

# Myth Busters

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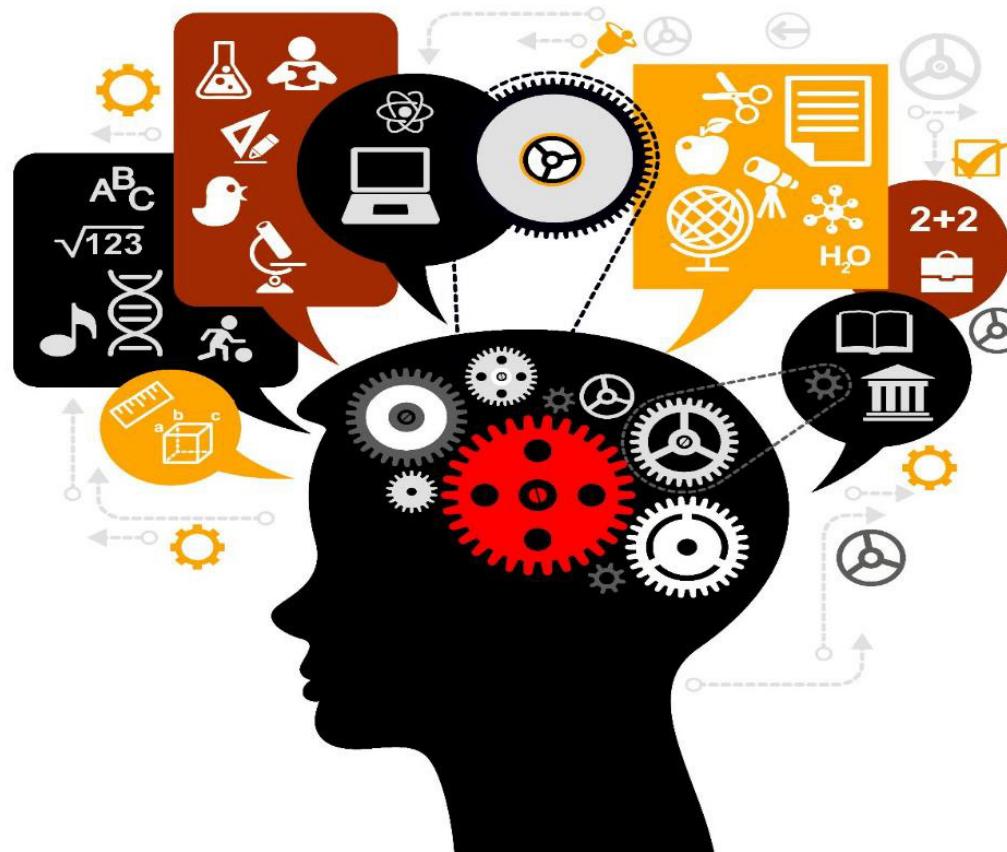
**Dr Michael Mosley**

Science Presenter



#HCA2015

# Busting myths about Food, Nutrition and Life style





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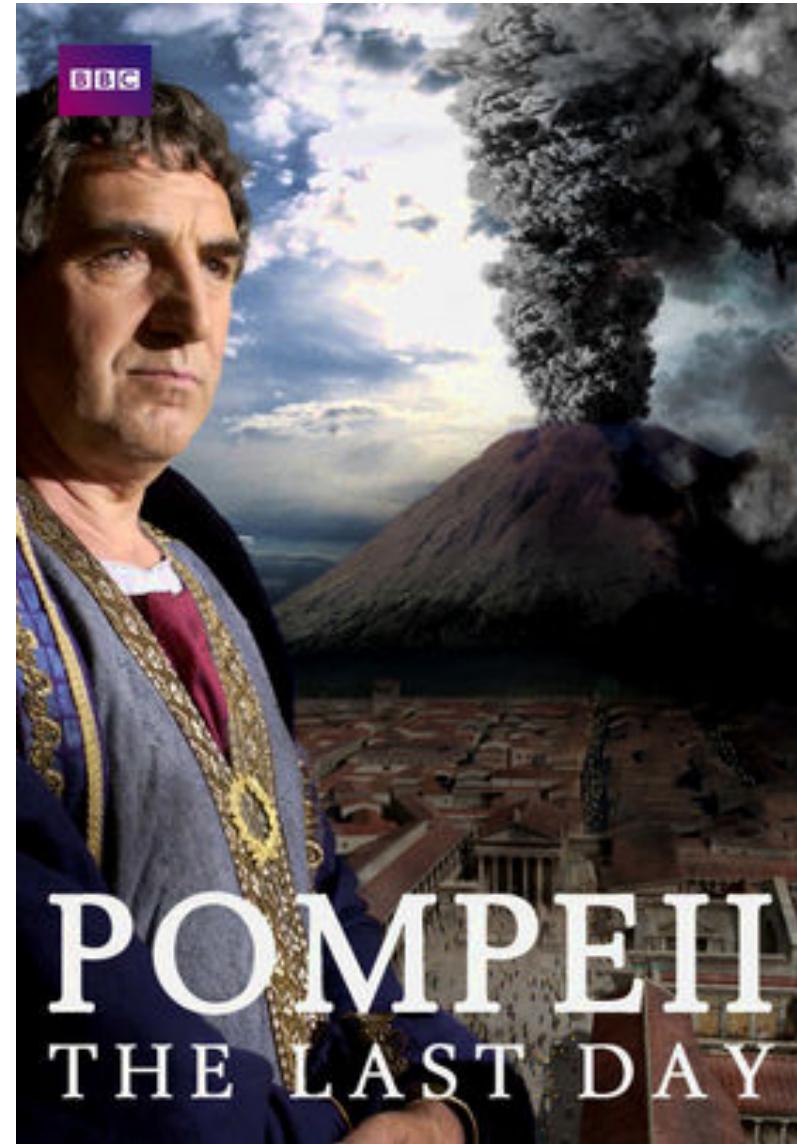
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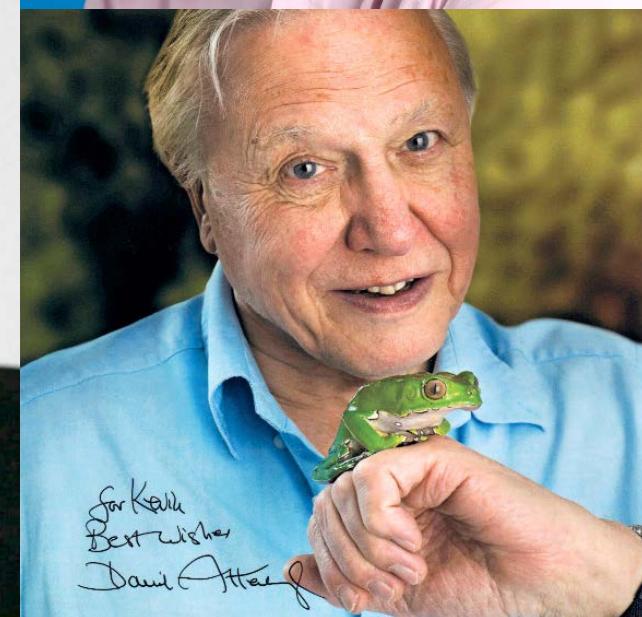
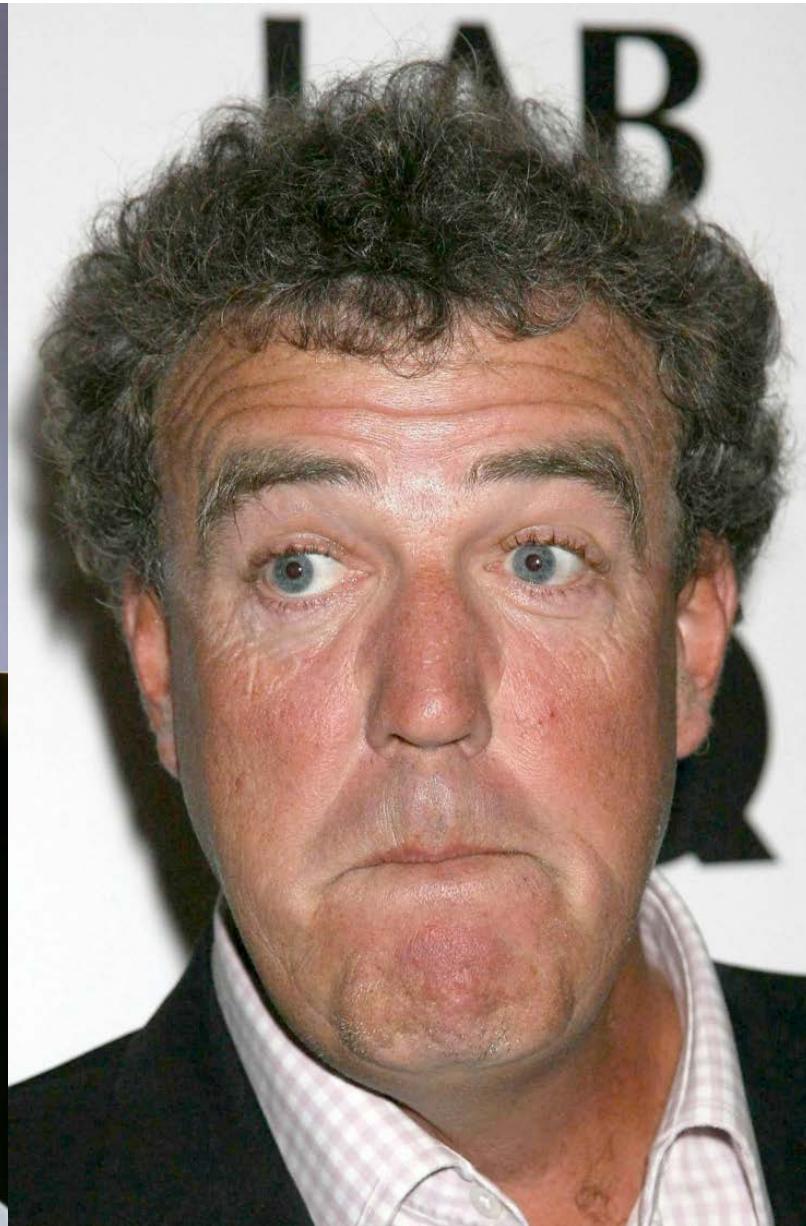
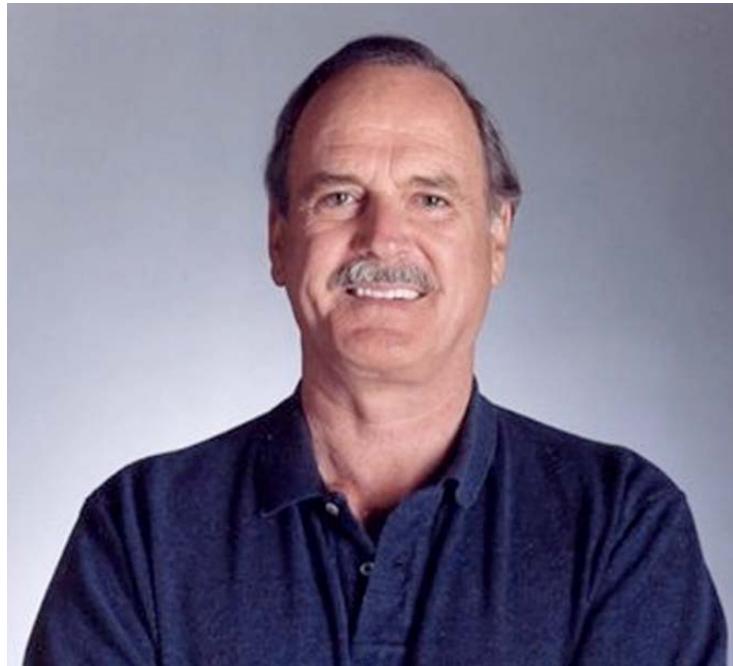
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# Tomorrow's World

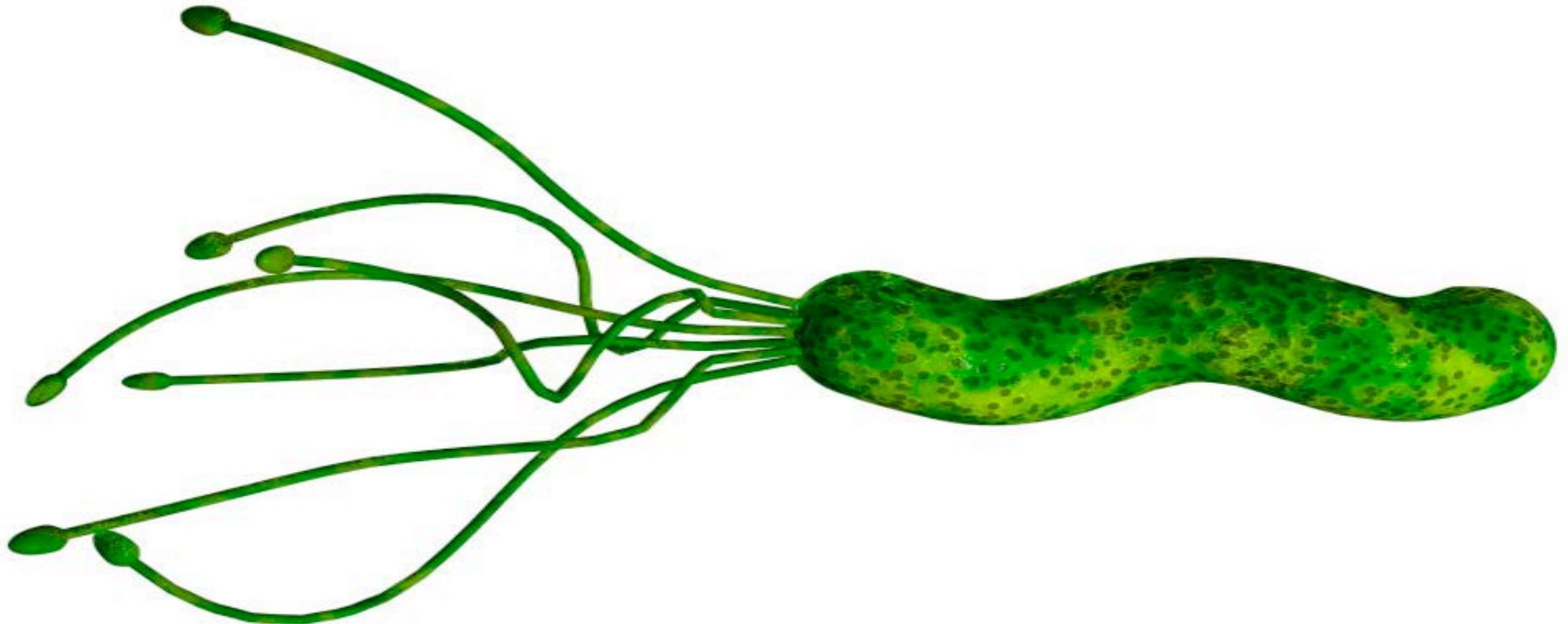


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# MEDICAL MAVERICKS

The history of medicine told through self-experimenters



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# Horizon: Eat, Fast, Live Longer

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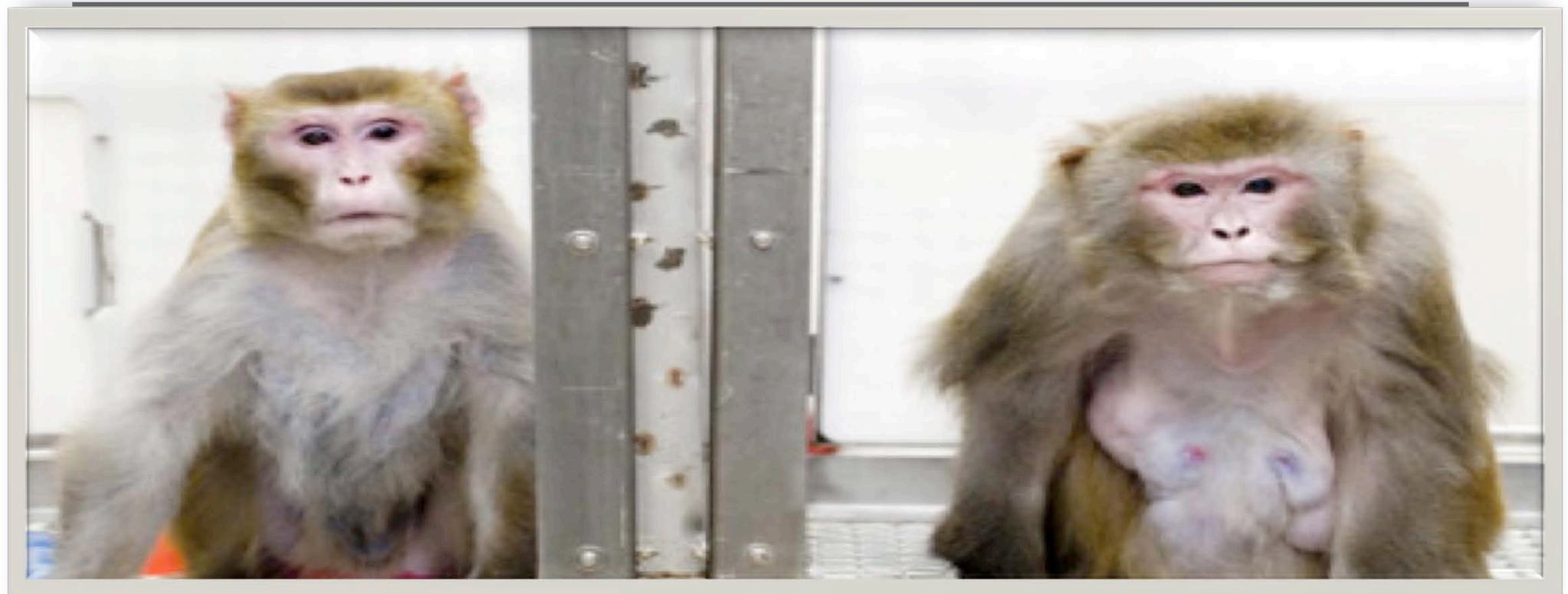
# The Great Depression

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# CHRONies



Calorie Restrictors ON optimal nutrition



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# Dr Krista Varady ADF

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- 
- American Journal of Clinical Nutrition.
  - “Alternate-day fasting and chronic disease prevention: a review of human and animal trials”
  - Type 2 diabetes, cardiovascular disease, and cancer



## Krista's Research

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- **Alternate day fasting for weight loss in normal weight and overweight subjects: a randomized controlled trial.**
- 32 subjects randomised for 12 weeks
- ADF group lost 5kgs
- Fat Free Mass no change
- LDL particle size increased
- Triglycerides 20% down
- C reactive protein fell 17%

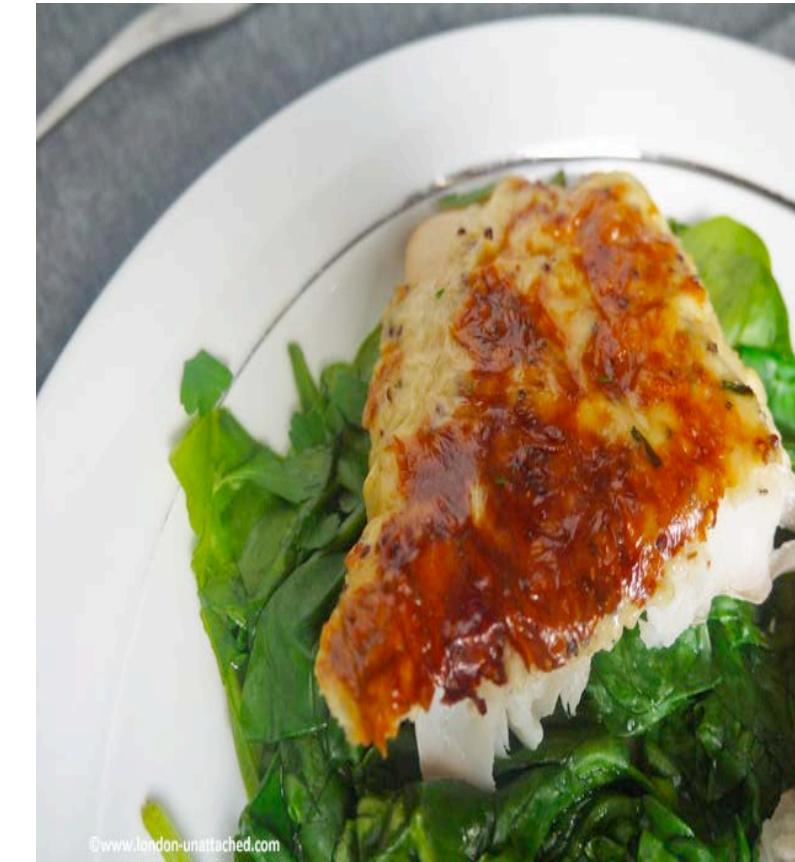


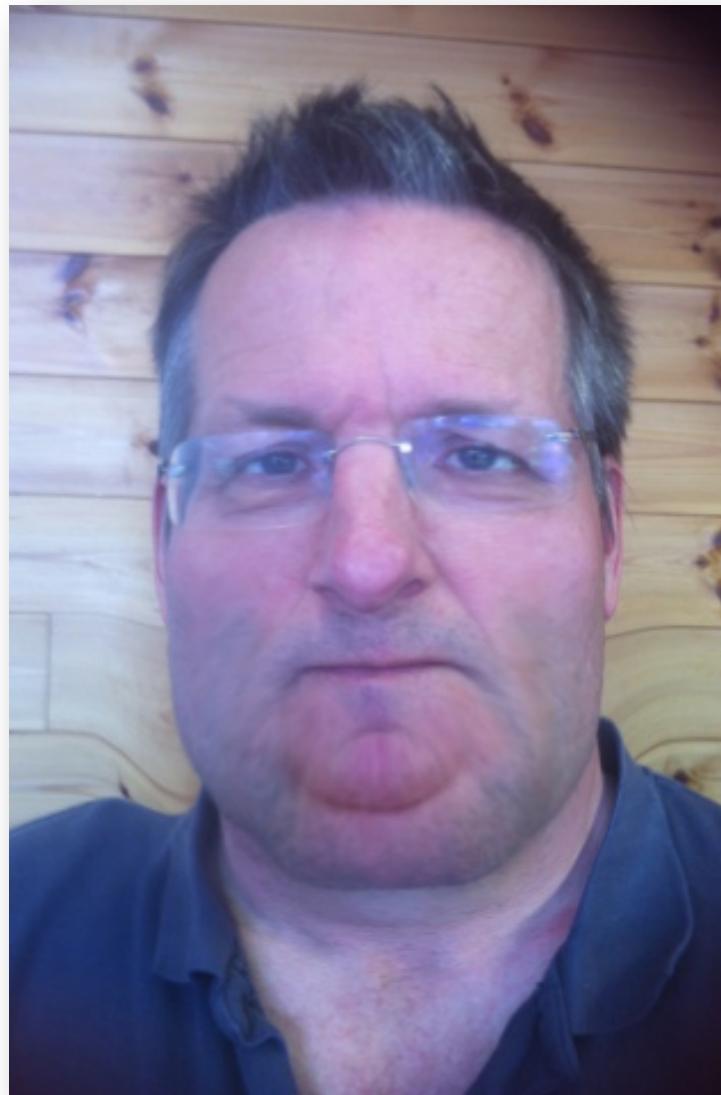
## 5:2 Intermittent Fasting

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Cut down to  $\frac{1}{4}$   
ie 600 cals

Twice a week





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## BEFORE:

Wt 85 kg  
Fat 28%  
Waist 36"  
Neck 17"



## AFTER:

Wt 76 kg  
Fat 21%  
Waist 32"  
Neck 16"

Glucose 7.3  
Triglyc 1.4  
LDL 5.5  
IGF-1 28.6



Glucose 5.0  
Triglyc 0.6  
LDL 3.6  
IGF-1 15.9



# Dr Michelle Harvie University of Manchester

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- The effect of intermittent energy and carbohydrate restriction v. daily energy restriction on weight loss and metabolic disease risk markers; British Journal of Nutrition





115 women randomly allocated to either:  
**1,500 calorie Mediterranean Diet**  
Two different forms of Energy Restriction 2 days a week



## After four months

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- Twice as many subjects still on the 2 Day Diet as on the Mediterranean Diet
- Fat loss significantly greater on 2 Day Diet:
  - 2 Day Diet – average of 3.7 kg
  - Med Diet – average of 2.0 kg
- Insulin significantly improved on 2 Day Diet
- Inflammation markers, C Reactive Protein significantly improved on 2 Day Diet



- [thefastdiet.co.uk](http://thefastdiet.co.uk)
- 4043 people followed for 3 months
- On average lost 4.8kgs
- Between them 17,000 kgs



**17,000 kgs**



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4 major mechanisms by which  
fasting seems to benefit your  
body: increased insulin sensitivity;  
improved mitochondrial efficiency;  
reduced oxidative stress; switching  
on of repair genes



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“In animals intermittent fasting protects against diabetes, some cancers, heart disease and neurodegeneration; in humans it reduces obesity, hypertension and rheumatoid arthritis. Thus, fasting has the potential to delay aging and help prevent and treat diseases”

Cell Metabolism  
2014 Feb 4; 19(2): 181–192.





DR MICHAEL MOSLEY  
& MIMI SPENCER

# the fast diet

Eat what you like...

most of the time

THE SIMPLE SECRET OF INTERMITTENT FASTING:  
**LOSE WEIGHT, STAY HEALTHY,  
LIVE LONGER**

Number One  
bestseller!

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© PA

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2013



2014

© Richard Kaminski/REX

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## Starvation Mode

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*“If you stop eating for a short while this will freak your body out and it will desperately try to hold onto your body fat by slowing your metabolism right down”*



# Minnesota Starvation Experiment

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- American Journal of Clinical Nutrition: *Resting energy expenditure in short-term starvation*
- 11 subjects and got them to fast for 4 days
- Resting metabolic rate **went up by 14%**
- Serum glucose fell from 4.9mmol/l to 3.5 mmol/l (**falling glucose myth**)



## Fasting: Ongoing research

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- Studies of intermittent fasting in women undergoing chemotherapy
- Recent study on effects of fasting on white cell count
- Effects of intermittent fasting on type 2 diabetes

# Current Research

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Patients at risk of cognitive decline

Put on a 5 : 2 diet. Followed for two years

Lumbar punctures every month



# Horizon: Should I Eat Meat?

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# Meat 'As Bad For You As Smoking'

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SEVENTH-DAY  
ADVENTIST®  
CHURCH

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# Ellen White

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**Dr Gary Fraser;**  
followed 90,000  
people for 10 years

*“Our study found that men who ate beef more than 3 times a week had a **131%** increased risk of fatal heart disease compared to vegetarians.”*

*“When it came to colon cancer the meat eaters had an **88%** increased risks.”*



## **Meat consumption and mortality - the European Prospective Investigation into Cancer and Nutrition (EPIC). 500,000 participants from ten European countries**



Lowest mortality in those eating up to 100 gms  
ie 3 oz of red meat a day

Highest mortality in non-meat eaters or those  
eating more than 140 gms a day ie 4 oz a day



## Conclusions:

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- “Red meat is an important source of nutrients, such as protein, iron, zinc, several B-vitamins as well as vitamin A and essential fatty acids.
- “A sub-optimal supply of these nutrients in an unbalanced vegetarian diet might be associated with an increased risk for morbidity and mortality.”



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## Feed Lot, Amarillo

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## EPIC

“A moderate association between processed meat and mortality,  
in particular cardiovascular disease, but also cancer”



**Professor Spiegelhalter**  
Every 40 gms of processed meat,  
ie a bacon sandwich, cuts an hour off your life



## Smoking 20 a day: -5 hours

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# 5 a day? + 2 hours

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# 20 minutes exercise? + 1 hour

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## 2-3 cups of coffee? + 30 minutes

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# Saturated Fat?

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# Dr Ronald Kraus

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***The American Journal of Nutrition,  
“Meta-analysis of prospective cohort studies evaluating the  
association of saturated fat with cardiovascular disease”***

***“if you took it across the entire range of disease,  
heart disease and stroke, there was absolutely  
zero effect”.***



## Annals of Internal Medicine, 2014

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- “Association of dietary, circulating and supplement fatty acids with coronary risk”
- 80 studies, 520,000 people
- No evidence of greater heart disease
- Higher levels of some saturated fats, in particular a type of saturated fat you get in milk and dairy products called margaric acid, were associated with a lower risk of heart disease

# Professor Kay-Tee Khaw of Cambridge University

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- Eat a handful of oily nuts a few times a week
- Eat butter and drink milk
- She is also happy to eat red meat, though “It's very clear that cattle that are fed on pasture, have very different fatty acid patterns from cattle that are corn fed. This may be why there's such conflicting evidence”





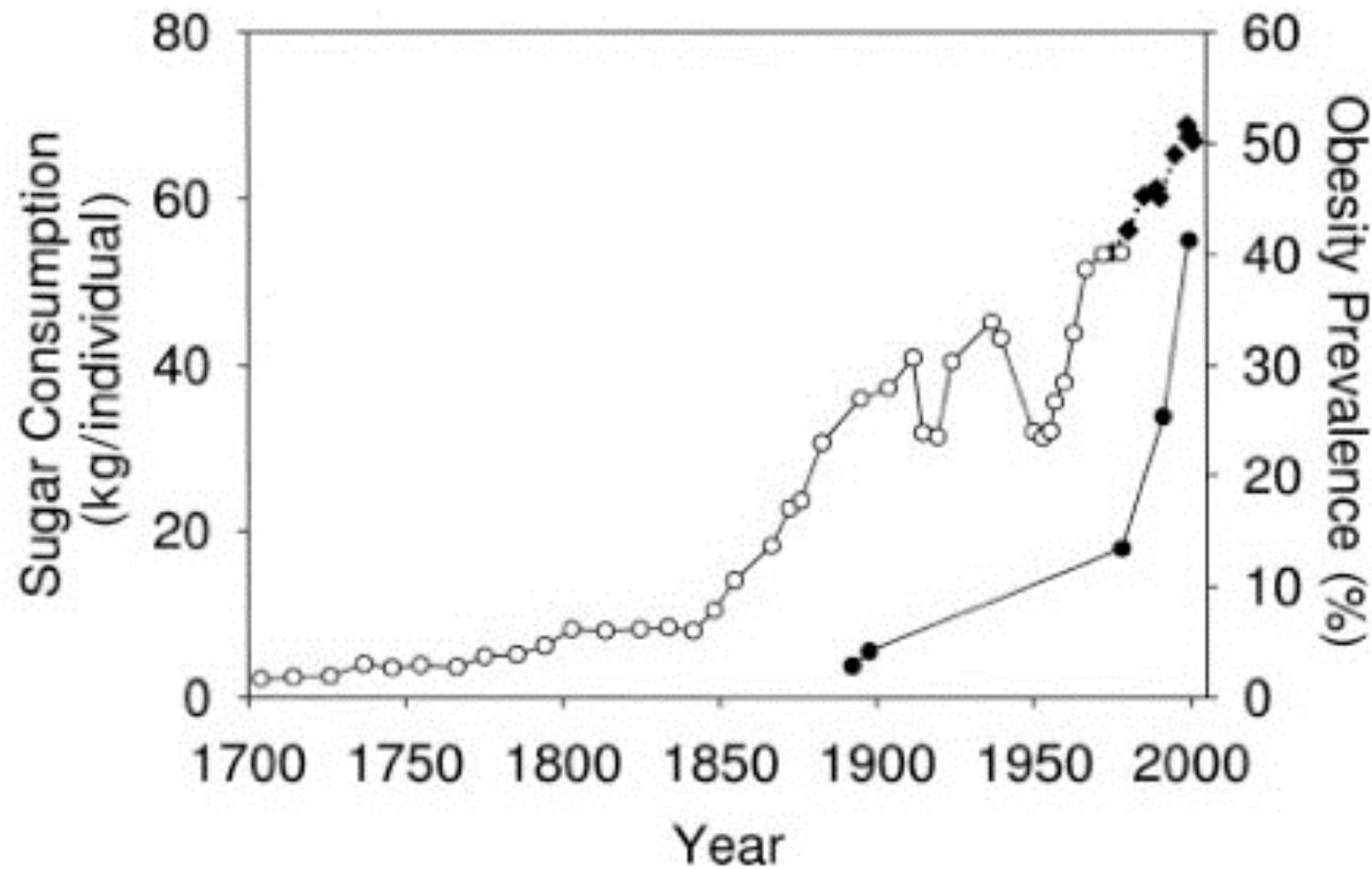
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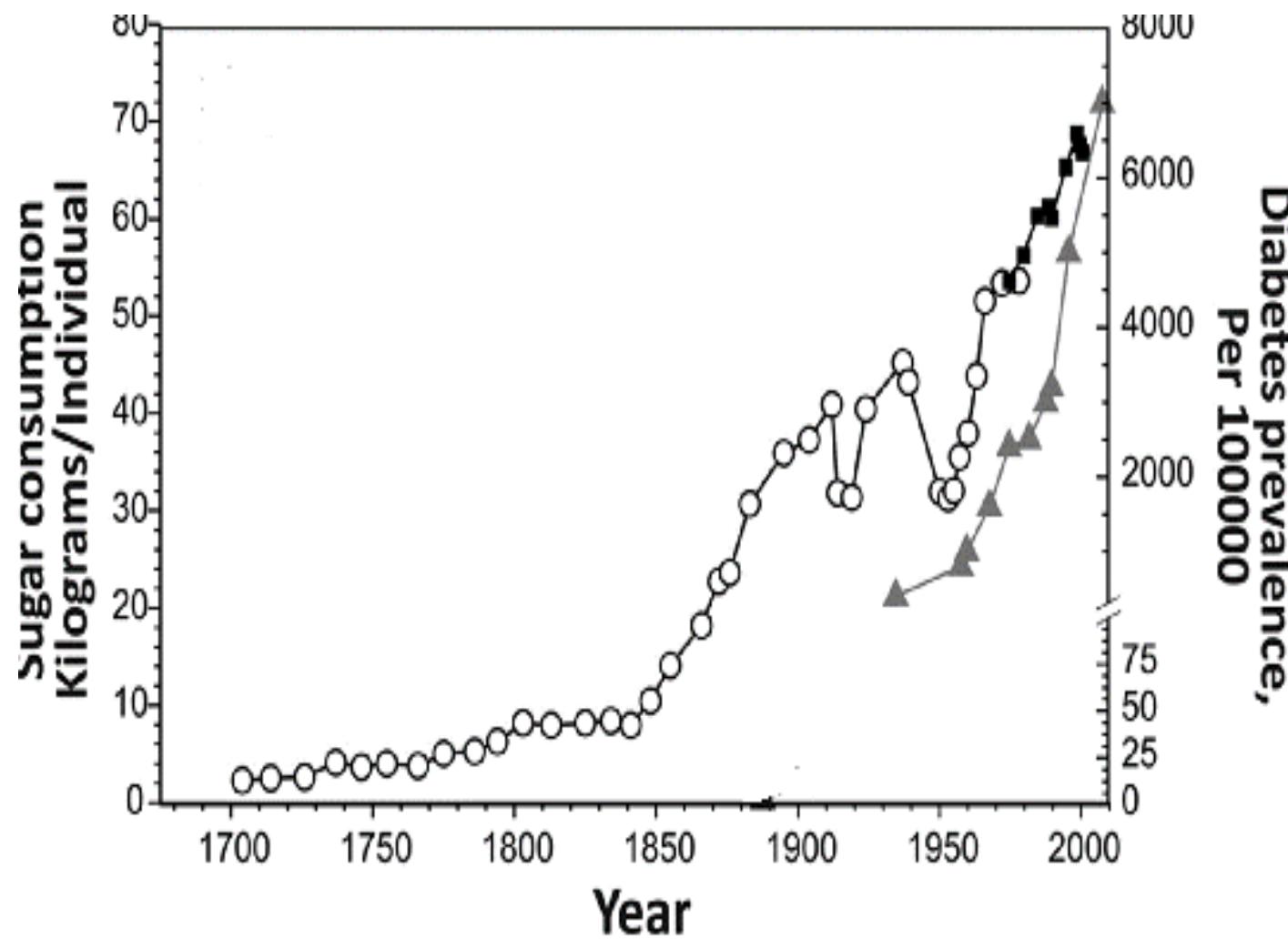


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# The Truth About Exercise

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# How much exercise is recommended?

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# NHS Guidelines

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- **At least 150 minutes (2 hours and 30 minutes) of moderate intensity aerobic activity such as cycling or fast walking every week, and muscle strengthening activities on 2 or more days a week that work all major muscle groups**



**Less than 20% do this amount**

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# Lack of time

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# Unrealistic expectations

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# Moderate exercise leads to weight loss

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## How many calories in...

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- A bar of chocolate?
- 240 calories
- A banana?
- 90 calories
- a glass of fruit juice or smoothie or latte?
- 140 calories
- A large glass of wine or pint of beer?
- 200 calories



## How many cals do I really burn exercising?

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Gross versus Net

RMR: 75 calories an hour

Weight lifting? 300 cals

Net burn is 225 calories

# NET CALORIES RUNNING OR WALKING

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- Net calorie burn from running a mile =  $.63 \times$  your weight (in lbs)
  - Net calorie burn for walking a mile at round 3mph =  $0.3 \times$  your weight (in lbs)
- 
- 160 lbs man run a mile 100 cals, walk 50 cals
  - 140 lbs woman 88 calories and 42 calories



## If you are a 10-stone woman

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	Distance	Walk
Banana	2 miles	40 mins
Fruit juice	3 miles	60 mins
Glass wine	4 miles	90 mins
Chocolate	5 miles	100 mins
Muffin	12 miles	3 hours



## How far to burn a lb of fat?

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- There are 3500 calories in a lb of fat
- You burn 500-600 calories an hour running
- Need to run an hour a day for 6 days for a man, 7 days for a woman
- 36 miles

# And that's not all

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- Compensatory eating
- Compensatory relaxing

**For maximum benefit in minimum time it has  
to be intense**

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**high  
intensity**

# Jamie Timmons

Prof of Precision Medicine, Kings

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## Jamie's 3 Minute Exercise Regime

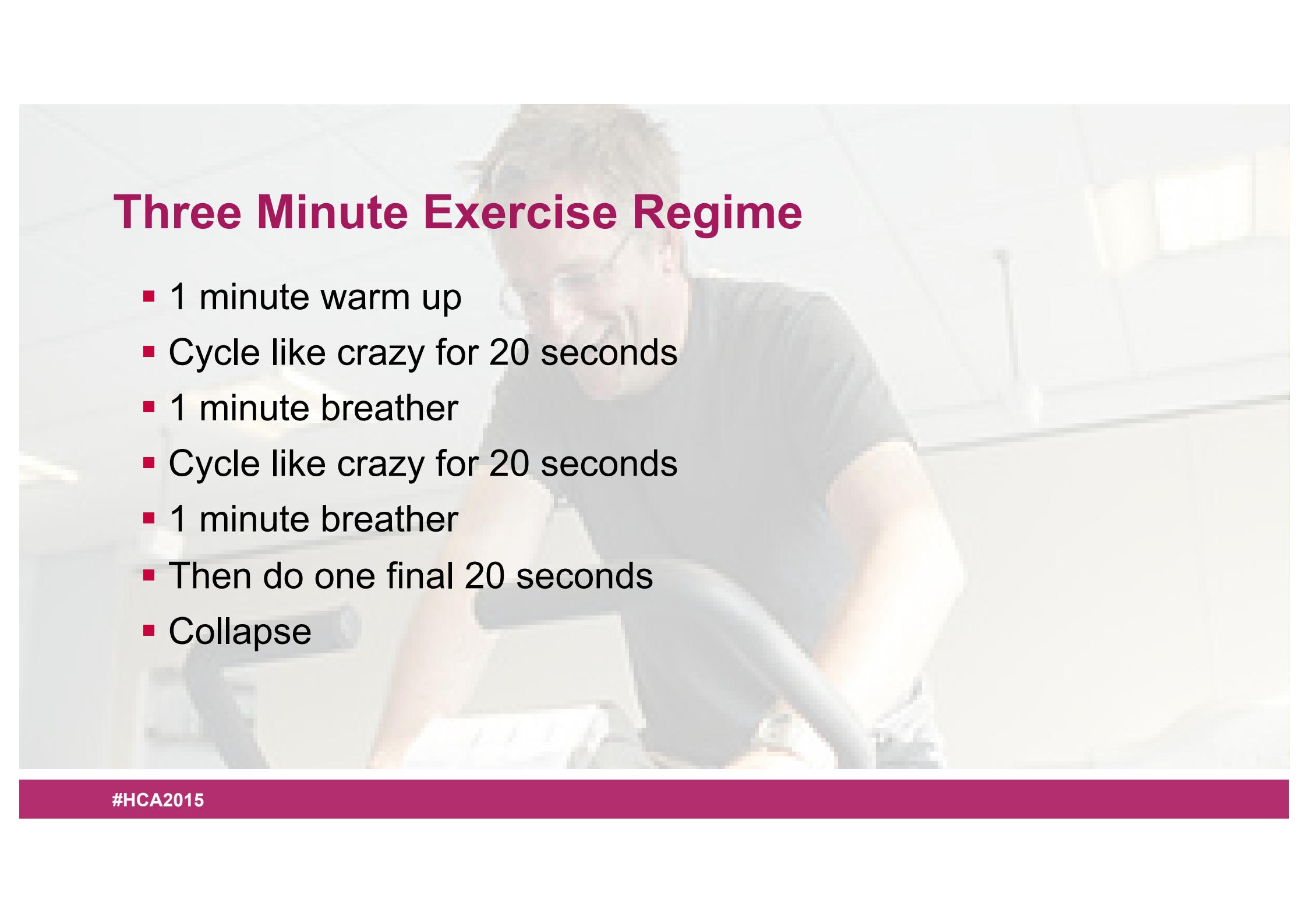
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Get most of the major benefits of exercise

In just 3 minutes of intense exercise  
... a week



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A man with short brown hair, wearing a grey t-shirt and black pants, is riding a stationary bike. He is looking down at the bike's handlebars. The background is a light-colored wall.

## Three Minute Exercise Regime

- 1 minute warm up
- Cycle like crazy for 20 seconds
- 1 minute breather
- Cycle like crazy for 20 seconds
- 1 minute breather
- Then do one final 20 seconds
- Collapse

## **What we know about HIT based on at least 20 trials:**

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It increases aerobic fitness, VO<sub>2</sub> max by 10%

It increases insulin sensitivity of 25%



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# You need resistance training Fast Exercise APP: 12 in 7 mins

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# Abertay University

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***“Extremely Short–Duration High-Intensity Training Substantially Improves the Physical Function and Self-Reported Health Status of Elderly Adults”***; Journal of the American Geriatrics Society, July 2014

**12 untrained individuals over the age of 60**

**Each session consisted of 6-second all-out sprints**

**The number of sprints in each session was progressively increased over the course of the trial from 6 x 6-second sprints to 10 x 6-second sprints.**

**Twice a week for 6 weeks**



## Results

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- Blood pressure fell by 9%
- Aerobic fitness improved 8%
- Fasting glucose levels fell by 20%
- Lost 1kg of fat; HIT suppresses appetite



# Walk 10,000 steps a day

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# Attack of the Killer Chair

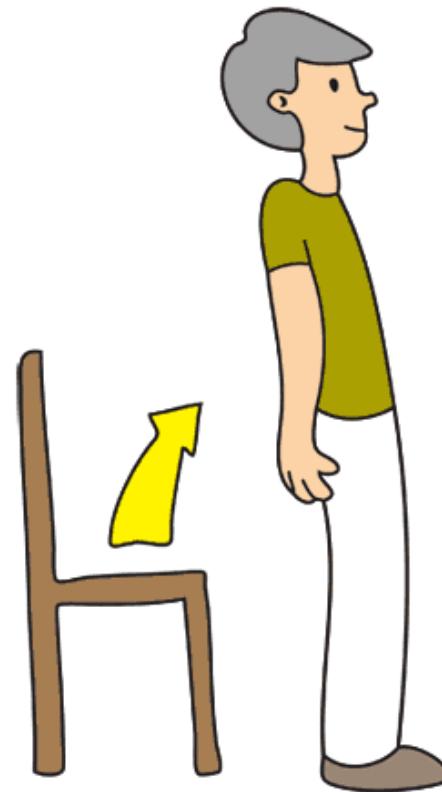


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## Stand for 2 minutes every half hour

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From the author of the No.1 bestselling *FAST DIET*

DR MICHAEL MOSLEY

WITH PETA BEE

Foreword by Prof Jamie Timmons  
Loughborough University

# fast exercise



How 3 minutes of intensive training a week  
can help you feel great and live longer

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## Michael's life

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- Get up and stretch every 30 minutes
- Always take the stairs
- Try to do 10,000 steps a day
- 4 minutes of Fast Strength 3 x a week
- 1 minute of HIT 3 times a week
- Skip meals



## Occasionally give into temptation

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# The End



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# Foodmatters

HCA NATIONAL LEADERSHIP &  
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