



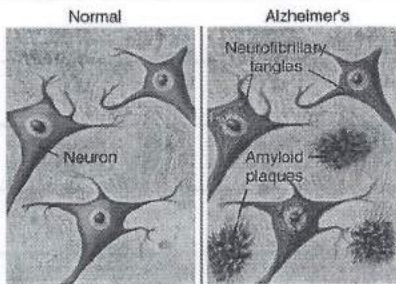
Taking the Bull by the Horns: Utah and the Upcoming Tsunami of Alzheimer's Disease



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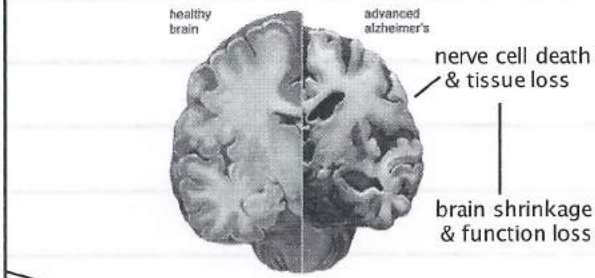
What is "Successful Aging"?

- ▶ Physical and mental health
- ▶ Social engagement
- ▶ Spiritual well-being
- ▶ Enjoyment of life
- ▶ Contributing to society
- ▶ Continuing to learn and develop,
- ▶ Ability to pursue dreams, to help others



causes or manifestations?

AD results in neuronal degeneration



Alzheimer's disease: A public health crisis

| | 2013 | 2050 |
|---|------------------|------------------|
| Percent aged 65+ in the U.S. | 13% | 22% |
| Prevalence of AD in the U.S. | 5 million | 15 million |
| Someone in the U.S. develops AD | Every 68 seconds | Every 33 seconds |
| Costs for care of persons w/ AD & other dementias | \$215 billion | \$1.2 trillion |

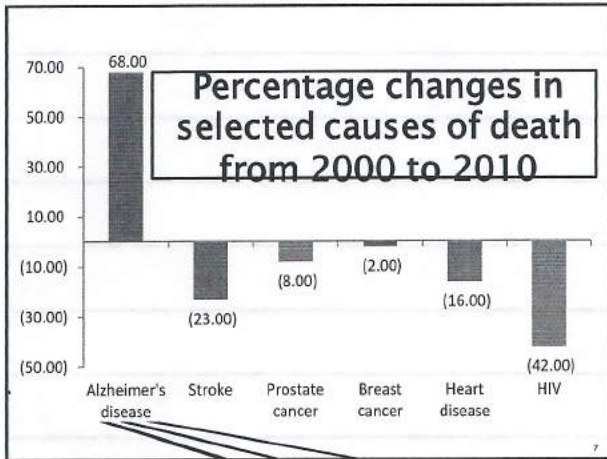
Alzheimer's Disease

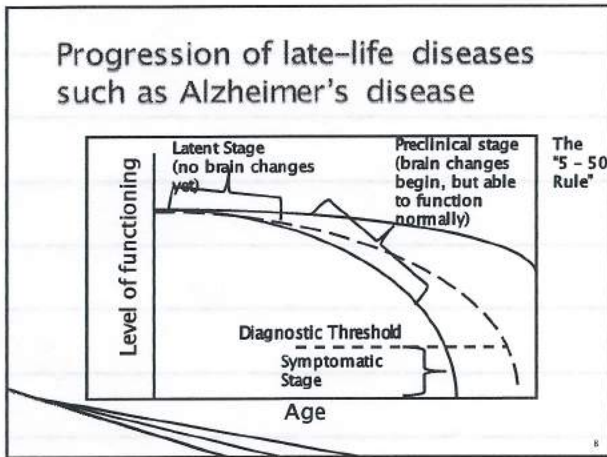
0.0% - 0.05%
 0.05% - 0.1%
 0.1% - 0.2%
 0.2% - 0.3%
 0.3% - 0.4%

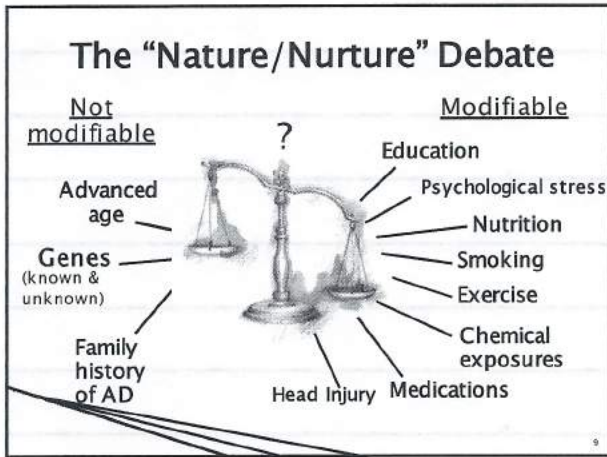
- ▶ Most rapid growth in Intermtn, Pacific NW
- ▶ Utah highest



Alzheimer's & Dementia 2009, S234-270.







Fortunately.....

33% of Phenotypic Variance in Alzheimer's disease risk explained by all common single nucleotide polymorphisms (SNPs)



■ Genes
■ Environment

1/3 of Total AD risk from known genetic factors

Ridge PG, Mukherjee S, Crane PK, Kauwe JSK. (2013) Alzheimer's Disease: Analyzing the Missing Heritability. *PLoS ONE* 8(1): e79771. doi: 10.1371/journal.pone.0079771

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Alzheimer's disease risk scores

- ▶ Walters S, et al. **Predicting dementia risk in primary care: development and validation of the Dementia Risk Score using routinely collected data.** *BMC Medicine*, 2016, 14:6. DOI: 10.1186/s12916-016-0549-y
- ▶ Anstey KJ et al. **Development of a new method for assessing global risk of Alzheimer's disease for use in population health approaches to prevention.** *Prevention Science*, 2013, 14:411–421 DOI 10.1007/s11121-012-0313-2
- ▶ NOTE: Additional studies needed to demonstrate ability of such risk scores to predict later AD

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AD Risk Scores: Advantages

- ▶ Evidence-based approach to risk assessment
- ▶ Holistic, life course perspective
- ▶ Counsel patients re: lifestyle factors
- ▶ Screening tool for identifying most at-risk for intervention programs
- ▶ Outcome measure for clinical trials

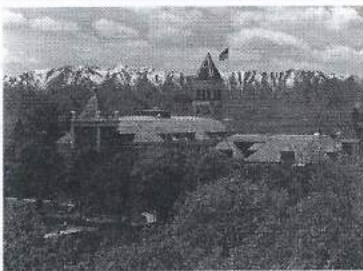
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CDC survey: 13% of those 60+ years, memory problems getting worse, but of these, only 19% mention this to their Dr.

Among all persons with AD living in the community, approx. 2/3 are undiagnosed

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The Cache County Study on Memory in Aging (NIH AG11380)



Utah State University
Duke University
The Johns Hopkins University
University of Utah
1994-2011

John Breitner (JHU); Bonita Wyse (USU) 1994-2000
Kathie Welsh Bohmer (Duke); Maria Norton (USU) 2001-2011

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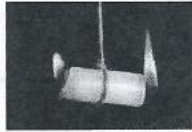
Cache County Dementia Progression Study (NIH AG21136; PI: J. Tschanz), a tertiary prevention study



- ▶ Interrelatedness of cognitive, functional and behavioral changes
- ▶ Factors in the "caregiving environment" linked to rate of progression and survival rate

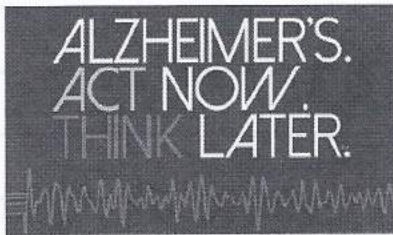
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Lifespan Stressors and Alzheimer's Disease (LSAD) study findings (NIH AG31272; PI: Norton)



- ▶ Leverages the Cache Co. Memory Study (USU) and the Utah Population Database (Univ of Utah)
- ▶ Examined stressors linked to AD risk
 - Offspring death
 - Early parental death
 - Widowhood
 - Spouse with dementia
 - Functional disability

Gray Matters: Lifestyles to Lower Alzheimer's Disease Risk Health Education Intervention (PI: M.Norton)

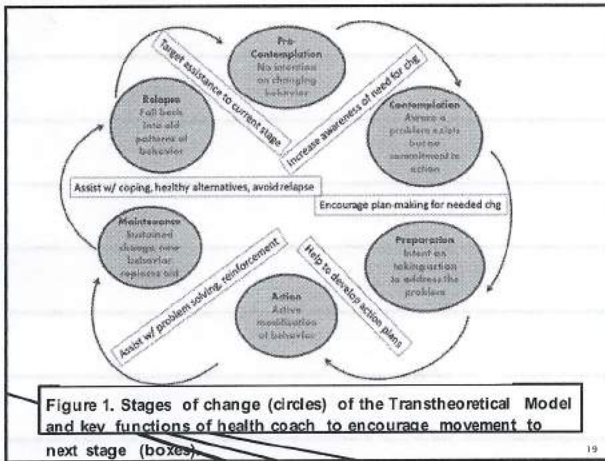


Seed grant funded by USU VPR

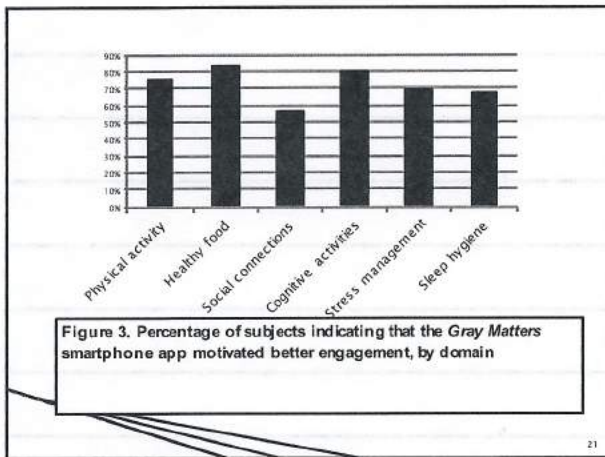
Gray Matters study is being launched in Rome, Italy in 2016. NIH grant proposal (in review) to expand geographically, socioeconomically. Utah plans on the horizon: evaluate Gray Matters in the Hispanic community.

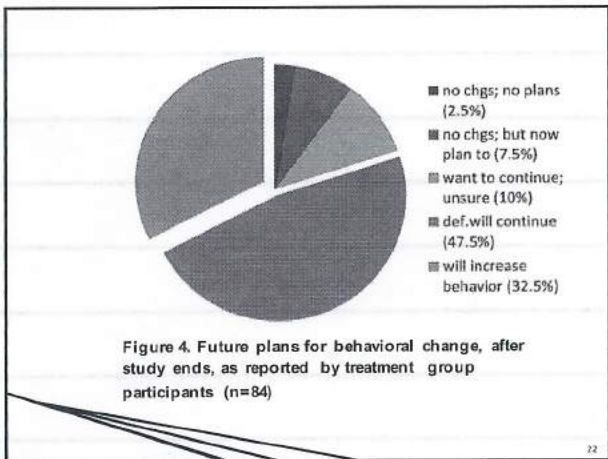
Targeted behavioral domains linked to Alzheimer's disease risk

- ▶ Physical activity
- ▶ Healthy food choices
- ▶ Social engagement
- ▶ Stress management
- ▶ Cognitive/mental activities
- ▶ Sleep quality
- ▶ Smoking cessation



- ### Gray Matters participant feedback
- ▶ New hope that genetics not entirely in charge
 - ▶ Empowerment to influence cognitive trajectory
 - ▶ Appreciated receiving evidence-based knowledge
 - ▶ Smartphone app and wearable-constant reminder
 - ▶ Feedback on progress encouraged more effort






GRAY MATTERS
The Alzheimer's Prevention App

- Protect your brain
- Boost your defences
- Track your lifestyle

Download the app and visit our demo
graymattersapp.org


- ### Brainstorming program ideas
- ▶ Incentives at individual level to adopt healthy lifestyles (e.g. Utah tax rebate)
 - ▶ Awards to Utah communities (e.g. city with the greatest decrease in average BMI or BP)
 - ▶ Put supportive resources in the hands of Utah's citizens (e.g. *GrayMatters* app)
 - ▶ If we act soon, we might be able to turn the tide the other direction and Utah could be the leader in reducing the # of new AD cases

2015 Alzheimer's Disease Facts and Figures
Includes a Special Report on Dementia
a Big Step in Alzheimer's Disease



alzheimer's association
the global Alzheimer's organization

The Healthy Brain Initiative
The Public Health Road Map for Early
and Midstage Dementia 2015-2025



alzheimer's association
CDC

<http://www.alz.org>
