HEALTHY BRAIN AGEING
AND
BRAIN FITNESS

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Today’s talk

• Ageing & Dementia: a few facts & figures

• Maintaining healthy brains & gaining mental fitness – the latest scientific evidence
  • Protective factors against cognitive impairment
    • Cognitive reserve

• Modifiable risk factors for cognitive impairment

• Four pillars of a healthy lifestyle and possible Alzheimer’s prevention
  • Mental activity
  • Physical exercise
  • Diet/nutrition
  • Sleep
INFOGRAPHIC

The global impact of dementia

Around the world, there will be one new case of dementia every 3 seconds

50 million people worldwide are living with dementia in 2018. This number will more than triple to 152 million by 2050

The total estimated worldwide cost of dementia in 2018 is US$1 trillion. This figure will rise to US$2 trillion by 2030
WHY?

Epidemic of ageing by 2050
65+ = approaching 15% → 25%
85+ = 0.4 m, 0.2% → 1.8 m, 5.1 %

Single biggest risk factor of dementia is age

BUT......

The incidence of new cases of dementia is falling??
Why is this topic so important?

The World Health Alliance was founded on 3 premises:

1. There is no health without brain health

2. Brain health and health begin with the mother and the child and their education

3. Our brains are our future!
Why brain fitness matters

Improve performance

Delay disease

Image from SharpBrains.com (16.10.19)
Solving the Brain Fitness Puzzle Is the Key to Self-Empowered Aging

What works to preserve cognitive abilities? Much like the human brain, the answer is complicated, individual, and nuanced.
Protective factors against cognitive impairment

• Resilience against dementia?
• Some people with Alzheimer’s changes in their brains do not have dementia.
The Nun Study

- 678 Sisters of Notre Dame across the USA
- Annual assessments of cognitive function
- Brains donated for neuropathological exam
The Nun Study

- Some brains showed all the physical signs of Alzheimer’s, yet the nuns had no symptoms in life & remained physically sharp into very old age.
- Sisters who read, wrote and kept intellectually stimulated during their early life had a better chance of staving off dementia later in life.
Protective factors against cognitive impairment

- Resilience against dementia?
- Enriched lifetime experiences can help protect the brain against memory loss
- Observation that high education protects an individual from developing dementia
Cognitive reserve

- an active & dynamic process that allows an individual to cope more successfully with disease-related brain changes.
- Cognitive reserve CR reflects lifetime of:

  - education
  - occupational roles
  - mentally stimulating experiences
Cognitive reserve – a secret to coping with neurodegeneration in the brain.

• Recent study (JAMA Neurology 2019) showed that the protective effects of CR can build throughout the lifespan

• Those with high CR accumulated through education, early-life cognitive activities, mid-life activities, late life activities & social activities in late life had a reduced risk of dementia in a dose-dependent manner

• Reduced dementia risk even in individuals with high degrees of Alzheimer pathology and cerebrovascular pathology (like mini-strokes)
Modifiable risk factors for dementia

Early life: less education

Mid-life: hearing loss
  high blood pressure
  obesity

Late life: smoking
  depression
  physical inactivity
  social isolation
  diabetes
Four pillars of a healthy lifestyle to maximise brain fitness

1. Mental activity
2. Exercise
3. Diet/nutrition
4. Sleep
Taking on new skills such as hobbies late in life is beneficial

New research: learning digital photography or how to use an iPad improved memory
Mental activity

New, challenging, enjoyable

"I always wanted to learn ...

... to speak French
... more about music
... ancient history
... what makes the universe tick

... and now I can"
Physical exercise
Diet/ good nutrition

Mediterranean diet

Olive oil
Legumes
Vegetables
Oily fish
(low dairy & meat)

MIND diet

Mediterranean-DASH diet Intervention for Neurodegenerative Delay (MIND) diet specifically designed to be neuroprotective.

Similar to MED diet but also emphasises vegetables including green leafy vegetables, nuts, berries, beans, whole-grains, fish, poultry, olive oil, and wine

Sleep
Thank you!