Healthy Cognitive Aging...
Early Detection and Memory Screening

The Progression and Treatment of Dementia

- Cognitive changes of normal aging – What is “normal”, what is not?
- Dementia, Alzheimer’s – what’s the difference?
- Mild Cognitive Impairment and “Pre-Alzheimer’s disease”
- OK, so what can I do?

Cognitive Aging: Progress in Understanding and Opportunities for Action


www.iom.edu/cognitiveaging
Characteristics of Cognitive Aging

Key Features

- Aging happens to everyone
- Highly dynamic process with variability between individuals
- Some cognitive abilities may decline, and some may improve with aging
- There is potential for older adults to strengthen some cognitive abilities
- Aging changes in cognition do not inevitably lead to neurodegenerative dementia (such as in Alzheimer disease)

Risk and Protective Factors

- Health and environmental factors over the life span influence cognitive aging
- Non-modifiable risk factors include genetics, but we also cannot change early life development, culture, early education, etc. retroactively.
- Modifiable risk factors include: medical comorbidities, physical activity, and many other health related behaviors


How do I know if I have a problem?

Normal Aging...
- Slower to think
- Slower to do
- Hesitates more
- More likely to 'look before you leap'
- Know the person but not the name
- Pause to find words
- Reminded of the past

NOT Normal Aging...
- Can’t think the same
- Can’t do like before
- Can’t get started
- Can’t seem to move on
- Doesn’t think it out at all
- Can’t place the person
- Words won’t come – even later
- Confused about past /present

HARDER

VERY DIFFERENT

Know the 10 Warning Signs of Alzheimer’s Disease

For more information, contact your local Alzheimer Society or visit www.alzheimer.ca
What is Alzheimer's Disease?

β amyloid is a key player in AD

Normal Aging
- Everyone experiences slight cognitive changes during aging

Preclinical
- Silent phase; brain changes without measurable symptoms
- Individual may notice changes, but not detectable on test
- "A stage where the patient knows, but the doctor doesn't"

MCI
- Cognitive changes are of concern to individual and/or family
- One or more cognitive domains impaired significantly
- Preserved activities of daily living

Mild
- Moderate
- Dementia
- Severe
- Cognitive impairment severe enough to interfere with everyday activities
Possible benefits of cognitive screening include:

- Identification of treatable conditions
- Encouragement to partake in healthier lifestyle choices
- Medications can provide modest benefits, though not for everyone, can be very helpful for some
- Planning ahead for care needs if a decline is identified – the right care and support improves quality of life and avoids crises.
- Research opportunities
Will exercise help?

Exercise reduces risk of dementia in a dose-dependent fashion!

BDNF released by exercise is like “Miracle-Grow” for your brain!

Lazarov et al, Trends Neurosci. 2010
Dec;33(12):569-79

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Vitamin E — there and back again, … and there again

» 2001 – AAN Dementia guideline supports Vit E as optional
» 2005 - Meta-analysis: “High-dosage vitamin E may increase all-cause mortality” – (made headlines at the time, but controversial, not supported by individual studies)
» 2005 - High dose Vitamin E (2000 IU/d) failed to slow the progression of AD after 12 months (Petersen et al in NEJM)
» 2014 - 2000 IU/d of Vitamin E resulted in slower functional decline after 3 years (Dyksen, JAMA)

Vitamin E – the grin again, … and

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Cochrane review 2012
> "Direct evidence on the effect of omega-3 PUFA on incident dementia is lacking"

Neurology 2012 - Red blood cell omega-3 fatty acid levels and markers of accelerated brain aging
> “Participants with RBC DHA levels in the lowest quartile (Q1) when compared to others (Q2–4) had lower total brain and greater white matter hyperintensity volumes” – also had lower scores of visual memory, abstraction and executive function.

PLoSOne 2015 – Meta-analysis
> “Episodic memory outcomes of adults with Mild Memory Complaints were significantly (P<.004) improved with DHA/EPA supplementation. Regardless of cognitive status at baseline, > 1 g/day DHA/EPA improved episodic memory (P<.04)"
• **Alpha**
  - A yeast selenium supplement to improve brain health
  - Changes in markers of brain health measured with a spinal tap (1yr)
  - Age >65, no dementia

• **INCREASE**
  - Reducing medications that may worsen memory
  - PET scan, memory tests (1 yr)
  - Age >65, no dementia, taking medications that may affect thinking.

• **EARLY**
  - Drug to reduce risk of Alzheimer’s
  - PET scan, spinal tap, memory tests (5 yrs)
  - Over 65, or over 60-64 with family history of AD

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**Current Studies – Fall 2017**

**Reason for the study, What we are looking at and Who are we looking at**

• **EXERT**
  - Exercise to improve brain health
  - Memory tests, spinal tap (2 yrs)
  - Age >65, normal memory

• **ABBV**
  - IV medication to improve symptoms and slow down AD
  - Memory tests, PET scan, spinal tap (2 yrs)
  - Age >55, with MCI or mild dementia

• **SUVN**
  - Drug to improve symptoms and slow down AD
  - Memory tests (8 mos)
  - Over 50, with moderate AD
The future holds promise for therapies aimed at biological mechanisms in cognitive ageing, but these do not so far come close to matching the benefits of a healthy lifestyle.