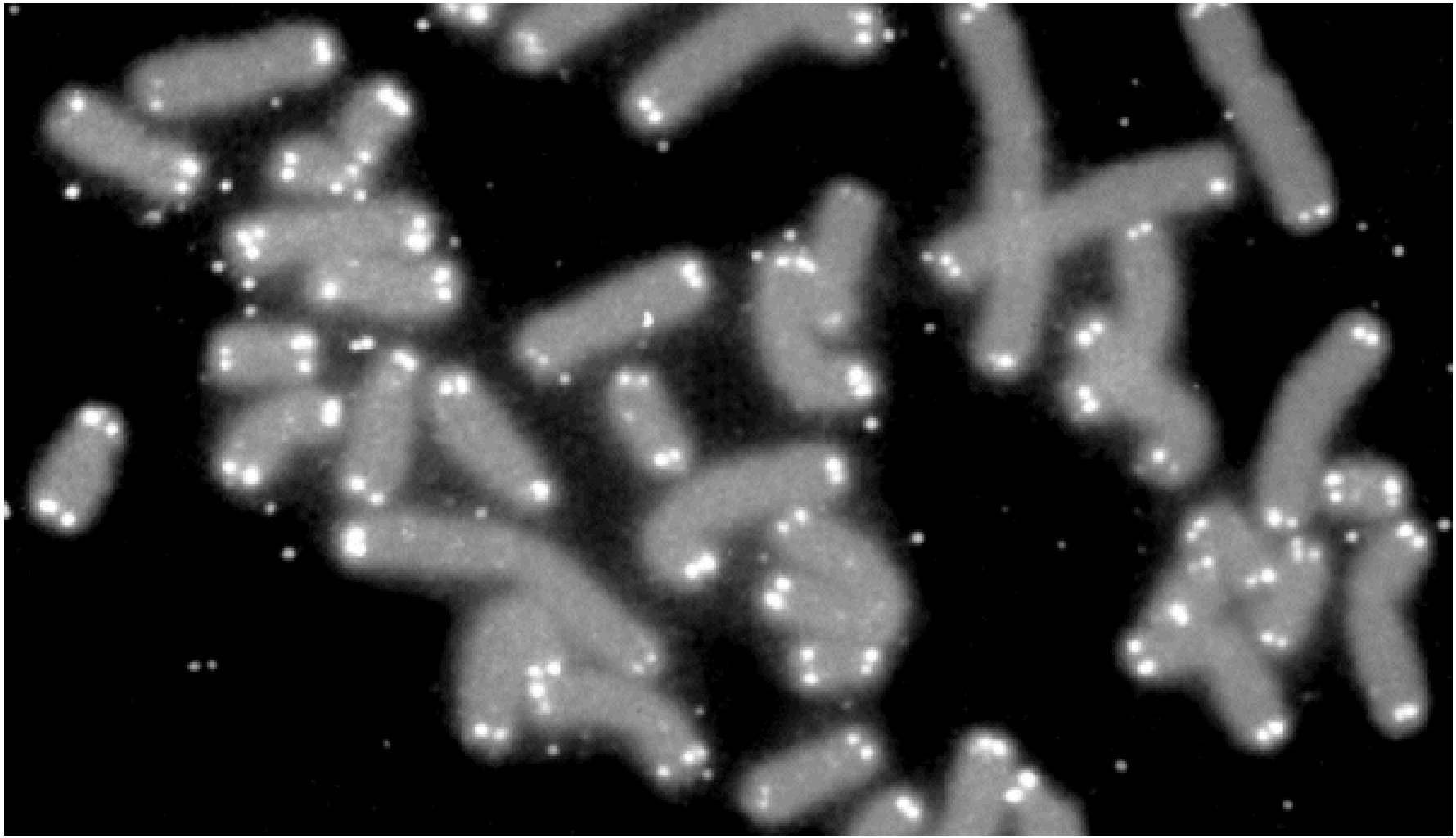
Physically Active



Mitochondria

The anti-ageing frontier?

Physical activity slows telomere shortening



"Telomere caps" by U.S. Department of Energy Human Genome Program

Physical activity and telomere length

Physical activity

Slowing of telomere shortening

Longer cell life

How old is Edwina?

Currently 72!!! And still competing

Ironman triathlete

© SportSister

Triathlon: Edwina Brocklesby becomes Britain's oldest Ironman triathlete

June 12, 2013

Like 13 Tweet 13 Pin it 1 G+1

After completing one of the world's most challenging Ironman courses, 70 year old Edwina Brocklesby has broken the record to become Britain's oldest Ironman triathlete finisher in history.

Edwina took part in the Ironman Lanzarote Triathlon at the active

What motivates people to move?

Teenage girl?

Middle-aged man?

Post-retirement woman?

Grandmother?

Healthy young man?

Woman with breast cancer?

What motivates people to move?

Teenage girl?

"Becoming active can reduce your risk of breast cancer by 40%"

"Daily activity helps you keep-up with your grandchildren"

Middle-aged man?

"Being active helps you reach the bathroom on time"

"Keeping moving is the most important thing you can do for yourself to maintain your strength and independence"

Post-retirement woman?

"Avoiding sitting for extended periods can help keep you alert and working at your full potential"

Grandmother?

"Standing for 3 hours a day burns the same amount of calories as running 10 marathons over a year"

Healthy young man?

"Becoming active after being diagnosed with breast cancer can reduce your risk of recurrence by nearly 25%"

"Keeping active can reduce your risk of dementia by 40%"

Woman with breast cancer?

"Being active keeps blood pumping to your brain and limbs, which is necessary to keep you functioning well"

Clinical tips

- Consider mentioning physical activity in **all consultations** (at least as often as smoking)
- Retirement does not = ‘take it easy’, need to **stay active** to maintain strength, cognitive function, and independence
- Cancer patients should aim to be **optimally active** and avoid being sedentary – can be empowering, something they can do for themselves alongside medical care
- ‘Moderate’ activity differs by individual (it may be light walking for previously sedentary adults) – make it **achievable**

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Questions so far?

Brief advice / interventions

NICE guidance: 5As

- Ask
- Advise
- Assess – stage of change
- Assist – to make changes
- Arrange Follow up.

MACMILLAN 3 As:

- Ask – Did you know PA can help cancer sufferers in different ways?
- Advise
- Act

Motivational interviewing

"MI is an evidence-based approach to consulting around change. MI is designed to encourage patients to talk themselves into making a change, with the clinician 'guiding' the patient and 'activating' their own motivation for change."

A simple example

"Mrs Smith, you know you should stop smoking. It's very bad for your chest."

Contrast this with the MI approach, which is eliciting the patient's views and acknowledging her possible ambivalence to change:

"Mrs Smith, I wondered if you had ever thought of giving up cigarettes? What do you see as the barriers to stopping smoking, and the potential gains for you?"

Rollnick S, et al(2010) Motivational interviewing. *BMJ* Apr 27;340:c1900.

BMJ eLearning. Motivational interviewing in brief consultations. Professor S Rollnick

Motivational interviewing - Opportunities

BMJ learning - Motivational Interviewing, Professor Stephen Rollnick

Health trainers – Available in some areas, trained in using MI

Courses – Often available free of charge, check with your CCG

(Potential for VTS session for GP trainees)

Workshop Activity

Working in groups of 3, allow 6 minutes per motivational interview consultation opportunity. Assume that the initial part of the consultation has been completed satisfactorily and the remaining 6 minutes are an opportunity to talk about physical activity.

Each person select whether you will be ;

1. **Doctor**
2. **GP**
3. **Observer, will feedback to the group**

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

Stefan et al. (2013) Lancet Diab Endocrinol

Some useful example Q's

1. Why would you want to make this change?
2. On a scale of 0-10, what number would you pick for yourself as to where you are with importance on this change?
3. Why are you at _ and not at zero?
4. What are the 3 main reasons you want to make this change?
5. What ideas do you have about making these changes?
6. Pick one idea you just described and on a scale of 0-10, how ready are you to make the change?
7. What would it take to get you form that number to one number higher?
8. So, what will you do next?

AVOID - Ordering, directing, advising, warning, disagreeing, judging, suggestions!

Case 3

- Anita, 35 years old
- Housewife, 2 children under 5 years old
- Review appointment ‘TATT’
- Bloods normal, exam’n was normal
- Poor eye contact, quiet voice, low mood
- Socially isolated

Case 4

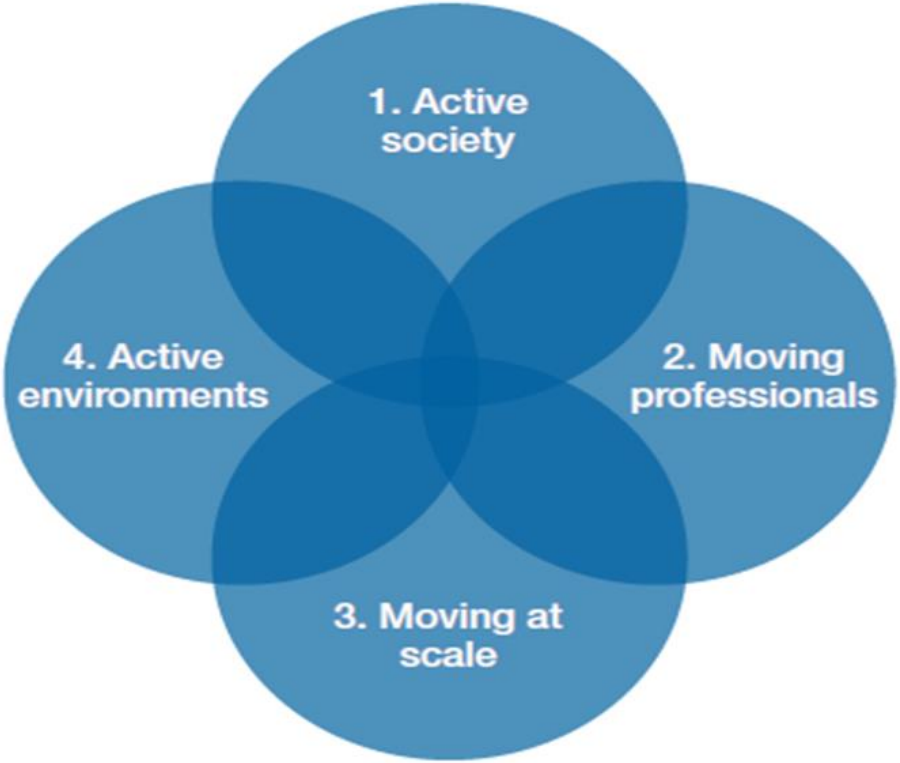
- Lucy, 49, Accountant
- Breast Ca, Post Mastectomy Adjuvant Chemotherapy
- Attended with husband (protective)
- Lacking energy, asking for ‘a tonic’
- Husband almost cancelled appt as “shouldn’t leave the house”
- Has a labrador dog called ‘Molly’

Case 5

- Simon, 15 year old student, mainstream school
- Cerebral Palsy, uses a frame
- Continuing weight gain and inactivity
- “I wish I could run around like my mates”
- Tends to comfort eat when bored

Everybody Active, Every Day

Be a clinical champion!



Email address

physicalactivity@phe.gov.uk

Available resources

Free modules on physical activity

by Dr William Bird, GP

Free module on motivational interviewing in brief consultations by Prof Stephen Rollnick

English Physical Activity Clinical Champions Network

For clinicians

Physical Activity in England Forum

For researchers, policymakers, activists

physicalactivity@phe.gov.uk