

Preventing Alzheimer's Disease?

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Can Alzheimer's Disease Be

Prevented? National Institutes of Health (2006)

- AD is a complex disease with many risk and protective factors.
- Age and genetics are two risk factors that we cannot control.
- AD risk doubles every five years over age 65, with half the 85-year-olds with AD.
- Early onset AD has clear genetic links, while late-onset AD has several genetic risk factors.
- AD prevention strategies are still in elementary stages of scientific research.

AD & Other Disease Risk Factors

- High levels of blood cholesterol is related to both heart disease and AD.
- Cholesterol-lowering drugs may postpone AD, but results are equivocal.
- Diabetes is associated with AD and other dementias.
- The Religious Orders Study; 1,100 S's since 1993.
 - ▣ Some types of cognitive decline occur with diabetes, but not others.

AD Risk Factors, Drugs & Supplements

- Homocysteine is associated with increased risk of AD.
 - ▣ Can be reduced by folic acid and vitamin B6 and vitamin B12.
- Drugs to decrease inflammation of the brain include ibuprofen and naproxen have been studied, with equivocal results.
- Antioxidants involved in dietary supplements or food have been studied with equivocal results.
- Vitamin E, and C and selenium are being studied in long-term trials.
- Gingko biloba has not been scientifically supported, although studies continue.

- Vitamin E was compared with Aricept in terms of its effect on the progression of AD.
 - ▣ Vitamin E was not found to be effective, while Aricept had modest effect in postponing cognitive decline.

AD Risk & Lifestyle

- Chicago Health and Aging Project
 - ▣ Cognitive decline appears to be postponed with higher levels of social engagement.
- Religious Orders Study
 - ▣ Participation in cognitive activities was related to lower levels of AD
- Formal education appears to preserve cognitive capacity in the face of increasing levels of disease.

AD Lifestyle Interventions

- Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE)
 - Effective improved cognitive function for elderly people and people with mild AD, up to two years later.
- Physical activity appears to be a significant preventive factor, confirmed by both MRI studies of brain activity and tests of cognitive function.

AD NIH Recommendations (2006)

- Lower cholesterol and homocysteine levels.
- Lower blood pressure.
- Control diabetes.
- Exercise regularly.
- Engage in social and intellectually stimulating activities.

- Volunteer
 - National Cell Repository for AD 800-526-2839
 - AD Education and Referral Center 800-438-4380

AD NIH Recommendations (2010)

- Independent Panel Finds Insufficient Evidence to Support Preventive Measures for Alzheimer's Disease
 - ▣ NIH News April 28, 2010
- Factors are correlated with AD but correlation is not causation.
- "There is currently no evidence of even moderate scientific quality supporting the association of any modifiable factor... with reduced risk of AD... risk reduction for cognitive decline is similarly limited."
- "Many preventive measures for... AD.. have been studied over the years... the value of these strategies... hasn't been demonstrated..."
- A major problem is "inconsistent definitions of what constitutes AD... and limited understanding of the aging process in general."
- Recommendations made to develop objective measures of cognitive function to measure change over time

AD NIH Recommendations (2011)

- New Genetic Risk Factors for Alzheimer's Disease
 - ▣ NIH News April 11, 2011
- "In two massive studies involving thousands of DNA samples, scientists from around the world identified a number of new genes and confirmed several others that may be risk factors for late-onset Alzheimer's disease."
- Late onset Alzheimer's disease is the most typical form, appearing after age 60. In addition to the apolipoprotein E. gene variant, five new genes have been identified that are consistently associated with AD.

Separate Disease from Dysfunction

- Pathology is ***not*** functional performance.
- Dementia is not a disease; it is the functional expression of a disease process.
- This is a crucial difference that we must emphasize in our educational and rehabilitation efforts.
- Postponing functional decline is our focus.
 - ▣ Functional Aging is a useful metaphor that has been researched for several decades.

Functional Aging (JE Birren, 1966)

- All systems are affected by the aging process, but dysfunction can be greatly minimized, as exemplified by Master athletes.
- The base rate of the heart begins to slow soon after birth, but attendant physical drop-off is postponed at least two decades.
- “Aging is an infinitely eliminable variable.”

Functional Aging

- Fluid intelligence and crystallized intelligence complement each other naturally in childhood and adolescence, up through middle adulthood.
- In older adulthood crystallized intelligence needs to be developed with intention, in order to effectively offset decreased fluid intelligence.
- Recent research demonstrates that fluid intelligence can also be developed after middle adulthood.

Functional Aging

- Visual and auditory training must be supplemented by challenging educational tasks such as learning a new foreign-language or musical instrument, or reading in a new area that one finds difficult.
- Although a brain injury or stroke significantly increases the probability of early-onset dementia, its attenuation by neurobehavioral rehabilitation must be studied.
- Just-Right Challenges are found everywhere!

Thank you!



Discussion and follow-up questions.