

Paths for All Annual General Meeting

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31st October 2018



What if there was a perfect drug called Fiterix

- Major effect on the faulty immune system reducing the pro-inflammatory markers of anti-TNF factor, C Reactive Protein and IL-6.
- Increases antioxidants and reduces the oxidative stress from Krebb's Cycle in each mitochondria as measured by reduction in 8-hydroxydeoxyguanosine (8-OHdG)
- Prolongs the life of cells by stimulating Temelorse and lengthening the telomeres at the end of each Chromosome hence prolonging cell life.
- Reduces blood pressure, visceral fat, obesity, fibrinogen, blood pressure, and HDL/LDL ratio and can reduce the atheroma in each coronary artery
- Stimulation of Brain-Derived Neurotrophic Factor Increases repair of neurons in the brain and promotes neural generation and increases grey and white matter with enlarging the Hippocampus.



Fiterix



Fiterix (aka going for a walk)

Triple Strength

Activity
Friendship
Nature



Our factory setting is to be in a sociable group, supportive environment and have a purpose

People



Sociable

Connect

Place



Nature

Take Notice

Purpose



Autonomy

Be Active, Give
Keep Learning



How does nature benefit health?



(a) Less stressed,

(b) More exercise,

(c) More positive social interactions and

(d) Better quality environment for health promotion (i.e. has lower levels of air pollution)

Hartig T., Mitchell R., De Vries S. and Frumkin H. (2014) Nature and health. Annual Review of Public Health 35, 207–228.



People



Loneliness

Place



Hostile

Purpose



Lack of control

Fear and Chronic Stress



“We work to improve physical, mental and social health” Paths for All

- The experience of loneliness is stressful.
- Chronic stress, via its effects on the endocrine and immune systems, enhances risk of long term conditions, (similar risk as smoking 20 cigs a day for CVD)
- Lonelier people experience more sleep disturbances and engage in less physical activity than less lonely people with increased pain, depression, fatigue and poor health.

Jaremka, L.M., Fagundes, C.P., Glaser, R., Bennett, J.M., Malarkey, W.B. and Kiecolt-Glaser, J.K., 2013. Loneliness predicts pain, depression, and fatigue: understanding the role of immune dysregulation. *Psychoneuroendocrinology*, 38(8), pp.1310-1317



Inactivity and chronic stress

- **Chronic psychosocial stress, increases the risk of physical inactivity and contributes to the epidemic of disease.**

Tsatsoulis, A. and Fountoulakis, S., 2006. The protective role of exercise on stress system dysregulation and comorbidities. *Annals of the New York Academy of Sciences*, 1083(1), pp.196-213.





Chronic
Stress
Loneliness

Inactivity
Poor diet
Obesity
Smoking



Chronic Stress

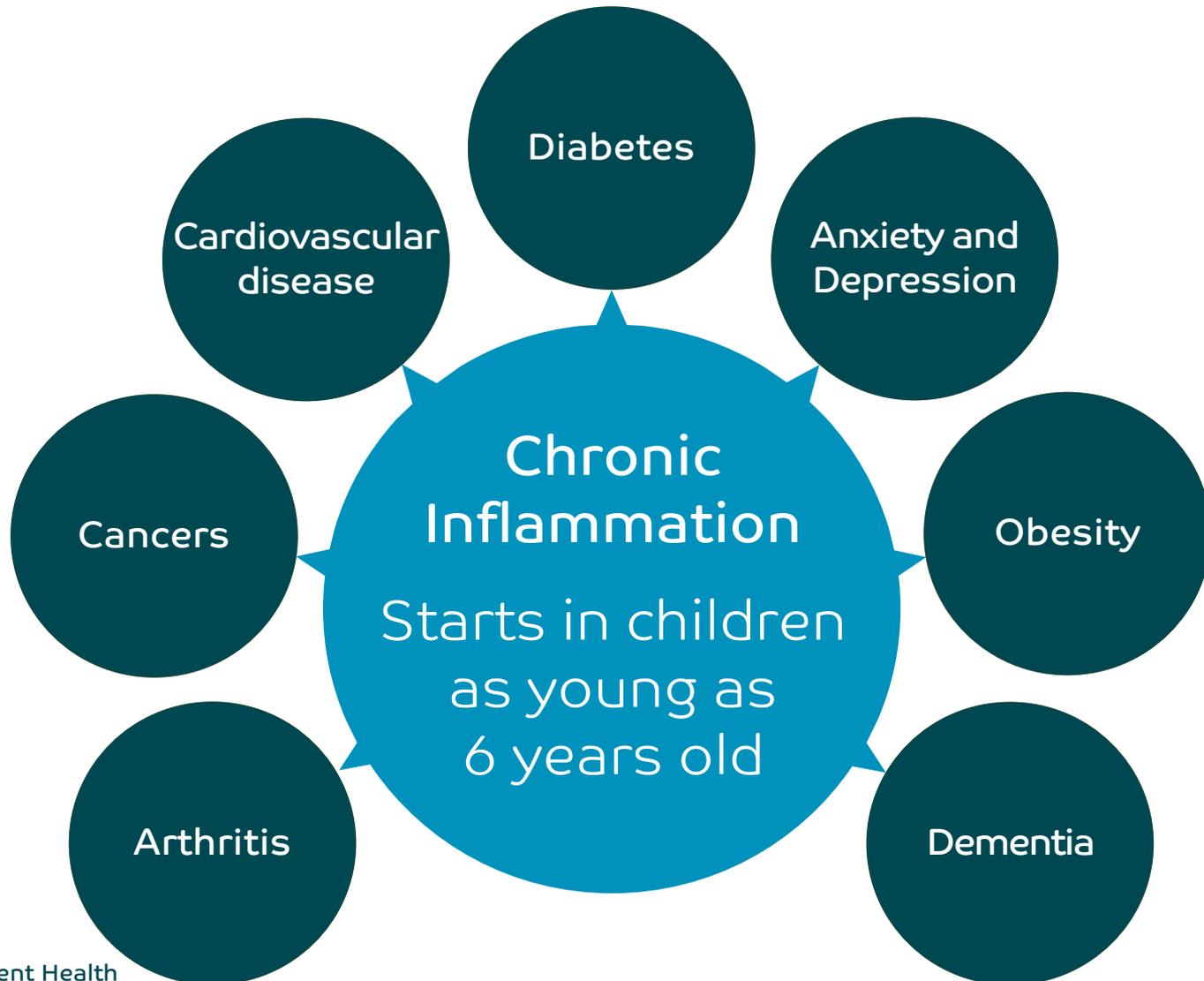
Stress
Hormones

Inactivity
Poor diet
Obesity
Smoking

Chronic Inflammation



Inflammation: The cause of Causes



Walking reduces inflammation

1.
Reduces
visceral fat

2.
Reduces anti-
inflammatories

3.
Damages
healthy cells



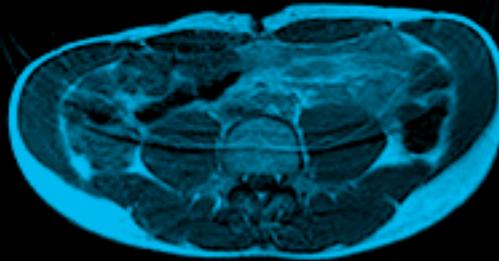
Inactivity: trilogy of inflammation

1.
Increases
visceral fat

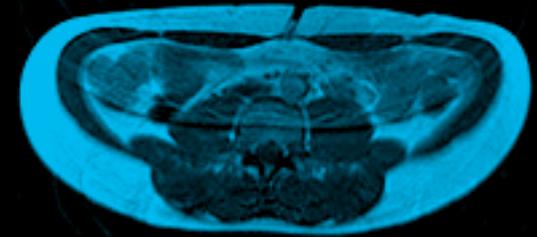


Reducing inflammation – fat

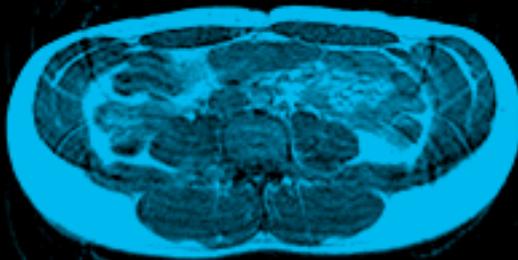
Variation in visceral fat content in men with the same waist circumference



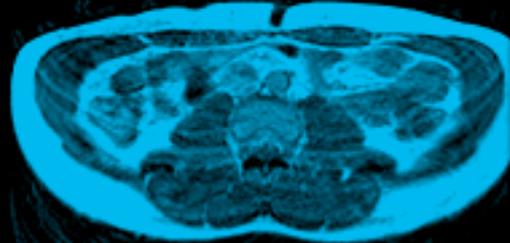
Visceral fat = 0.5 L



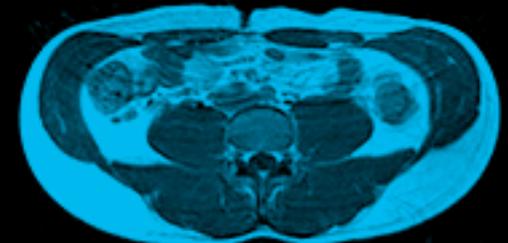
Visceral fat = 1.1 L



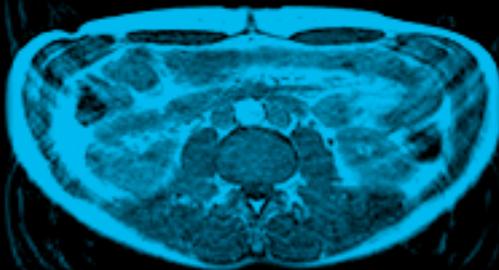
Visceral fat = 1.2 L



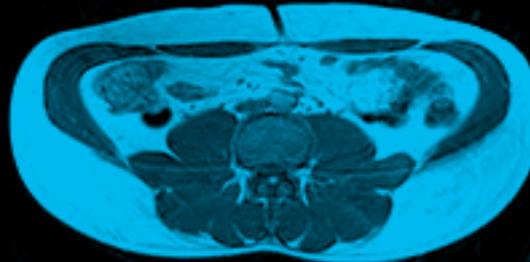
Visceral fat = 1.3 L



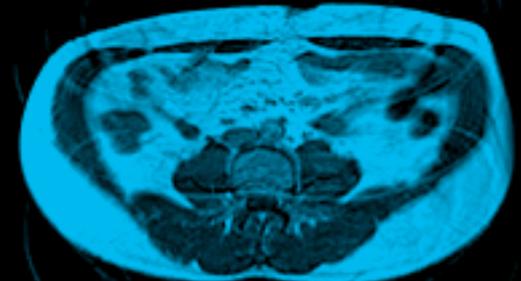
Visceral fat = 1.7 L



Visceral fat = 1.8 L



Visceral fat = 4.2 L

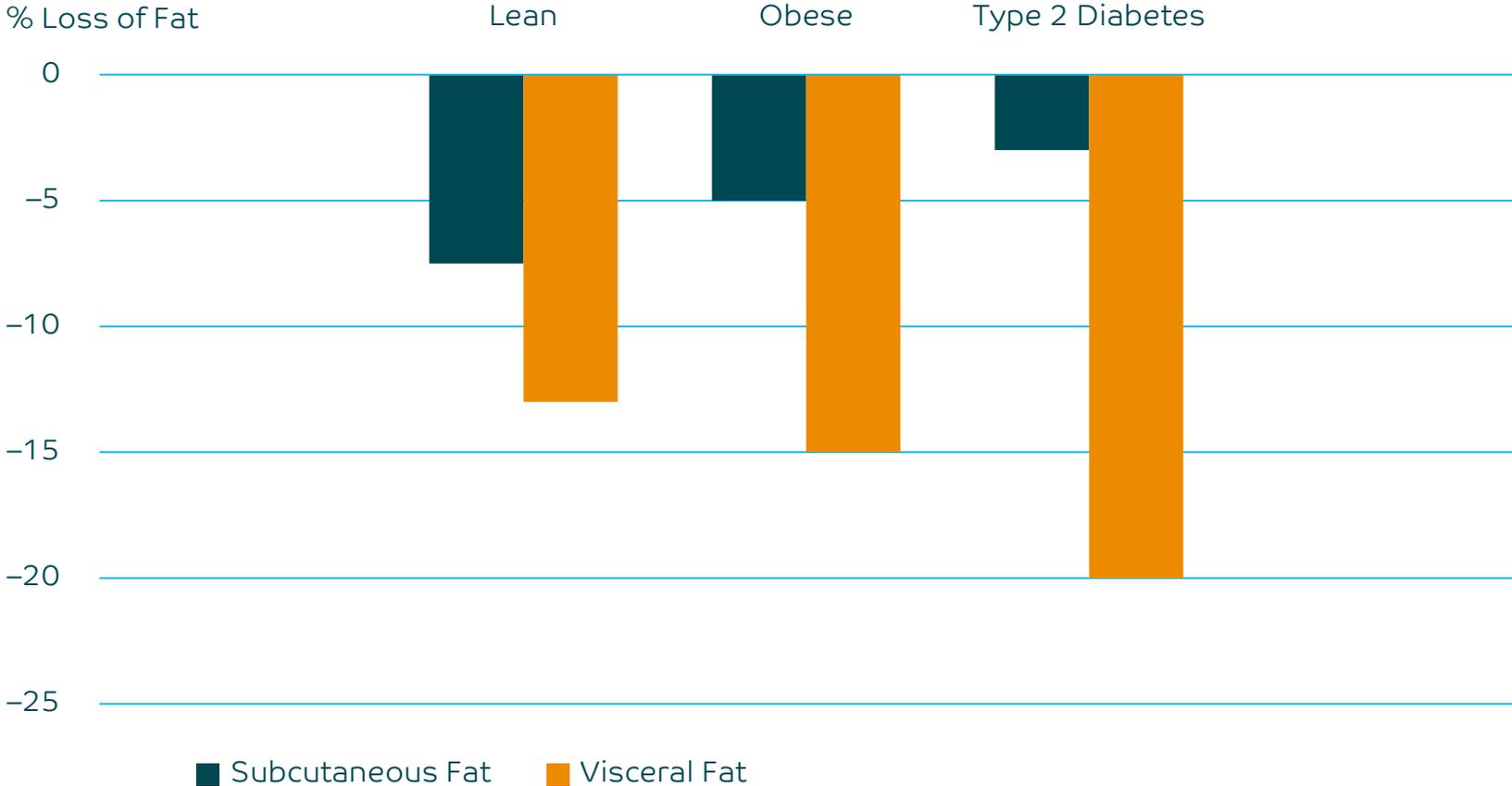


Visceral fat = 4.3 L



Visceral fat reduction with exercise

Fat loss after 13 weeks of walking 60 mins a day and no weight loss



Lee S et al. J Appl Physiol 2005;99:1220-1225



Inactivity: trilogy of inflammation

1.

Increases
visceral fat

2.

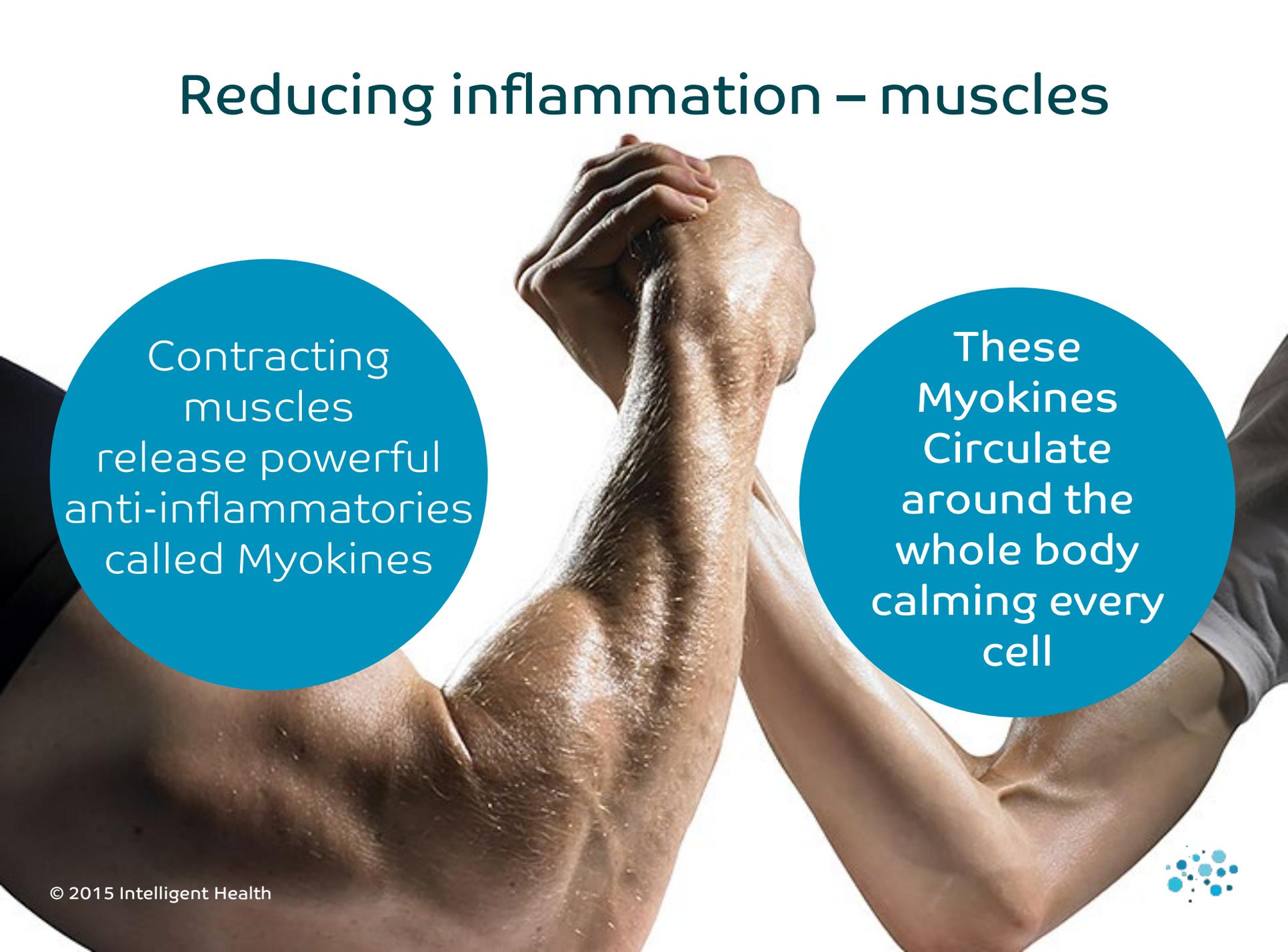
Reduces anti-
inflammatories

3.

Damages
healthy cells



Reducing inflammation – muscles



Contracting muscles release powerful anti-inflammatories called Myokines

These Myokines Circulate around the whole body calming every cell



Inactivity: trilogy of inflammation

1.

Increases
visceral fat

2.

Reduces anti-
inflammatories

3.

Damages
healthy cells



Inside a healthy cell

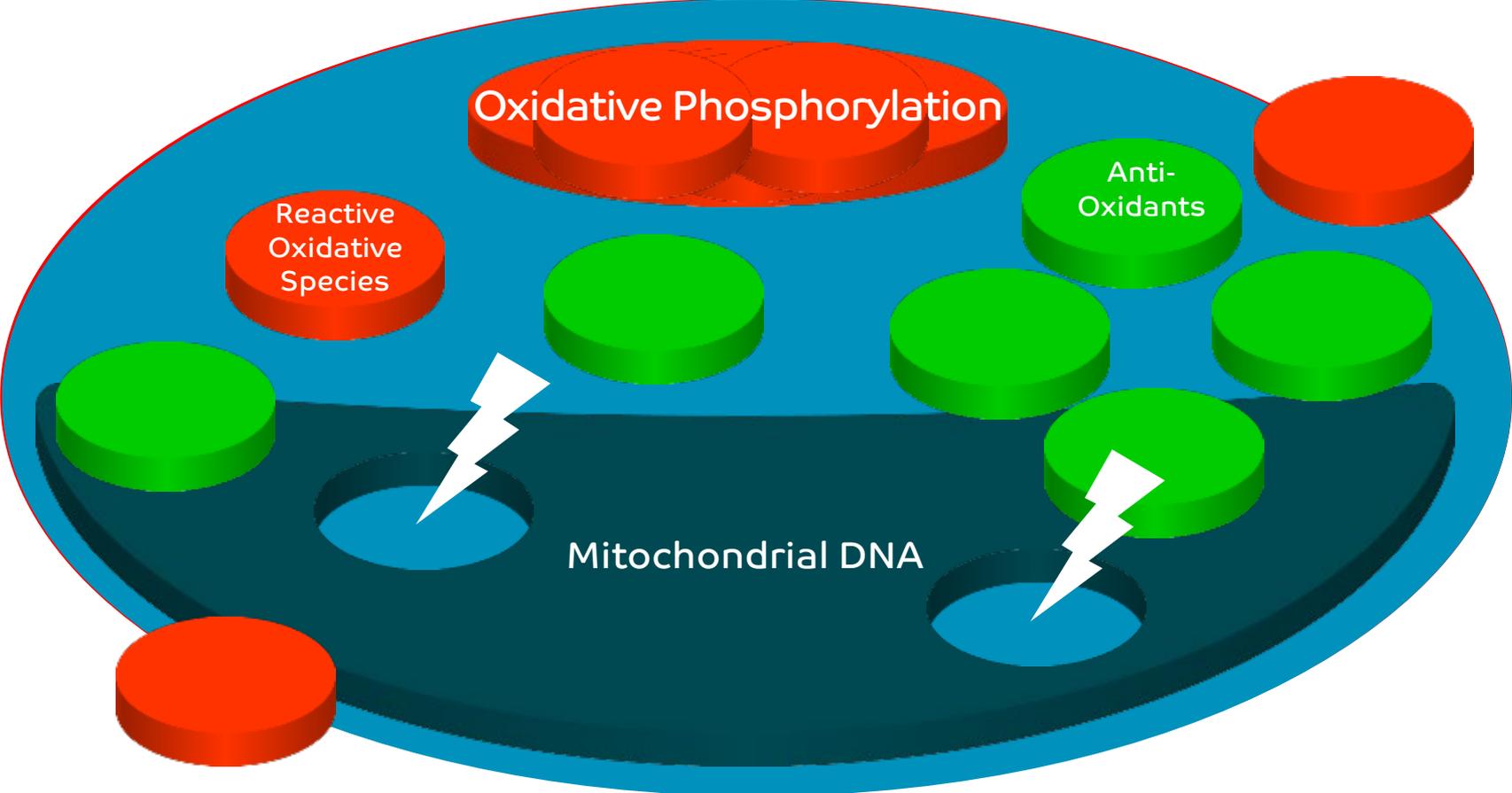
Chromosomes
keep dividing

Mitochondria,
healthy
and active.
Providing lots
of energy

Immune
system is
switched off
until needed



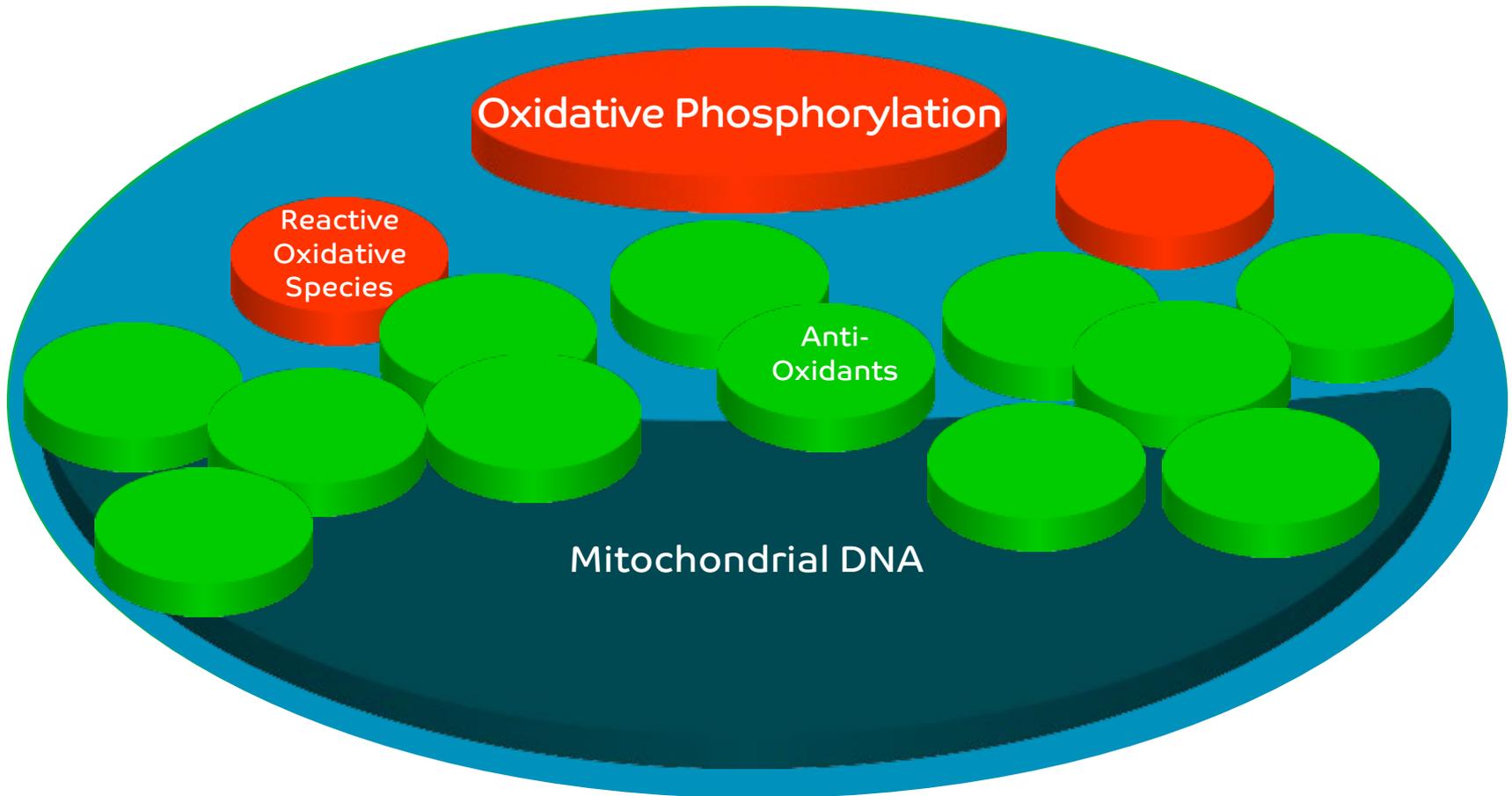
Sedentary, high fat diet and stress



Mitochondria



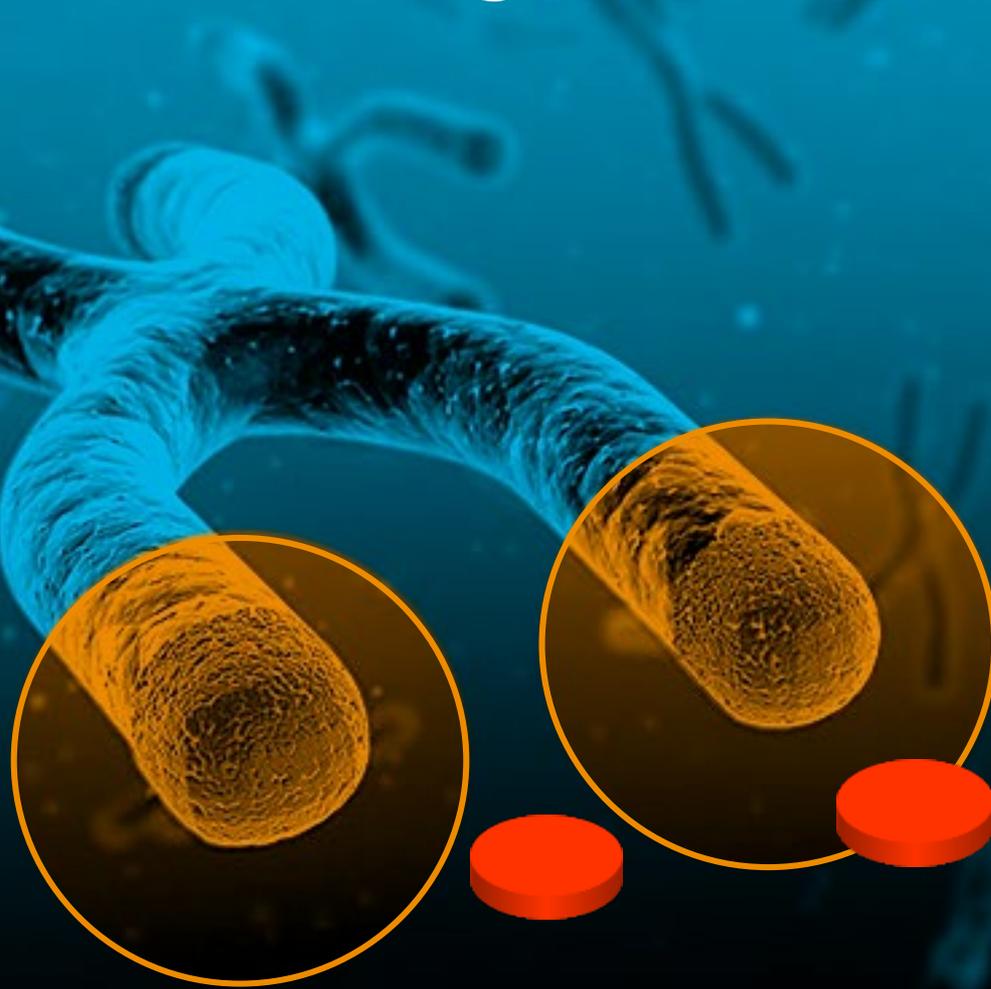
Physically active, low fat and not stressed



Mitochondria



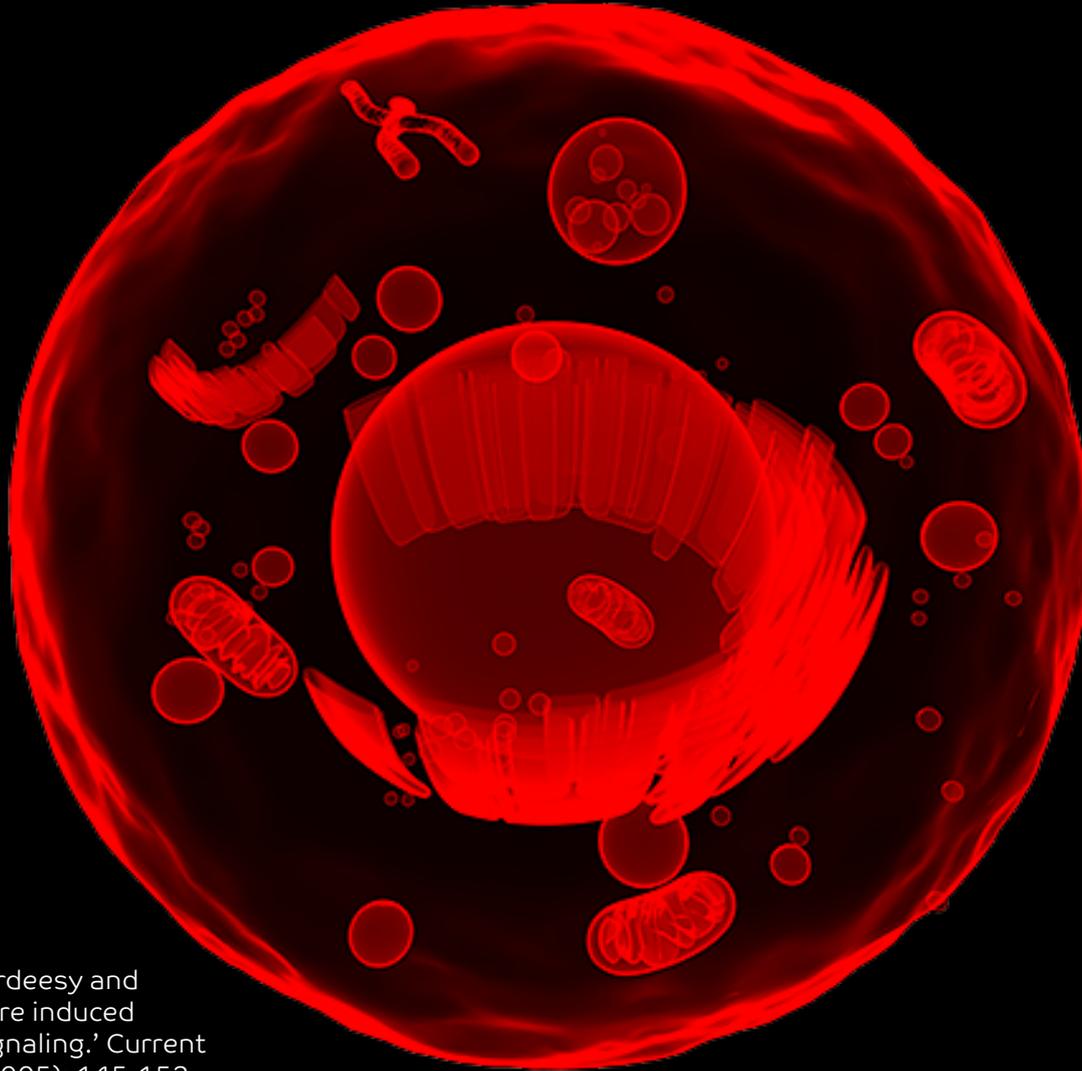
Telomeres get shorter



Epel, Elissa, et al. Can meditation slow rate of cellular aging? Cognitive stress, mindfulness, and telomeres. *Annals of the New York Academy of Sciences* 1172.1 (2009): 34-53



Senescence: the end of the cell



Hezel, Aram F., Nabeel Bardeesy and Richard S. Maser. 'Telomere induced senescence: end game signaling.' *Current molecular medicine* 5.2 (2005): 145-152.



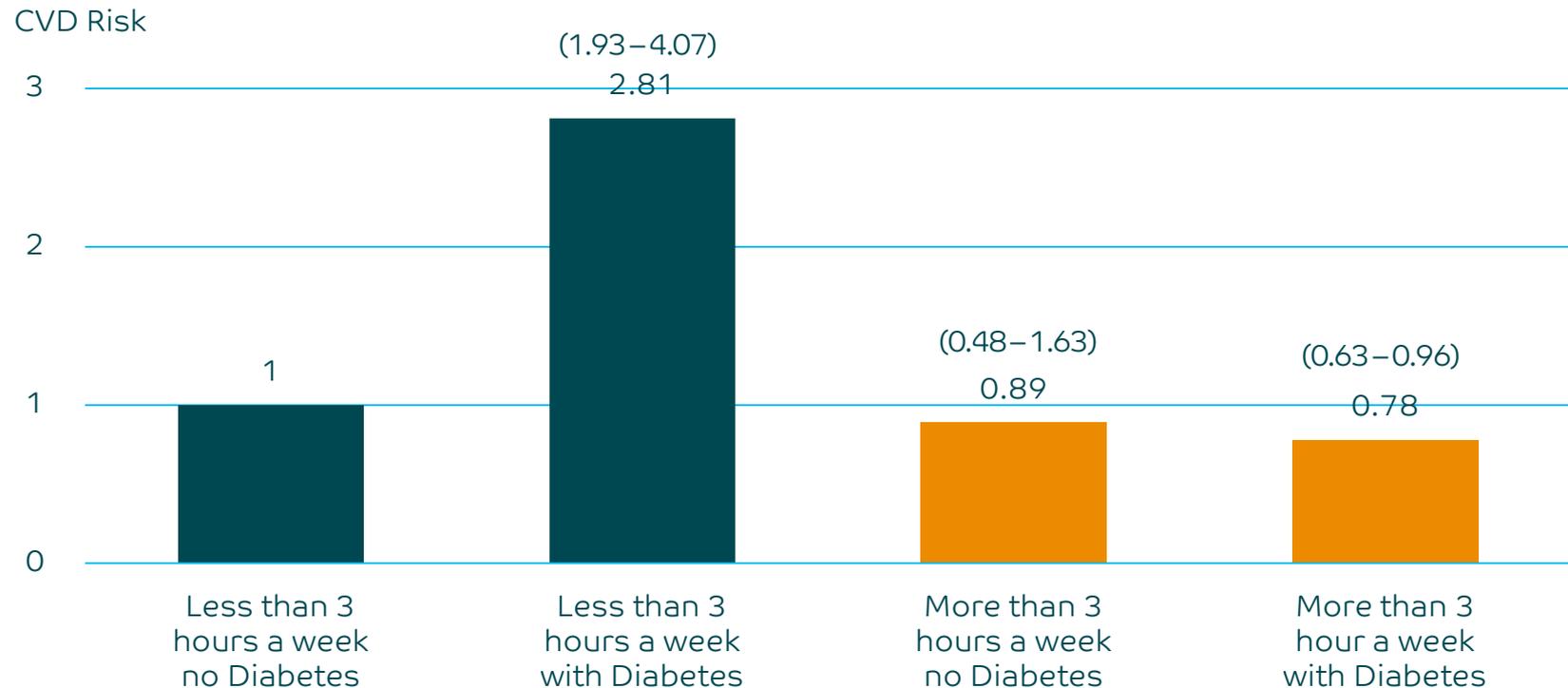
We have a new disease that conventional
medicine cannot treat

Chronic Inflammation



Physical Activity clears all CVD risk from patients with Diabetes

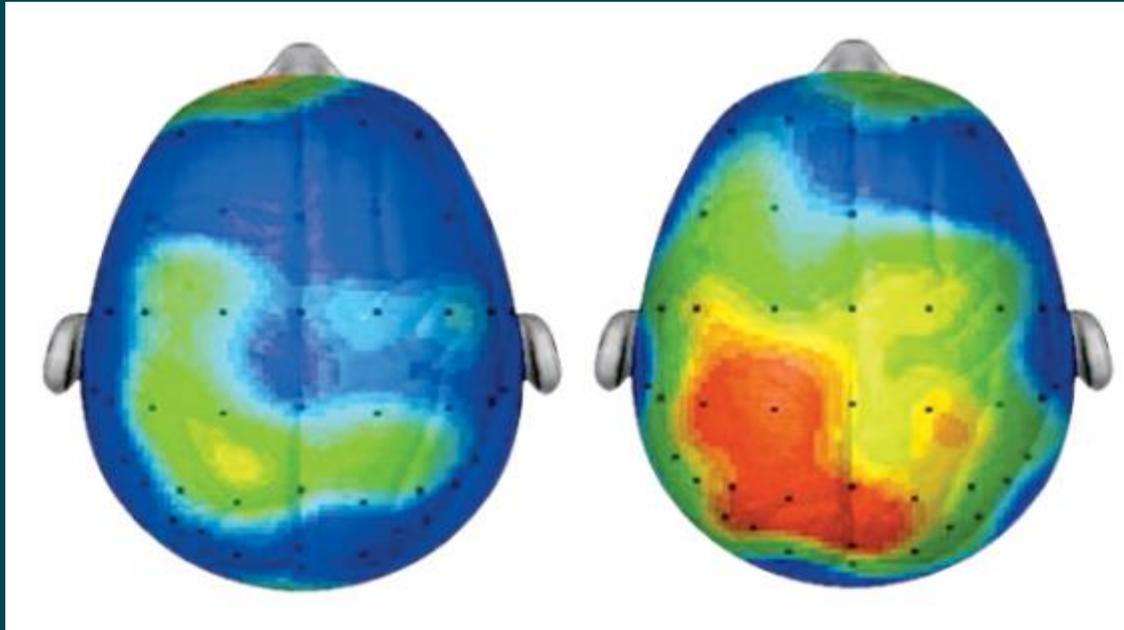
Follow up of 53,973 Norwegian Men (recruited 1995). Adjusted for weight, 1,750 deaths from CVD in 2008. Less than 3 hours vs more than 3 hours a week of Physical Activity



Moe B et al Diabetes Care March 2013 vol. 36 no. 3 690-695



Single Sessions of Physical Activity can enhance Attention and Memory



After 20 minutes of sitting quietly

After 20 minutes of walking

Hillman et al. (2009). *Neuroscience*, 159, 1044-1054



Epigenetics

A potential father who becomes active will alter his genes in the sperm. This can lead to better brain function and lower risk of diabetes in future generations.

Genome-wide sperm DNA methylation changes after 3 months of exercise Denham et al Epigenomics 2015



Pathway of Ill Health



People



Place



Purpose

Chronic stress

Poor health behaviours

Mitochondrial damage, telomere shortening,
and chronic inflammation

Cardiovascular disease, diabetes, cancer, depression



When everyone stays indoors



People



Place



Purpose

Chronic stress

Lack of walking

Poor concentration, tiredness, irritability, addiction, depression, weakness, chronic inflammation

Unsafe streets, poor air quality, reduced learning and productivity, dependence on others, less volunteering, isolation,



When walking becomes central



People



Place



Purpose

Happiness

Being active

Increased confidence, greater concentration, less illness, greater contentment, better behaviour.

Increased productivity, safer streets, good air quality, stronger students, community cohesion, independence, more volunteering etc

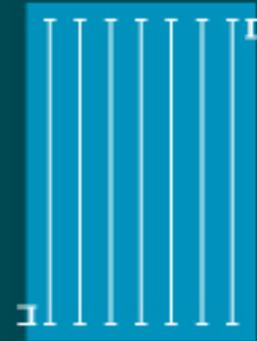
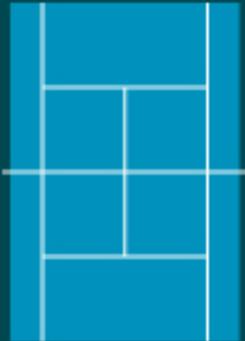


Should Happiness be the goal

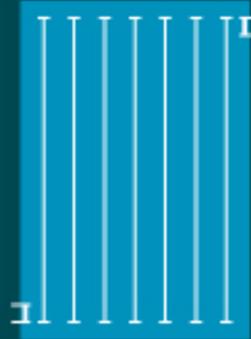
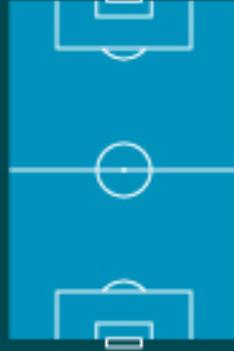
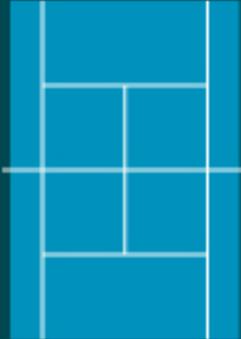
- Happiness was famously analyzed by Aristotle as being the sole ultimate goal of human existence, meaning that he viewed it the only thing important in its own right, not merely as a means to an end.
- If physical activity is the sole ultimate goal then it may compromise happiness and creates anxiety and a sense of failure if not achieved.
- But if being active is a tool to achieve happiness then it remains sustainable.



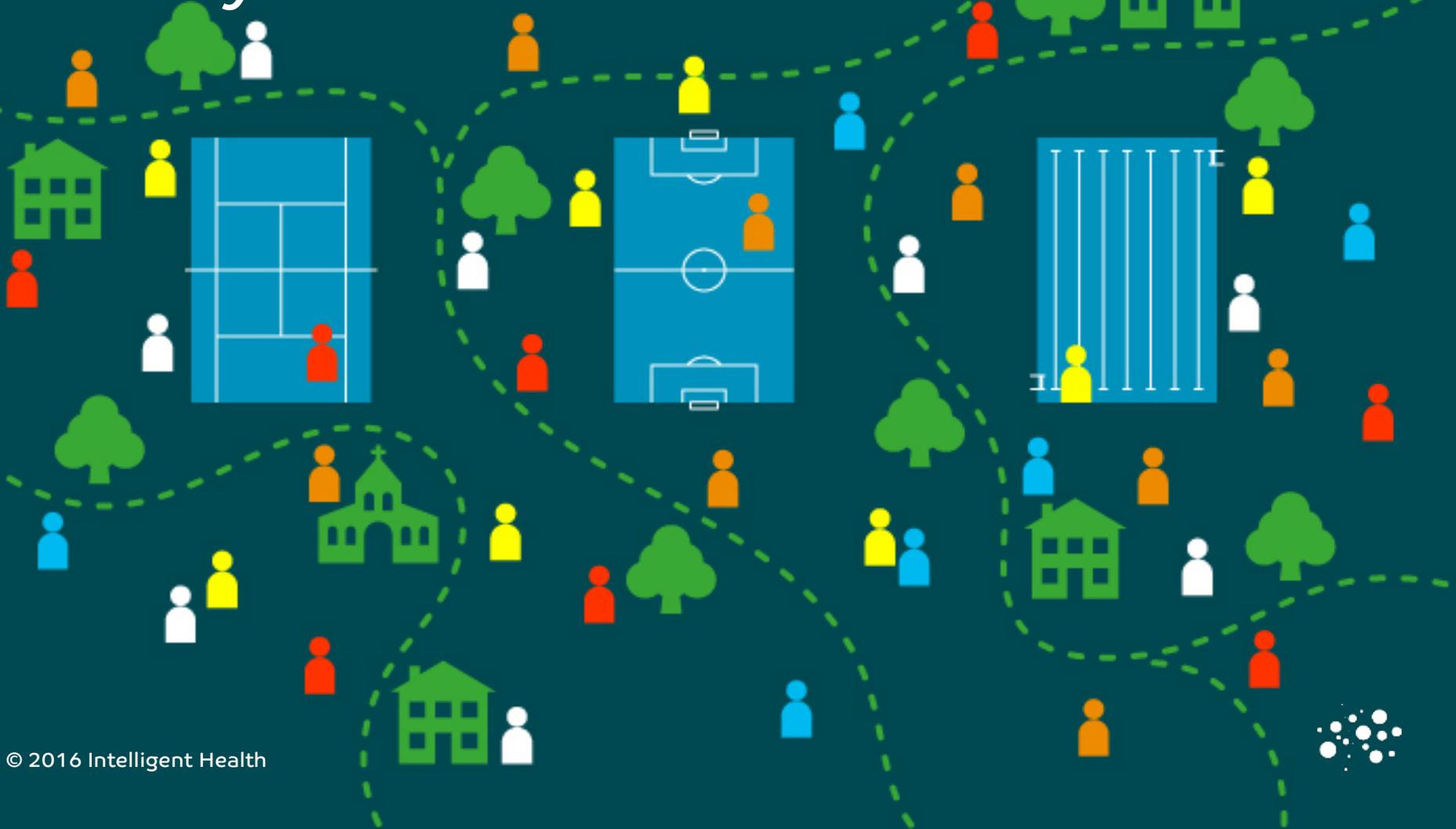
The focus has moved physical activity from a venue based strategy ...

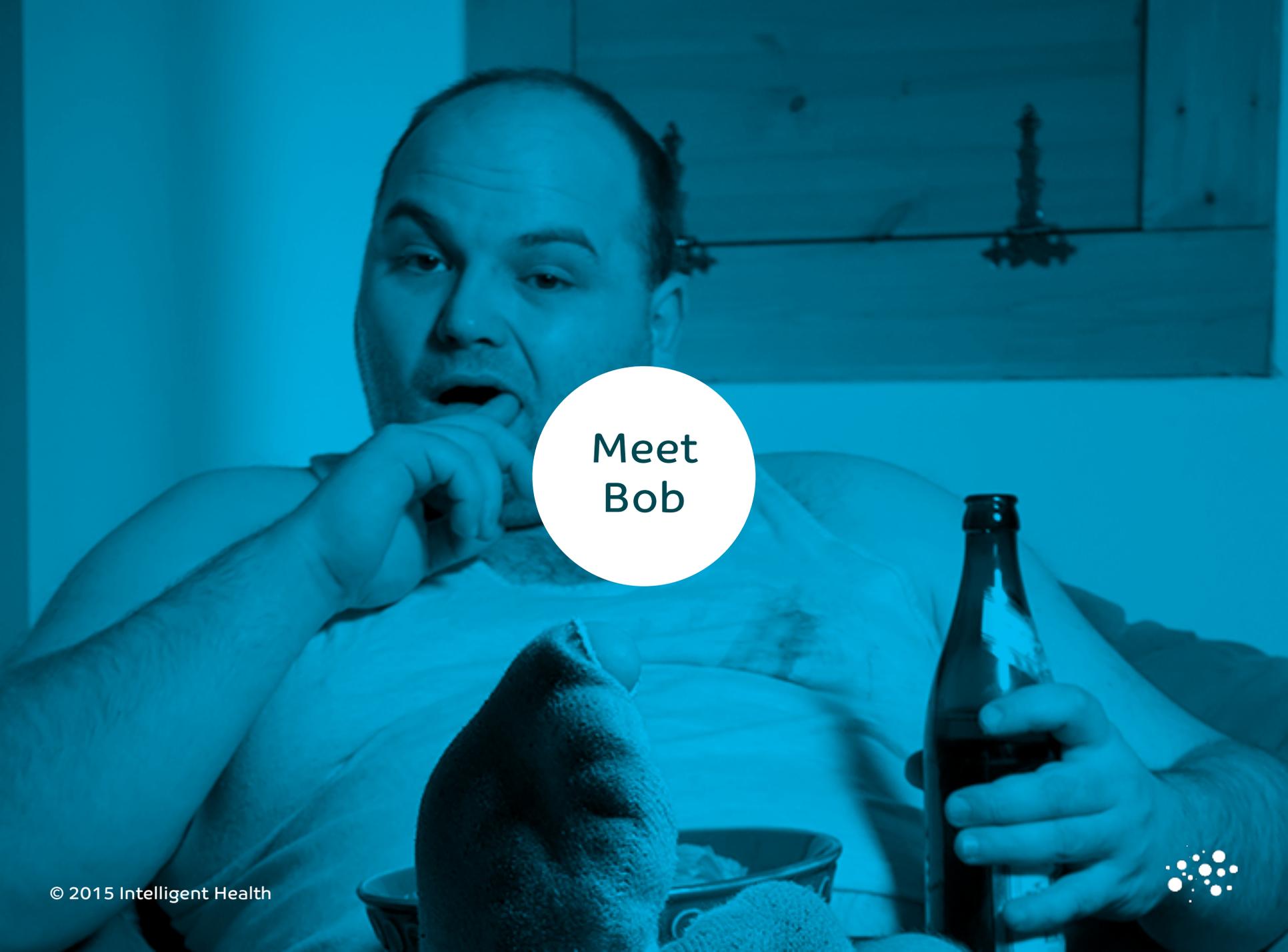


... to a community based activity where activity happens everywhere



But to get real scale we need to get lots of people becoming activity leaders themselves



A man is sitting at a table, looking thoughtful with his hand to his chin. He is holding a dark glass bottle of beer in his left hand. In front of him is a bowl of food, possibly nachos or a similar snack. The entire scene is bathed in a blue light. A white circular graphic is overlaid on the image, containing the text 'Meet Bob'.

Meet
Bob



A man is sitting at a table, looking thoughtful with his hand to his chin. He is holding a dark glass bottle of beer in his left hand. In front of him is a bowl of food, possibly nachos or a similar snack. The entire scene is overlaid with a blue tint. A white speech bubble is positioned over the man's face, containing the text "Let's get Bob active".

Let's
get Bob
active





We can
give him
NHS
treatment



‘Bob, why
don’t you
get off the
bus a stop
early?’





‘Bob, you
really should
take the stairs
instead of
the lift’





‘Bob, why
don’t you try
Betty’s keep fit
class on a
Tuesday?’



A person is riding a bicycle in traffic, viewed from behind. The scene is overlaid with a blue tint. A white speech bubble is positioned in the center, containing the text 'Bob, have you tried cycling to the shops?'. The background shows the rear of a car on the left and the front of a car on the right, both slightly out of focus.

‘Bob, have
you tried
cycling to
the shops?’



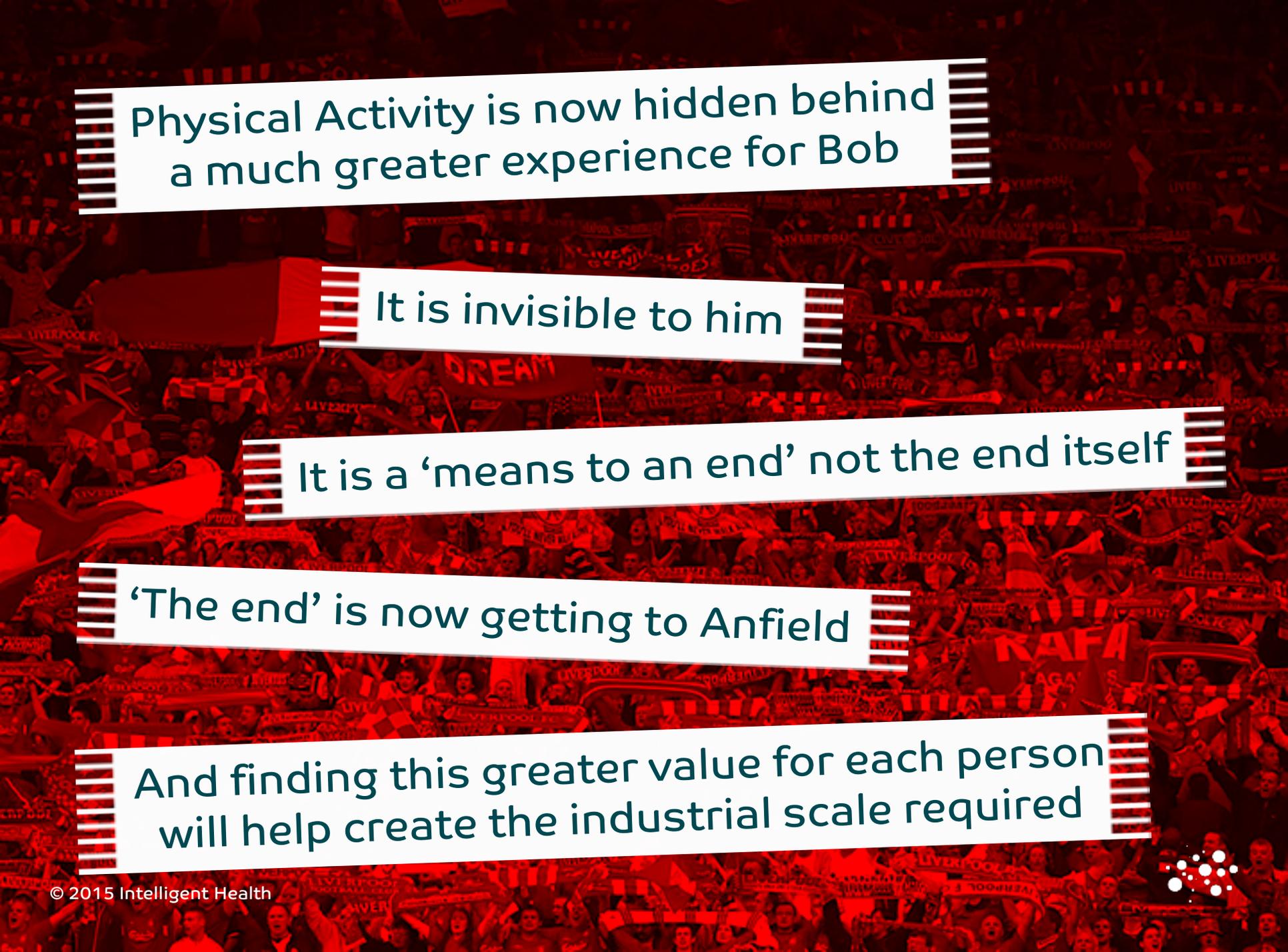


Or we
can link him
with a group
of supporters
who walk 2
miles to
Anfield





and to
Bob, that is
not exercise
or health



Physical Activity is now hidden behind
a much greater experience for Bob

It is invisible to him

It is a 'means to an end' not the end itself

'The end' is now getting to Anfield

And finding this greater value for each person
will help create the industrial scale required





900,000+
Over Three Years

Beat the Street Level of Engagement

East Sussex 44,775

Belfast 36,326

Hounslow: 29,702

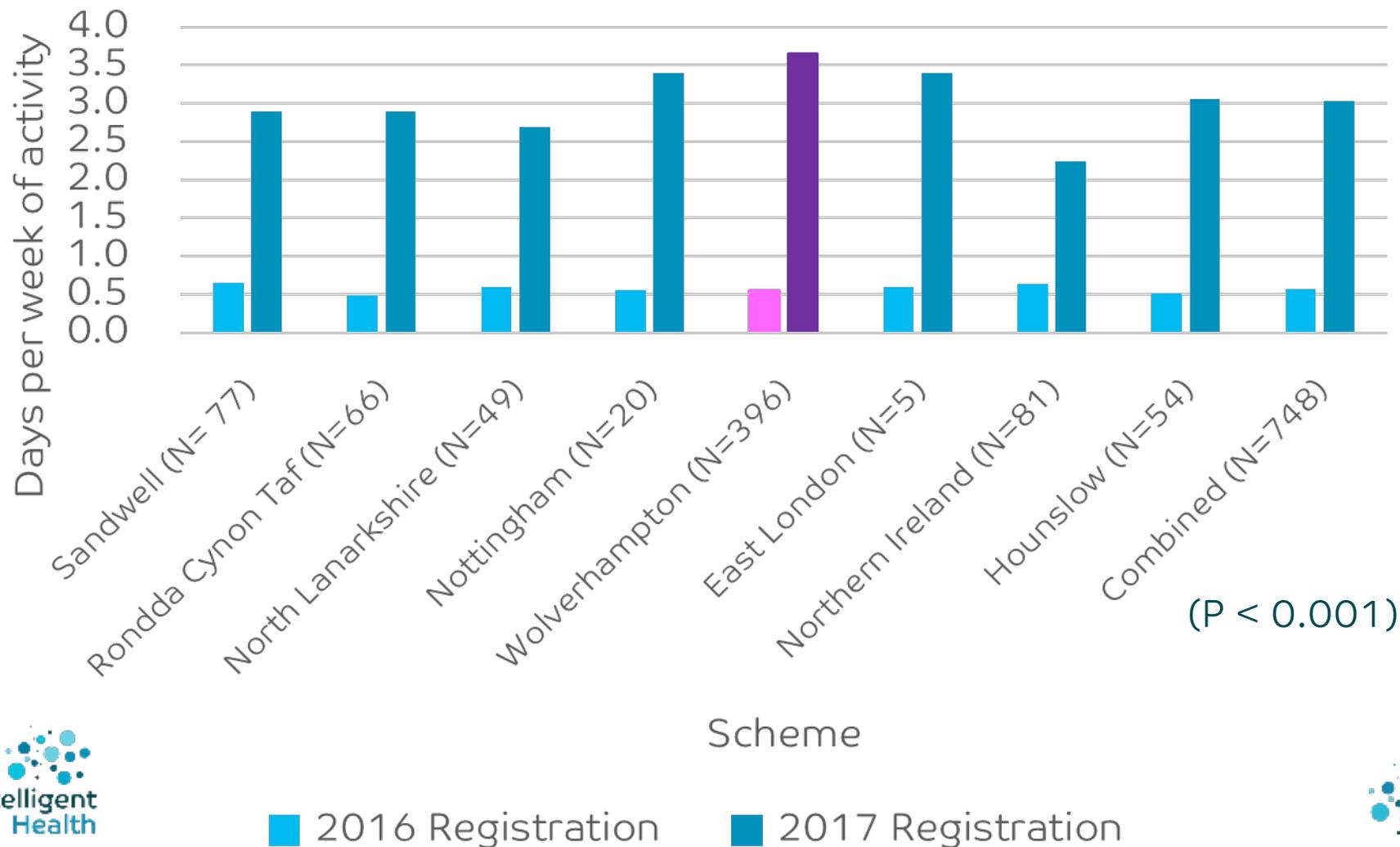
Annan/Stranraer 38% of
population



300,000+
In 2016 & 2017



Beat the Street inactive matched pairs 12 month data shows increase in activity



Beat The Street Dumfries 6 month later

- There was a 10% increase in the proportion of people agreeing or strongly agreeing with the statement “Living in this neighbourhood gives me a sense of community”
- There was 11% increase in the proportion of people agreeing or strongly agreeing with the statement “I feel like I belong to this neighbourhood”

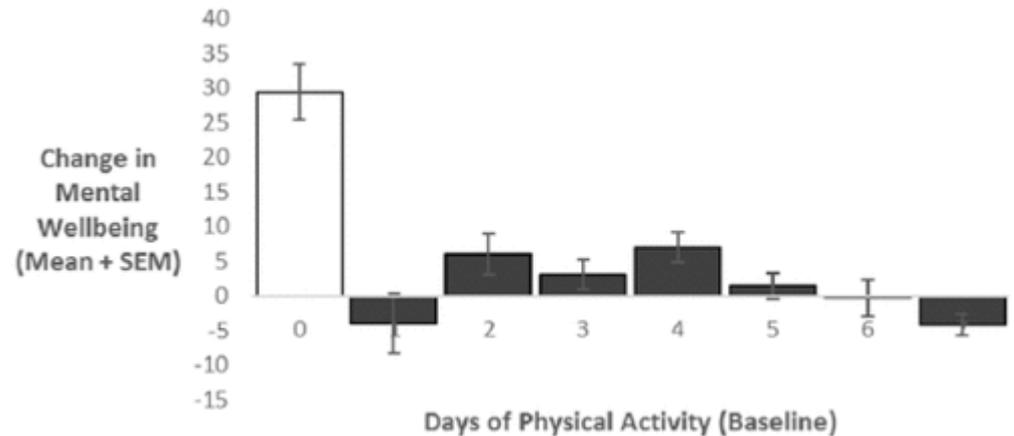
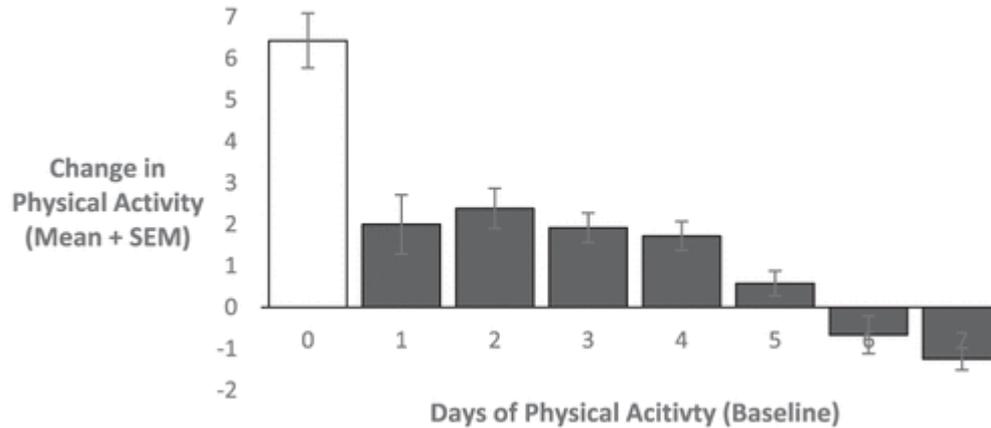
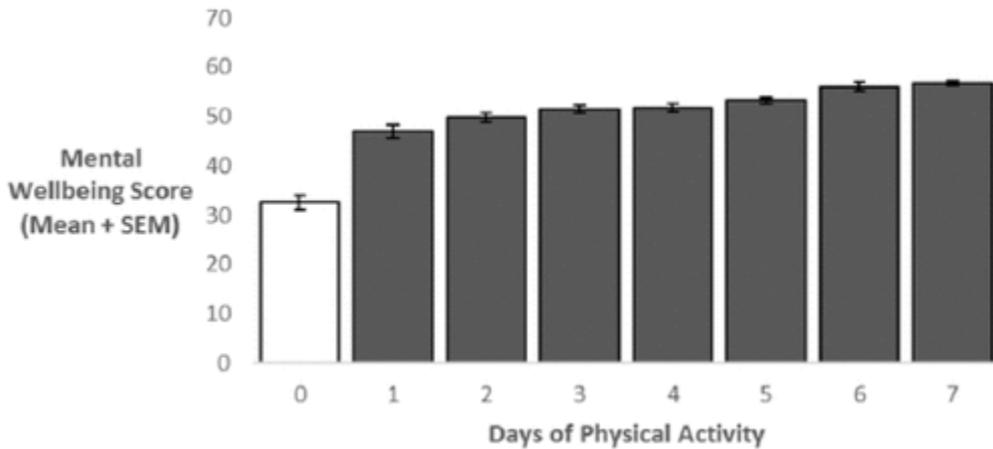


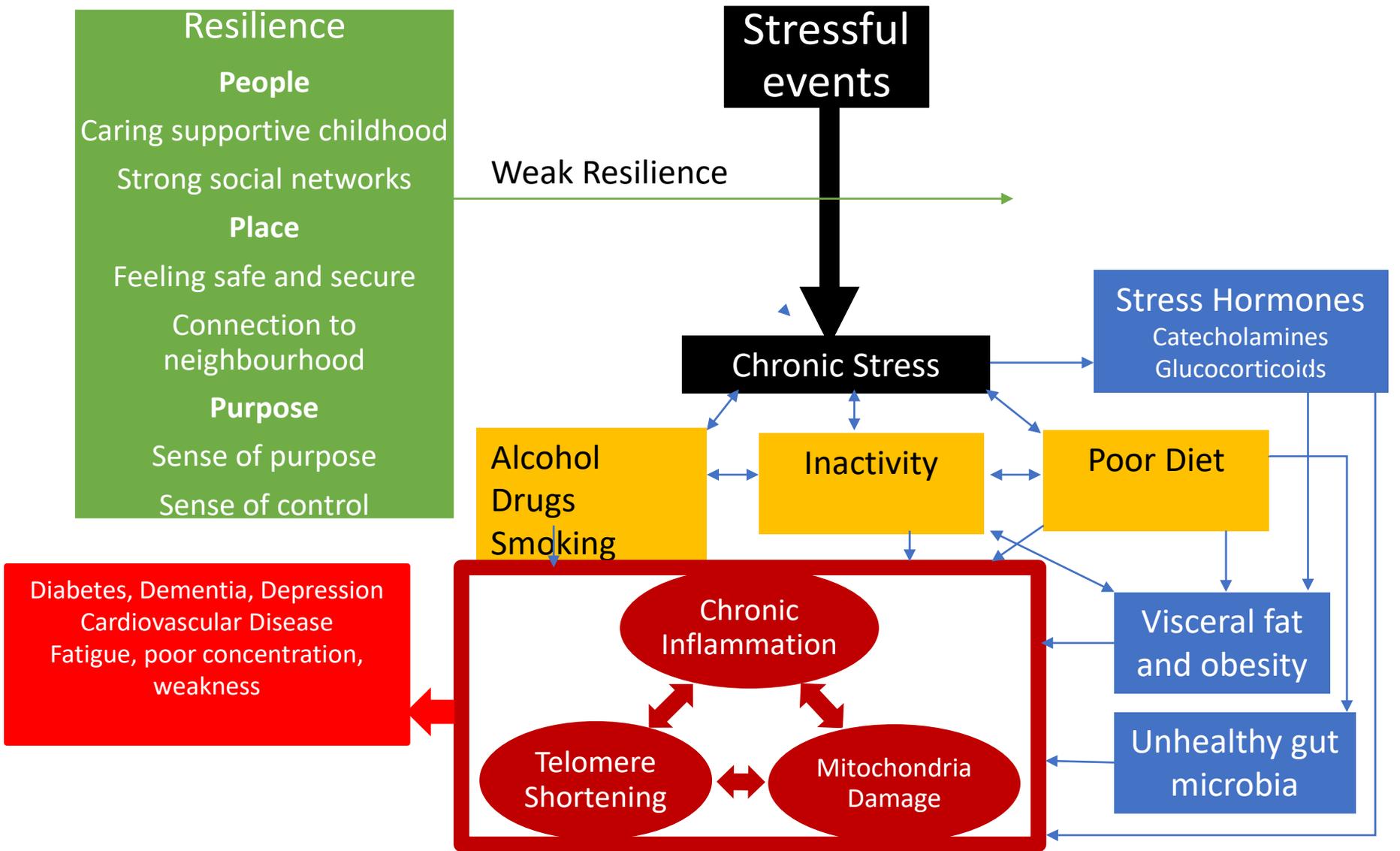
Cycling Dumfries (6 months later)

- There was a 24% increase in cycling by participants aged 50+ (N=136; $P < 0.001$).
- 6 months later there remained a 29% increase in the proportion of participants aged 50+ who reported cycling in the past week
- There was a 18% increase in the proportion of players aged 50+ walking for travel on six or seven days in the past week (N = 134, $P < 0.001$)



Beat the Street Changes in Mental Health in Stranraer





Resilience
People
Caring supportive childhood
Strong social networks
Place
Feeling safe and secure
Connection to Nature
Purpose
Sense of purpose
Sense of control

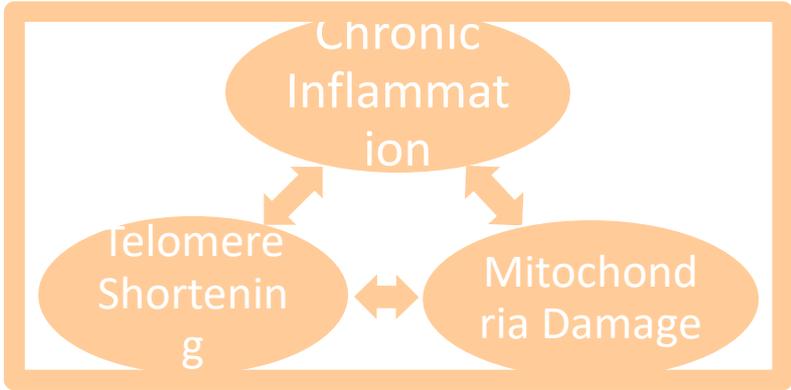
Stressful events

Strong Resilience



Stress Hormones
Catecholamines
Glucocorticoids

Diabetes
Dementia
Depression
Cardiovascular Disease
Fatigue
Arthritis
Inflammatory Bowel Disease



Visceral fat and obesity

Unhealthy gut
microbia

Summary

- We live in a stressful environment
- Isolation disconnection to nature and lack of purpose create chronic stress.
- Chronic stress causes poor health behaviour and leads to Chronic Inflammation (CI)
- CI is the “cause of causes” of most long term conditions
- Health, diet, activity should be means to the end which is Happiness leading to greater potential and productivity.
- Increasing SP should move to a social movement through digital platforms and Insight



Building Active Communities

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