

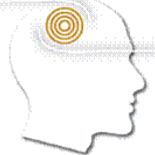
Alzheimer's Disease State Plan Meeting

Texas Department of State Health Services

Brain Health Fitness

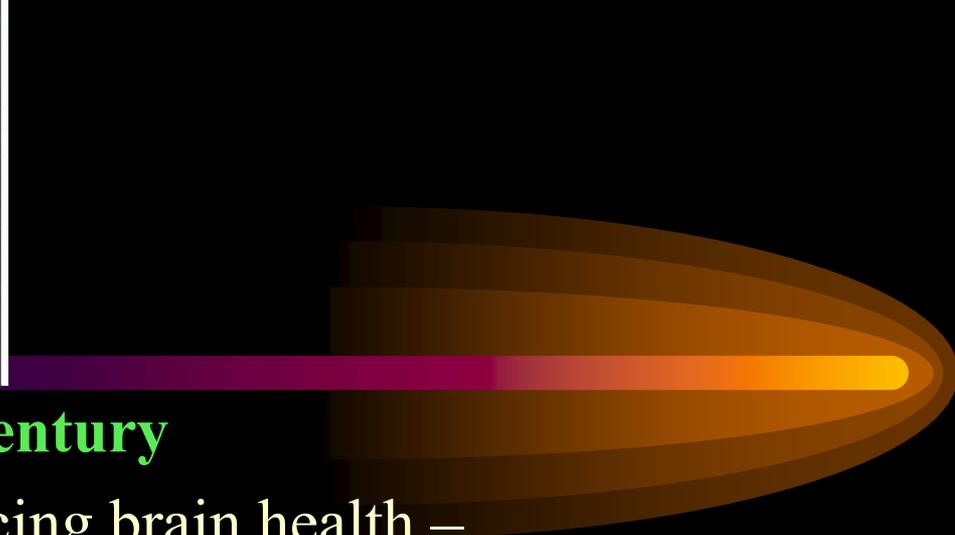
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Centerforbrainhealth.org



center for
BrainHealth[®]
The University of Texas at Dallas

April 23, 2010



1. **Brain Health is cause of century**

Texas is dedicated to advancing brain health –
preventing or staving off Alzheimer's and other dementias

Defining Brain Health Fitness

2. **Our body is outlasting our mind.**

Cognitive decline is a key factor that threatens functionality and quality of life and has become a major cost burden.

3. **Brain discoveries: Lengthening Brain Health span.**

Emerging discovery predicts ways to achieve BrainHealth into late life ↔ Helps stave off dementia

Cognitive Brain Science: Pivotal Cause of Millennium

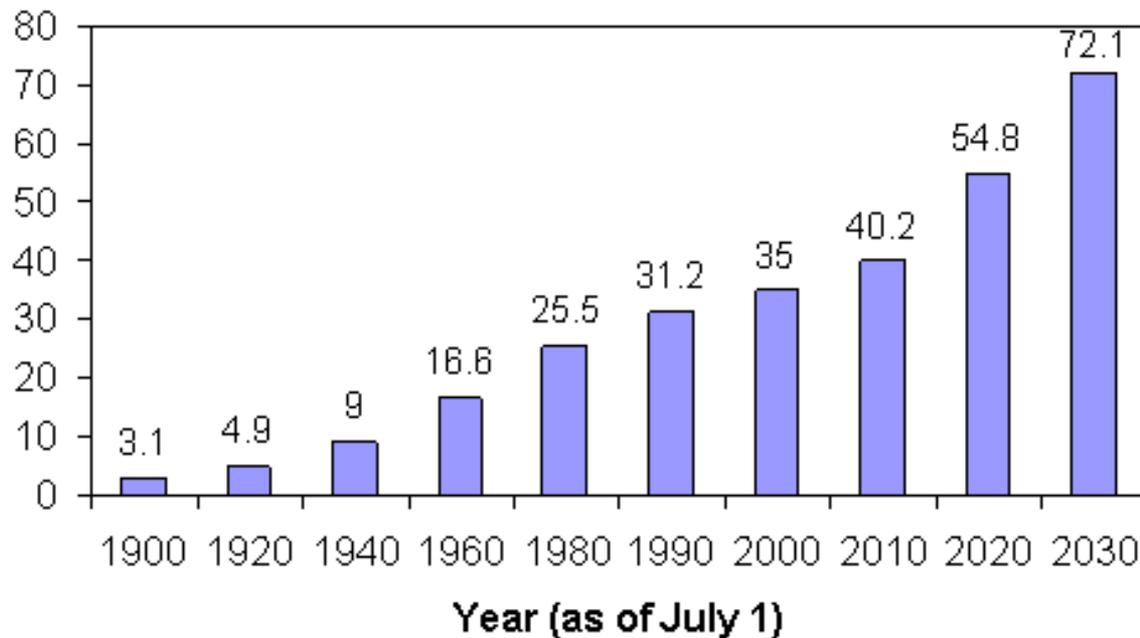
**Our brain is one of our most
modifiable organs**



Greatest achievement of the last century: Doubling of the Lifespan

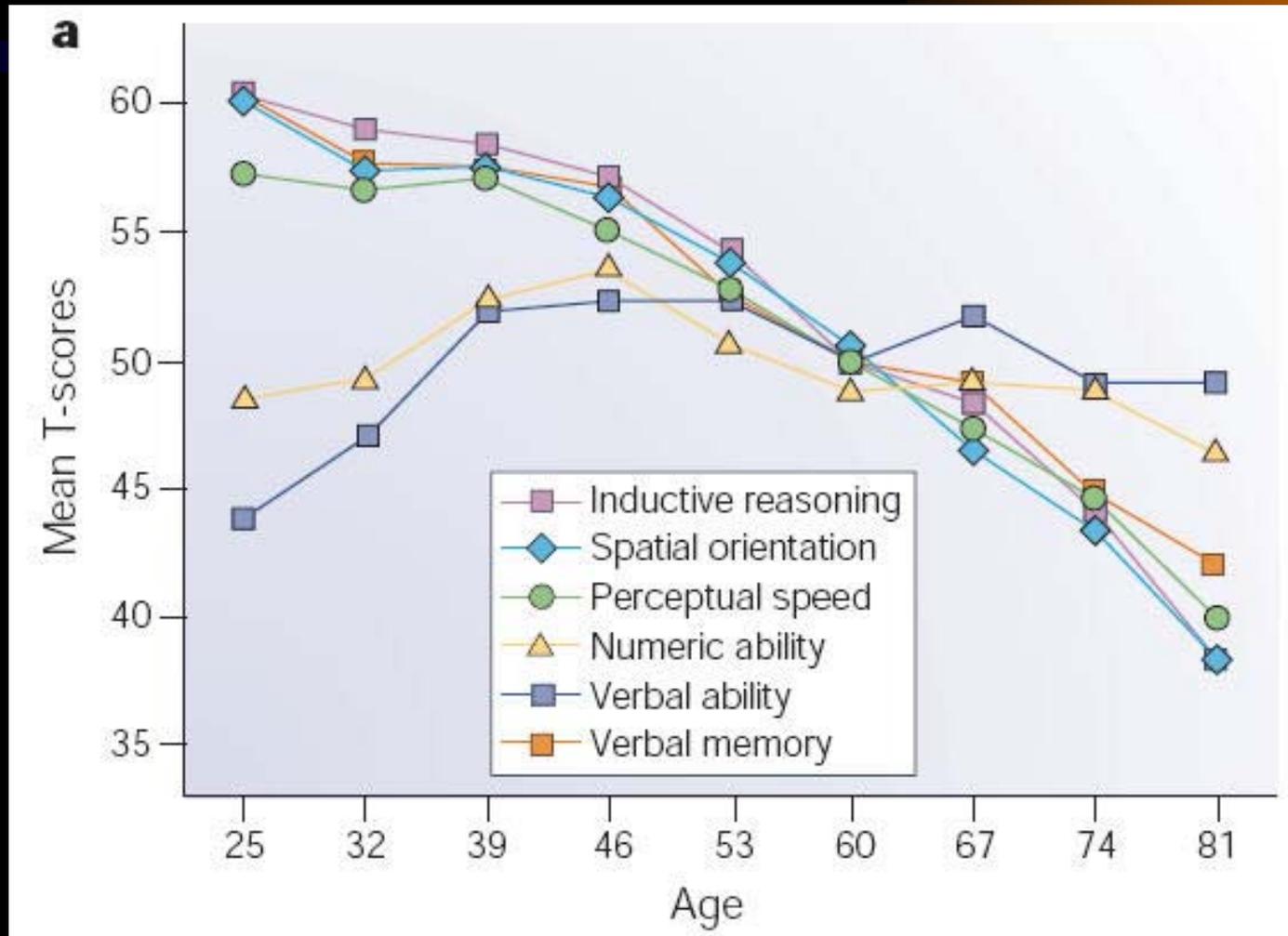
**Figure 1: Number of Persons 65+,
1900 - 2030 (numbers in millions)**

Profile of Older Americans



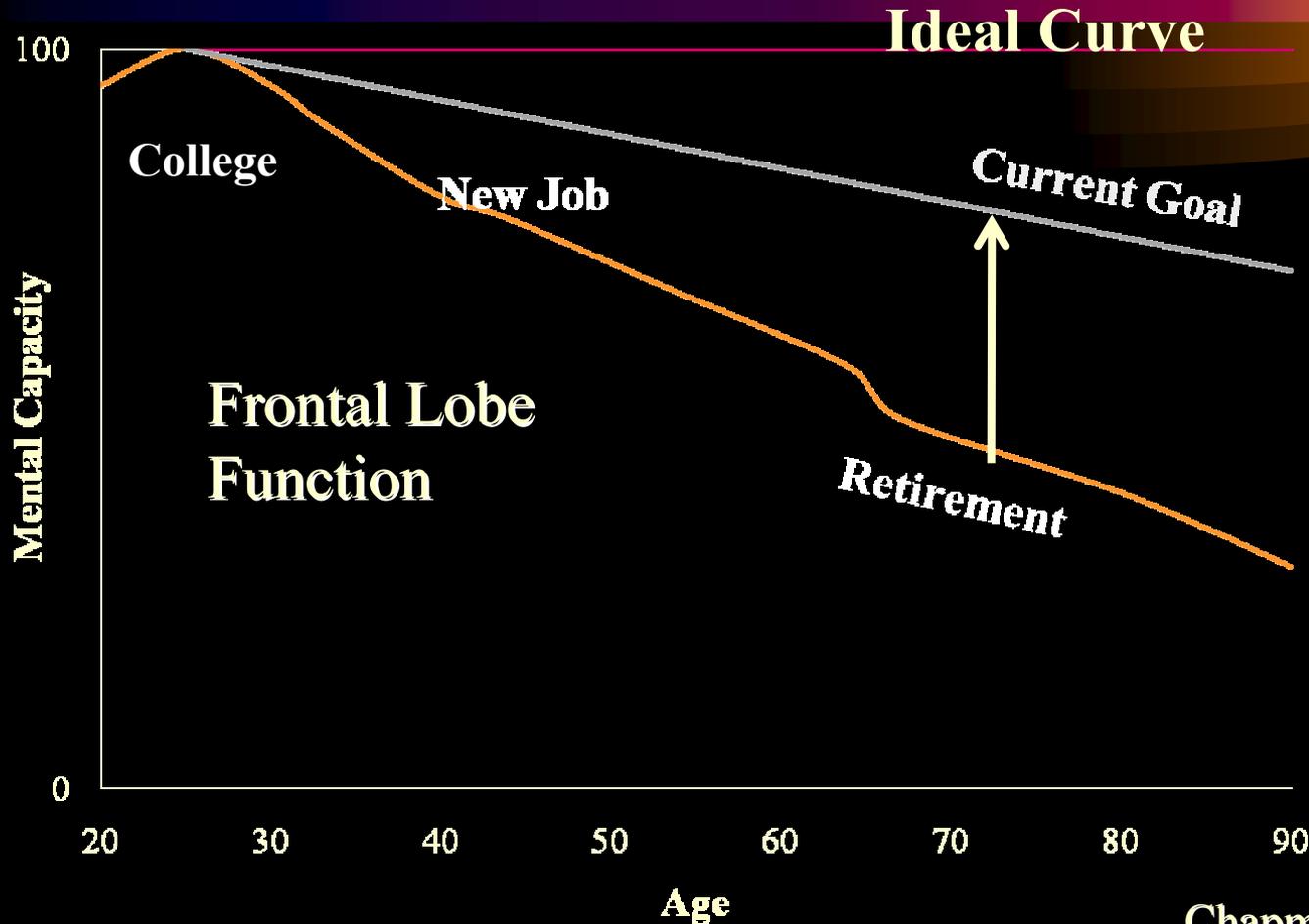
(Sources: Projections for 2010 through 2050 are from: The figures for 2007 are from the Census Bureau 2007 population estimates.)

Our brain has been left behind



Schaie, 1994: The Course of Adult Intellectual Development

Mind our [Brain] Gap



Today scientists are discovering ways to:

- Maintain ability to think for self – reliably make sound decisions for life
- Review options & problem solve solutions
- Sharpen concentration
- Maintain mental edge- Nimble minds
- Boost memory

What is BrainHealth Fitness

(Chapman & Hart, 2009)



- Improving mental function by exercising one's brain (similar to physical exercise)
- Optimizing mental core: supporting cognition fundamental to everyday life
 - What are **core areas**?
 - **More than memory**

Enhancing Frontal Lobe Functions



Matching BrainHealth span to Life span

What is BrainHealth Fitness

(Chapman & Hart, 2009)

- **Frontal lobe functions most essential to mental robustness**
 - Last to develop - First to decline
- **Mental Core: Frontal lobe functions**
 - Strategic Attention: Inhibition ↔ Attention
 - Abstracting thinking: synthesizing core message and updating as needed
 - Fluid Reasoning (creativity in problem solving)
 - Memory – [working memory & memory search]

Brain Health Physical

- Sophisticated pen/paper measures of
 - reasoning
 - abstract thinking
 - mental flexibility
 - Filter/focus
 - memory
- Establishes a benchmark for mental core functions
- Recommended for individuals 40 and older
- Utilized in context of recommendations



Frontal Lobe Frontier

Strategic Attention: *Inhibition* ↔ *Attention*

- Our brain's ability to inhibit simultaneous input gets less efficient with age
- Becomes increasingly important to limit multiple input and avoid multi-tasking
- By shutting down the extra windows – build a clearer thinking mind

Frontal Lobe Frontier

Abstract thinking

- Synthesizing key meaning
- Stretching to understand knowledge in deeper and novel ways
- Updating meaning with new input



Lectures, news stories, insurance, conversations, movies, doctor report, books etc.

Personally, your message of the importance of deeper level of thinking- *to find the pearl* (my words) in what one is hearing, reading, seeing, etc was profound.

I have always wanted to learn the details so I could be accurate and I realize now that has kept my thinking at a fairly superficial level.

**Not good for a healthy, stimulated frontal lobe!
Thanks for the eye/mind opener!**

Scott Sykes

Frontal Lobe Frontier

Fluid Reasoning

Reasoning about social conflicts improves
into old age

Weighing possible solutions for dealing with
life problems

Recognizing broader points of view

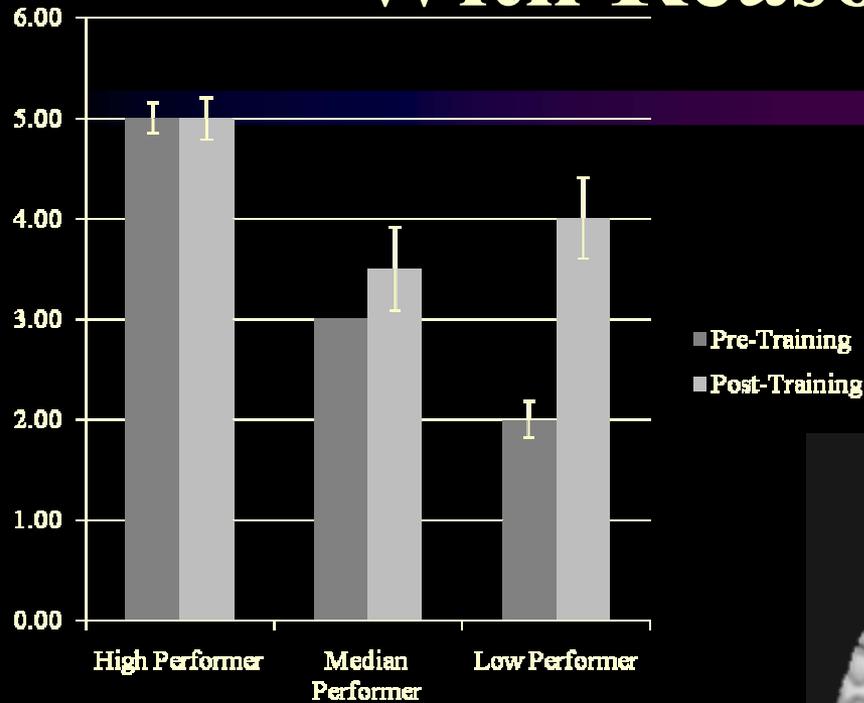
Seeking solutions for compromise

Sensitivity to greatest number of possible
outcomes

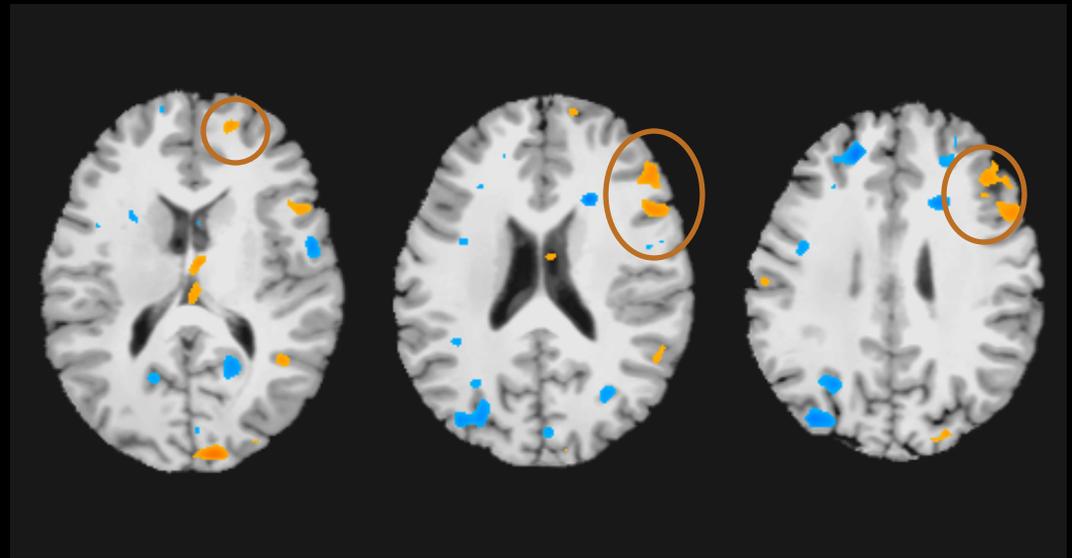
Building Cognitive Reserves and Brain Health



Median Differences between Groups With Reasoning Training



fMRI



Building Cognitive Reserves

- **Strengthen Frontal lobe**
- **Take advantage of the dramatic brain plasticity in our brain as we age**
- **Challenge mental talents and capacity**
- **Avoid being a brain couch potato**
- **Do not allow mental slippage**

Brain Health can be strengthened into old age

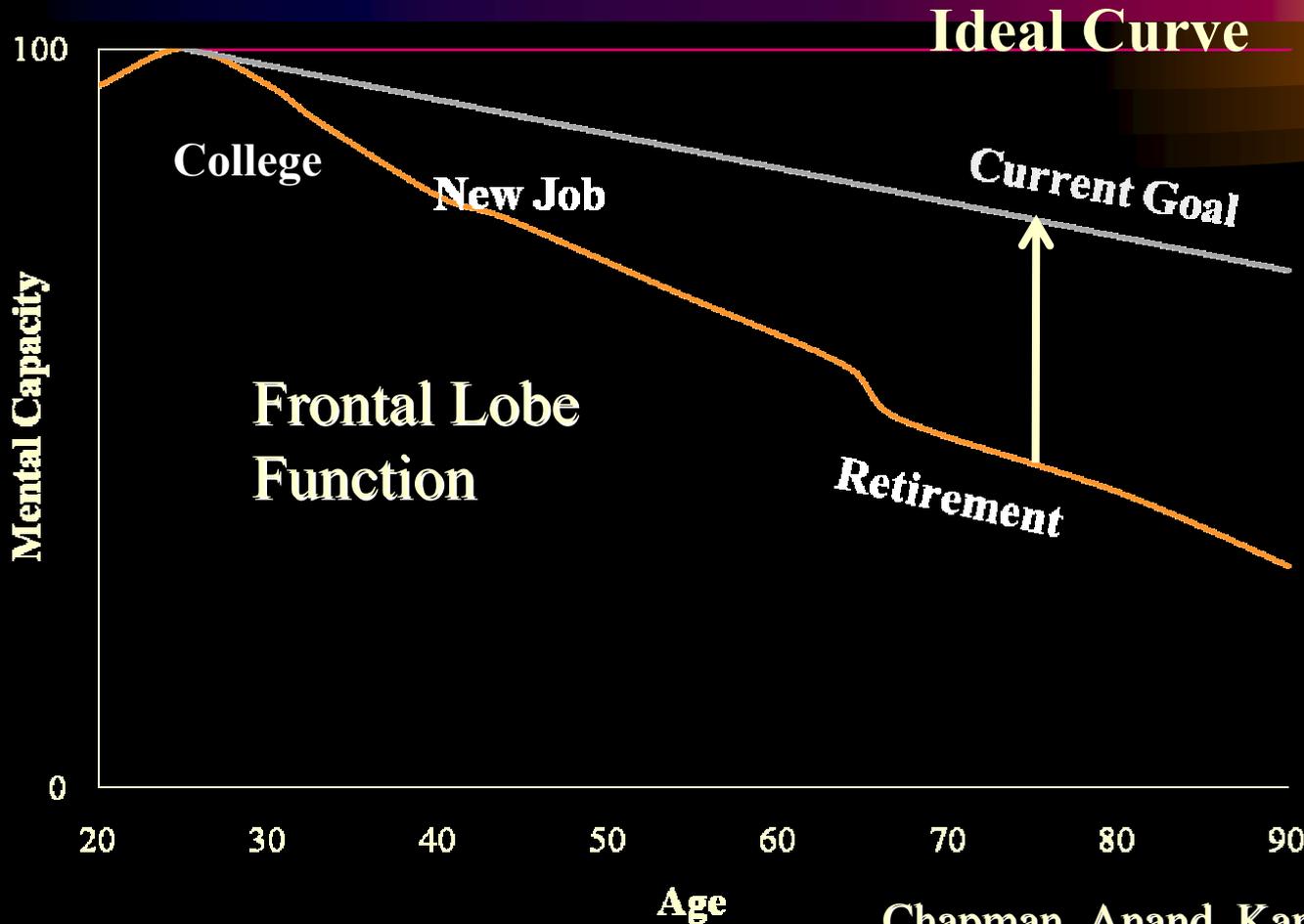
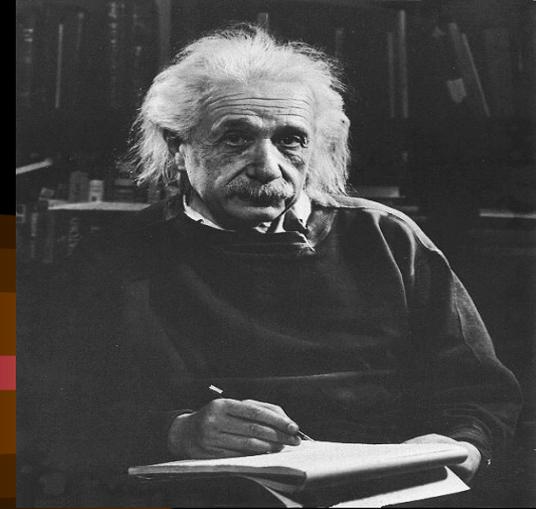
- Brain-plasticity-based training programs promise improvement in the mental capabilities of aging adults (Mahncke et al., 2006; Mora et al., 2007).
- As we age, we should not do less, but do more to keep and maintain our cognitive brain function.

Key Elements for Brain Health Fitness

- **Benchmark & monitor**
 - Incorporate sensitive cognitive measures with potential resilience and relevance
 - Identify brain imaging markers to detect early warning signs & response to treatments
- **Brain GYM**
 - Strengthen brain function
 - Build cognitive reserve
 - Regain losses
- **Develop effective combined treatments**



Mind our [Brain] Gap



**Make exception
THE Rule**

Chapman, Anand, Kanter 2010



Texas Department of State Health Services

Alzheimer's Disease State Plan Meeting

**Without BrainHealth,
We don't have health**

Centerforbrainhealth.org

Impact

- Individual
- City and State
- National /International

We need to start now to think smarter - longer