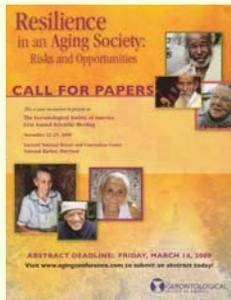


BRAIN HEALTH AND DEMENTIA

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Brain Health: Personal, Public and Professional Concerns Abound



Is it normal to become forgetful? Am I on the way to Alzheimer's disease?

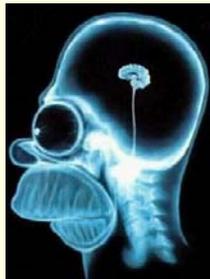
"I'm just not as smart as I used to be"
BUT....

Depends on where you start

Depends on how you use it

Depends on interference

Depends on brain health



MAINTAINING BRAIN HEALTH

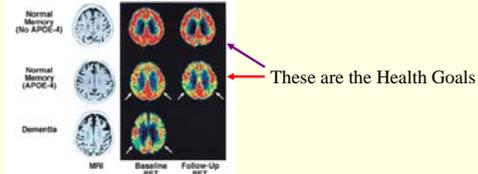
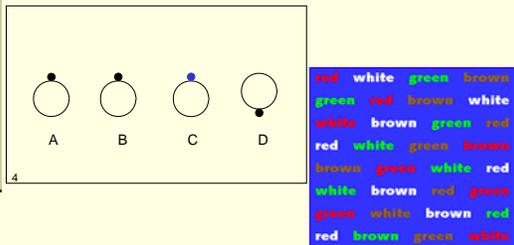


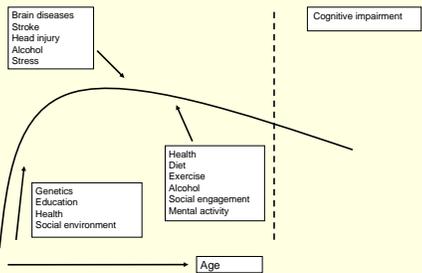
Fig. 1. Examples of PET images (comparable parietal slice levels viewed from below) fused to each subject's baseline MRI scan for an 81-year-old nondemented woman (APOE ε/ε genotype). Top: a 70-year-old nondemented woman (APOE ε/ε genotype, bilateral), and 79-year-old woman with AD (APOE ε/ε genotype). Bottom: The last column shows 2-year follow-up scans for the nondemented woman. Compared with the nondemented subject without APOE ε, the nondemented APOE ε carrier had 10% (right) and 17% (left) lower inferior parietal cortical metabolism, whereas the demented woman's parietal cortical metabolism was 20% (right) and 22% (left) lower, as well as more widespread metabolic dysfunction due to disease progression. The 2-year follow-up scans showed minimal parietal cortical decline for the woman without APOE ε, but bilateral parietal cortical decline for the nondemented woman with APOE ε, who also met clinical criteria for mild AD at follow-up. MRI slices were within normal limits.

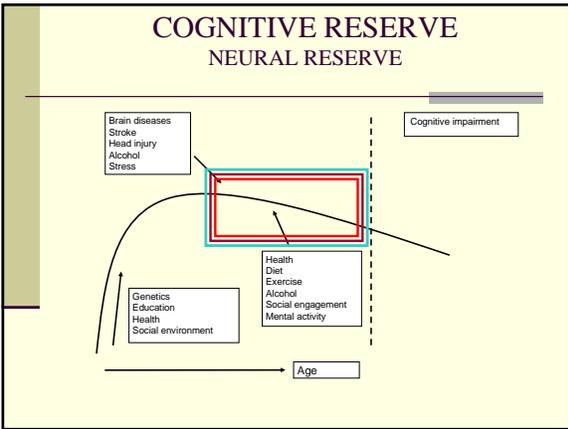
Small GW et al. PNAS 97: 6037-42, 2000

EXECUTIVE FUNCTIONS



COGNITIVE RESERVE NEURAL RESERVE





Maintain and Improving Brain Health

Top 10 List

Really two questions:

1. Does this prevent certain diseases like Alzheimer's disease?
2. If I do this, will my cognition be better longer?

#8 Nutritional Supplements

- Amount of Vitamin E intake in diet has been associated with slower cognitive decline.
- It is not clear if there is any benefit from supplement forms of Vitamin E and high doses have been related to increased risk of death and heart attack.
- Folate: In America, no benefit to supplementation (foods have been fortified with folate since 1996). In areas where it is not fortified, there is a benefit to folate in reducing

	Food High in Vitamin E	
One	Wheat germ oil	
It is not c	Almonds	enefit.
Caffeine	Sunflower seeds	evidence in
men).	Safflower oil	
A daily r	Peanuts	
Vitamins	Corn oil	lications.
	Spinach	
	Broccoli	
	Soybean oil	
	Kiwi	
	Mango	
	Spinach	

Ginkgo biloba



Green tea

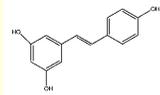
#7 Alcohol

- Moderate use of alcohol (any type) is associated with a decreased rate of cognitive decline
- But...Alcohol kills brain cells, and the more you drink the more brain cells are destroyed.
- Limit: Two drinks per day for a man or one drink for a woman.



Is red wine better?

- Red wine contains an abundance of a potent antioxidant called resveratrol.
- Resveratrol, also found in berries and peanuts, is a compound produced by plants to ward off disease, in response to such stressors as fungus invasions, injury or infection.
- Animal studies show resveratrol can reduce signs of Alzheimer's disease
- The wines with the most resveratrol are those made from pinot noir grapes.



#6 Can Drugs Prevent Dementia?

- Aspirin or other NSAIDs (ibuprofen, naproxen):
 - No. These do not prevent cognitive decline when started after age of 65
 - Due to side effects, not recommended presently
 - We don't know if they may have an effect if started earlier
- Hormone replacement therapy:
 - No. These may worsen cognition and increase risk of dementia.
- "Statins" (cholesterol medication):
 - Not clear because of conflicting evidence. Several trials are ongoing.

#5 Stress

- "The wisdom of life consists in the elimination of nonessentials" - Lin Yutang
- Chronic stress may lead to cognitive decline. Higher levels of the stress hormone cortisol are associated with lower cognitive function in 50-70 year olds.
- What about meditation?
 - Meditation can reduce stress and reduce stress induced cortisol release
 - Meditation is associated with an increased thickness of the cortex, the part of the brain involved in cognition.
 - In one study, people with normal to high blood pressure who practiced daily meditation were 23 percent less likely to die—from any cause—than those who didn't. Meditation was more effective at preventing death than other more conventional non-drug therapies.
 - As little as 15 minutes a day may be enough

#4 Social Engagement

- Greater social networks and social engagement decrease cognitive decline.
- Many, but not all studies show social interaction is associated with less cognitive decline.
- A feeling of loneliness is associated with an increased risk for dementia (but not AD pathology).
- A large study reported in the New England Journal of Medicine found that people who engaged in leisure activities such as learning to play a musical instrument or dancing were less likely to develop dementia.

Ideas for Staying Socially Connected

- Volunteer at a charity, school, museum or organization.
- Join a book club, bowling league, or any group dedicated to being actively engaged
- Get a pet. Animal shelters are full of potential companions looking for good homes. (They can also be great places to volunteer.)
- Join a group in your religious organization
- Maintain a network of friends and family with whom you regularly interact
- Pursue social activities, like wine tastings, lecture programs, or traveling with friends
- Get involved in projects that require you to have regular contact with others: planning a gathering for a club, organizing a card- or game-playing night with friends.
- Get connected while you improve your health: Join a walking or biking club or your local fitness center, go out golfing, or take yoga or cooking classes
- Take an adult-education or college course

#3 Physical Exercise

- Better physical fitness at age 11 is associated with higher IQ at age 79
- Many, but not all studies show that physical exercise can slow cognitive decline.
 - A Study reported in the Journal of the American Medical Association of over 18,000 women showed that even easy walking for 1.5 hours/week was associated with better cognition and slower decline of their thinking ability.
- Studies of fit people show that their attention and concentration are superior to those who don't exercise. And that their gray matter is thicker.
- Research has shown that physical exercise stimulates the production of new brain cells, in the hippocampus. The hippocampus is vital for learning and memory.

Do you feel your actions make a difference?

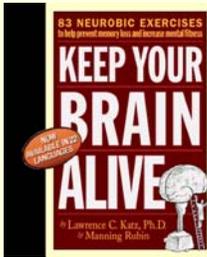
#2 Self Efficacy

- Studies of people who stayed mentally sharp into old age showed that feeling good about ourselves and having a sense of self-worth and effectiveness in our lives are important for successful aging.
- Research shows that older adults may naturally tune into the positive aspects of life. A brain imaging technology called functional magnetic resonance imaging (fMRI) to track patterns of activity in the brain, found that older adults are more responsive to positive images than to negative ones.
- Compared to younger adults, people ages 70 to 90 showed greater activity in the amygdala—the brain region central to emotional processing—when they looked at pictures of people expressing positive emotions vs. negative ones.

#1 Continued Cognitive Maturation and Learning

- Staying mentally active
 - Many studies show activities that engage your brain like reading, playing board games, playing musical instruments, and dancing were associated with less mental decline.
- Purposeful training
 - In depth cognitive training can have effects that last at least 5 years. Cognitive (mental) "training sessions" improved memory, concentration and problem-solving skills in healthy adults ages 65 and older. They effectively erased 7 to 14 years of normal cognitive decline.
 - The skills learned can enhance functioning on similar-minded tasks, but may not transfer to other aspects of cognition. For example, memory training might improve recall, but may not help with problem solving.
- Anything that expands your knowledge may be effective.
- Ideas:
 - Learning a new language
 - Take dance lessons
 - Learn a new sport
 - Read a new book
 - Do crossword or sudoku puzzles

“Neurobics”



- Invented by Duke University neurobiologist Lawrence Katz and author Manning Rubin
- An unusual brain exercise program of specific kinds of sensory stimulation, they believe, causes brain cells to secrete molecules called neurotrophins that act like nutrients to improve cellular health.
- The activity should be completely removed from your regular routine. And the more senses you engage, the better. If you normally go to work using the same route, try a different one. At a stop light, roll down the window and close your eyes, listening to the sounds, feeling the air on your face. Your brain is forced to work with a new set of sensory inputs, which builds connections in your neuronal network.

The Sharp Brains Checklist™ www.sharpbrains.com

1. Are scientists, ideally neuropsychologists, behind the program?
2. What peer-reviewed research supports the program?
3. Is there a Scientific Advisory Board listed on the company's Web site?
4. What are the specific benefits claimed for using the program?
5. Does the program indicate what part of the brain it exercises or what cognitive function it can improve?
6. Is it a structured program with guidance on how many hours per week and days per week to use it?
7. Do the exercises in the program teach me something new?
8. Does the program challenge me so it's never too easy and keeps me interested?
9. Does the program fit my personal goals?
10. Am I ready and willing to do the program, or would it be too stressful?

Don't Become a Homer

AgingSMART Program
Strengthening
Memory
And
Revitalizing
Thinking

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