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 Telomerase 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
(aka going for a walk)

Triple Strength
Activity
Friendship
Nature
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.

- 100,000 years ago: hunter gatherers
- 10,000 years ago: agriculture
- 4,000 years ago: civilisation
- 9 minutes ago: industrialisation
- 80 seconds ago: industrialisation

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

- **People**
  - Loneliness

- **Place**
  - Hostile

- **Purpose**
  - Rejection

Teenager Post #37787
Being ignored by someone whose attention means the world to you is the worst feeling.
Teenager Post #37787
Being ignored by someone whose attention means the world to you is the worst feeling.

Chronic Stress
- Anxiety and depression

Physical Inactivity
- Poor diet
Chronic Stress

Stress
Hormones

Physical
Inactivity
And other poor health behaviours

Chronic Inflammation

Mitochondria as a key component of the stress response. Manoli et al. Trends in Endocrinology and Metabolism Vol 18 No 5 2007

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Inactivity causes inflammation

1. Increases visceral fat
2. Reduces anti-inflammatories
3. Damages healthy cells
Inactivity: trilogy of inflammation

1. Increases visceral fat

2. Reduces anti-inflammatories

3. Damages healthy cells
Reducing inflammation – fat

Variation in visceral fat content in men with the same waist circumference.
Visceral fat reduction with exercise

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

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
Chromosomes keep dividing

Immune system is switched off until needed

Mitochondria, healthy and active. Providing lots of energy

Inside a healthy cell
‘The mitochondria is like a dynamo, it has to keep moving ...

... and in the body they weigh as much as a car battery’

Prof Mike Murphy,
MRC Mitochondrial Biology Unit Cambridge University
Sedentary, high fat diet and stress

Mitochondria DNA

Oxidative Phosphorylation

Anti-Oxidants

Reactive Oxidative Species
Physically active, low fat and not stressed

Mitochondria

- Oxidative Phosphorylation
- Reactive Oxidative Species
- Anti-Oxidants
- Mitochondrial DNA

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Telomeres get shorter


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Senescence: the end of the cell


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This causes inflammation

Immune system is constantly switched on
Inflammation: ‘the cause of causes’

Chronic Inflammation
Starts in children as young as 6 years old

- Diabetes
- Cardiovascular disease
- Cancers
- Arthritis
- Anxiety and Depression
- Obesity
- Dementia
- Diabetes
- Cardiovascular disease
- Cancers
- Arthritis
- Anxiety and Depression
- Obesity
- Dementia
# Pathway of Ill Health

<table>
<thead>
<tr>
<th>People</th>
<th>Place</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic stress</td>
<td>Poor health behaviours</td>
<td>Mitochondrial damage, telomere shortening, and chronic inflammation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cardiovascular disease, diabetes, cancer, depression</td>
</tr>
</tbody>
</table>
When children are inactive

People
- Chronic stress
- Poor concentration, tiredness, irritability, addiction, depression, weakness, chronic inflammation

Place
- Lack of walking
- Unsafe streets, poor air quality, reduced learning and productivity, dependence on others, less volunteering, isolation,

Purpose
- 

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Increases articular thickness in joints
The Hippocampus enlarges with exercise by 20% in both children and elderly.

Increases Hippocampus (the centre of behaviour and learning) by 20%
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
“Studies showed consistent negative associations between mental health and sedentary behaviour in children”

The Brain

Physical Activity Prevents
- Depression
- Anxiety
- Dementia

Stuart J H Biddle, Mavis Asare
Physical activity and mental health in children and adolescents: a review of reviews
Physical inactivity is also associated with hypertension\(^1\) and metabolic risk\(^2\), in children as young as eight years old


So what can we do?
**THE CHANGING SHAPE OF PLAYTIME**

**MOTHER:** Vicky aged eight in 1979 was allowed to walk across the swimming pool alone half a mile away.

**SOM:** Ed, now eight is only allowed to walk on his own to the end of his street (300 yards).

**GRANDFATHER:** Jack aged eight in 1950. Able to walk about one mile on his own to the woods.

**GREAT-GRANDFATHER:** George aged eight in 1919. Allowed to walk six miles to go fishing.

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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.
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!
960,000 people engaged in 3 years
Exploring the local area (66%)
Getting fit (54%)
Having fun (54%)
Spending time with friends or family (53%)
and feeling more healthy (52%)
Winning Prizes (13%)
Beat the Street 2017

300,000 children and adults
Beat the Street in 2016 – 6 Months

- 18 Interventions delivered across the UK

- Decrease in Inactivity: -4%
- Increase in Frequent Physical Activity: 8%
- Increase in Frequent Active Travel: 15%

N = 3,103
Building Active Communities

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@Intelligent_Hlt

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