Lowering the Risk for Alzheimer’s Disease (AD)
Top Risk Factors

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The hippocampus & cortex are areas of brain affected by AD. “Hippocampus” means “seahorse.” It is important for spatial memory*

Neurons lose synaptic connections, then dendrite branches & eventually die in AD.

Other cell types are involved:

- astrocytes
- oligodendrocytes
- microglia
- endothelia
AD brain tissue has microscopic Aβ plaques & neurofibrillary tangles of p-tau

The brain shrinks in advanced AD
We identified a compound that increases in pro-cognitive sAPPα.

DDL110* is now moving to clinical trials for Mild Cognitive Impairment (MCI) & AD

*Spilman Brain Res. 2014
Early diagnosis & treatment are key.

More than one intervention will likely be necessary.

Drugs are more likely to work if health is improved.
Output: Body & Mind

Exercise improves cognitive function
Use body & mind together by dancing, playing tennis or golf, or by yoga practice
Strength building equally important – it increases Brain-Derived Neurotrophic Factor (BDNF)

Output

The importance of social interaction, intellectual challenges, exercise, and general health to the preservation of cognition are discussed.

Intake

Scientific/biochemical bases for how what/when we eat & how medications we take affect cognition are presented.

Intake: Nutrition & AD

What are anti-oxidants?
A rainbow of possibilities
AGEs & the Mediterranean diet
Hydration!
Turmeric – Rx for AD?
Keep glycemic index low
Intermittent fasting?
Coconut oil is back
Resveratrol & thou
The Top Nine Risk Factors for AD

1. Obesity
2. Smoking
3. Carotid artery narrowing
4. Type 2 diabetes
5. Low educational attainment
6. High homocysteine
7. Depression
8. High blood pressure
9. Frailty

Journal of Neurology Neurosurgery & Psychiatry. 2015
What is Risk?

The single greatest risk factor for Alzheimer’s disease (AD) is Age.

~50% of people over 85 will develop AD

Some risk is genetic, but can be reduced.
Q: Obesity
A: Exercise
Exercise improves cognitive function! Strength building is equally important – it increases Brain-Derived Neurotrophic Factor (BDNF)*

Walk or hike!
Walking/hiking combined with a spatial memory (navigational)* challenge is excellent for spatial memory.

CAD may be silent early on, but result in TIA or stroke.
Signs/symptoms:
- **Sudden numbness or weakness**
- **Sudden trouble speaking** and understanding
- **Sudden trouble seeing** in one or both eyes
- **Sudden dizziness** or loss of balance
- **Sudden, severe headache** with no known cause
Q: Type-2 (adult onset) diabetes
A: Exercise & lower “glycemic index”

Type 2 diabetes is associated with obesity
Q: Low Educational Attainment
A: Keep learning
- A musical instrument
- A skill
- Attend classes
- A second career
Q: High homocysteine
A: This naturally-occurring amino acid can be lowered by higher folate (B9) intake
Q: Depression
A: Medication, support, sleep. Poor sleep itself is a risk factor for AD
Q: Frailty
A:
- Exercise
- Nutrition
- Bone Density
- Activity

Support the Health of Others

*Christakis N Engl J Med. 2007
Accurate Diagnosis is Critical

Diagnostics include:

Computer-assisted tomography (CAT) for structural abnormalities
Positron emission tomography (PET) for glucose use & amyloid imaging
Function magnetic resonance (fMRI) for blood flow
Tests of cognitive function

Other causes of memory loss:
Depression, infection, multiple sclerosis, low B12, hypothyroidism, medication interactions, tumor

Not all dementia is AD:
Vascular dementia, Parkinson’s/Lewy Body disease, frontotemporal dementia

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