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FS Club Events

Today's Agenda

- 11:00 - 11:02   Chairman's Introduction
- 11:02 - 11:25   Keynote Presentation – Professor Rose Kenny
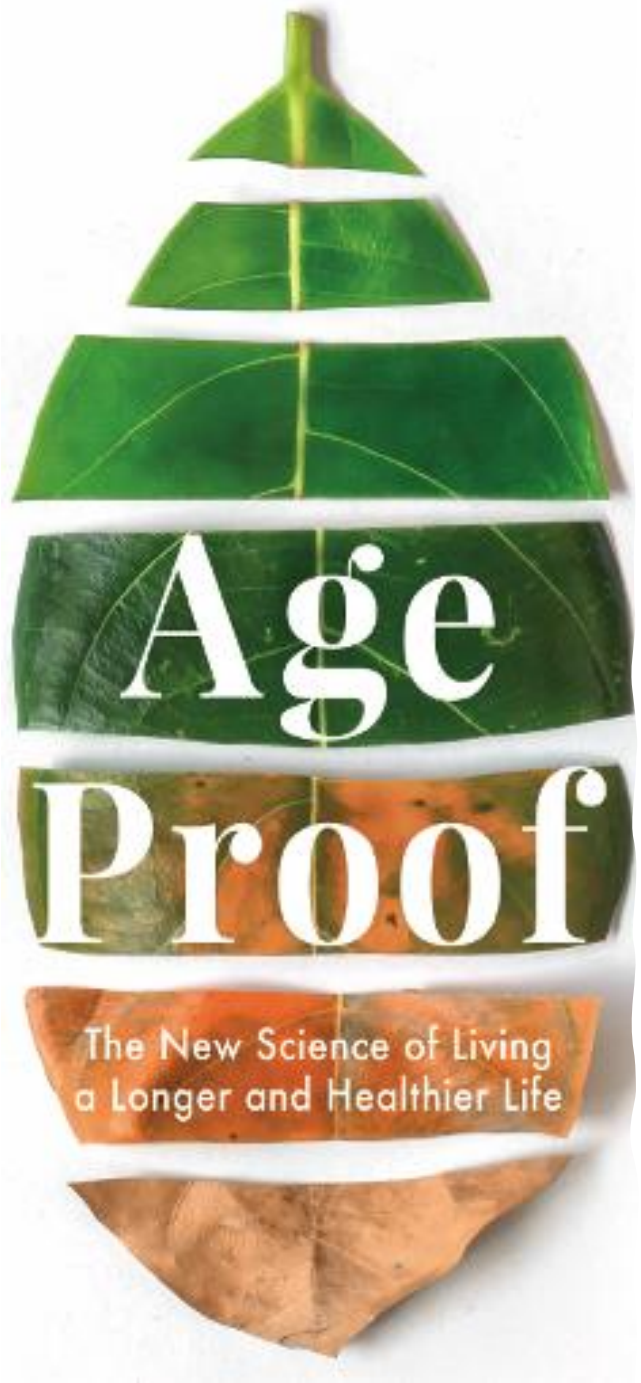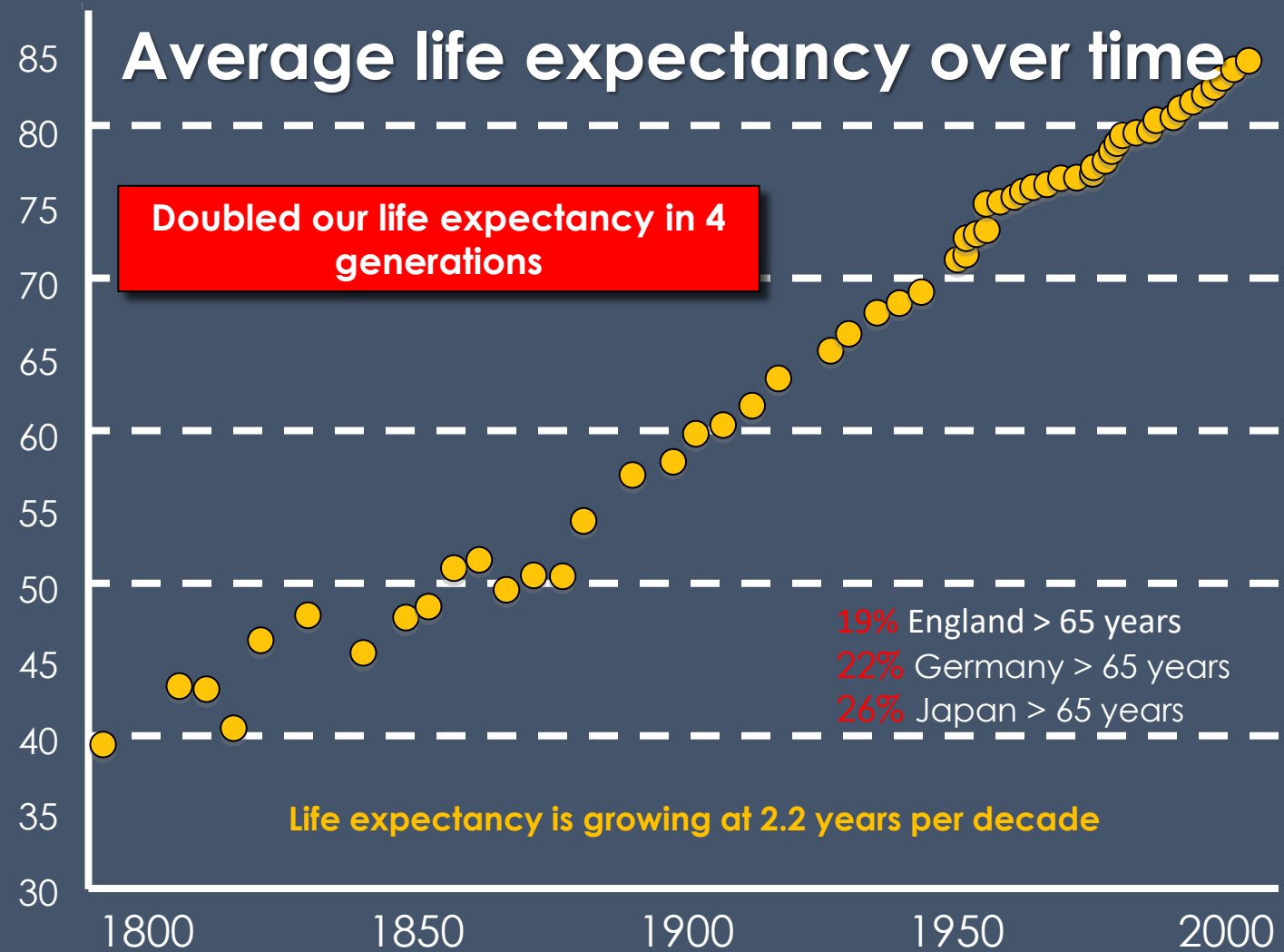- 11:25 - 11:45   Question & Answer

THE NEW SCIENCE OF LIVING A HEALTHIER, LONGER AND WEALTHIER LIFE

Rose Anne Kenny
Regius Professor of Physic,
Director Mercers Institute for Successful Ageing,
St James hospital &
Trinity College Dublin

Age Proof

The New Science of Living a Longer and Healthier Life

Average life expectancy over time

Doubled our life expectancy in 4 generations

19% England > 65 years
22% Germany > 65 years
26% Japan > 65 years

Life expectancy is growing at 2.2 years per decade

Jeanne Louise Calment

122 years & 5 months (d. 1997)

Lifespan -the maximum number of years an individual can live, making lifespan unique to everyone.

Life expectancy -the average age an individual can expect to live at different stages of life.

(65 y 21 F 18.5 M)

Healthspan-healthspan is the number of years someone is healthy without chronic and debilitating disease

Healthy Life Span

54y vs 75y

Figure 3: inequality in life expectancy and healthy life expectancy at birth for females in the most and least deprived areas in England, 2018 to 2020

Most deprived 10% of small areas

51.9 years in good health | 26.4 years in poorer health

Total life expectancy at birth

Least deprived 10% of small areas

70.7 years in good health | 15.6 years in poorer health

Years

0   20   40   60   80
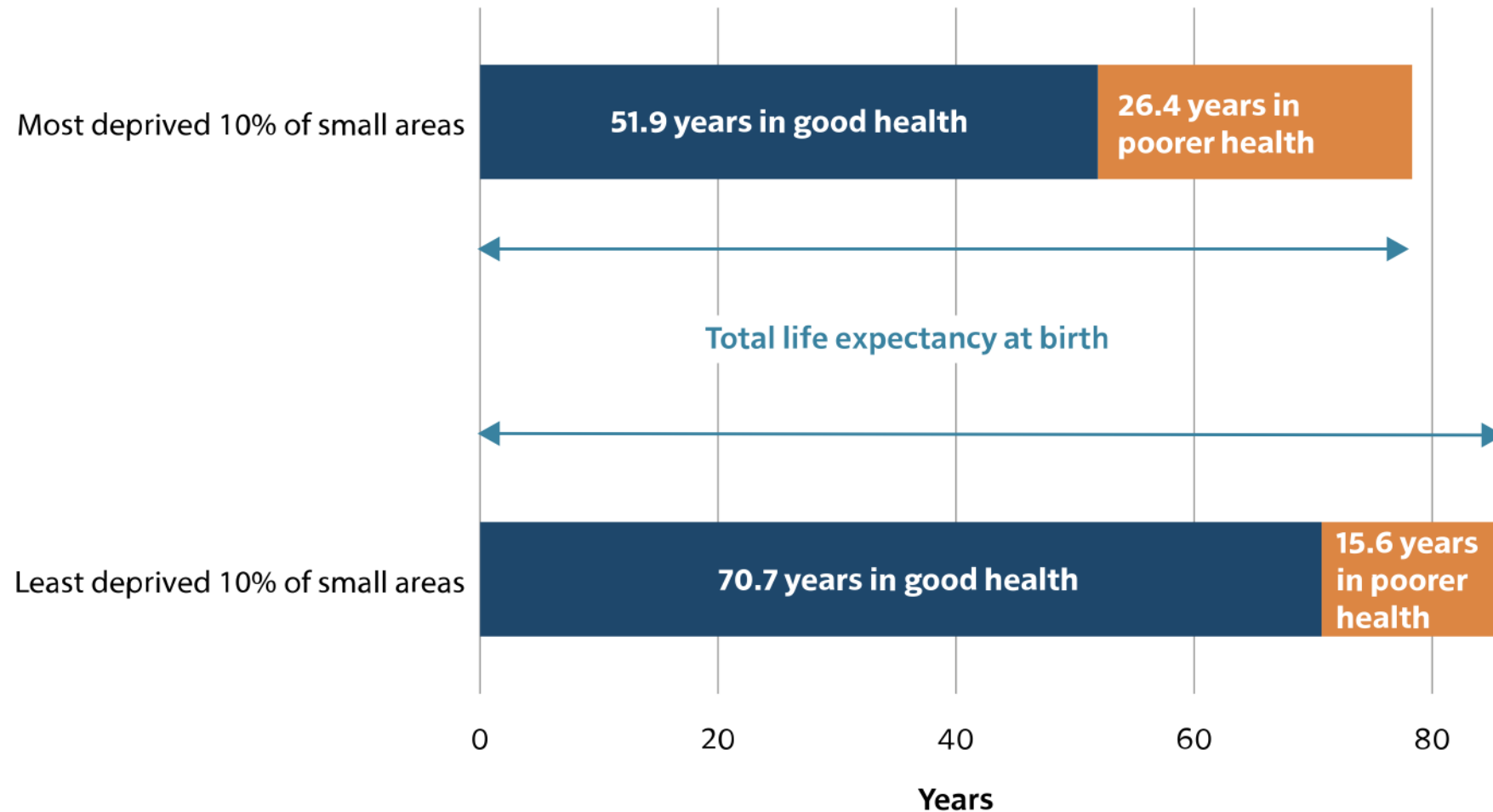
Source data: ONS, Health state life expectancies by national deprivation deciles, England: 2018 to 2020[footnote 6]

ARE DIFFERENT AGEING RATES ALL ABOUT GENES ?

Genes – 20-30% lifespan
Twin studies

Lancet March 2022
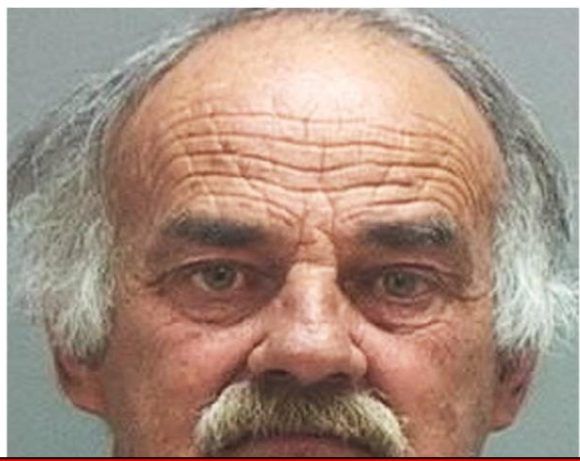
ENVIRONMENTAL FACTORS
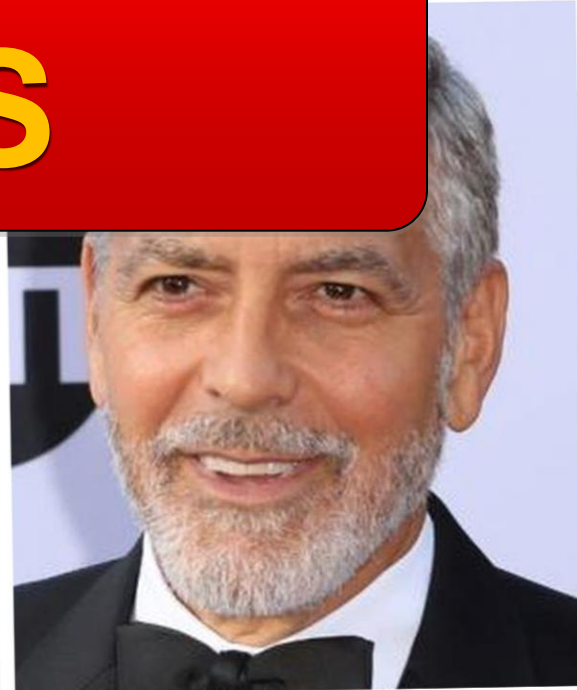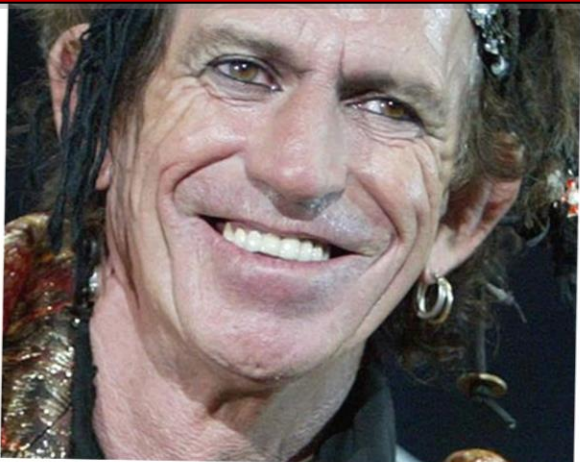
Epigenetic Age Test

Biological Age Test used by Longevity Researchers

GrimAge, our Epigenetic Age Test, predicts your biological age, based on DNA methylation, basically changes in your DNA over time.
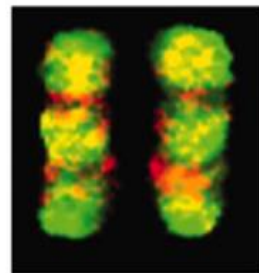
Includes:

🧪 At-Home Collection Kit

🔬 Advanced Healthy Aging Report

📋 1-on-1 Longevity Consultation

📊 + Treatment Analysis included with second test

~~$375.00~~ **$325.00**

58.1 ↓ 6.9 less than chronological age

o **Income**
o **Marital status**
o **Life span adversities**
o **Occupational hazards**
o **Housing quality**
o **Diet**
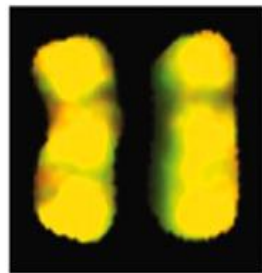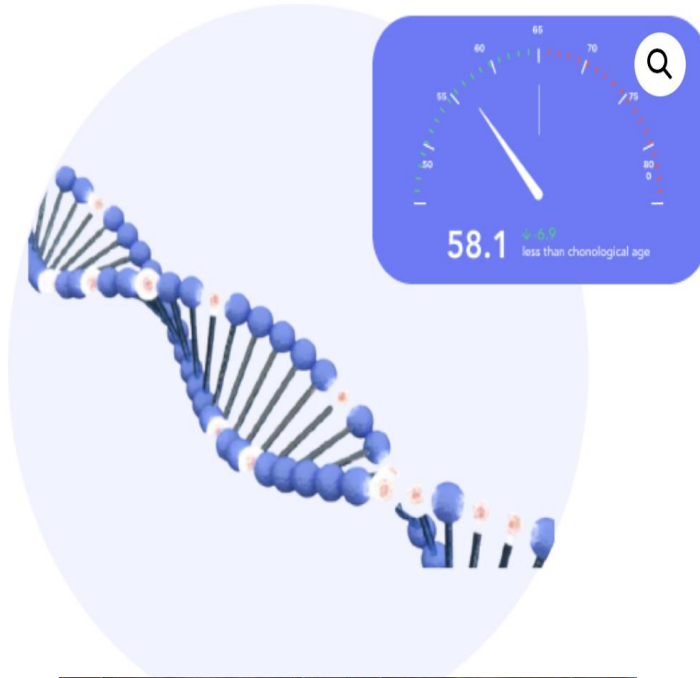
3-year old identical twins

50-year old identical twins

Epigenetic markers identical twins
yellow – agreement; red and green -differ.

Psychoneuroendocrinology

HDL cholesterol

6,126

Waist-to-height ratio

40–111 years

C-reactive protein

13 cohort studies

Resting heart rate
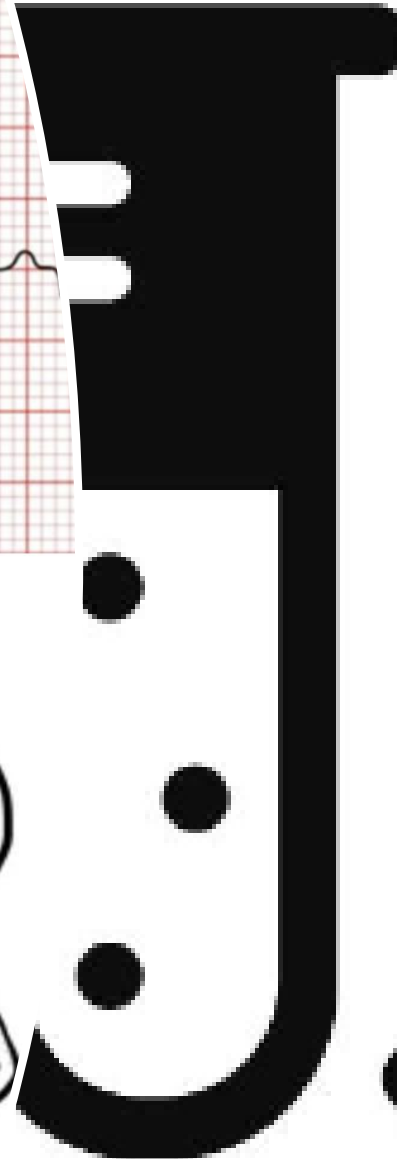
40 biomarkers

HbA1c

12 physiological systems

DHEAS

PEFR

Cystatin C (kidney)

Heart rate variability
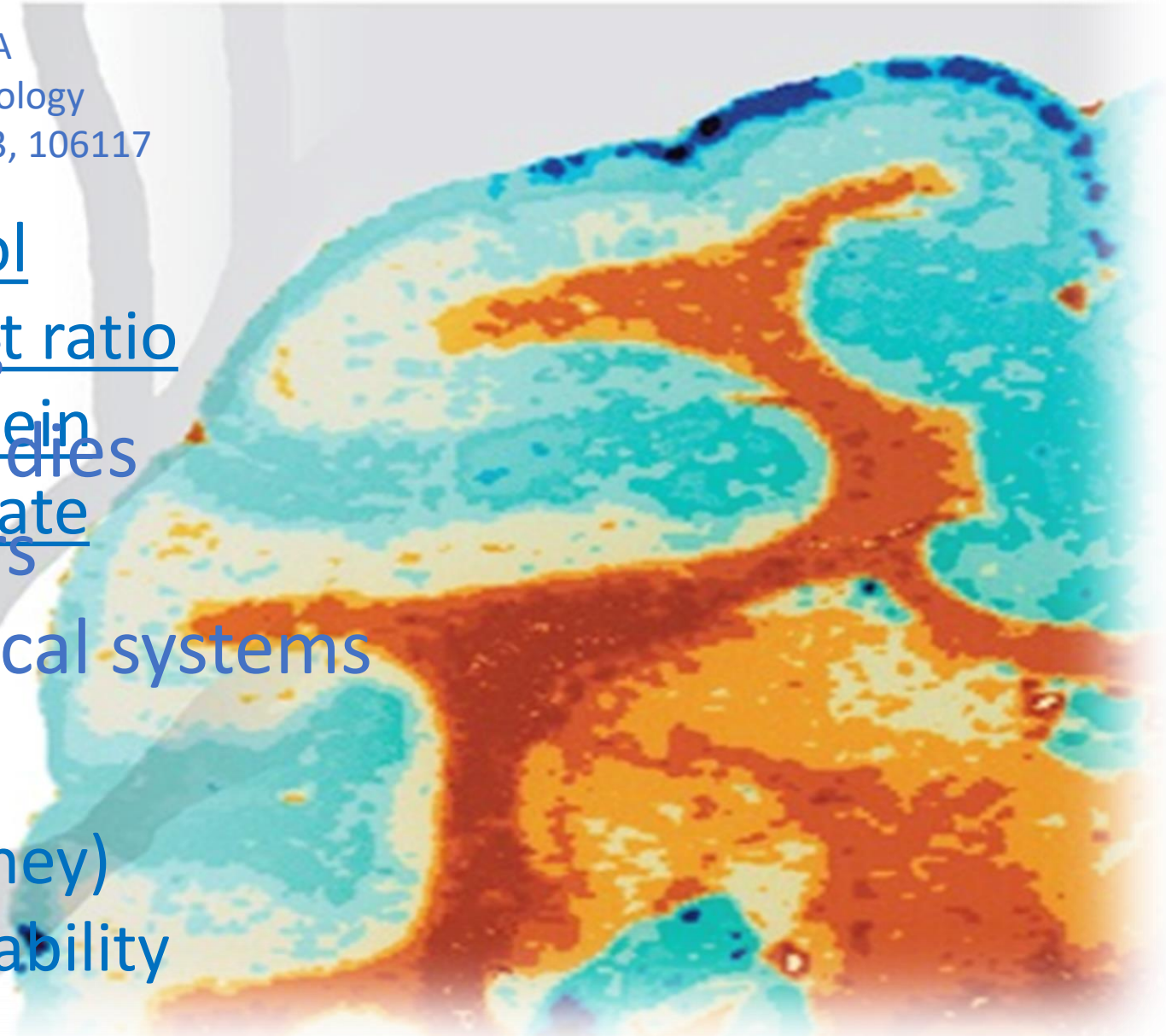
- HDL/LDL cholesterol ratio
- Blood Pressure
- HbA1C prediabetes/diabetes
- BMI
- Waist Hip Ratio
- Resting heart rate

148 studies
309,000 people

The influence of social relationships
on risk for mortality comparable with well-established
risk factors for mortality.

Adjusted mortality

Lack of social relationships:
- Overall
- Complex measures

- Smoking
- Alcohol
- Physical inactivity
- Obesity
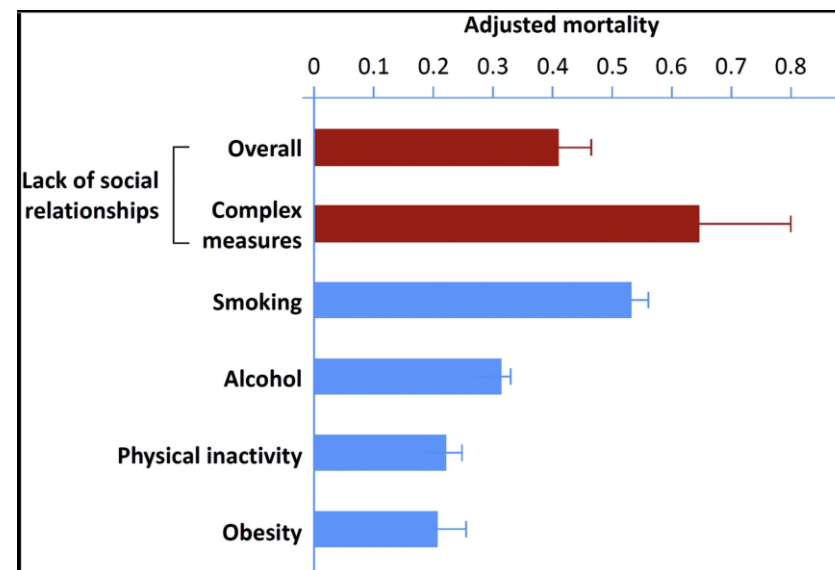
Holt- Lundstad et al PLoS MED 2010
Lancet 2024

Loneliness and social isolation trigger **inflammation** and stress hormones in animals and humans

Mechanism Loneliness associated cardiovascular disease

Stress hormones

Nervous system

Glucose pathways
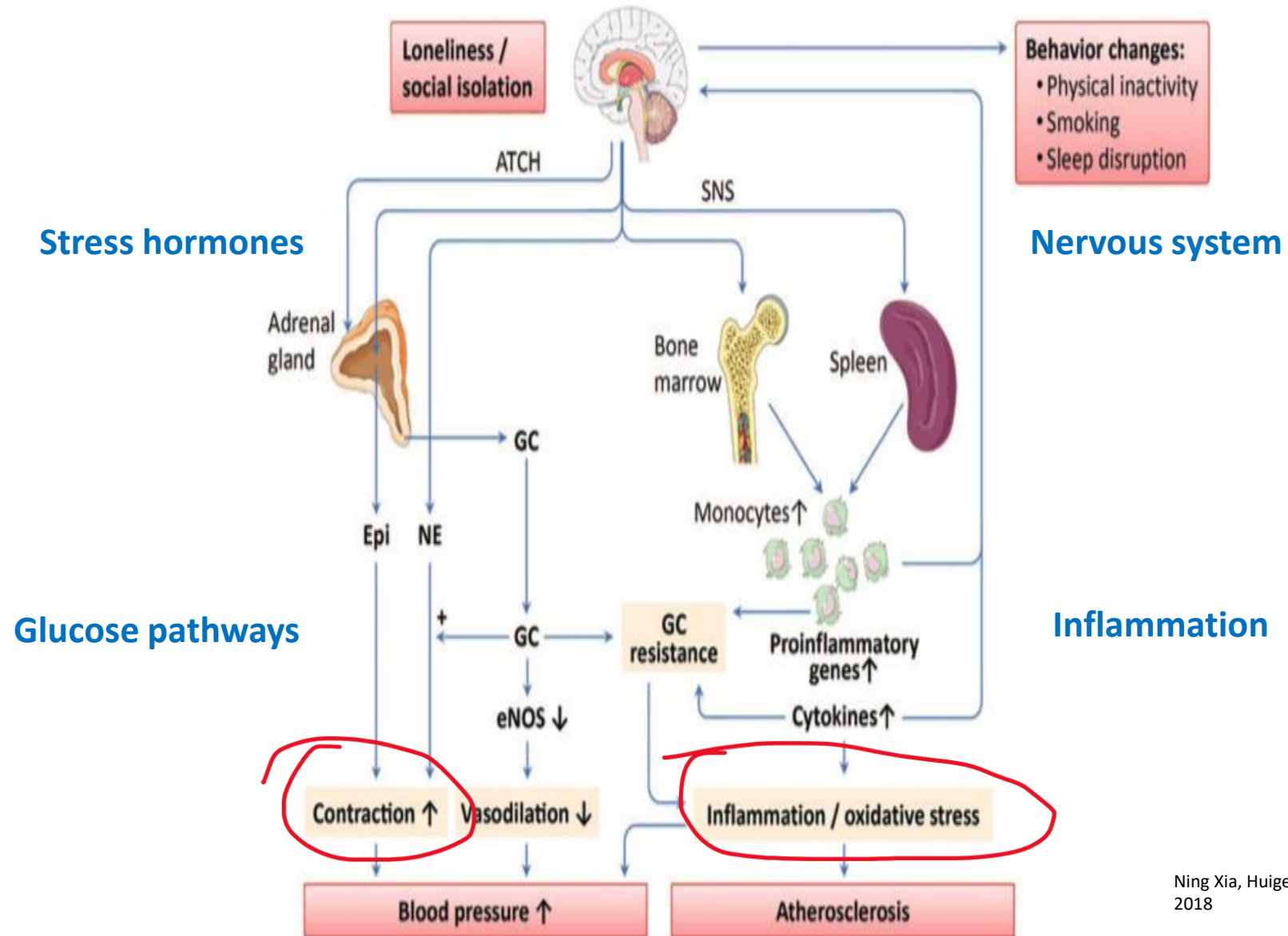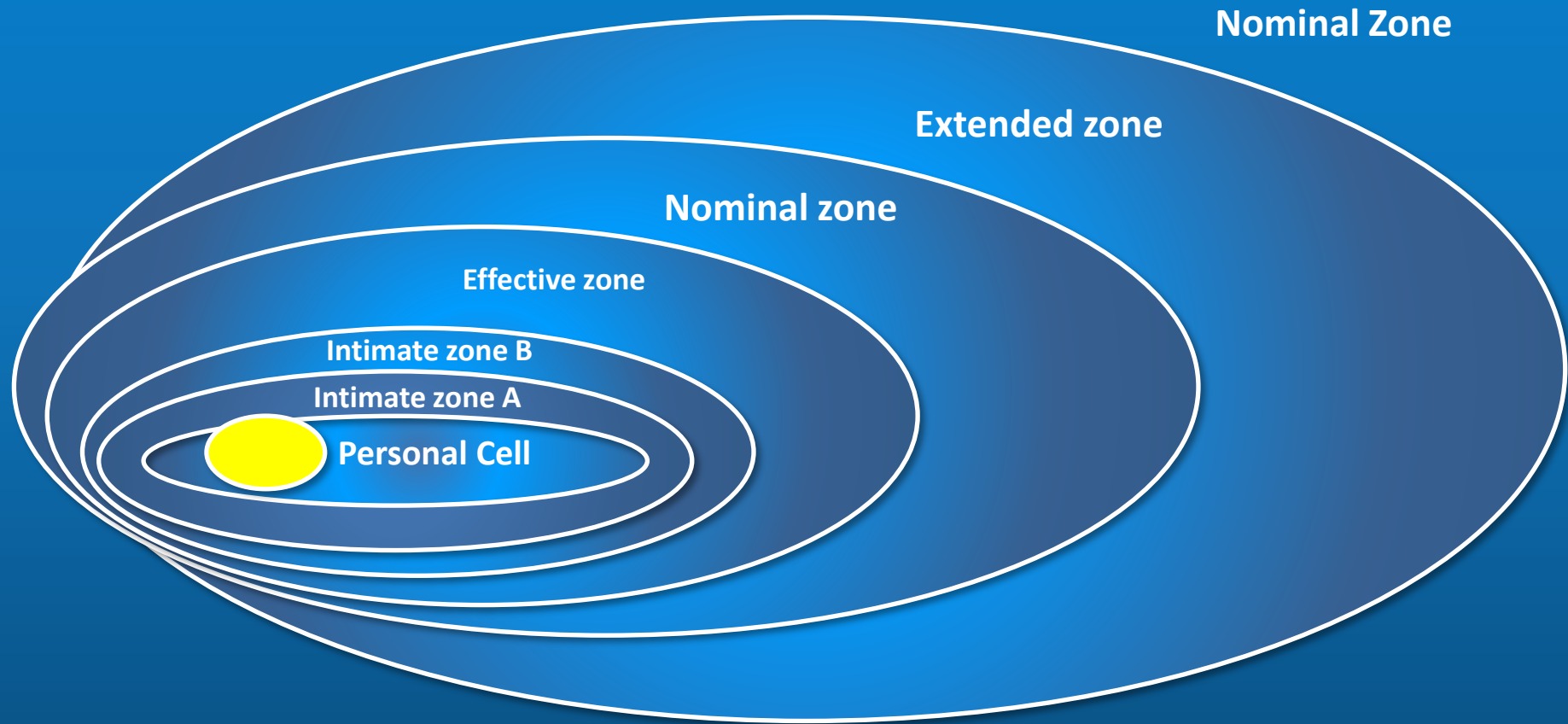
Inflammation

Variety

Curiosity

Social Engagement

Volunteering, social participation, looking after grandchildren associated with higher *quality of life* and less *depressive* symptoms And *less disability*
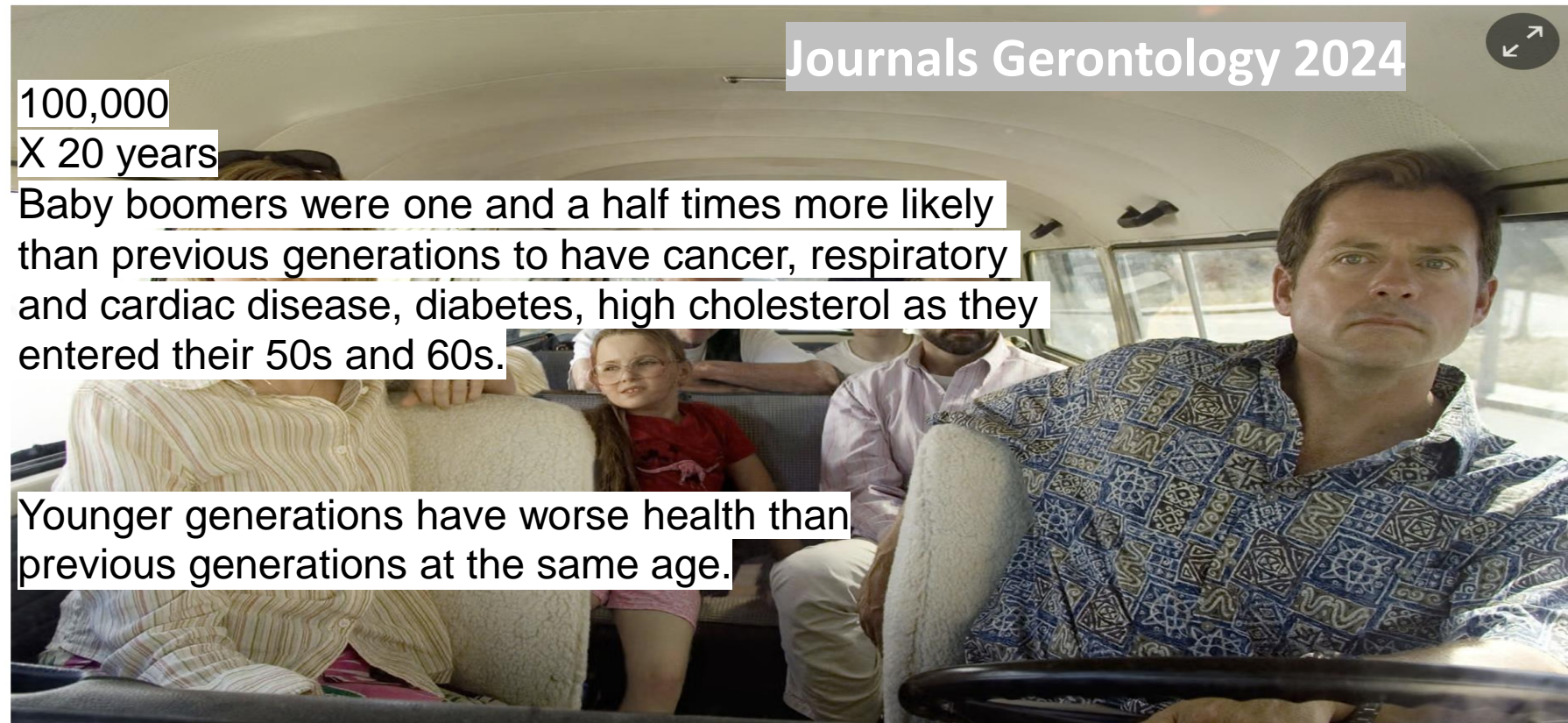
Inflammatory markers lower in most socially engaged

tilda

Sandwich Generation -Adult children who were exposed to
 "a unique set of unshared stresses in which giving of resources
and service far outweighs receiving them


Journals Gerontology 2024

100,000
X 20 years
Baby boomers were one and a half times more likely
than previous generations to have cancer, respiratory
and cardiac disease, diabetes, high cholesterol as they
entered their 50s and 60s.

Younger generations have worse health than
previous generations at the same age.

📷 The film Little Miss Sunshine is an example of a 'sandwich' family in which middle-aged parents care for young children, teens and elderly relatives. Photograph: AP

Healthy lifespan not keeping up with lifespan?

Variation in individual human health explained by different constellations of risk factors
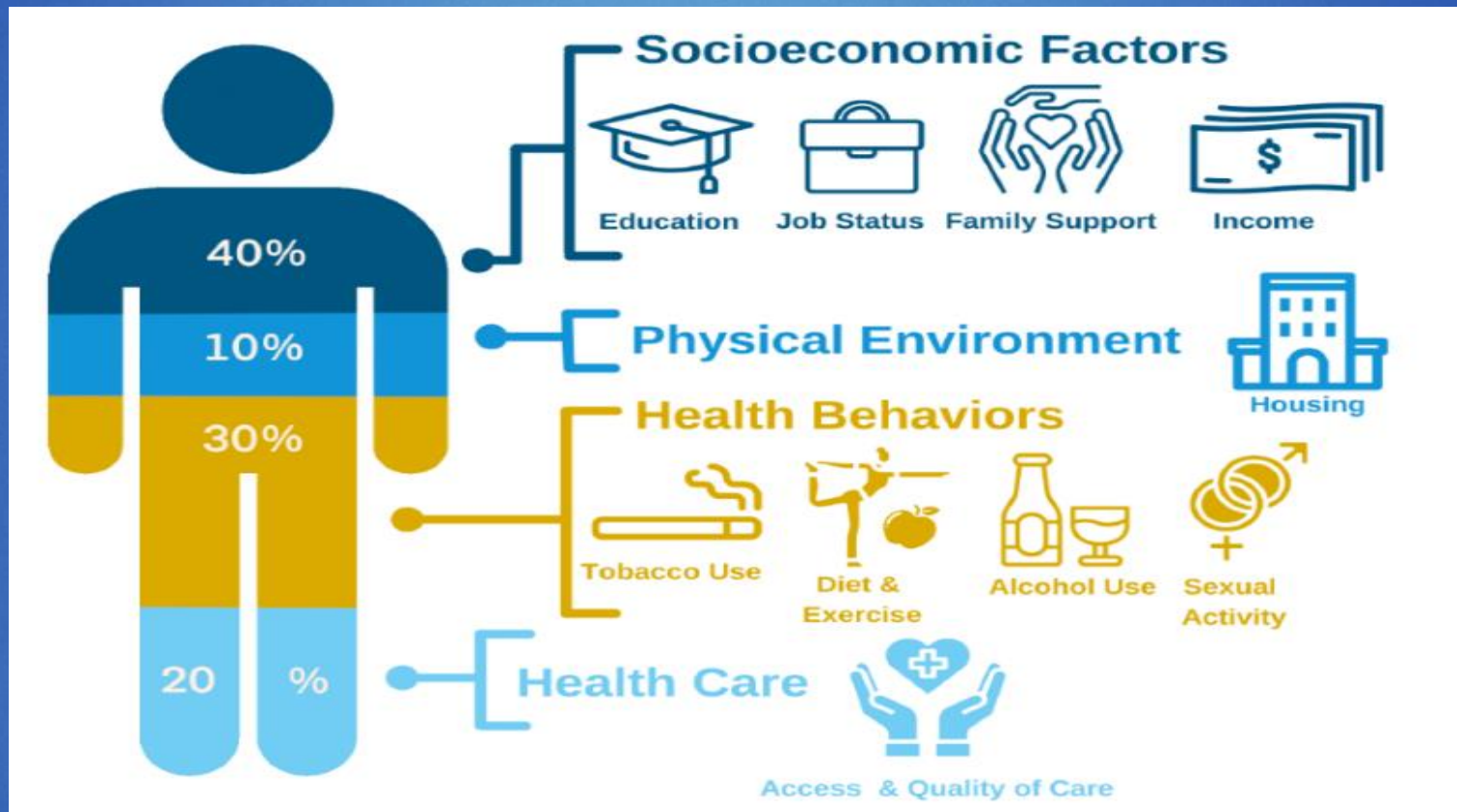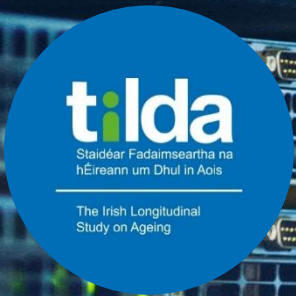
Solutions:

Data
Screening Early
Risk Stratification
Personalized diagnostics
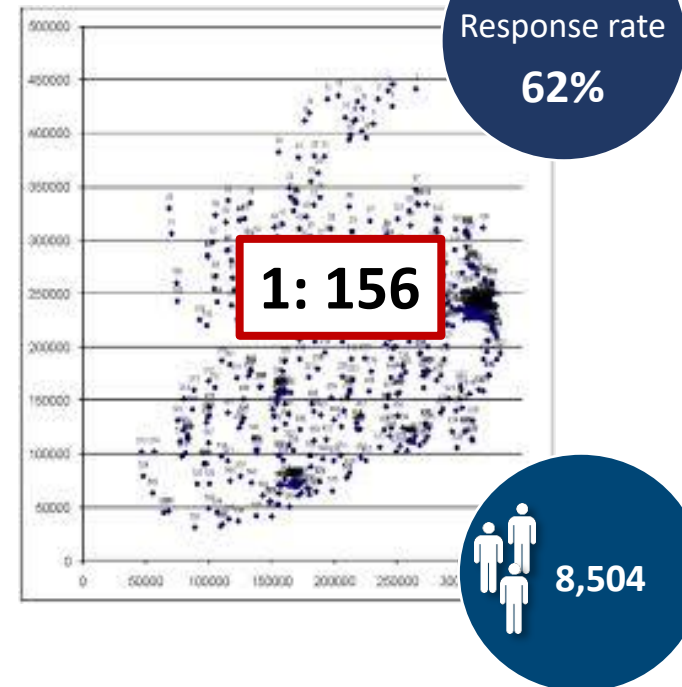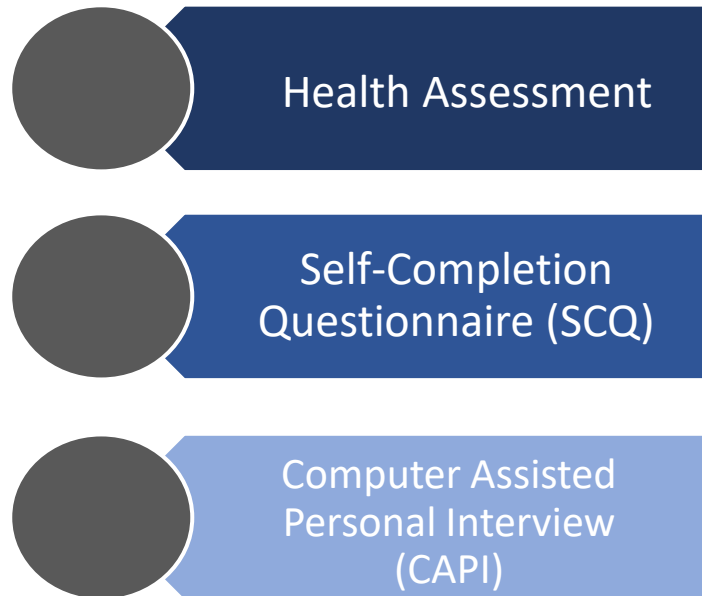New Models Service Delivery
Training and Education

DATA
The New Oil

Target Population

All persons aged 50 years and over in Ireland

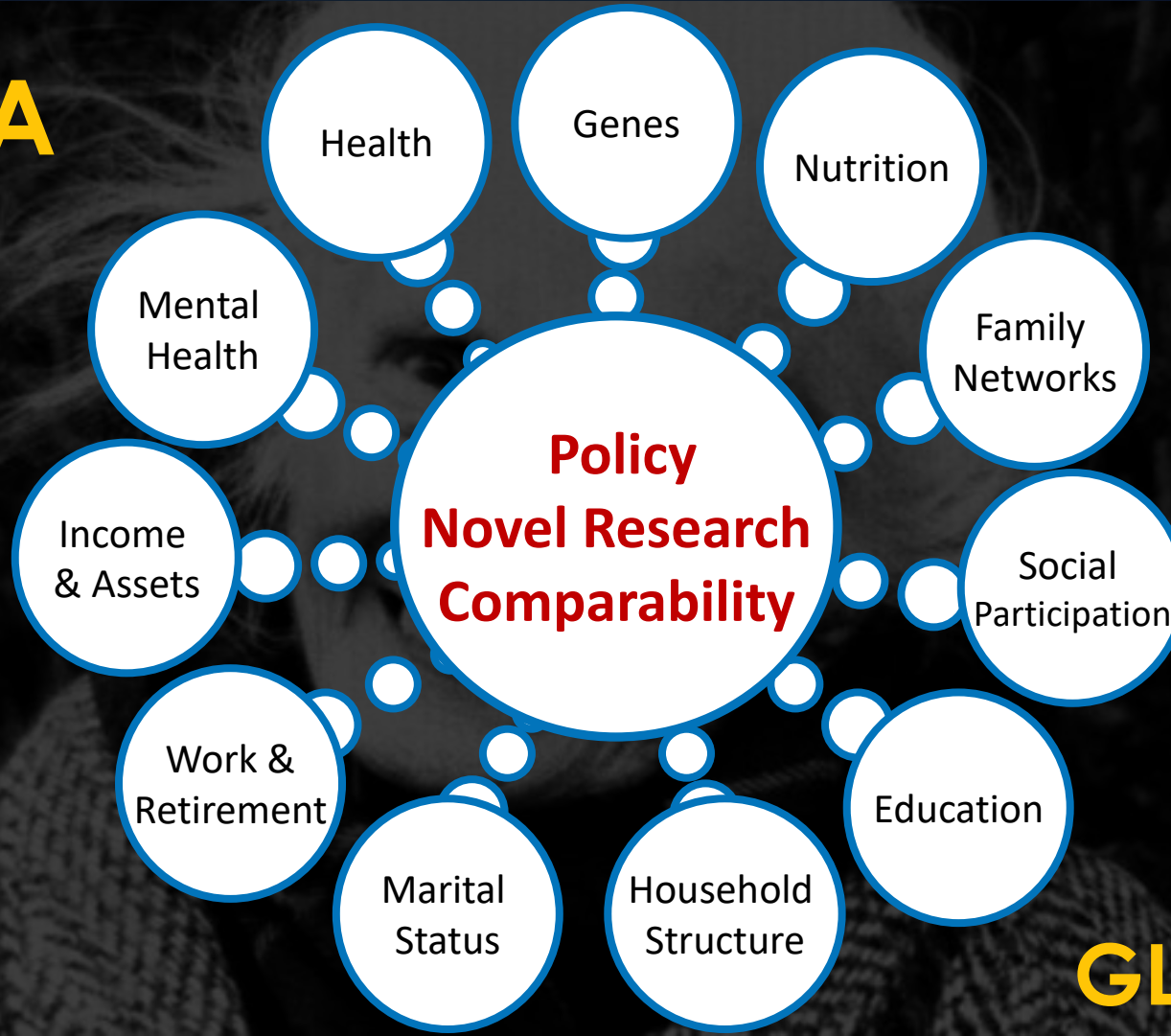– Nationally Representative Sample

Sampling Frame

Irish Geo-directory – comprehensive listing of all addresses in Ireland using the Irish Postal Service and Ordnance Survey Ireland.

Health Assessment

Self-Completion Questionnaire (SCQ)

Computer Assisted Personal Interview (CAPI)

Response rate 62%

1: 156

8,504

Study Design

The individual wants ….

Mobility

Memory

Walking Speed

4.88 metre Gaitrite computerised walkway with embedded pressure sensors

Fig 1c: Association of covariates with GrimAge
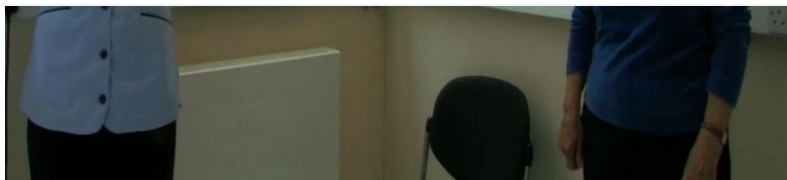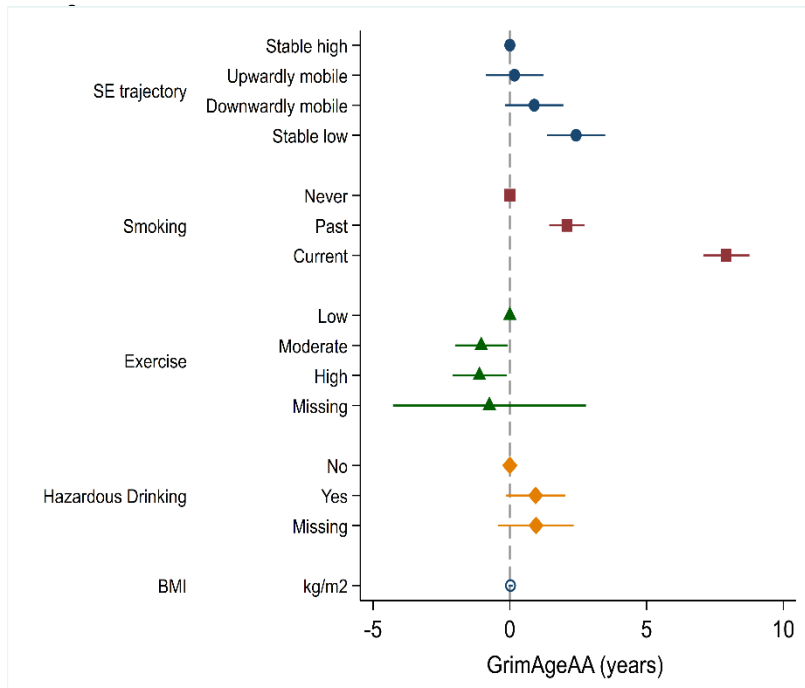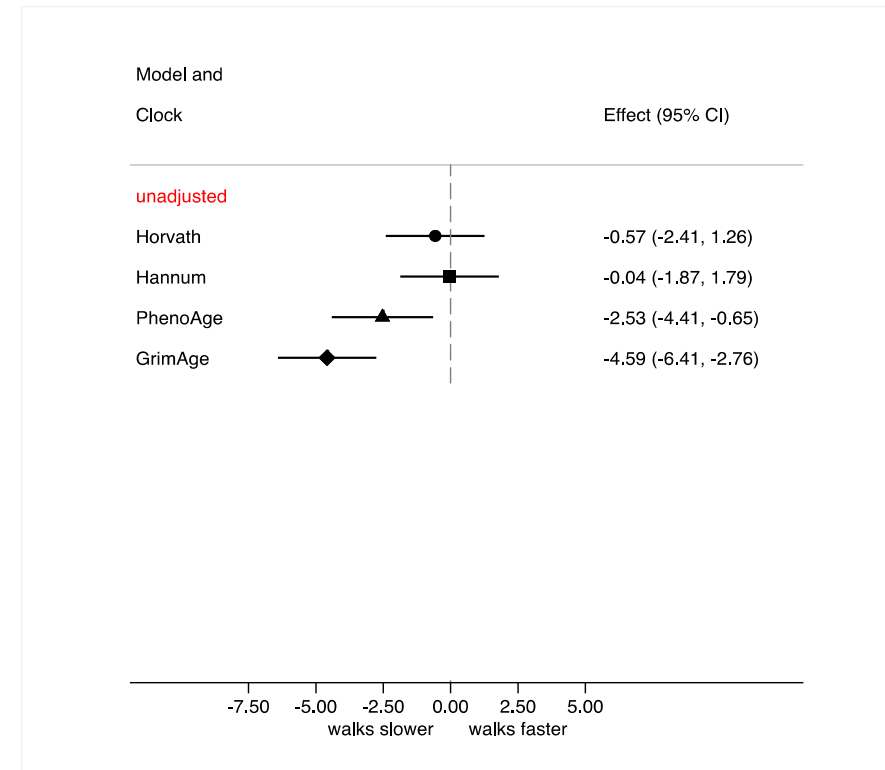
Fig 1a: Association of walking speed (cms) by age
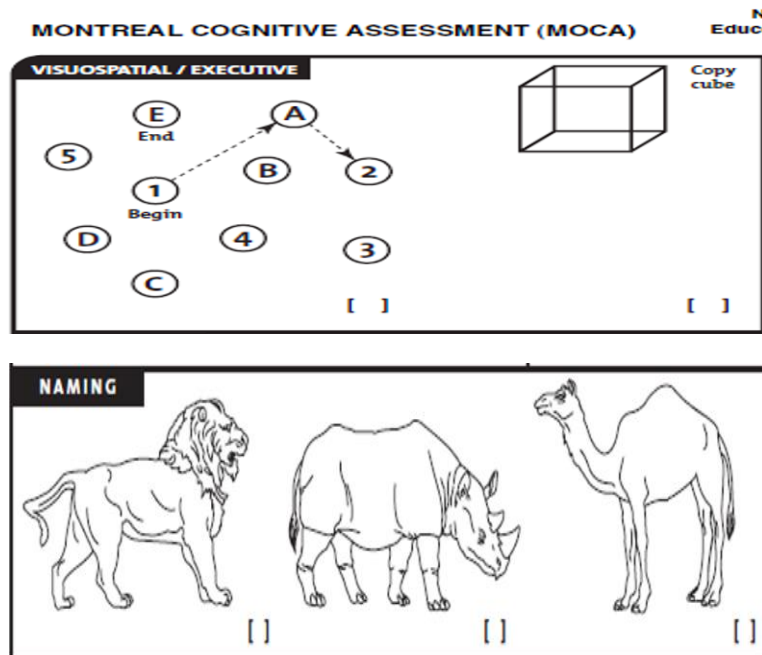
Fig 1b: Association of walking speed (cms) with epigenetic clocks

M1: Adjusted for age, sex, height
M2: M1 + life course SES, smoking, hazardous drinking, physical inactivity, BMI

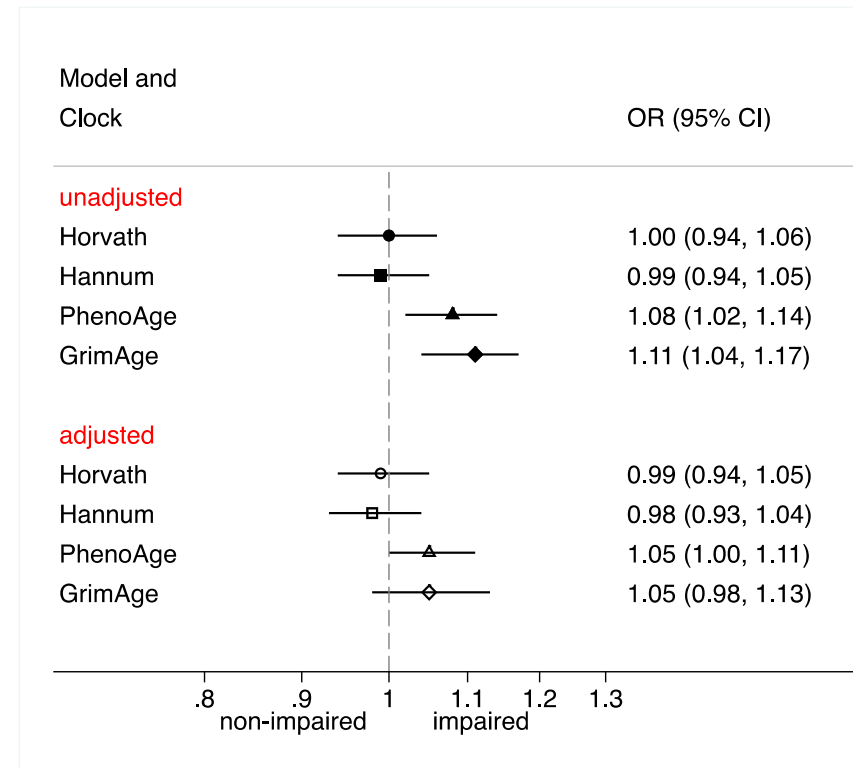McCrory et al BMJ 2020; PNAS 2024 (under review)

Cognitive Impairment

MOCA - measure of global cognitive function that is sensitive to mild cognitive impairment (MCI)

o   Number of errors = (30 – n correct)

Fig 4b: Association of the epigenetic clocks with mild cognitive impairment

Model and Clock		OR (95% CI)
unadjusted		
Horvath		1.00 (0.94, 1.06)
Hannum		0.99 (0.94, 1.05)
PhenoAge		1.08 (1.02, 1.14)
GrimAge		1.11 (1.04, 1.17)
adjusted		
Horvath		0.99 (0.94, 1.05)
Hannum		0.98 (0.93, 1.04)
PhenoAge		1.05 (1.00, 1.11)
GrimAge		1.05 (0.98, 1.13)

.8   .9   1   1.1   1.2   1.3
non-impaired   impaired

M1: Adjusted for age, sex
M2: M1 + life course SES, smoking, hazardous drinking, physical inactivity, BMI

Muscle mass
30yr
Accelerates after 60yr

Balance
30yr one minute
>50yr 45s

**What kind of exercise is best for
longer lifespan
cancer prevention,
lower heart disease and stroke,
lower chest problems ?**

Remarkably among the 479 856 eligible US adults in the study, between 1997 and 2014, only 16% fully met the guidelines.
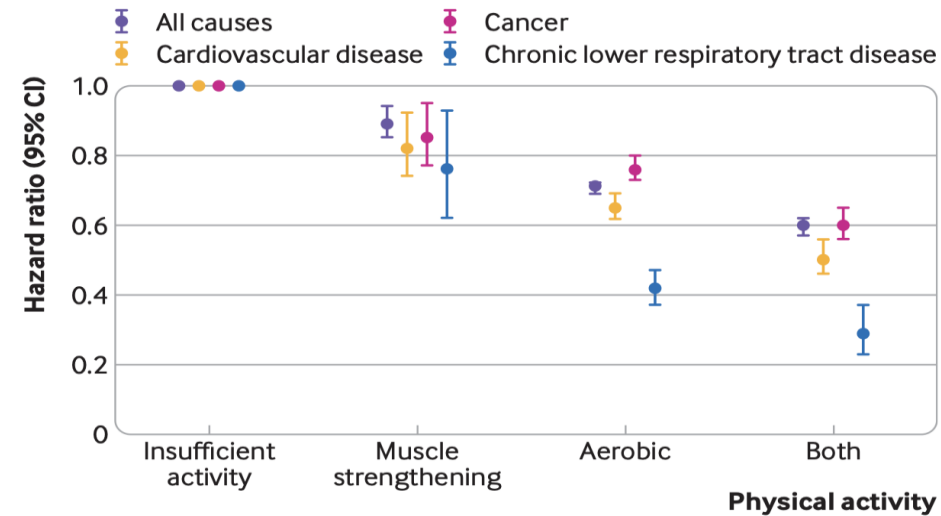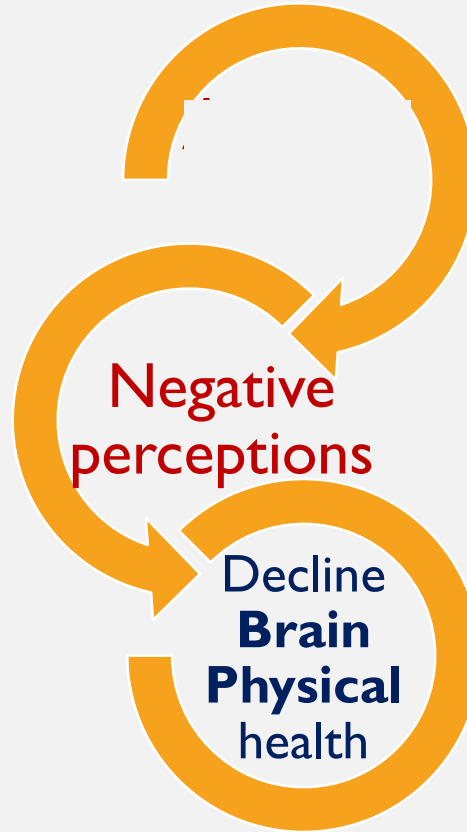
Resistance and Aerobic

Fig 1 | Association between meeting the 2018 physical activity guidelines for Americans and all cause and cause specific mortality from three diseases. Estimates are from the fully adjusted model that includes the covariates of sex, age, race/ethnicity, education, marital status, body mass index, smoking, alcohol intake, and chronic conditions. Whiskers represent 95% confidence intervals

≥150 minutes of light to moderate intensity activity each week, or ≥75 minutes of vigorous intensity activity, equivalent combination. Resistance or muscle strengthening exercises should be done ≥2 times/week

Perceptions

Negative perceptions

Decline **Brain Physical** health

Robertson D ..Kenny RA PLoS ONE 2015,
Psychology & Ageing 2015, Person Disord 2016

AS YOUNG AS YOU FEEL

Stress Hormones
Stress Nervous system

Mathematical Stress tests

Positive Stereotypes
Accomplished
Advise
Alert
Astute
Creative
Enlightened
Guidance
Improving
Insightful
Learned
Sage

Negative Stereotypes
Alzheimer's
Confused
Decline
Decrepit
Dementia
Dependent
Diseases
Dying
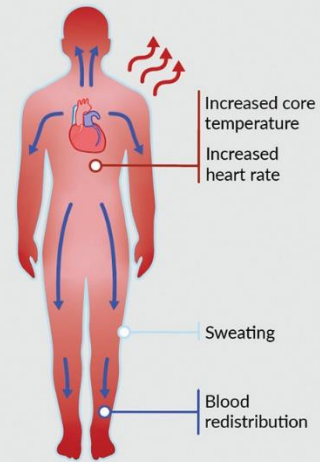Forgets
Incompetent
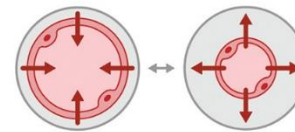Misplaces
Senile

COLD WATER IMMERSION

SAUNA
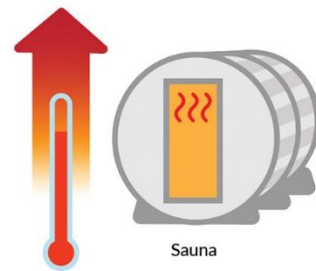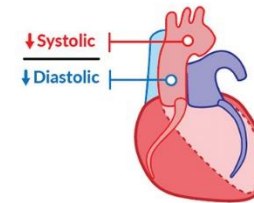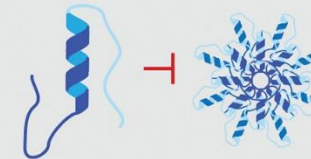
Dementia
Augments benefits Physical activity
Stroke
Hypertension
Pain
Clotting
COPD
CV Death
Sleep
Mood

Older age is often portrayed relentlessly negatively when actually
   the experience for many in older age is
   positive- life gets better after 50.

Most people enter older age, and many remain, in good health.

A great many more go through older age in health which is sufficient
   to have independence and a high
   quality of life.

Most people do not have Alzheimer's or other dementias,
   or major debilitating conditions,
   before they die.

The chances of delaying disease and disability and improving QOL
   are increased by these measures to prevent or delay disease
   and maintain physical, mental and
    social activity

Age Proof
The New Science of Living a Longer and Healthier Life

PROFESSOR ROSE ANNE KENNY

Age Proof

The New Science of Living a Longer and Healthier Life
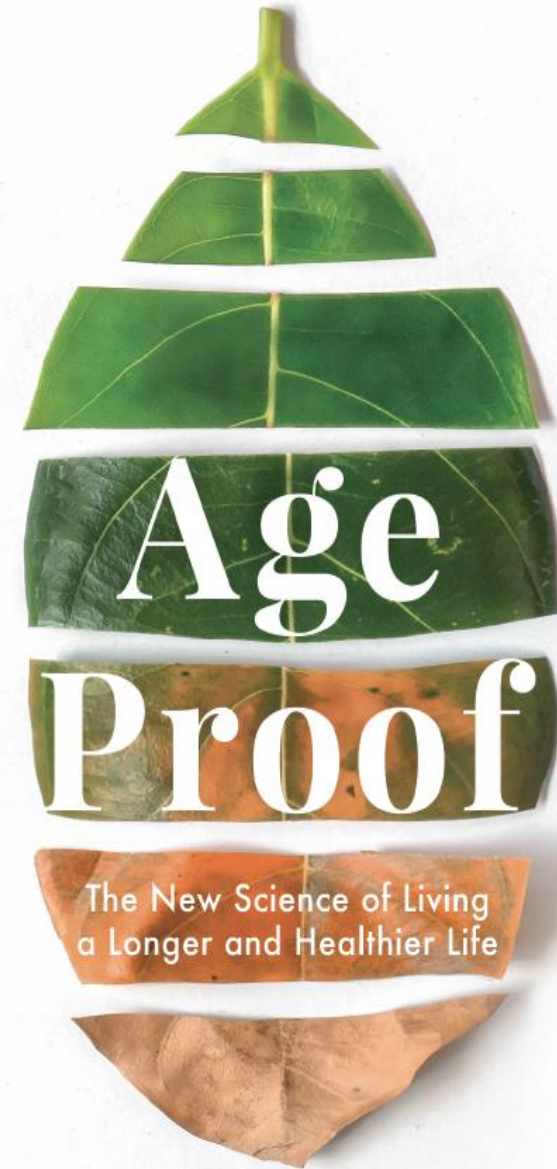
PROFESSOR ROSE ANNE KENNY

FS Club Events

Forthcoming Events

- Monday, 25 November 2024 (11:00 - 11:45 GMT)   T+1 From Intent to Action

- Tuesday, 26 November 2024 (09:00 - 09:45 GMT)   Launch Of Smart Centres Index 10

- Tuesday, 03 December 2024 (18:00 - 20:30 GMT)   Christmas Themed Walk & Drinks

Visit: **https://fsclub.zyen.com/events/forthcoming-events/**

Watch past webinars: **https://www.youtube.com/zyengroup**