



Strategies for maintaining memory and brain health

Henry Brodaty



SO HOW'S
THE MEMORY
HOLDING UP?

WIFE



Strategies for memory

Acronyms

Chunking

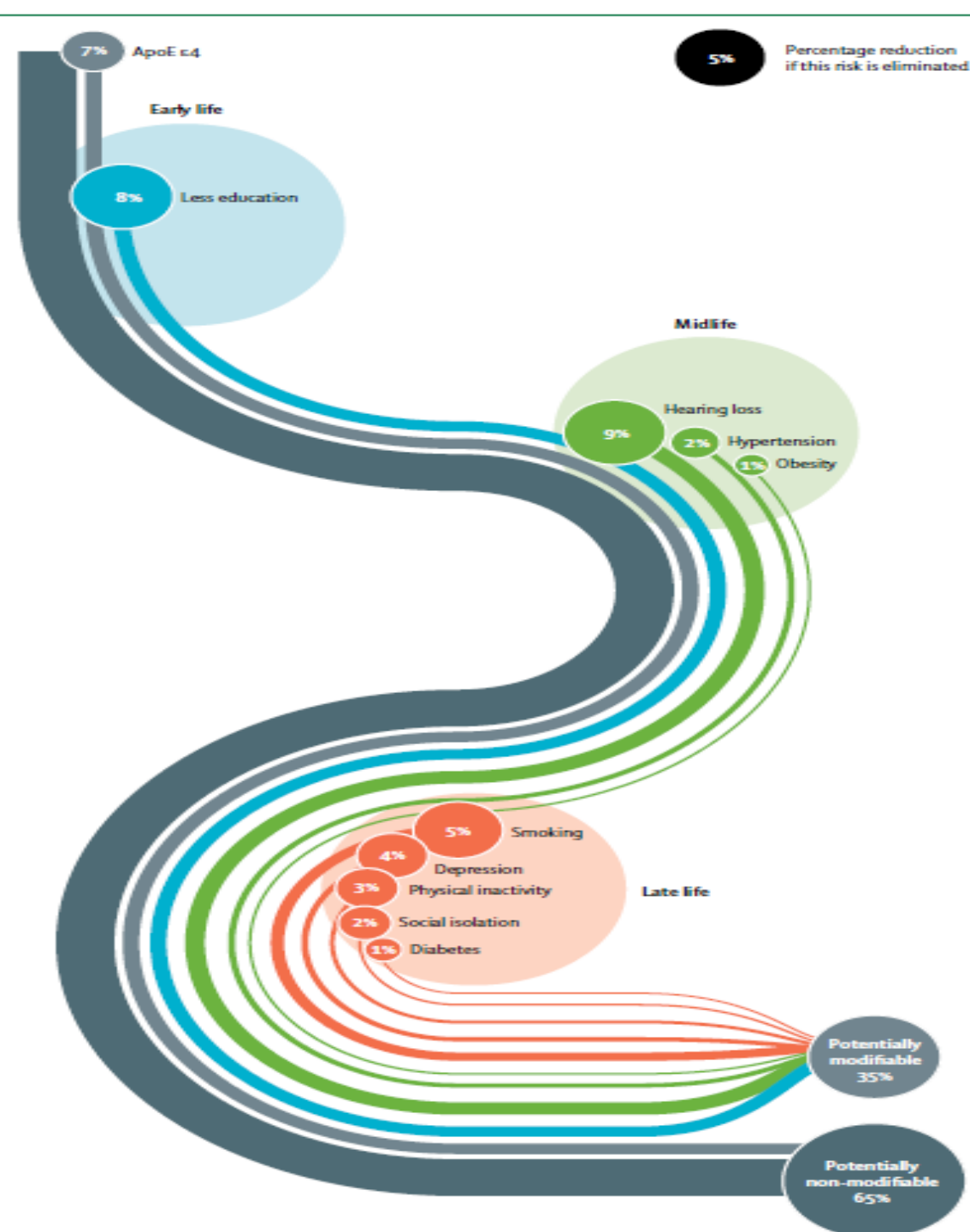
Chaining

Method of loci



Strategies for maintaining memory

- **Prevention of dementia – no or not yet**
- **Delay – more likely ...**
- **... Ideally till after we die**
- **What is good for our heart is good for our brain**
- **Lifestyle factors important**
- **35% of attributable risk can be accounted for by environmental factors that ...**
- **....we can all do something about**



Preventing dementia

Low education 8%

Hearing loss 9%

Hypertension 2%

Obesity 1%

Smoking 5%

Depression 4%

Physical inactivity 3%

Social isolation 2%

Diabetes 1%

**35% of
risk of
dementia**

Livingston G et al, Lancet 2017

Association is not cause!

- **Example: Diabetes associated with dementia**
- **But if we compare rates of dementia in a population of people with diabetes with a similar population without diabetes, percentage will be higher in diabetics**
- **Calculate an Odds Ratio → percentage increase risk**

BUT

- **Most people who develop dementia don't have diabetes**
- **Most people with diabetes don't develop dementia**

Blood Pressure & Dementia



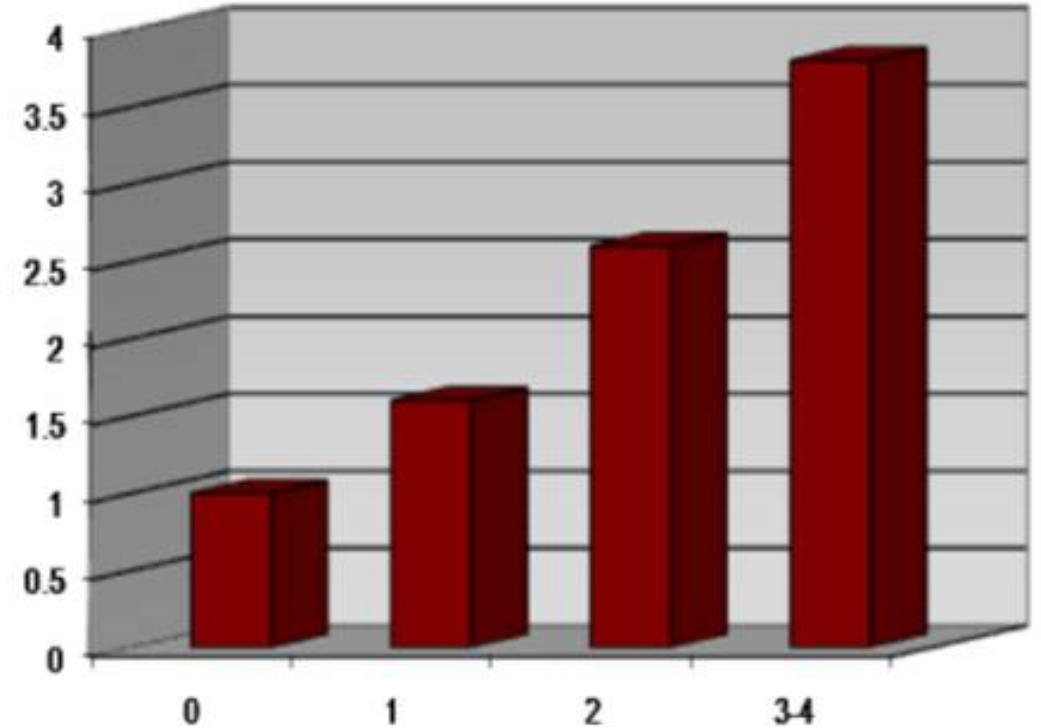
- Mid-life hypertension associated with late-life dementia
- Treating blood pressure decreases risk in some studies
- Each year of treatment decreases risk
- New data – systolic 120 better than 140, BUT
- Can harm if lower BP too much in older old

Dosage Effect

**The more vascular risk factors
the greater AD/ dementia risk**

- *High blood pressure*
- *Smoking*
- *High cholesterol*
- *Obesity*
- *Diabetes*
- *Physical inactivity*

Luchsinger et al 2005



Number of risk factors

Slide adapted from Michael Valenzuela

Physical activity benefits

- Improved fitness
- Improved physical health - ↓ heart disease, Hi BP, diabetes, some types of cancer, osteoporosis, sarcopenia
- Reduced morbidity & mortality
- Improved mental health
- Improved confidence, quality of life

Physical activity = Protective

- Physical activity protective against cognitive decline, dementia, Alzheimer's, vascular dementia
- At least three times per week
- At least 150 minutes per week
- More is better – puffed, weights
- Start slowly, build up gradually
- Check with your doctor

Never too late, never too early



Mixed aerobic + anaerobic better



Brain Training

- Crosswords, Sudoku - ?not enough
- Computerised cognitive training
 - Benefits ✓.... *But ..*
 - For which older people?
 - Healthy ✓
 - Mild Cognitive Impair ✓
 - Dementia X
 - Do benefits generalise?
 - Are benefits sustained?

Obesity in Mid-Life



Mid-Life Obesity

- Compared to normal weight, midlife obesity increases risk of dementia later in life
 - BMI 25-30: 34% increased risk
 - BMI > 30: 91% increased risk
- Obesity paradox: In late life being overweight is not a risk factor, may be protective



Mind your diet

➤ Mediterranean diet

What is Mediterranean-style diet?

- Abundant plant foods
- Fresh fruit as typical daily dessert
- Olive oil as principal source of fat
- Dairy products (cheese, yogurt)
- Fish and poultry - low to moderate
- 0 - 4 eggs week
- Red meat - low amounts
- Wine - low to moderate amounts
- Total fat = 25% to 35% of calories
- Saturated fat \leq 8% of calories



Smoking, Alcohol and Natural therapies

- **Current smoking increases risk**
- **Heavy alcohol bad for the brain**
- **Mild-moderate alcohol may be beneficial but ...**
 - **evidence weak**
 - **alcohol linked to cancer**
- **No evidence for natural therapies**

Hearing loss



- Risk 55% - 167% higher in people with peripheral hearing loss
- Accounts for 9% of population attributable risk for dementia
- Could mechanism be through less social participation??

Do hearing aids help?

- 25-year prospective study – ↑dementia incidence if self-reported hearing problems except if use hearing aids¹
- Cross-sectional ELSA: hearing loss assoc^d with worse cognition if not using hearing aids; mediated by social isolation²
- For people aged >50, tested 2-yearly over 18 years, immediate & delayed recall deteriorated less after initiation of hearing aid use³
- WHO report (2019) – insufficient evidence

¹Amieva H *J Gerontol A Biol Sci Med Sci* 2018;73:1383–1389

²Ray J et al *JAMA Otolaryngol Head Neck Surg* 2018;144:876-882

³Maharani A, *JAGS* 2018; 66(6): 1130-6

Social isolation



Socialisation and dementia

- **Less frequent social contact, less social participation, and more feelings of loneliness associated with ...**
 - 57% increased risk of dementia**
- **Good social engagement 22%↓ risk**
- **WHO: Insufficient evidence but ... social participation and support strongly connected to good health & wellbeing throughout life**



Penninkilampi R, Casey A-N, Fiatarone-Singh M, Brodaty H. 2018
WHO Report on Risk reduction 2019

Sleep and dementia

- About 1-in-2 older adults have regular insomnia
- About 1-in-2 older adults have sleep-disordered breathing
- Slow wave sleep associated with ↓ amyloid- β protein clearance from brain in animal and human studies
- Sleep-disordered breathing associated with poor sleep
- Poor sleep associated with worse cognition
- Can correcting insomnia and sleep-disordered breathing prevent or delay dementia?
- Does incipient dementia cause sleep disorders?

Air Pollution



- Perhaps small contribution
- Insufficient evidence

**“Air Pollution Robs Us of Our Smarts
and Our Lungs”**

GIBBENS S, *National Geographic*, 2018

9/10 people breathe in polluted air

But.... How reliable are these findings?

- **Most studies are observational or single interventions**
- **Reverse causality?**
 - **Alzheimer's disease builds up in brain over 20+ years before it becomes clinically evident**
 - **Could incipient dementia lead to less cognitive activity, exercise, socialisation, etc**
- **Can intervention studies prove that adopting these recommendations decrease cognitive decline? Eg FINGER Study → cognitive benefits**



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MAINTAIN YOUR BRAIN

led by the Centre for Healthy Brain Ageing (CHeBA), is the largest clinical trial in the world targeting risk factors for Alzheimer's disease and dementia for people aged 55-77 using online tools.

I AM A MYB PARTICIPANT

ABOUT MAINTAIN YOUR BRAIN

RCT: Four basic modules



Physical activity



Diet & nutrition



Brain training



Depression/ Anxiety

www.maintainyourbrain.org.au

- **Almost 100,000 participants 55-77yo from 45 and Up study contacted → about 12,000 responded**
- **6236 participants randomised to coaching or information**
- **Eligible for up to four modules depending on risk factors**
- **First year finished October 2019**
- **Boosters monthly for years 2 & 3**
- **If successful → less cognitive decline by Year 3**
- **If more funding ... less dementia by Year 8**
... interaction with genetic markers

Doctors hail first drug to 'slow down' Alzheimer's



The Times, London
23rd October, 2019

Await details
Availability... ??
Likely expensive

Aducanumab (Biogen)

- 2015 Phase 1 trial - hopeful
- Two Phase 3 trials
- March 2019, Futility Analysis
 - Trials ceased, until....
- More data from other cases
- Re-analysis released now...
- Positive results in one trial
- Oct 2019 FDA (US) agrees to accept submission for approval

Strategies for people with dementia



- People living with dementia (PLWD) can live positively for many years
- Important to compensate for disabilities and build on assets
- Re-ablement model (like rehab after stroke)
- All lifestyle activities – keep active physically, cognitively and socially, eat well
- Tailor activities to person
- Peer support (Buddy, DAI, social club, PALZ)





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THANK YOU

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