

# High-Octane Brain 2.0:

Fueling Brain Vitality, Joy, and Hope Across the Cognitive Spectrum



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## Ideal Future Self



Family Grandchildren Friendship Travel Independence

Movement Purpose Faith Nature Volunteering Learning

ENTER YOUR OWN 1-2 WORDS

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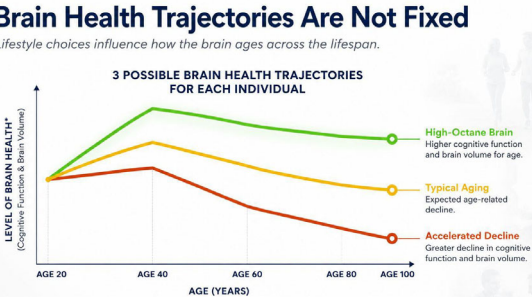
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## Brain Health Trajectories Are Not Fixed

Lifestyle choices influence how the brain ages across the lifespan.

### 3 POSSIBLE BRAIN HEALTH TRAJECTORIES FOR EACH INDIVIDUAL



**High-Octane Brain**  
Higher cognitive function and brain volume for age.

**Typical Aging**  
Expected age-related decline.

**Accelerated Decline**  
Greater decline in cognitive function and brain volume.

Small choices repeated over time can *dramatically* alter cognitive aging.

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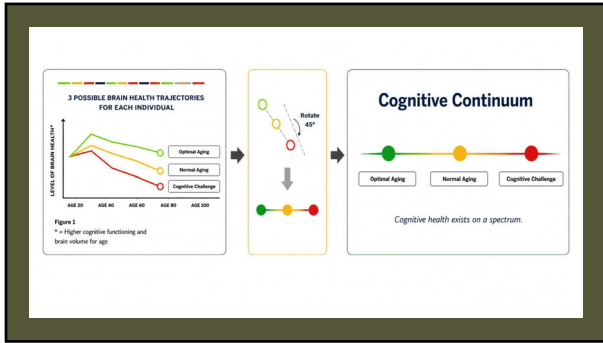
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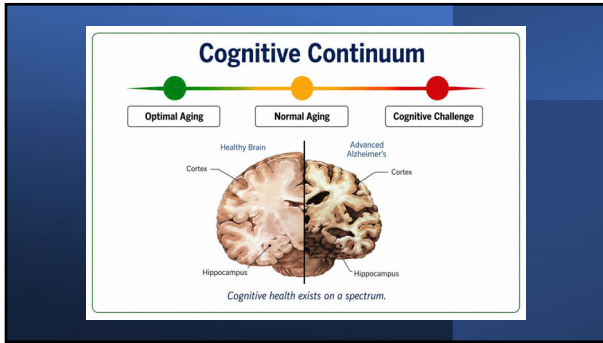
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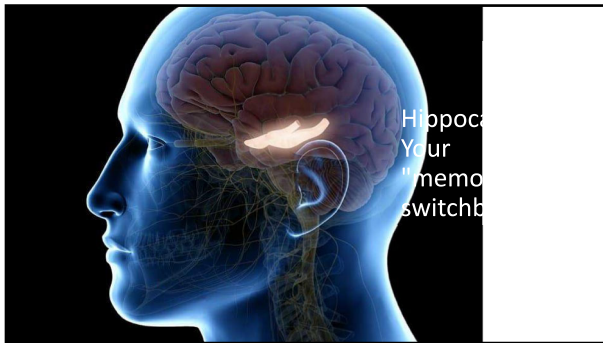
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# Lifestyle Factors: True or False?

- 1 Lifestyle factors can delay the onset of dementia for individuals without a family history of Alzheimer's.
- 2 Lifestyle factors can delay the onset of dementia for individuals with a family history of Alzheimer's disease.

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# FINGER Study

FINGER (Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability), randomized controlled trial

- Intervention: Exercise, brain-healthy diet, cognitive training, and vascular risk management in 1,260 individuals
- Results: 30% reduction in cognitive decline after just two years
- Benefits continued for two more years and are still being tracked
- People with APOE-4 had the same 30% reduction in cognitive decline
- FINGER even more effective for people with other cognitive impairment risk factors!

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INCLUDES A BRAIN HEALTHY PLAN AND TRAINING GUIDE

## High-Octane Brain

3 SCIENCE-BASED STEPS TO SHARPEN YOUR MEMORY AND REDUCE YOUR RISK OF ALZHEIMER'S

**Dr. Michelle Braun**  
Foreword by Dr. Karen Fortis

The EXCELS Method includes the top 5 habits that make up the Optimal Aging trajectory

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**Brain Health + Science of Motivation**

**EXCELS**

- E: Exercise
- C: Consume brain-healthy foods
- E: Engage and Learn!
- L: Lower stress to boost well-being
- S: Sleep to boost brain health

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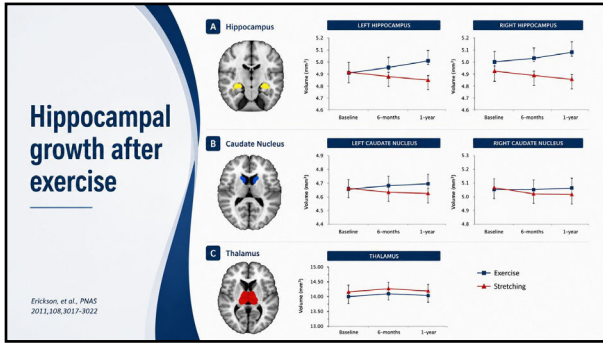
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## EXCELS – Exercise

Hundreds of studies show exercise is related to a reduced risk of dementia and increased volume in brain regions related to memory, attention, & mental flexibility.

- Recast Exercise as "Movement with Joy"
- 150 minutes/week (22 min/day)
- Moderate intensity
- Acute exercise boosts

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## EXCELS: Consume Brain-Healthy Foods

- Mediterranean and DASH diets
- MIND Diet – Rush University
  - People who followed for 10 years had a 7.5 year reduced rate of aging
  - People who followed for 4 years had a 53% reduced risk of Alzheimer's!
- Brain-healthy foods: Green leafy vegs, other vegs, nuts, berries (especially blueberries), beans, whole grains, fish, poultry, olive oil
- 5 foods to minimize: red meats, butter and stick margarine, cheese, pastries and sweets, fried or fast food

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### The MIND Diet


Mediterranean-DASH diet intervention for Neurodegenerative Delay

**WHAT TO EAT**

Every day	<ul style="list-style-type: none"> <li>• 3 servings of whole grains</li> <li>• 1 serving of vegetables</li> <li>• 1 glass of wine (if apt)</li> </ul>
Most days	<ul style="list-style-type: none"> <li>• Leafy green vegetables (6x)</li> <li>• Nuts (5x)</li> </ul>
Every other day	<ul style="list-style-type: none"> <li>• Beans (3x)</li> </ul>
Twice a week	<ul style="list-style-type: none"> <li>• Poultry</li> <li>• Berries</li> </ul>
Once a week	<ul style="list-style-type: none"> <li>• Fish</li> </ul>

**WHAT TO LIMIT**

Less than 1 T. a day	<ul style="list-style-type: none"> <li>• Butter and stick margarine</li> </ul>
Less than 5x/week	<ul style="list-style-type: none"> <li>• Pastries and sweets</li> </ul>
Less than 4x/week	<ul style="list-style-type: none"> <li>• Red meat</li> </ul>
Less than 3x/week	<ul style="list-style-type: none"> <li>• Whole-fat cheese</li> <li>• Fried fast food</li> </ul>




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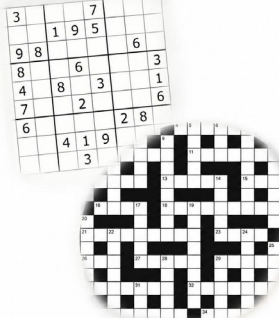
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### EXCELS: Engage & Learn: True or False?

*Crosswords, sudoku, and word puzzles have been shown to benefit cognitive functioning more than most other type of activities*




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### There is no "best" cognitive engagement activity

Supported by findings of Nun study, several other studies

Several studies support a wide variety of CR activities

<ul style="list-style-type: none"> <li>• Reading</li> <li>• Social engagement</li> <li>• Games (cards checkers)</li> <li>• Puzzles (crosswords, jigsaws)</li> <li>• Writing</li> <li>• Radio &amp; TV learning</li> </ul>	<ul style="list-style-type: none"> <li>• Arts, Crafts</li> <li>• Visiting museums</li> <li>• Playing musical instrument</li> <li>• Attending religious services</li> <li>• Participating in discussions w/others</li> <li>• Learning another language</li> </ul>
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## SAVE Method

-  Slightly challenging
-  Absorbing
-  Varied
-  Enlarge your knowledge



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## EXCELS = Lower Stress to Boost Well-Being

-  Chronic stress linked to factors common in Alzheimer's and depression, including:
  - Higher cortisol levels, smaller hippocampus, chronic inflammation
-  Higher perceived stress linked to lower cognitive performance and higher risk of MCI, dementia
-  In 10,000 participants, highest perceived stress at mid-life linked to highest rates of dementia 13 yrs later
-  Science-backed stress reduction techniques
  - Exercise
  - Journaling
  - Mindfulness



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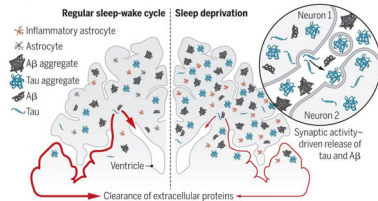
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## EXCELS: Sleep for Better Brain Power

### Sleep deprivation promotes Alzheimer's pathology

Sleep is accompanied by lowered activity-driven release and heightened clearance of A $\beta$  and tau from the brain. Sleep deprivation reduces aggregate clearance and promotes astrogliosis, network activity-driven tau and A $\beta$  release, further protein aggregation, and the spread of Alzheimer's disease pathology.



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## How to *rapidly* boost cognitive functioning

- Acute Exercise Boosts**  
(10-15 minutes of cardiovascular exercise leads to immediate improvements in memory!)
- Mindfulness**  
(enhances working memory)
- Quality Sleep**  
(enhances attention)
- Use Them Strategically**  
Rapid cognitive boosts can be used strategically prior to meetings, presentations, and other important events

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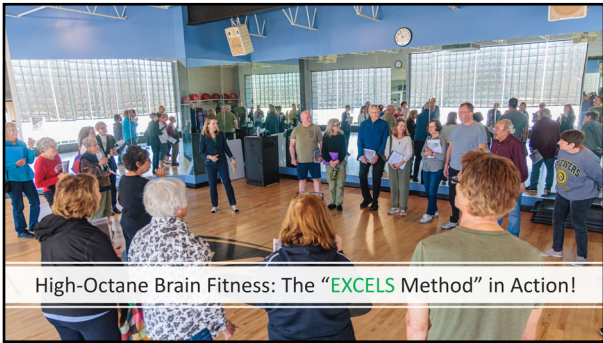
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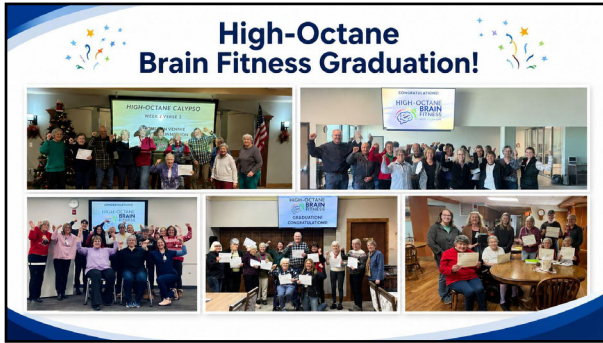
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### HOBF Outcomes

Evidence-based improvements in brain health, well-being, and quality of life.

#### PARTICIPANT PROFILE

Total Pilot Participants (N): **77**

- Sites Represented: 5
- Age Range: 54-99
- Average Age: 77.4 years
- Average Education: 14.85 years
- Women: 88%

**Brain-Healthy Behaviors**  
**+12.64%**  
Improvement

**Enhanced Mood & Emotional Vitality**  
**+12.45%**  
Improvement

**Increased Cognitive Confidence**  
**+16.11%**  
Improvement

**Reduced Cognitive Distress**  
**-6.17%**  
Improvement

Participants sustained approximately **240 minutes** per week of structured movement throughout the program—60% above the widely recommended 150 minutes per week of moderate activity.

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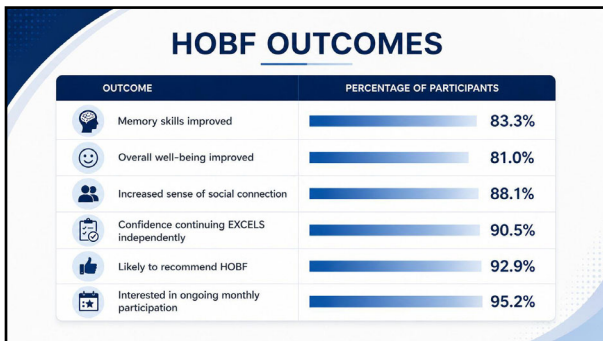
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**What 1-2 words would you use to describe what you've gained from High-Octane Brain Fitness?**

- Joy
- Confidence
- Hope
- Friendship
- Love of learning
- Move more
- Eating better

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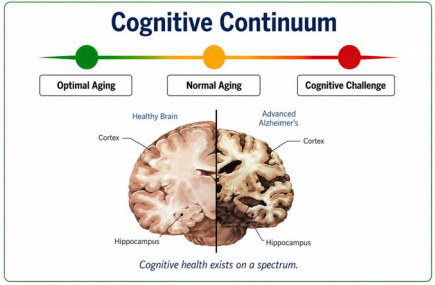


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### Cognitive Continuum



*Cognitive health exists on a spectrum.*

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### Finding Meaning and Momentum after an Alzheimer's diagnosis



**“I'm not going to let this slow me down.”**  
 — Ralph Carmona, living with Alzheimer's disease

**MOVEMENT**

- Competitive running became central to his routine
- Continues marathon training into his mid-70s
- Runs, swims, and walks regularly

**BRAIN-HEALTHY LIFESTYLE**

- Adopted Mediterranean-style eating
- Focused on sleep, exercise, and healthy aging habits
- Participates in clinical research and proactive treatment

**PERSPECTIVE**

- Shifted from detail-focused engagement and purpose
- Uses his experience to advocate for others
- Emphasizes living better, not just longer

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## Adjusting EXCELS to Slow Cognitive Decline and Enhance Quality of Life in MCI and Dementia

**EXCELS: Exercise / "Movement with Joy"**

- Cardiovascular
- Stretching (especially in MCI)
- "Disguised Exercise"
- Maximize vascular health (manage blood pressure, diabetes, cholesterol)

**EXCELS: Consume Healthy Food**

- Mediterranean Diet (especially in MCI)

**EXCELS: Engage and Learn**

- Capitalize on routine (muscle memory)
- Social activity
- Environmental design to promote cognitive and social engagement
- Memory tools (dedicated portable notebook, visual cues including calendar)

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## Adjusting EXCELS to Slow Cognitive Decline and Enhance Quality of Life in MCI and Dementia

**EXCELS: Lower stress/ promote emotional wellness**

- Loved ones: minimize corrections to misremembered info; prioritize harmony over factual correctness
- Support groups for individuals with cognitive challenge
- Caregiver support to maximize communication
- Healthcare support (even between appointments)
- Consider using music to soothe

**EXCELS: Sleep to promote brain health**

- Wind-down routine
- Movement with joy and routine promote sleep
- Recognize and treat sleep apnea and insomnia

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## Your Next Step Toward a High-Octane Brain

Exercise/  
Movement  
with Joy

Consume  
Healthy Foods

Engage  
and Learn

Lower  
Stress

Sleep  
Optimization

OR ENTER YOUR OWN 1-2 WORDS \_\_\_\_\_

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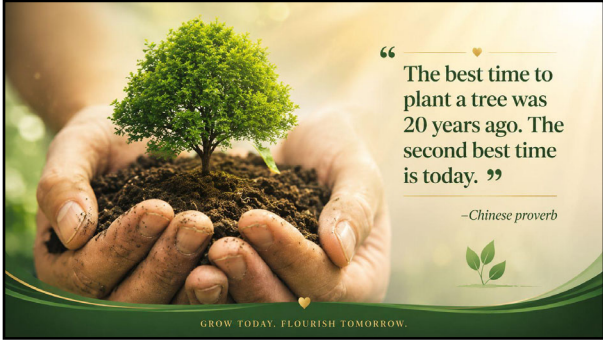
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