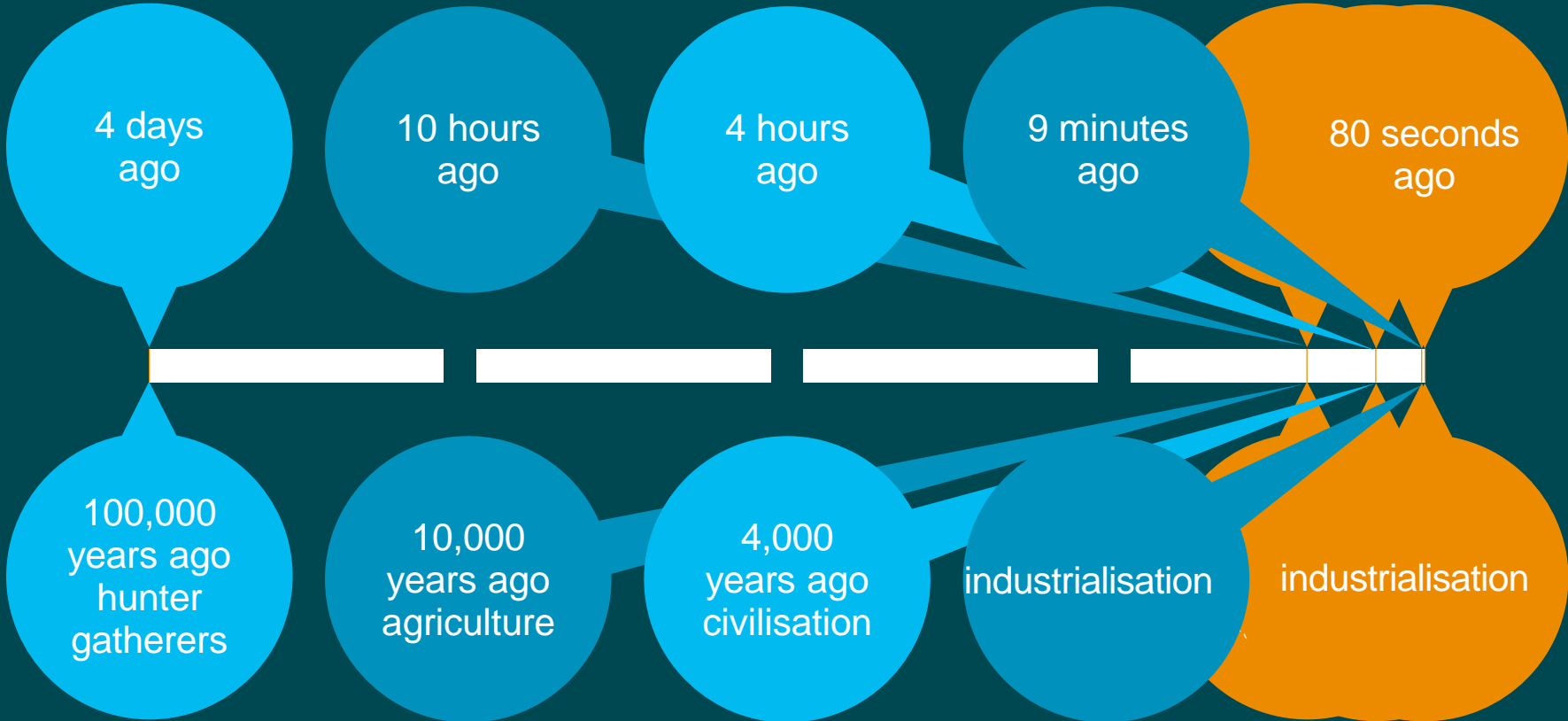


Europarc  
Conference Nature  
on your mind  
Latvia 2019

Dr William Bird  
MRCGP MBE  
25<sup>th</sup> September 2019



If we take an hour to equal 1,000 years, then four days is 100,000 years – the time from the origin of mankind to today



Fiterix®

**Fiterix®**

(aka going for a walk)

**4X Strength**



# 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

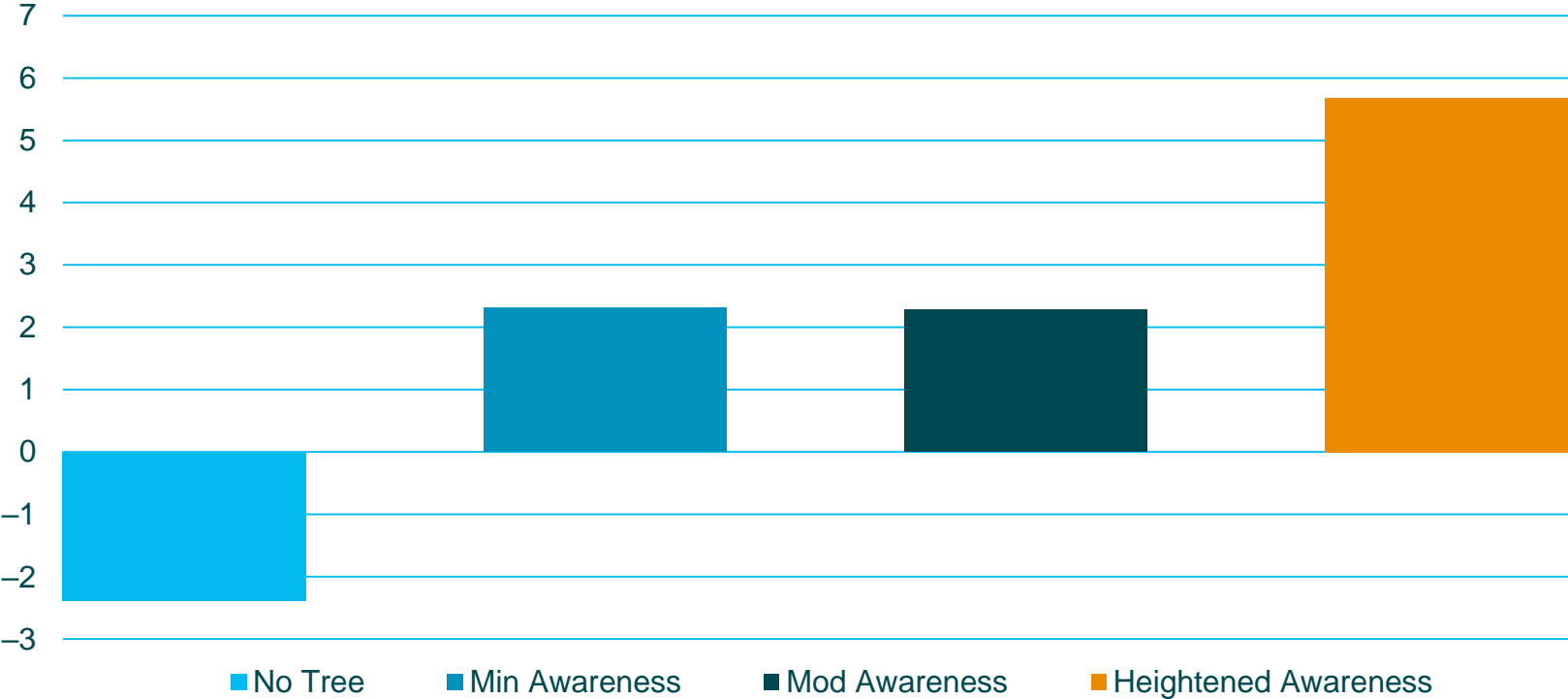






# The Effect of Trees on Cognitive Performance

Digit Span Backward Test



Lin, Ying-Hsuan, et al. "Does awareness effect the restorative function and perception of street trees?" Cognitive Science 5 (2014): 906.





# Nature Experience and increased wellbeing

- increased positive affect **happiness** and **subjective wellbeing** positive **social interactions, cohesion, and engagement**
- a sense of **meaning** and **purpose in life**; improved manageability of life tasks; and decreases in **mental distress**, such as negative affect;
- positively affect various aspects of **cognitive function** memory and **attention and impulse inhibition**;
- and **children's school performance** as well as **imagination and creativity**;

Bratman et al 2019. Nature and mental health: An ecosystem service perspective. Science advances, 5(7)



# Nature experience and Mental Illness

- Nature experience is linked to **improved sleep and reduced stress** measured by physiological measures and biomarkers of acute and chronic stress.
- This impact on sleep and stress reduces the risk for mental illness because sleep problems and stress are major risk factors for mental illness, including **depression, anxiety and ADHD**.

Bratman et al 2019. Nature and mental health: An ecosystem service perspective. Science advances, 5(7)



# The Extinction of Nature Experience

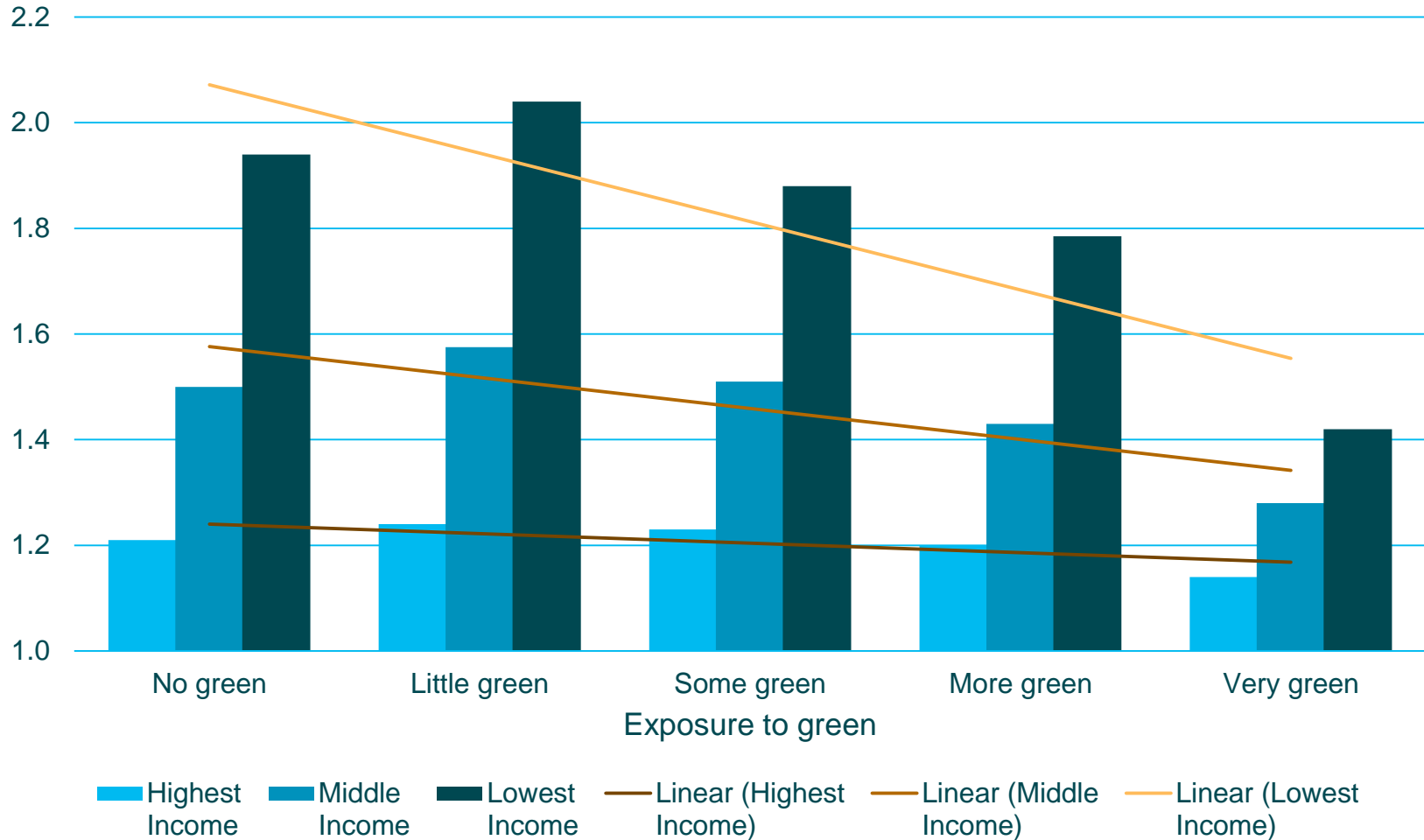
- Modern living habits involve reduced regular contact with outdoor nature and increased time **indoors, on screens**, and being **sedentary**.
- As direct nature experiences become progressively unavailable to new generations, this creates an ever-narrowing spectrum of nature experiences.
- An “**environmental generational amnesia**” and “**extinction of experience**” may stem from each generation’s reduced experience of “wildness”

Bratman et al 2019. Nature and mental health: An ecosystem service perspective. Science advances, 5(7)



# Green Space reduces Health Inequalities

Incidence Rate Ratio



Mitchell, R. and Popham, F. (2008) Effect of exposure to natural environment on health inequalities: an observational population study. *The Lancet* 372(9650):pp. 1655-1660.



People



Loneliness

Place



Hostile

Purpose

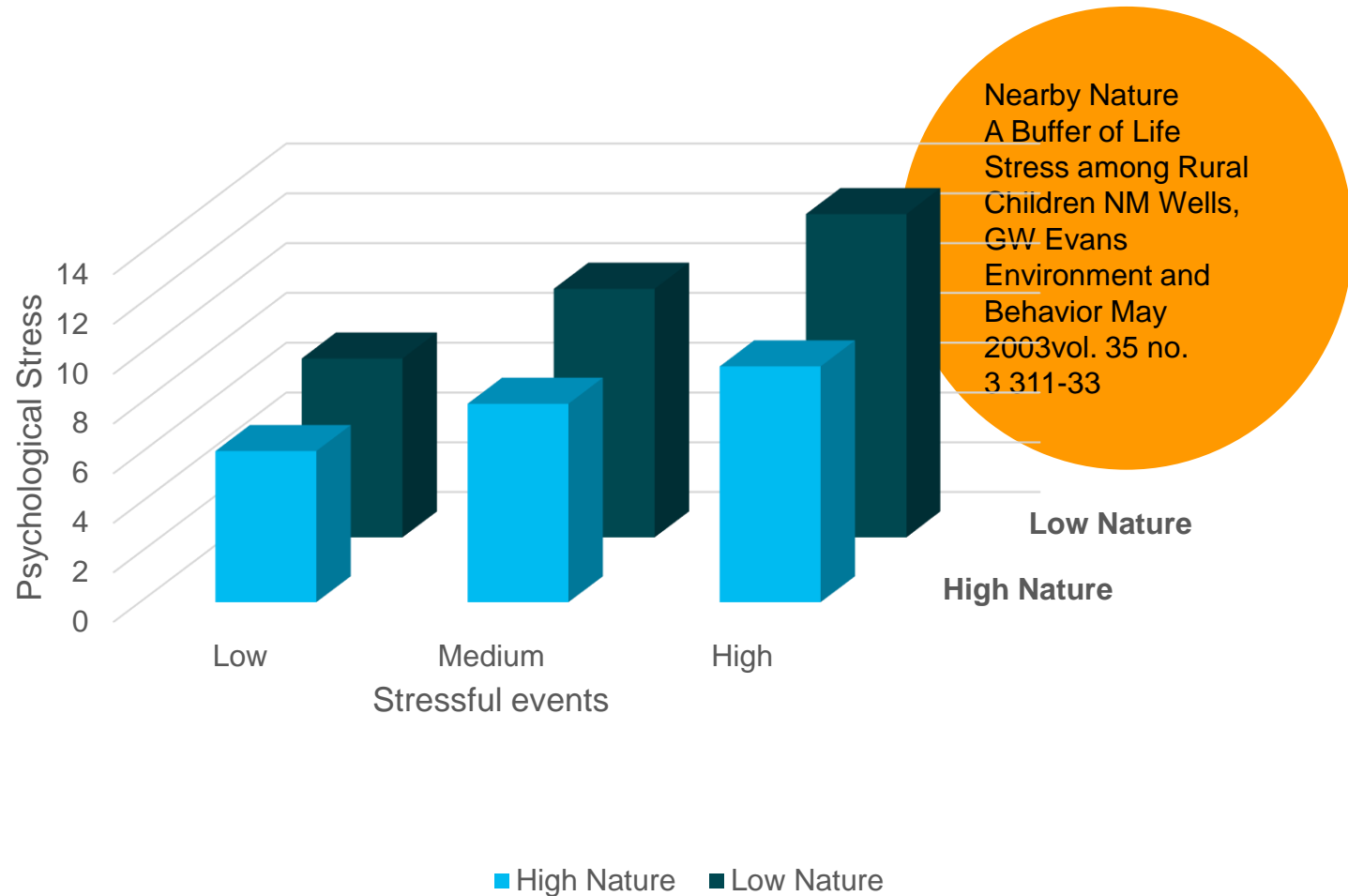


Lack of control

## Fear and Chronic Stress



# Place: Green space moderates the effect of stressful events in children



# 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

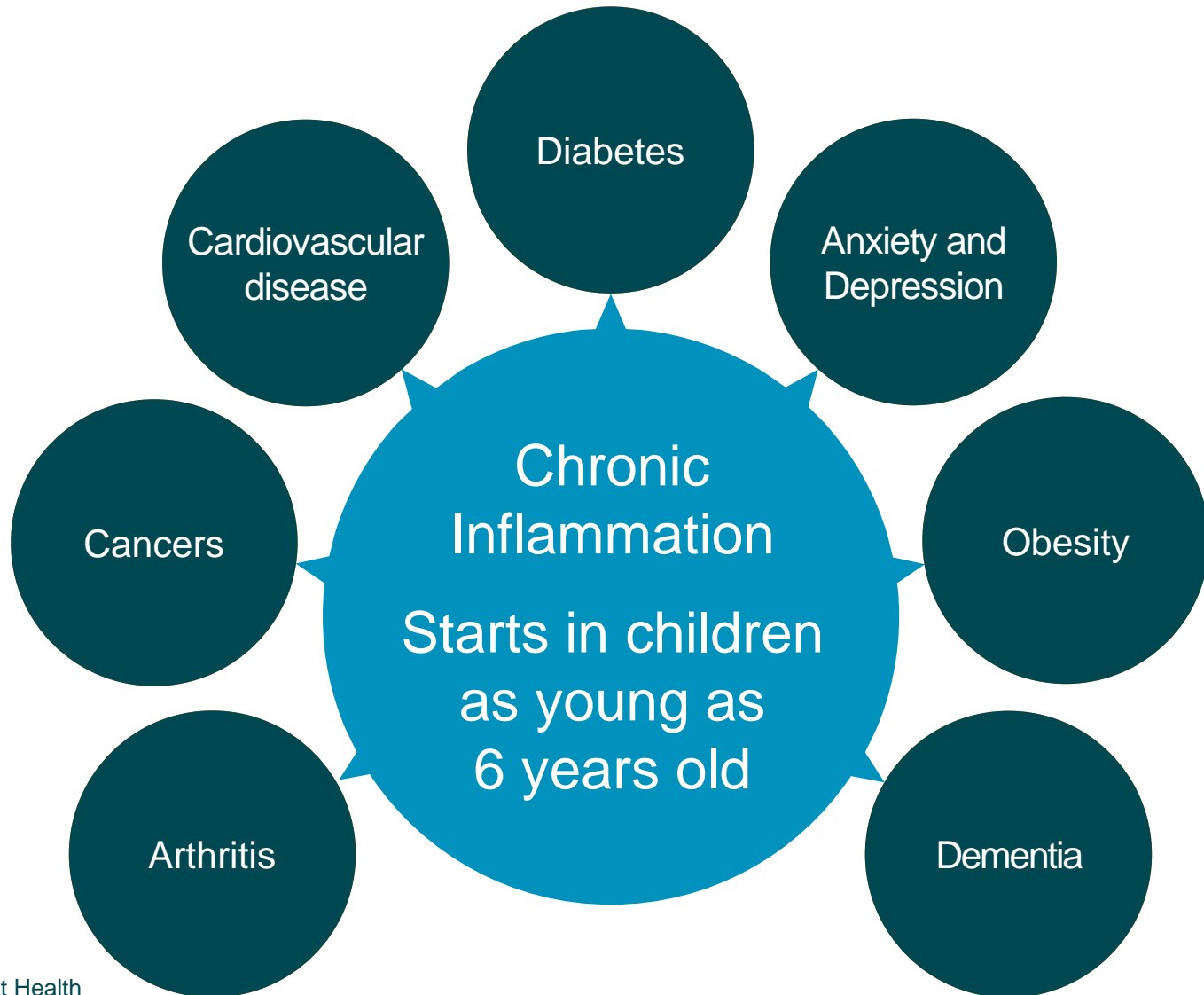
Stress  
Hormones

Inactivity  
Poor diet  
Obesity  
Smoking

# Chronic Inflammation



# Inflammation: The cause of Causes



# Inactivity: trilogy of inflammation

1.  
Increases  
visceral fat

2.  
Reduces anti-  
inflammatories

3.  
Damages  
healthy cells



# Inside a healthy cell

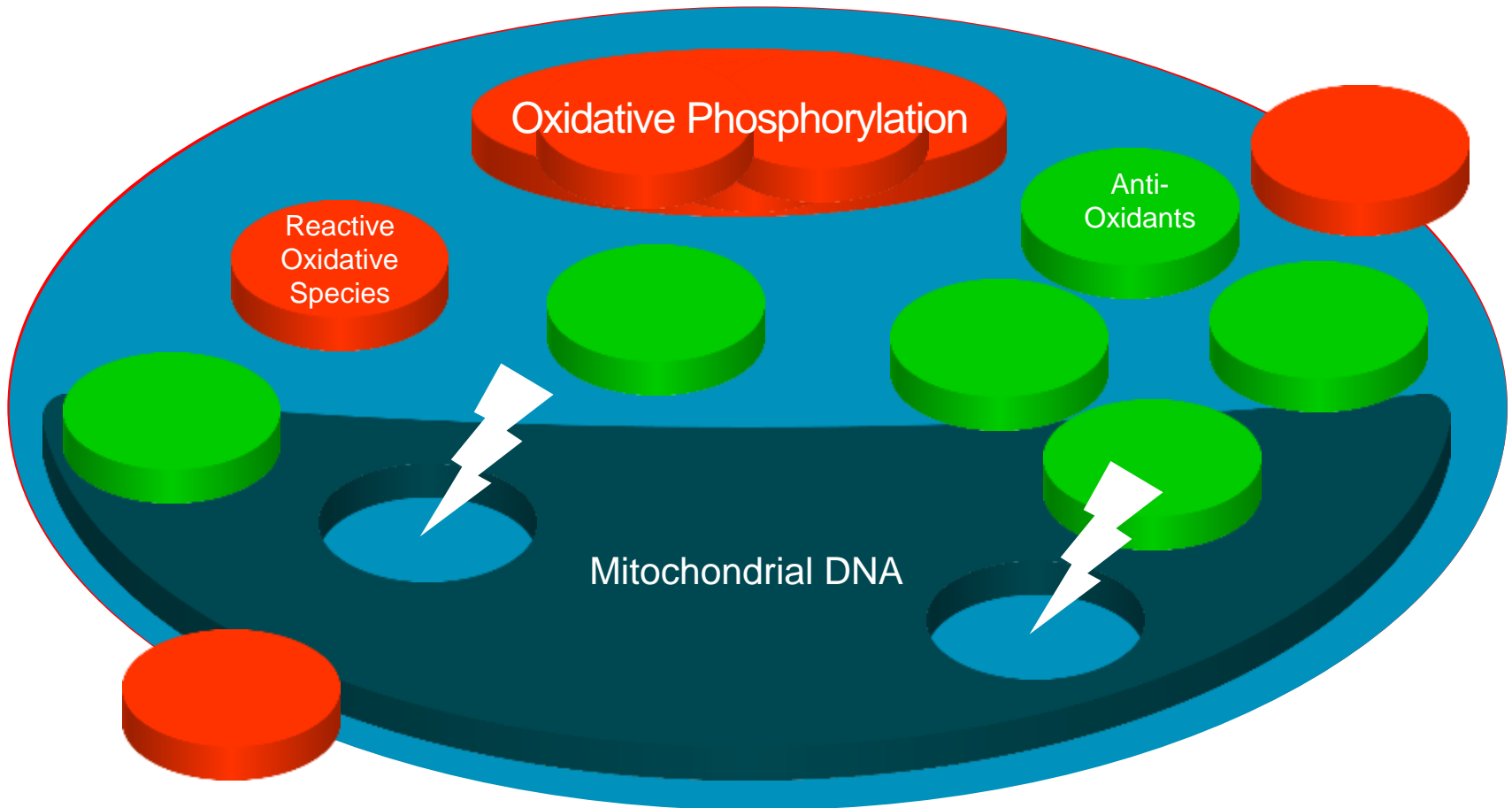
Chromosomes  
keep dividing

Mitochondria,  
healthy  
and active.  
Providing lots  
of energy

Immune  
system is  
switched off  
until needed



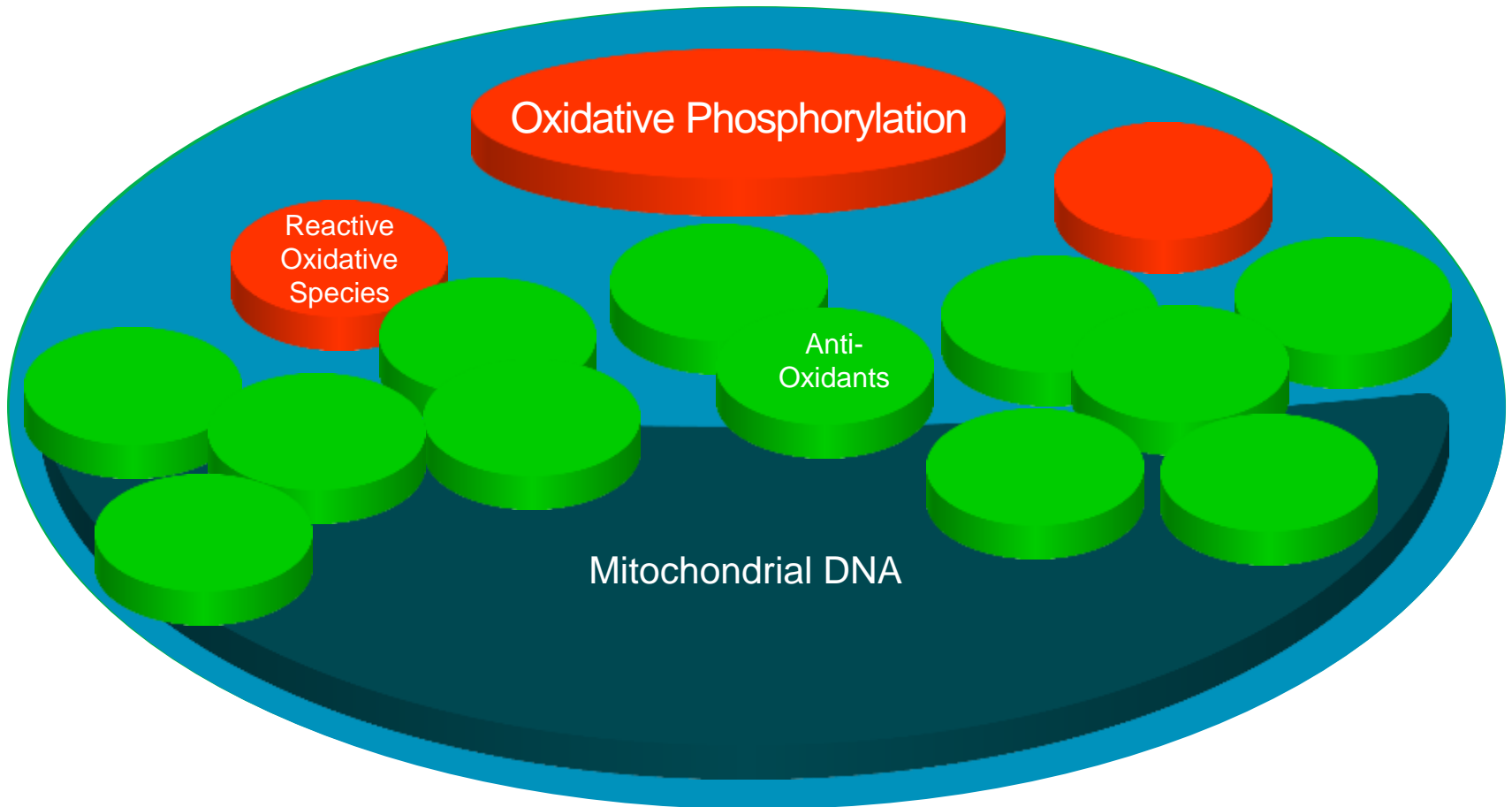
# Sedentary, high cal diet and stress



Mitochondria



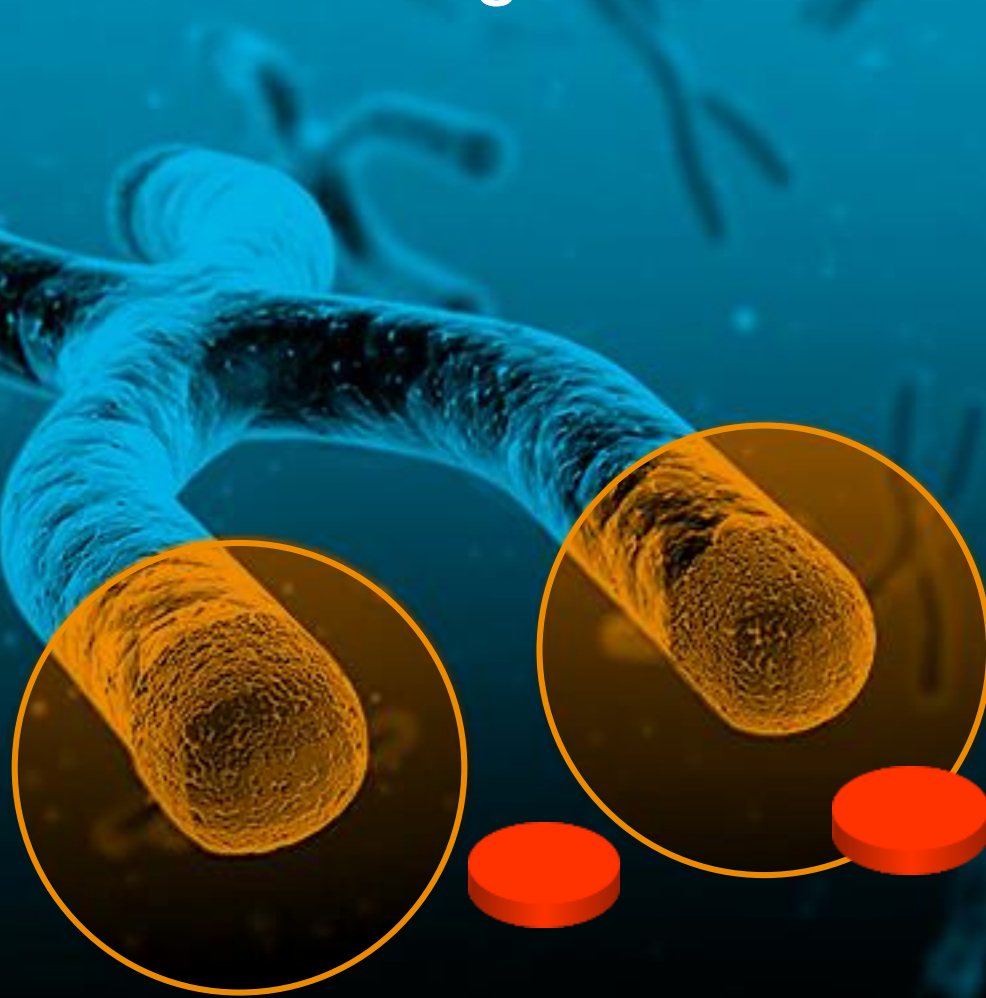
# Physically active, low cal and not stressed



## 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



“Green exercise is associated with better cell-ageing profiles with increased telomerase compared to indoor gym based activity”



G Olafsdottir, P Cloke, E Epel, J Lin, Z van Dyck, B Thorleifsdottir, T Eysteinnsson, M Gudjonsdottir, C Vögele; Green exercise is associated with better cell ageing profiles: Gunnthóra Olafsdottir, *European Journal of Public Health*, Volume 26, Issue suppl\_1, 1 November 2016



We have a new disease that conventional medicine cannot treat

# Chronic Inflammation



# Pathway of Ill Health



People



Place



Purpose

Chronic stress

Poor health behaviours

Mitochondrial damage, telomere shortening,  
and chronic inflammation

Cardiovascular disease, diabetes, cancer, depression



# How inactivity impacts society



People



Place



Purpose

Chronic stress

Inactivity

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

Unsafe streets, poor air quality, reduced learning and productivity, dependence of elderly, less volunteering, isolation, obesity

<https://www.youtube.com/watch?v=kYPRV-Ynilk>



# Being Active is a means to an end



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





Increases Hippocampus (the  
centre of behaviour and  
learning) by 20%



To make a step change in activity levels we need to be bold

Let's  
remove  
boundaries  
and turn a whole  
town into a  
playground!



# Beat the Street Barnsley



# Barnsley



**24,671  
players**

**Barnsley  
36% live in top  
20% of  
deprivation**

**Beat the  
Street  
players 42%  
are from  
top 20% of  
deprivation**





# Delivering at scale



**1 million  
participants**

**13% of a  
town plays**



# What will be Amy's connection to Nature



# Like it? Do your own? Why can't every town or street be designated as part of the People's National Park

LONDON  
NATIONAL  
PARK CITY\*



PLACES TO GO ▾

THINGS TO ENJOY ▾

MAKE A DIFFERENCE ▾

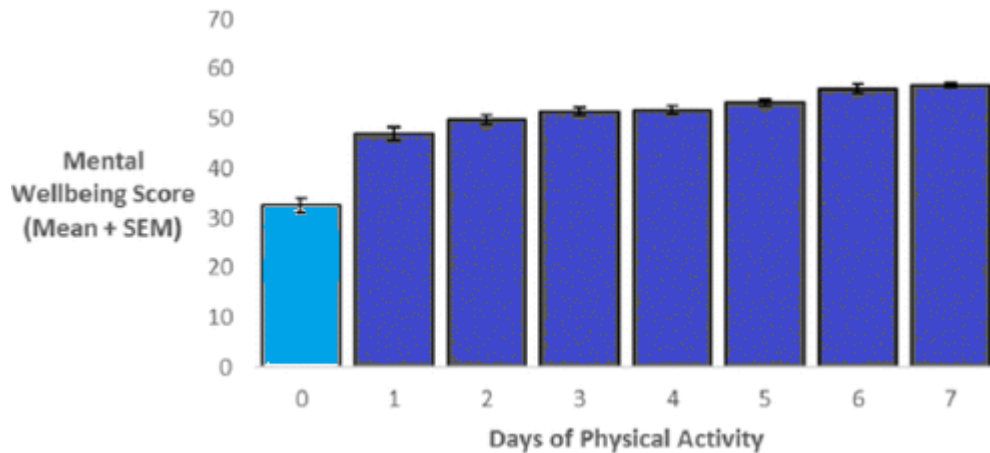
WHAT'S ON ▾

GET MORE INVOLVED ▾

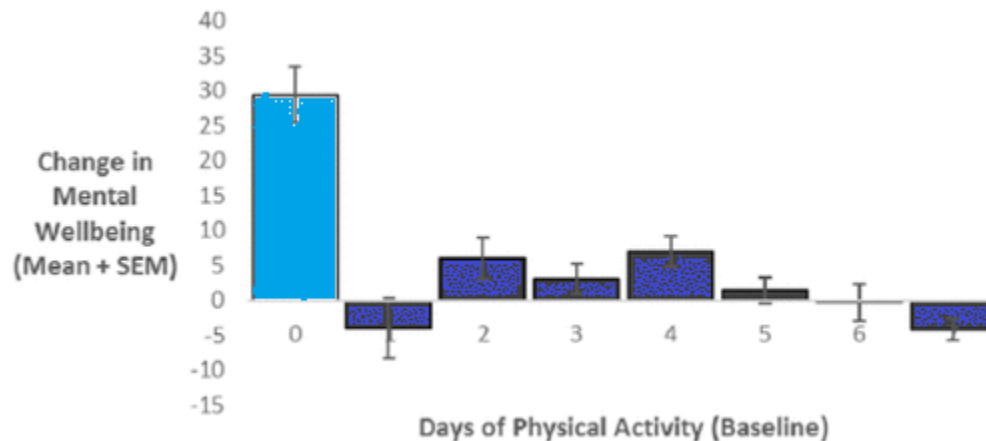
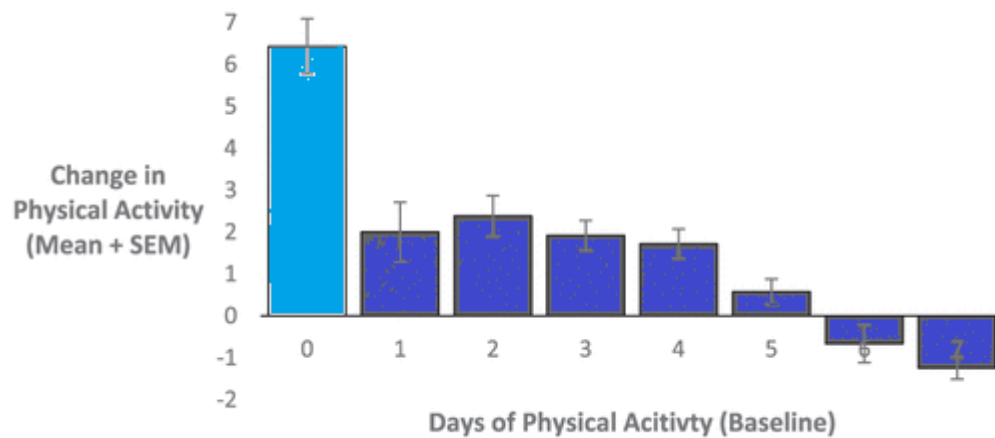
ABOUT US ▾

**\*LET'S MAKE LONDON GREENER, HEALTHIER AND WILDER**





## Beat the Street Changes in Mental Health in Stranraer



# Summary

- We have a medical emergency with an epidemic of Chronic Inflammation.
- Isolation disconnection to nature and lack of purpose create chronic stress.
- Children have to be connected to their own natural world
- Get children connected Nature
- Get them to bring their parents and grand parents



# Building Active Communities

[William.bird@intelligenthealth.co.uk](mailto:William.bird@intelligenthealth.co.uk)

