



LIMITLESS

2023 ANNUAL CONFERENCE

MAY 17-19, 2023

We-Ko-Pa Conference Center • Scottsdale, Arizona

ArizonaLeadingAge.org



Brain Wellness: Keeping Your Aging Mind Sharp!

BrainSavers®



Paul E Bendheim, MD

Professor of Clinical Neurology,
UA COM-Phoenix
Founder & CEO, BrainSavers®



Gina Touch Mercer, PhD

Assistant Professor & Director of the
Behavioral and Social Sciences
Curriculum, UA COM-Phoenix
VP of Cognitive Science, BrainSavers®





Disclosures

- Paul Bendheim is the founder of BrainSavers, Inc. and has an equity position.
- Gina Touch Mercer has an equity position in BrainSavers, Inc.



Learning Objectives

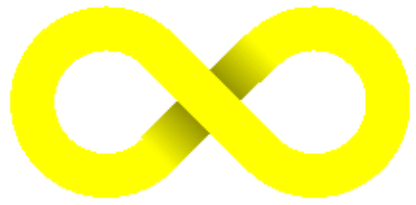
1. Learn how an evidence-based brain & body healthy aging program promotes quality of life, prolonged independence, and prevention of Alzheimer's dementia.
2. Learn how to link dementia prevention strategies and community providers to achieve benefits for older adults, their residential communities, and payers.
3. Learn how to scale live, in-person, instructor-led classes and virtual online resources across large populations at-risk for dementia.



Evidence Base

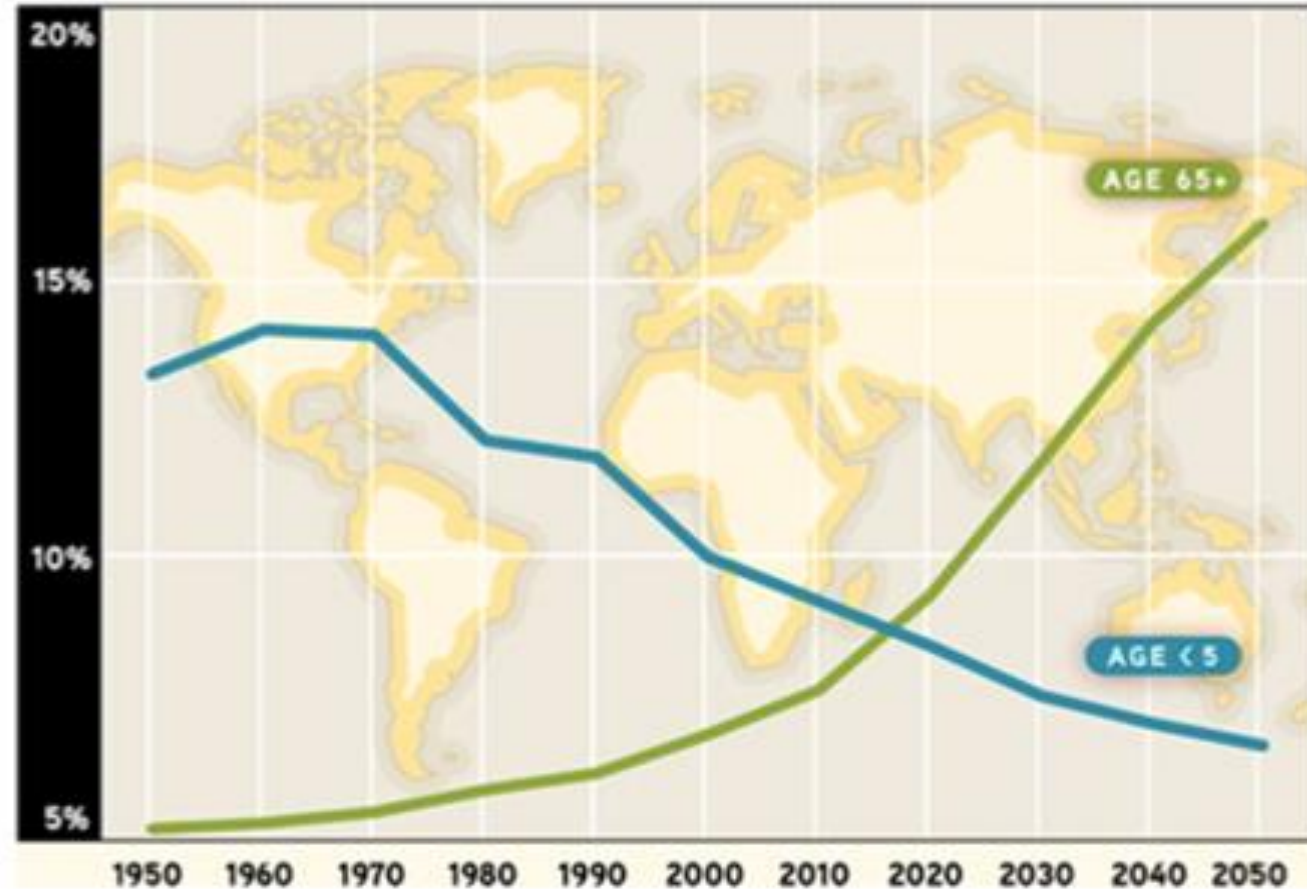
THE SCIENCE OF HEALTHY BRAIN AGING

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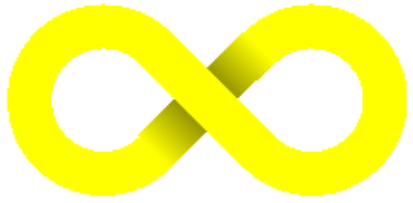


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We are Aging



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- The U.S. and world populations are aging.
- Today, there are **more than 54 million older adults age 65 and older** living in the U.S.
- By 2050, that number is expected to grow to almost **90 million**.

34% of the population is over 50

AGING DEMOGRAPHICS: THE NEED FOR PREVENTION

NUMBER OF AMERICANS SUFFERING FROM ALZHEIMER'S

6.2 M
TO
14 M

2022 TO 2050

66%

ALZHEIMER'S SUFFERERS ARE WOMEN

1 in 3

SENIORS DIE FROM ALZHEIMER'S OR OTHER DEMENTIA

INCREASE IN DEMENTIA COSTS

\$321 B

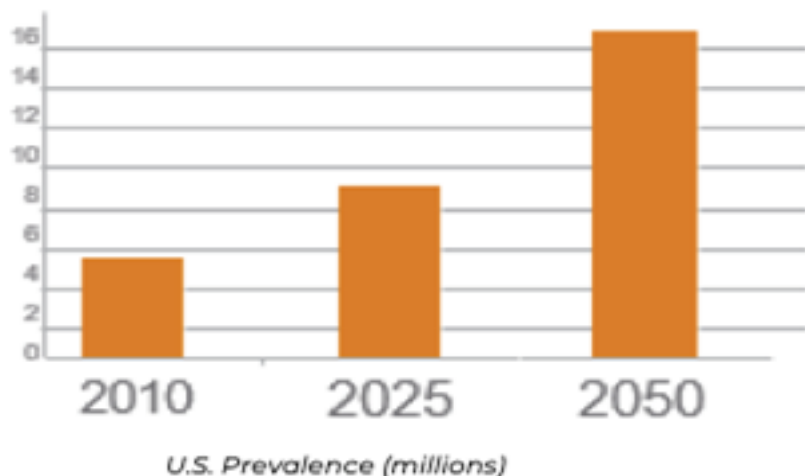
2022 TO 2050

Modified from: Alzheimer's Disease Facts and Figures. National Alzheimer's Association



The Problem & The Opportunity

Alzheimer's Disease is a Massive Unmet Medical & Societal Need



- Greatest risk factors: advancing age and **unhealthy lifestyle practices.**
- 6th leading cause of death
- 2022 - new case of AD diagnosed every 60 seconds.
- Since 2000, heart disease deaths are down 7.4%, **AD deaths are up 145%.**
- AD kills more people than breast cancer and prostate cancer combined.

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A Top Concern About Getting Older is Declining Cognitive Capacity



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Courtesy of Dr. Chelsea Stillman



Our Goals: HEALTHY BRAIN AGING Reduced Risk of Alzheimer's Dementia



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The New Science of the Aging Brain

Brain Plasticity: “Use it or lose it”

- Re-wiring=new growth of synapses
- New neurons

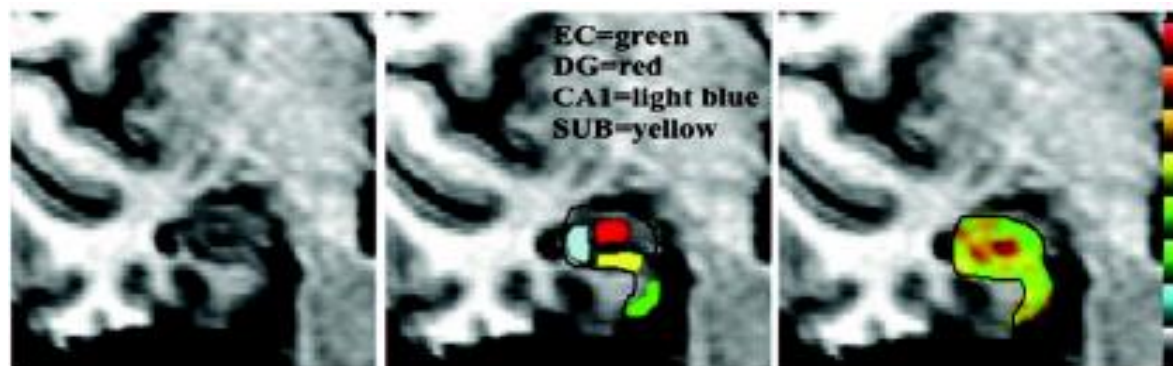
Brain Reserve: An insurance policy against age-related brain degeneration

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Physical Exercise and Memory

An *in vivo* correlate of exercise-induced neurogenesis in the adult dentate gyrus Pereria et al. Proc Nat Acad Sci USA 104:2007




Conclusion: Mental and Physical Exercise Increases Hippocampal Neurons in Humans

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A Multi-Component System



Paul E. Bendheim, MD, has devoted his career to researching Alzheimer's disease and other neurodegenerative disorders. He is a board-certified neurologist and an authority on Alzheimer's and other dementias, and he is a member of the American Neurological Association, the American Academy of Neurology, and the Scientific Review Board of the Institute for the Study of Aging. He was the Max Verter-Manning Professor of Neurobiology at the Weizmann Institute of Science, Israel, and the Medical Director of Development and Research Neurology at the Banner Alzheimer's Institute in Phoenix. As a passionate advocate for brain health, he served as CEO and chief medical officer of BrainSavers, a company he founded in 2014 and whose mission is to help maintain healthy minds, reducing the impact of age-related memory impairment and the risk of developing Alzheimer's disease. He currently also serves as chairman of the Clinical Advisory Board, Intellect Neurosciences. A graduate of Pomona College and the University of Arizona College of Medicine, Dr. Bendheim is the father of two and lives with his wife in Phoenix.

BrainSavers Inc.

REGAIN, RETRAIN, AND MAINTAIN YOUR BRAIN

Help Prevent Memory Loss Increase Brain Agility Reduce Risk of Alzheimer's

Research strongly links to the number one health concern of Americans over forty-five, low brain training frequency is a suitable weapon on the battlefield of aging. You have the power to grow and strengthen your brain, minimize the severity of age-related memory lapses, and reduce your risk of Alzheimer's disease. You can greatly influence the vitality of your brain. You can guard against brain disease. It's never too late to start the Brain Training Revolution, and the scientific evidence is clear—you will feel better and your body and brain will benefit.


You'll find out more about:


1. What to expect when you begin your plan
2. How to boost your brain's performance with an integrated audio-cognitive workout
3. How to protect and strengthen the "memory maker" system that controls our fundamental reactions called the hippocampus
4. How powerful lifestyle adjustments can make a huge difference in maintaining a healthy brain
5. The importance of posture and body movement for you can better your brain at any age
6. The features of the brain that are critical to healthy brain aging
7. How to work with your brain using 10 color-coded strategies
8. Simple steps you can take every day to make your brain healthy and functioning at its peak

www.brainsavers.com

Bonus DVD includes interactive mental exercises


"With a mix of clarity and grounding in research, Paul Bendheim has put together a highly practical program that explains how to achieve lifelong brain health."
—Nareth S. Ruck, MD, codirector, Neuroscience Research Institute, and Assistant Professor of Neuroscience, University of California, Santa Barbara





Bonus DVD to Help Boost Brain Health

"The Important book... a proven and practical guide."
—David Feist, PhD, author, Alzheimer's Disease Under 90



THE BRAIN TRAINING REVOLUTION

A PROVEN WORKOUT FOR HEALTHY BRAIN AGING

Paul E. Bendheim, MD
Contributed by
Richard Samuels, PhD; Edward Wein, PhD; Tracy Hoken, MS

Help Prevent Memory Loss Increase Brain Agility Reduce Risk of Alzheimer's

Softcover \$24.99 U.S. / \$29.99 CAN. / £12.99 UK

BOOST BRAIN HEALTH

**Help Prevent Memory Loss
Increase Brain Agility
Reduce Risk of Alzheimer's**

The Brain Training Revolution offers a unique three-part prescription for a brain healthy life. This innovative step-by-step guidebook and DVD show you how to fight off memory loss and Alzheimer's disease, how to blunt the assaults of aging, and how to perform at the mental level you desire in your titles, studies, activities, and beyond.

Dr. Paul Bendheim, founder of the brain-health firm BrainSavers LLC, has created a lifestyle plan that incorporates medical evidence-based brain-health eating, modest physical exercise, and challenging mental exercises (some included here in color for an extra brain workout, all of which you can select to your own comfort level).

These big, three components for brain health, along with stress management and a good night's sleep, add up to a complete and proven plan for healthy brain aging that your mind will thank you for.

BrainSavers®



Experienced Executive Team



Paul Bendheim, MD
Founder & CEO

Clinical Professor of Neurology, University of Arizona College of Medicine – Phoenix. Scientific Advisory Board – Alzheimer’s Drug Discovery Foundation



Ben Smith
Chief Strategy Officer

Leader in brand development and marketing strategies. Developed strategy with early-stage companies who evolved into billion-dollar brands. Involved in healthcare, biomed, and technology.



Thomas Cheek, MD FACP
Chief Medical Officer

A board-certified internal medicine physician and executive with extensive experience in management of senior populations in all levels of health care. Passionate about improving the lives of seniors.



Gina Touch Mercer, PhD
VP Cognitive Science

Geropsychologist. Assistant Professor & Director of the Behavioral and Social Sciences Theme at the University of Arizona College of Medicine - Phoenix.



Patrick Spear
Chairman of the Board

Extensive career in senior management, sales and marketing of retail companies from start-up to multi-billion dollar market capitalization. Founding partner & managing director Mammoth Office Products, CEO of GMDC and The Identity Group.



Craig Ullman
Chief Content Officer

Experienced entrepreneur in education and online media. Chief Creative Officer of ACTV, Inc. Digital Luminary award winner from the National Association of Television Program Executives. Multiple patents, and two successful business exits.

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The Brain+Body Total Fitness Program: Six Components of Brain Health

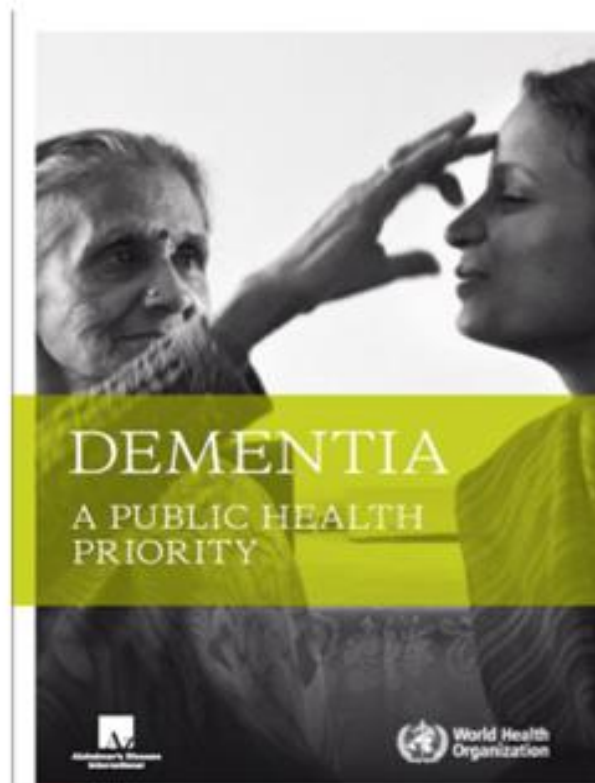
- Physical Exercise
- Nutrition
- Cognitive Activity
- Social Engagement
- Sleep Hygiene
- Stress Management



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At Least 1/3 of Dementia Cases are Attributable to Modifiable Risk Factors



World Health Organization. (2012). <https://apps.who.int/iris/handle/10665/75263>

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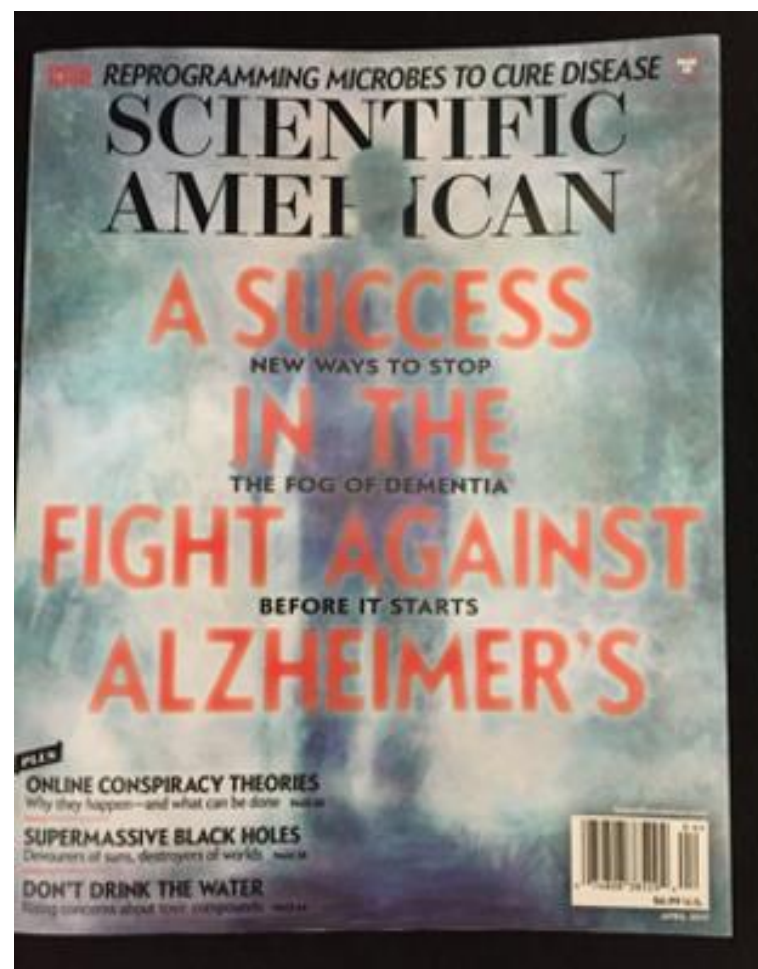
The FINGER Study: Scientific American, April 2017

Volume 316, Issue 4

A Rare Success against Alzheimer's

A gold-standard clinical trial provides evidence that diet, exercise and an active social life can help prevent cognitive decline.

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“6 simple steps that can enhance your mental stamina, boost your memory, provide added years of robust cognitive fitness.”

- **Stay connected** “Steady social contact protects cognitive function as you age. (SOCIALIZATION)”
- **Benefits of exercise** “Can exercise give your memory a boost? You bet!” (PHYSICAL EXERCISE)”
- **Stay intellectually challenged** “Intellectually challenging activities keep your brain agile.” (COGNITIVE EXERCISE)”
- **Benefits of food** “Is there a diet to cut the risk of Alzheimer’s? Yes—by as much as 50%!” (HEALTHY NUTRITION)”
- **Recapture needed sleep** “... sleep is essential for memory” (SLEEP HYGIENE)”
- **Release unwanted stress** “Chronic stress can have damaging effects on key areas of the brain” (STRESS MANAGEMENT)”



Harvard Health Publishing
HARVARD MEDICAL SCHOOL

Trusted advice for a healthier life

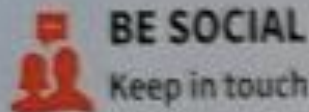
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AARP & Dr. Sanjay Gupta

Global Council on
Brain Health
A COLLABORATIVE FROM AARP

Sustaining Brain Healthy Behaviors

Simple Steps to Benefit Your Brain Health



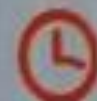
BE SOCIAL

Keep in touch with friends & family, don't let yourself get isolated.



ENGAGE YOUR BRAIN

Find ways to stimulate your thinking, explore new interests and hobbies.



MANAGE STRESS

Practice relaxation, adopt a stable daily schedule.



ONGOING EXERCISE

Move throughout the day, target 2.5 hours a week of moderate physical activity.



RESTORATIVE SLEEP

Get 7 to 8 hours of restful sleep every day.



EAT RIGHT

Choose a nutritious, heart-healthy diet of fish, veggies, and fruits.

6
PILLARS OF
BRAIN HEALTH


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Exercise/Physical Activity

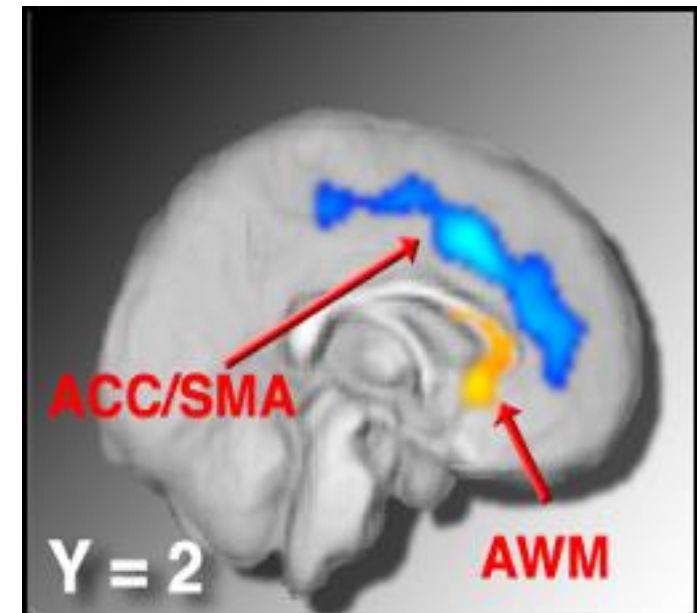
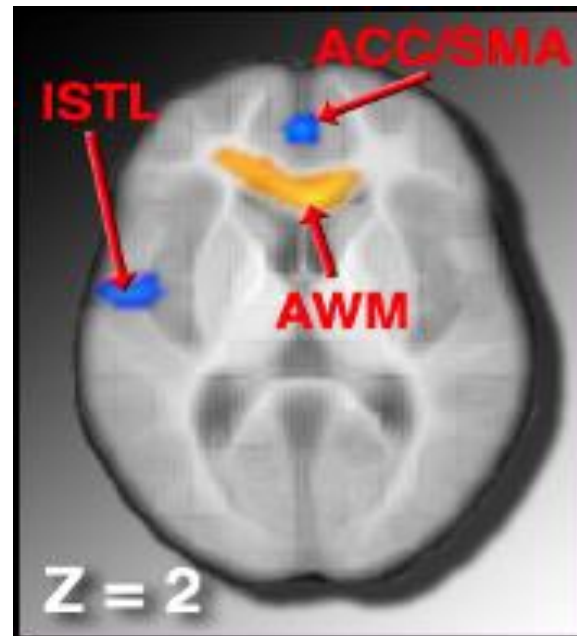
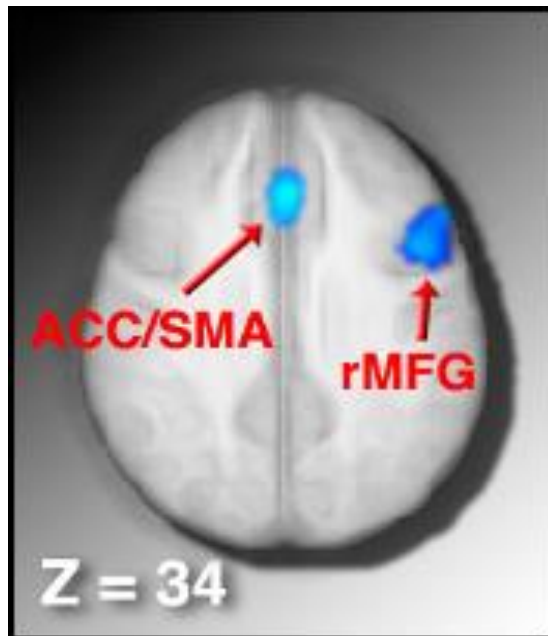
2023: Exercise in the USA





Aerobic Exercise Training Increases Brain Volume in Aging Humans

Cardiovascular fitness is associated with sparing of brain tissue in aging humans.



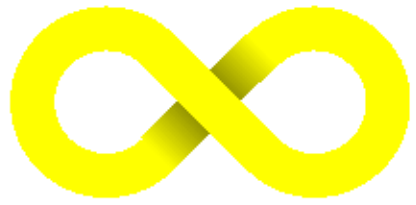


Physical Activity National Academy of Medicine

A consensus is emerging in the scientific community that physical activity can slow or attenuate cognitive decline and improve cognitive function in middle-aged and older adults.

Institute of Medicine 2015. Cognitive Aging: Progress in Understanding and

Opportunities for Action. Washington, DC: The National Academies Press. <https://doi.org/10.17226/21693>.



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Nutrition

THE MEDITERRANEAN DIET



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Adherence to the Mediterranean diet is associated with lower AD risk.

- ~ 40% risk reduction for most adherence
- ~ 20% risk reduction for modest adherence

Dietary intervention can significantly reduce cognitive decline and the risk of dementia and Alzheimer's disease.



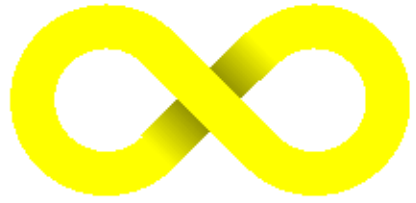
“Use It or Lose It”
Do Effortful Mental Activities Protect
Against Dementia?

J. Coyle. *New England Journal of Medicine*. 2003

“Robust evidence that complex patterns of mental activity in the early, mid- and late-life stages is associated with a significant reduction in dementia incidence”

MJ Valenzuela, P Sachev. *Psychological Medicine*, 2005

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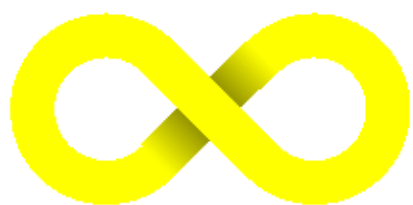
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Cognitive Exercise/Activity



Illustration by Sam Island. How London Cabbies Are Helping Drive Alzheimer's Research. Brain & Life 2022

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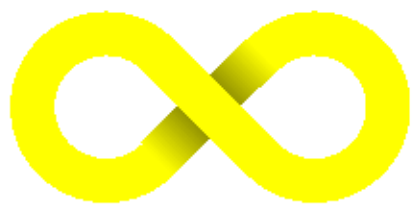


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Daily Workouts in the **WORLD BRAIN GYM**

- Activities at place of worship, social clubs, book clubs, bridge, chess, etc.
- Reading a novel, listening to music
- Learn a language, to play a musical instrument, draw & paint, ceramics, new hobby.
- Continuing education classes; philosophy, botany.
- Planning a trip to Italy (bonus: Italian restaurant)
- Crossword puzzles, Sudoku, etc.
- Computerized brain exercises & games
- Discussing politics, current events, etc.
- 1000+ more ways to workout in the WBG

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Social Engagement

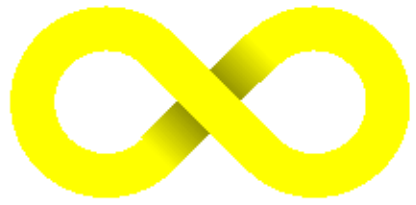
“... provides evidence that social integration delays memory loss among elderly Americans.”

Possibility “to reset one’s trajectory of cognitive decline with age” by getting and staying socially involved.

Effects of Social Integration on Preserving Memory Function in a Nationally Representative US Elderly Population. Ertel et al. *Am J Public Health*. 2008

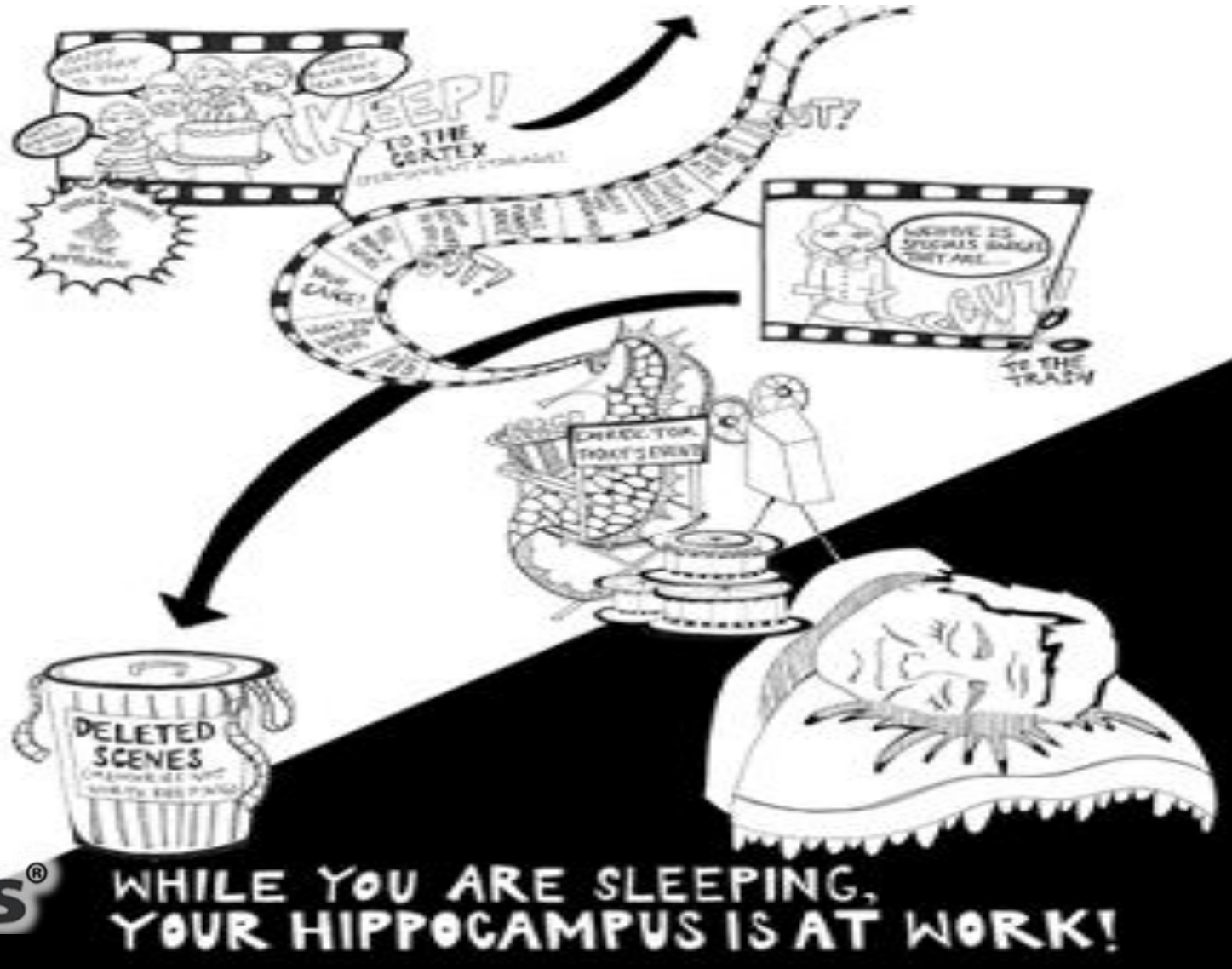
Evidence for Neurocognitive Plasticity in At-Risk Older Adults: The Experience Corps Program. Carlson et al. *J Gerontol A Biol Sci Med Sci*. 2009

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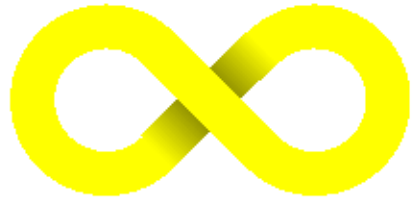
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Sleep Hygiene



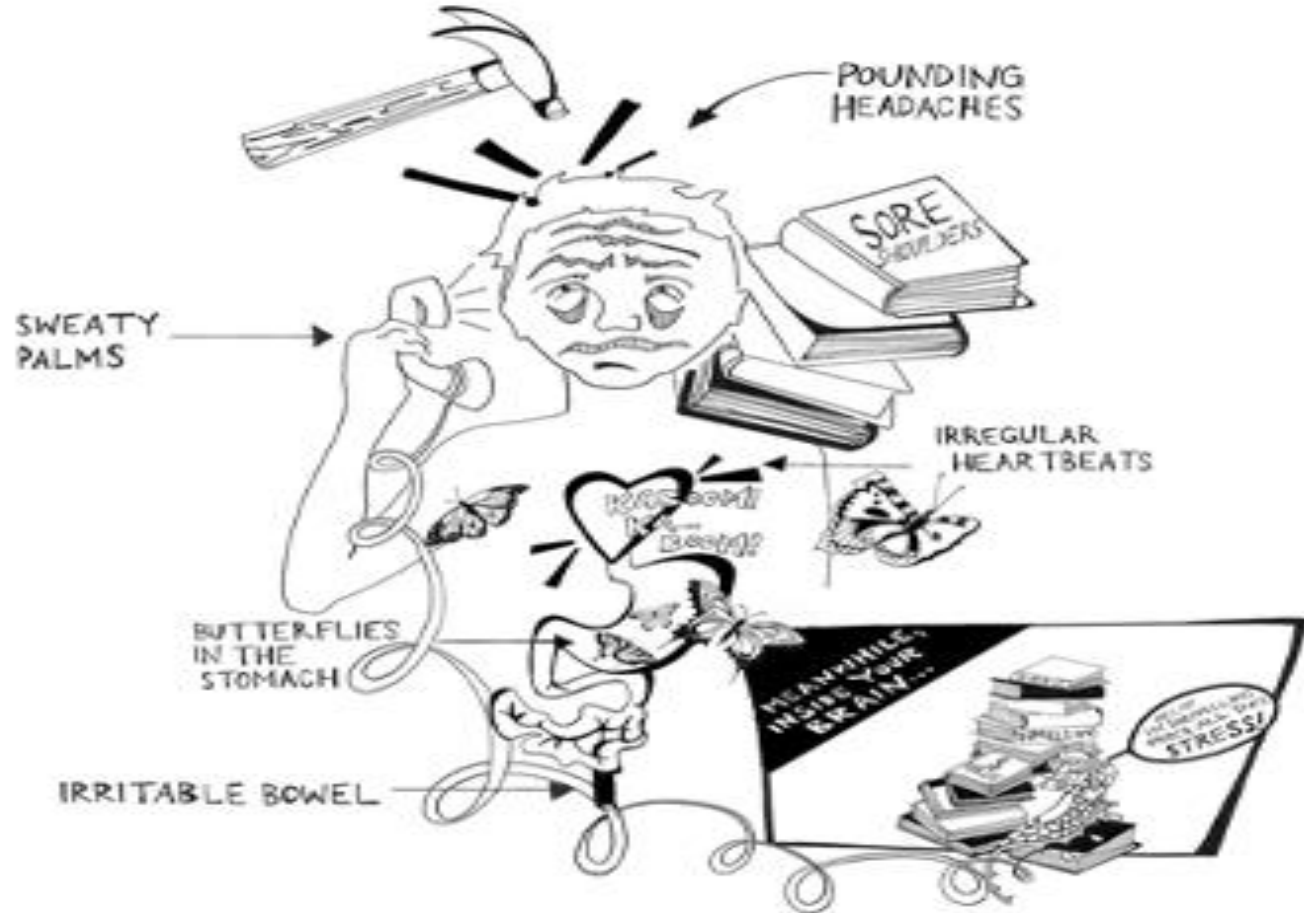
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WHILE YOU ARE SLEEPING,
YOUR HIPPOCAMPUS IS AT WORK!



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Stress Management



CHRONIC STRESS: BAD FOR BODY AND BRAIN

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BrainSavers® The Fitness Program to Remember™

- 1. Welcome, Socialization, Relaxation**
- 2. Thinking & Moving**
- 3. Physical Exercise – aerobics, strength, flexibility, balance**
- 4. Deep Dive - Lesson topics cover the 6 components**
- 5. Cognitive Exercise / Brain Workout**
- 6. Socialization, Q & A, World Brain Gym**
- 7. Final Relaxation & Homework**

Thinking & Moving

**with
Angie Moore**

“Colors To Move You”

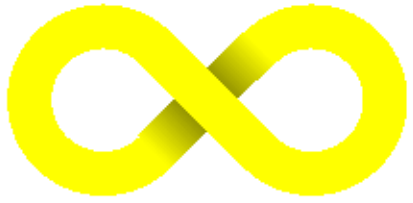




Attitude and Motivation: Willpower vs. The Science of Change

Prochaska and DiClemente,
Transtheoretical Model, 1982





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Benefits to Participants

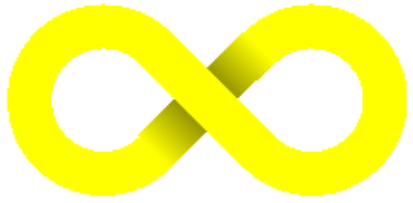
- Longer life
- Reduced disability
- Later onset of physical & cognitive decline
- Fewer years of disability prior to death
- Fewer falls, related to improved balance and flexibility
- Improved mental health
- Positive effect on depressive symptoms
- Improved quality of life when transitioning from IL to AL
- Slower transition to Memory Care/Nursing Care
- Reduced risk of Alzheimer's & overall dementia
- Lower health care costs

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Benefits to Caregivers

- Reduced isolation
- Practical problem-solving
- Fewer years of participant's disability
- Improved self-reported mental health
- Positive effect on symptoms of depression and anxiety
- Lower health care costs and financial burdens



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Benefits to Payers & Partners

- Provides an evidence-based intervention to promote healthy brain aging
- Enhances a sense of community
- Assists in resident recruitment & retention
- Increases participant and caregiver satisfaction ratings
- Enhances measurable health outcomes
- Reduces medical utilization
- Reduces direct and indirect costs
- Maintains residents in IL longer
- Improves profitability

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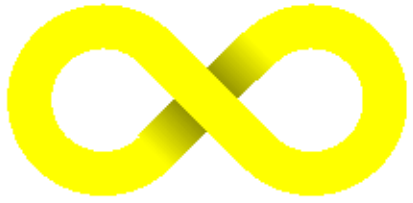
Special Offer

Arizona LeadingAge is partnering with BrainSavers to promote healthy aging!

LeadingAge members will receive special pricing to license BrainSavers Live & our Synapse programs.



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**Thanks to Pam Koester, Kelsie Lane
and the entire Arizona LeadingAge team**

COMMENTS AND QUESTIONS

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References

- Alzheimer's Association. *2023 Alzheimer's Disease Facts and Figures*. *Alzheimers Dement* 2023;19(4). DOI 10.1002/alz.13016.
- Bendheim, P. (2009). *The Brain Training Revolution: A Proven Workout for Healthy Brain Aging*. Sourcebooks. Naperville, IL.
- Kivipelto M, and Håkansson K. A rare success against Alzheimer's disease. *Sci Am*. 2017; 316 (4): 32-27.
- Ngandu, T, et al. A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial. *Lancet* 2015; 385 (9984): 2255-2263.
- Pereria, AC, Huddleston, DE, Brickman, AM, & Small, SA. An in vivo correlate of exercise-induced neurogenesis in the adult dentate gyrus. *Proc Natl Acad Sci USA*. 2007; 104(13): 5638-43.
- Prochaska, JO, and DiClemente, CC. Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research & Practice*. 1982; 19(3): 276-288.