



YAKIMA NEUROPSYCHOLOGY

Lifestyle & Behavioral Approaches

to Dementia & Aging Successfully



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Disclosure:

I have no financial interest, affiliation, or monetary gain from any of the resources, programs, or organizations mentioned in this presentation.



Learning Objectives



Understand

Evidence-based lifestyle factors and their impact on brain functioning



Learn

Key concepts: Neuroplasticity, Cognitive Reserve, and Brain Maintenance



Apply

Dementia risk-reduction strategies



Create

Personal “successful aging” behavioral plan



Quick Poll



On a scale of 1–10, how close do you feel you are to having optimal lifestyle habits for brain health and successful aging?

Aging Successfully



World Health Organization - Healthy Ageing is the process of developing and maintaining the functional ability that enables well-being in older age.

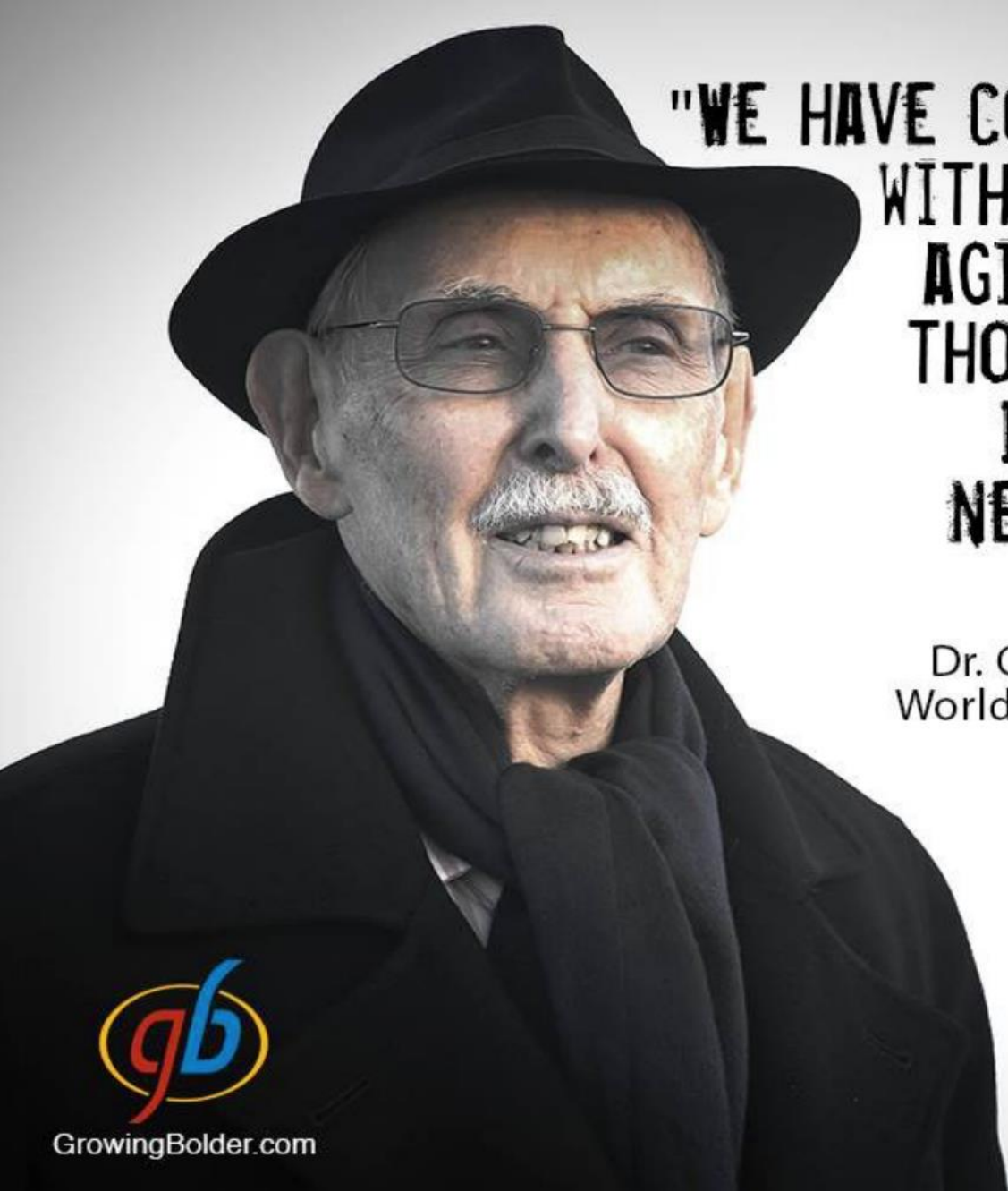


Havighurst (1961) - Successful aging as "having inner feelings of happiness and satisfaction with life for the present and the past."



What is **Your Own** definition?



A portrait of Dr. Charles Eugster, an elderly man with a mustache and glasses, wearing a black hat and a dark scarf. He is smiling slightly.

**"WE HAVE CONFUSED ILLNESS
WITH THE PROCESS OF
AGING, WHICH CAN BE
THOROUGHLY HEALTHY.
ILLNESS IS NOT A
NECESSARY PART OF
AGING!"**

Dr. Charles Eugster, 94-year-old
World Masters Rowing Champion



GrowingBolder.com



Michael J. Fox

Diagnosed with
young-onset
Parkinson's disease in
1991



AGE

29

Resilience

The ability to adapt, recover, and even grow in the face of adversity, stress, setbacks, or trauma.



Mindset

Cognitive & Emotional Regulation Processes

- ✓ Practice **acceptance**
- ✓ **Reframe** negative thoughts
- ✓ Increase **awareness** of thoughts & emotions
- ✓ **Find meaning** in difficult experiences
- ✓ Shift **locus of control** (from external to internal)



Actions

Behavioral Factors to Deal with Setbacks

- ✓ **Prioritize physical wellness:** sleep, exercise, nutrition
- ✓ Practice **mindfulness, gratitude, and self-compassion**
- ✓ Set **realistic goals** and take small, consistent actions
- ✓ Learn to **say “no”** to things that drain your time or energy
- ✓ Avoid **negative coping outlets** such as alcohol or drug misuse
- ✓ Build and maintain **supportive relationships. Do not isolate — reach out**



Resilience is not about avoiding challenges, but about **growing through them.**

Science of Behavioral Change

Key factors that drive lasting change.



1 Knowledge/Education

Understand why and how habits can be healthy or unhealthy



2 Recognize the Need for Change

Build insight & awareness. Shift from "I should" to "I want."



3 Motivation to Change

Strengthen perceived benefits, beliefs, and personal goals.



4 Implement Cues

Use cues and prompts to replace old habits with new ones.



5 Be Aware of Triggers

Identify environmental triggers, automatic habits, and emotions.



6 Self-Efficacy

Believe in your ability to make and sustain change.



7 Reduce Social Isolation & Address Barriers

Build supportive connections and remove barriers to change.



8 Implement Habits

Sustain change in the long-term through repetition and habit formation.



Small choices, repeated consistently, lead to meaningful change.

Neuroplasticity

The brain's ability to reorganize itself by creating new connections, by adapting to injuries, by reassigning a function to another group of neuronal cells, and by taking over a damaged brain area.



Use It or Lose It



Experience- Specific



Intensity + Repetition



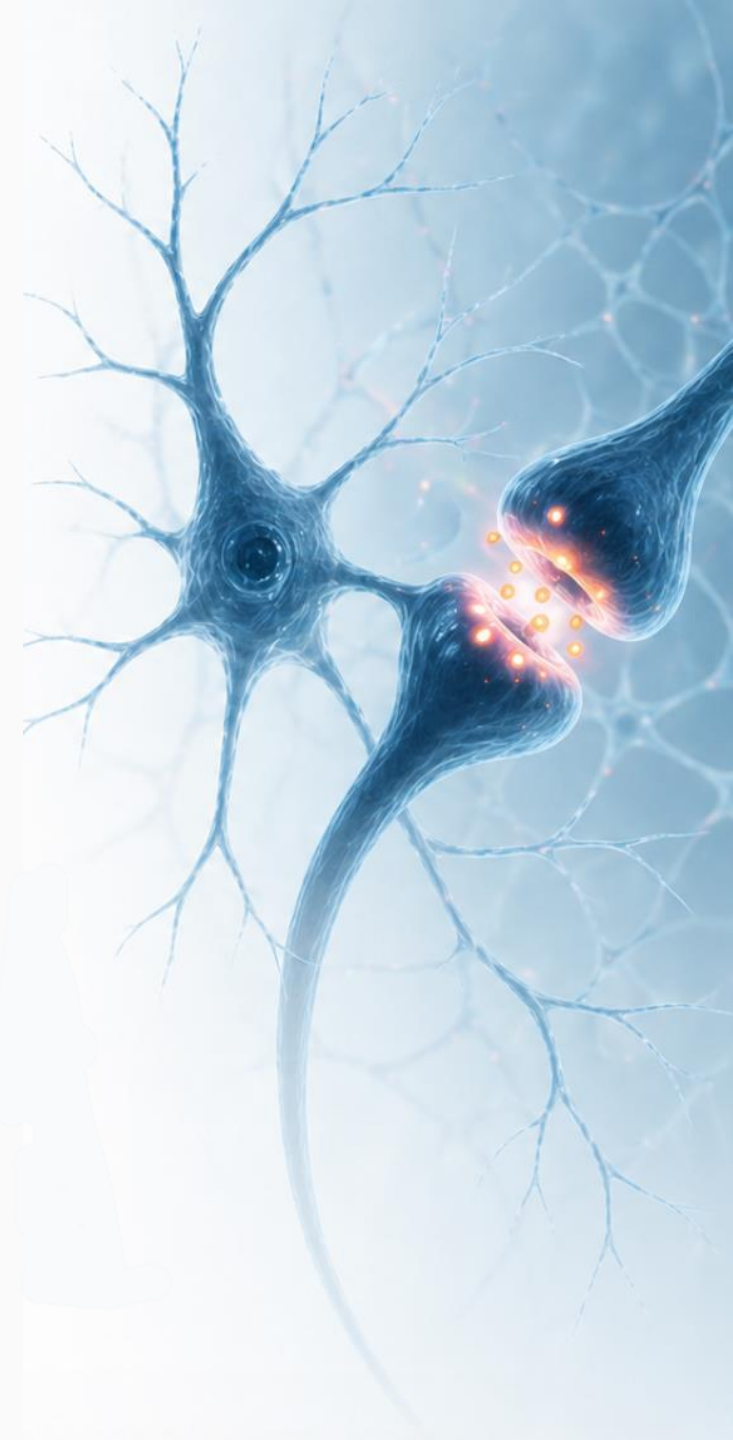
Salience



Attention

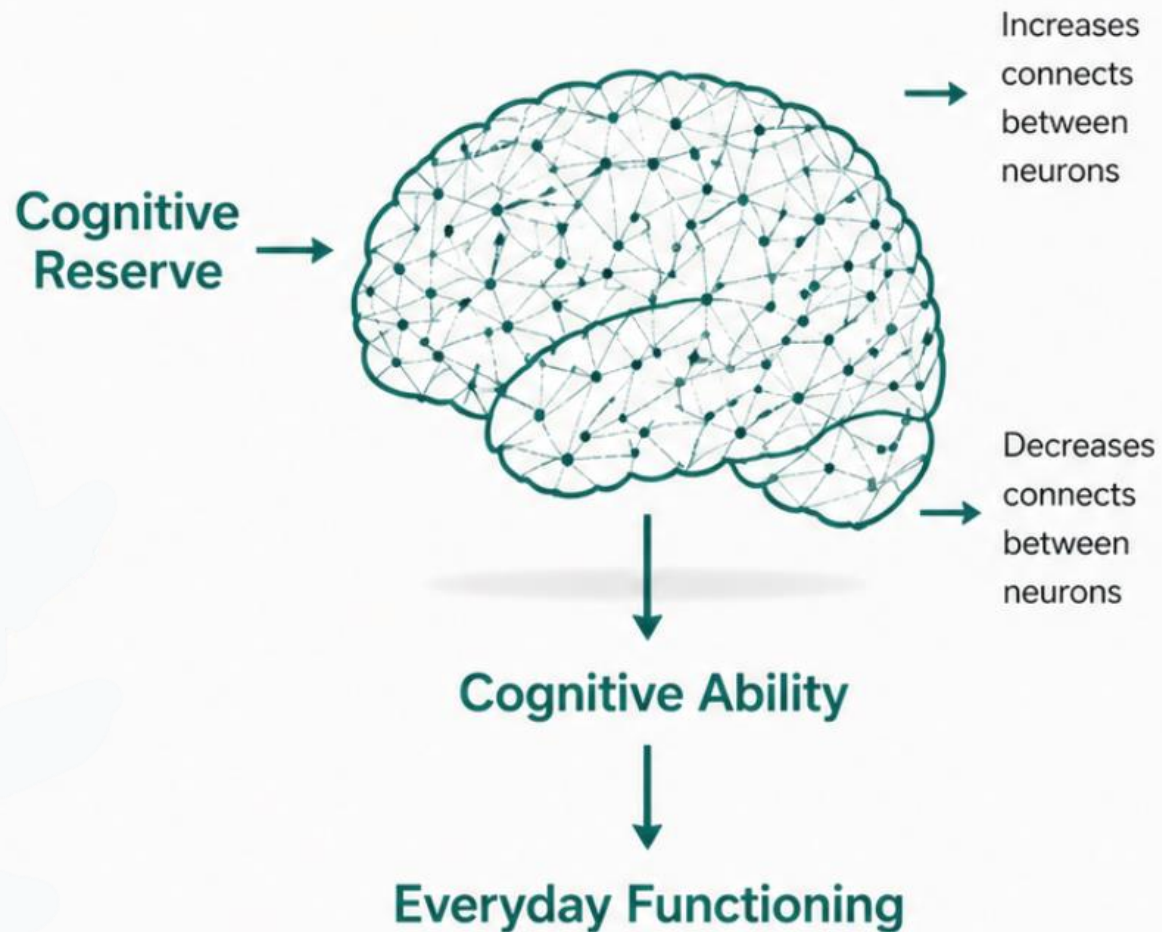


Age Effect



Cognitive Reserve

(Yaakov Stern, Ph.D., 2002)



Positive Neuroplasticity

- Cognitive Remediation
- Active Lifestyle
- Antioxidants/Good Nutrition
- Good Sleep Hygiene
- Positive Mood/Good Health
- Physical Exercise



Negative Neuroplasticity

- Non-stimulating Activities
- Poor Nutrition
- Poor Sleep Hygiene
- Negative Mood (i.e., Depression)
- Poor Health
- Sedentary Lifestyle

Use It or Lose It

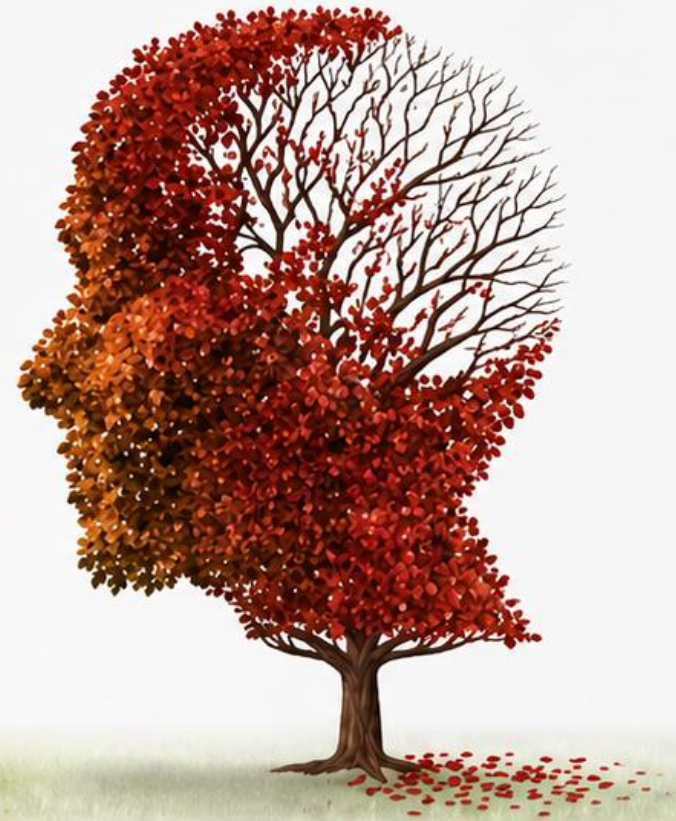
Brain Maintenance



Use it.



Maintain it.



Don't lose it.

14 dementia risk factors

1 Physical inactivity



2 Smoking



3 Excessive alcohol consumption



4 Air pollution



5 Head injury



6 Infrequent social contact



7 Less education



8 Obesity



9 Hypertension



10 Diabetes



11 Depression



12 Hearing impairment



13 High LDL cholesterol



14 Vision loss



Nutrition

High-Impact Lifestyle Clusters



MIND *Brain Health & Dementia Prevention*

- ✓ Leafy greens, berries, nuts, whole grains, beans, fish, poultry, olive oil

DASH *Blood Pressure and Heart Health*

- ✓ Fruits, vegetables, whole grains, low-fat dairy, nuts, lean proteins



- ✗ Ultra Processed Foods
- ✗ Refined carbohydrates
- ✗ Sodas
- ✗ Packaged snacks



Adults on MIND and DASH:

- Stronger executive function
- Better global cognition and memory
- Slower age-related cognitive decline
 - Lower dementia risk
- Improved mood regulation and lower rates of depression/anxiety



Adults on High-Sugar / High-UPF diets:



- Faster decline in global cognition and executive function
- Poorer performance on tasks requiring attention, inhibitory control, and mental flexibility
- Increased risk of hippocampal damage and prefrontal cortex impairment
- Higher rates of mood dysregulation, depression and anxiety



Nutrition

Key Pathways of Damage



Neuroinflammation



Oxidative Stress & Mitochondrial Dysfunction



Vascular Damage & BBB Disruption



Gut-Brain Axis Disruption



Reduced Neurotrophic Support





High-Risk Alcohol Intake

High-Impact Lifestyle Clusters



For Women-

4 or more drinks on any day or **8** or more per week



For Men-

5 or more drinks on any day or **15** or more per week



Cancer



Vascular Damage

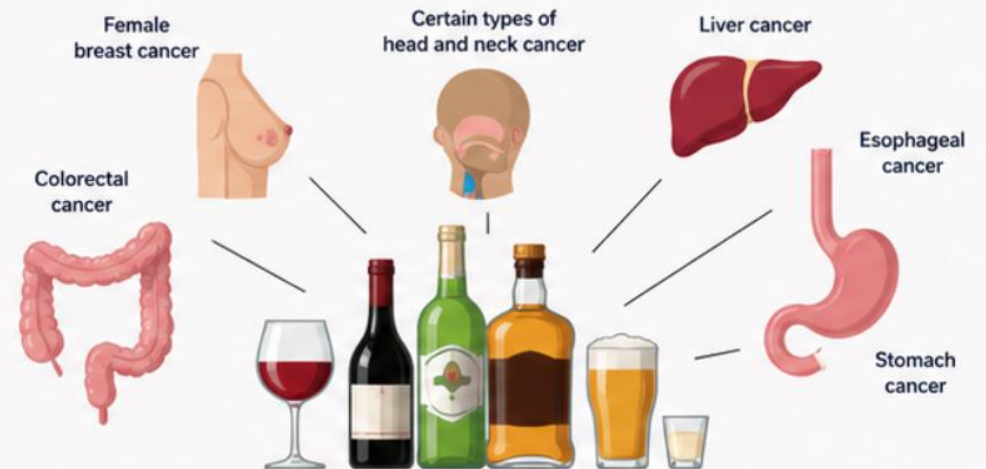


Cognitive Problems



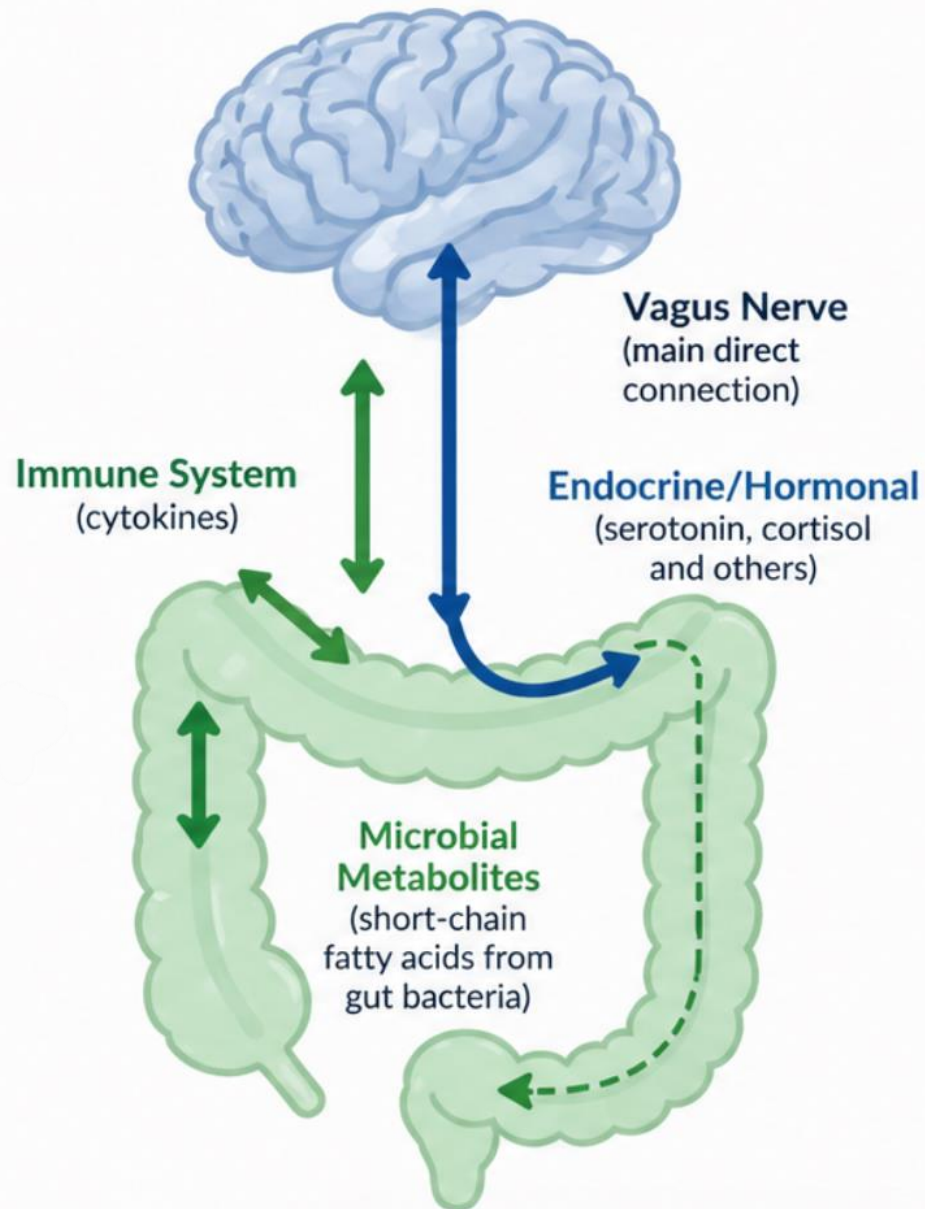
Mental Health Disorders:
depression, anxiety, relationship problems

Alcohol and Cancer Risk



Source: © 2024 American Association for Cancer Research®. AACR Cancer Progress Report 2024

Gut / Brain Axis



Bidirectional Communication



Vagus Nerve



Immune System
Inflammation signals



Endocrine/Hormonal
Serotonin, cortisol, and others
Gut produces ~90% of the body's serotonin



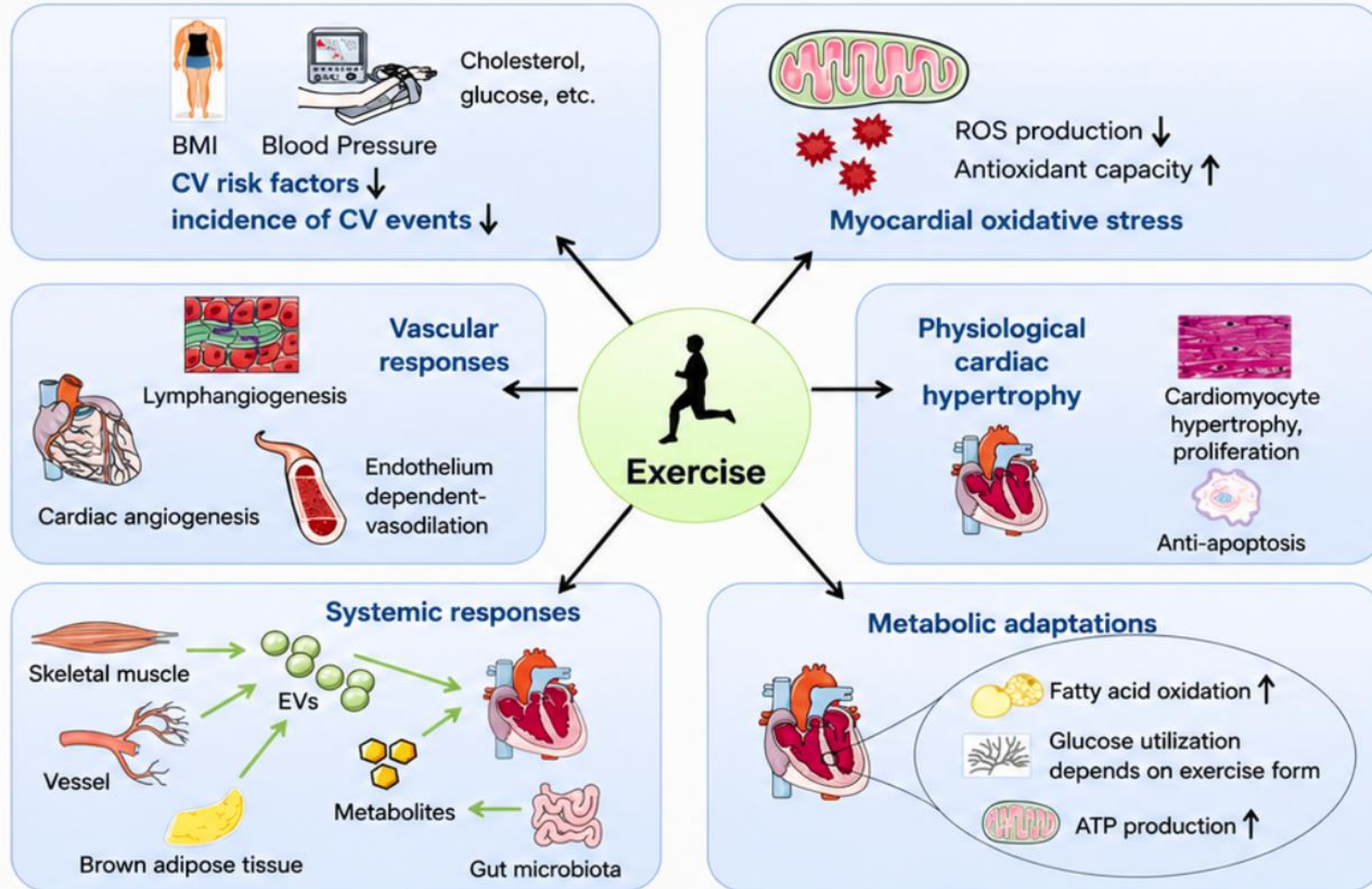
Microbial Metabolites
Short-chain fatty acids from gut bacteria



Enteric Nervous System
the "Second Brain" in the gut (100+ million neurons)

Exercise as Medicine

High-Impact Lifestyle Clusters



Exercise (NIA)



**Endurance
(aerobic):**



150 min
moderate/week



Strength:



2 days/week
major muscle groups



Balance:



reduces fall risk &
boosts cognition



Flexibility:



Daily stretching,
Yoga, Pilates

Dual-Task Motor & Mental (e.g., walk while counting backward; tossing ball and find words of specific category) specifically improves balance variability and executive function in healthy older adults (Park et al., 2022).

Let's Juggle!



I challenge you: **3 minutes/day for 30 days**

Social Isolation & Lack of Purpose

High-Impact Lifestyle Clusters



Increases dementia risk by 27–60%

(Huang et al, 2023; Guarnera et al, 2023)



Higher sense of purpose linked to 28% lower risk of developing cognitive impairment or dementia

(Howard et al. (2025))

Lack of mental stimulation

Increased depression

Poorer vascular health

Weaker brain networks

Higher chronic stress/Inflammation

Social & Meaningful Engagement

High-Impact Lifestyle Clusters



Inter-generational volunteering/tutoring
(e.g., Reading tutors in elementary schools; Grandparenting)



Regular companionship visits (e.g., conversation, games, errands, or shared activities)



Group Programs with Social + Purpose (like SAIL)



Social prescribing programs from doctors, senior centers



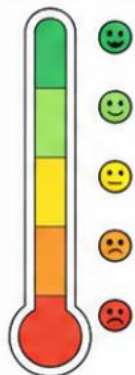
NIA I-CONNECT Trial (2024):



186 socially isolated adults aged 75 and older with normal cognition or mild cognitive impairment



weekly online video conversations



Chronic Depression, Stress, Anxiety

High-Impact Lifestyle Clusters



Medical and Psychological assessment



Psychotherapy - First-line or combined with medication



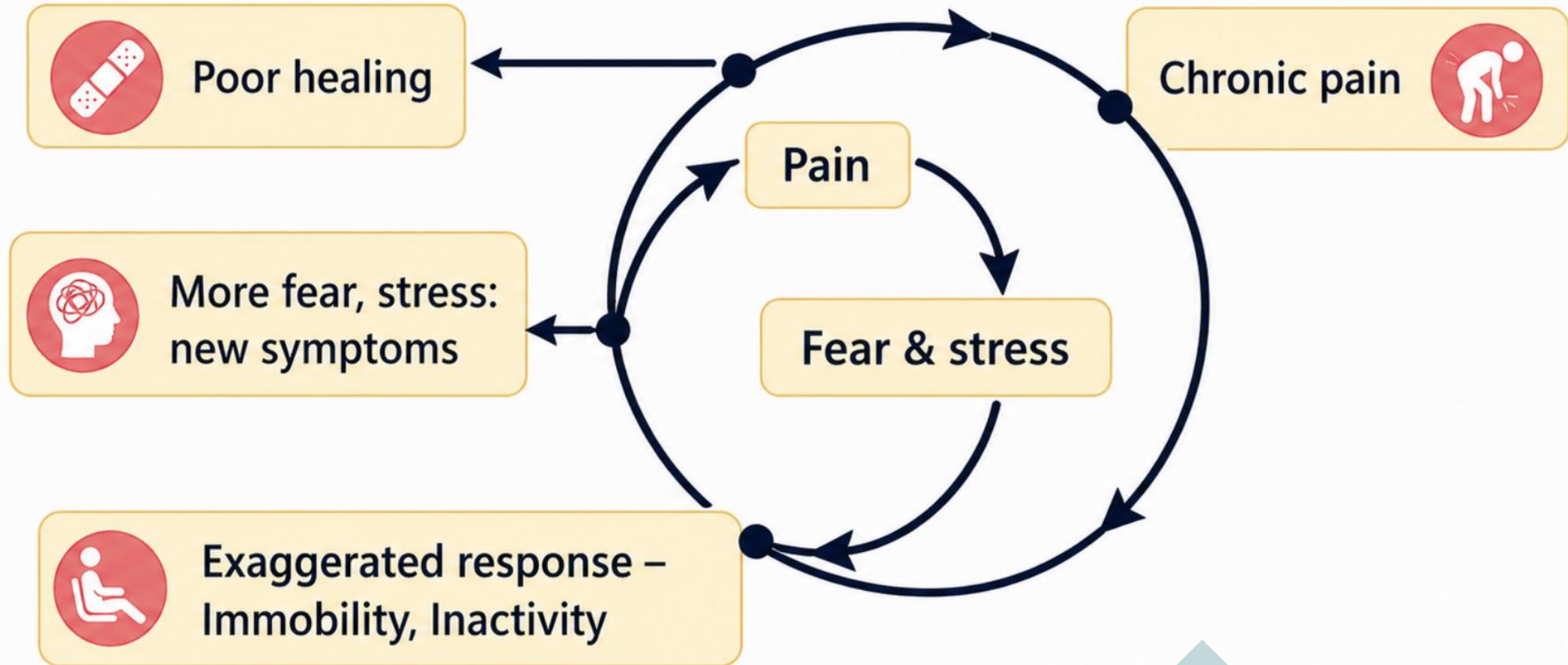
Physical Activation - Aerobic exercise + strength training



Lifestyle and Behavioral Strategies - Sleep hygiene, healthy diet, social connection, meaningful activities, mindfulness, gratitude, journaling, LAUGHTER YOGA

Chronic Pain

The vicious cycle



Lifelong Learning & Cognitive Training

High-Impact Lifestyle Clusters



Lifelong cognitive enrichment-reading, writing, learning languages associated with:

- ✓ 38% lower risk of Alzheimer's disease
- ✓ 36% lower risk of mild cognitive impairment
- ✓ Symptoms of Alzheimer's are delayed by ~5 years in high-enrichment individuals (*Zammit et al., 2026*)



Combined Physical + Cognitive Training:

- ✓ Dual motor tasks
- ✓ Interactive training (e.g., exergames) --> gains in executive functions, speed, global cognition, and physical functions (*Rieker et al., 2022*)



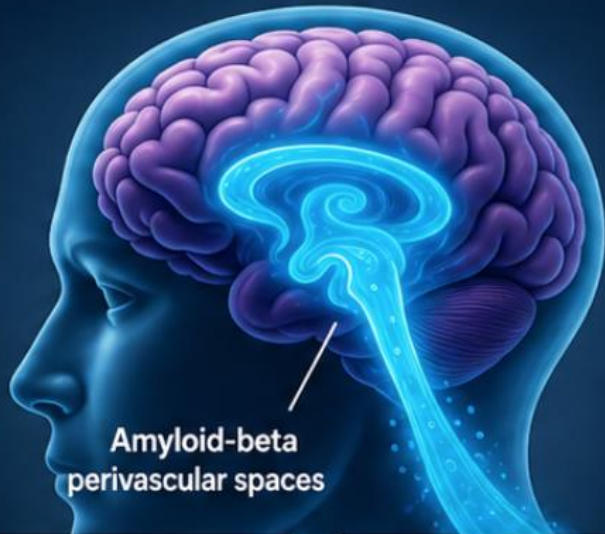
Cognitive training- BrainHQ

- ✓ NIH - ACTIVE study and IMPACT study

Sleep and Brain Health



Deep Sleep – Glymphatic Clearance



Toxin Removal
(Amyloid- β & Tau)



Chronic Insomnia –
Reduced Clearance



Deep sleep activates the glymphatic system, clearing amyloid- β , tau, and other toxins



Chronic insomnia leads to:

- Reduced toxin clearance
- Increased neuroinflammation
- Lower BDNF and impaired neuroplasticity
- Brain atrophy and vascular damage











40% higher risk of MCI or dementia
≈ 3.5 extra years of brain aging

(Carvalho et al., 2025)

Benefits of Laughter



A Genuine Belly Laugh:

-  Triggers endorphins (natural painkillers)
-  Reduces stress hormone cortisol
-  Relieves muscle tension/relaxes
-  Helps break cycles of pain, depression, and stress, & strengthens the immune system
-  Improves mood
-  Attention, and learning
-  Shifts perspective on difficult situations
-  Makes us feel more connected



Highly contagious! - Mirror Neurons

<https://www.youtube.com/watch?v=ydAyvvDQrgY>

Music Engagement

(ASPREE Cohort 2025)



10,893

adults 70+

(dementia-free
at baseline)



Always listening to music

→ **39%** lower
dementia risk



**Often/always playing
instrument**

→ **35%** lower
dementia risk



Both

→ **33%** lower
dementia risk
+ better global
cognition/memory



**Stronger effect
in those with**

**>16
years
education**

Virtual Reality



Cognitive Stimulation

Exposure to immersive environments
→ engages attention & thinking



Physical Stimulation

Pedaling, moving arms, and hand-eye coordination exercises



Social Connection

Reduces loneliness



Mood & Well-being

Improving mood and overall well-being



Improve Memory / Attention

Reminiscence Therapy

Visit childhood homes, travel to bucket-list destinations



Final Poll



On a scale of 1–10, how ready are you to work on your personal successful aging plan now, knowing that improving lifestyle habits could reduce your dementia risk by up to 45%?

Wrap-Up: Successful Aging



Modifiable risk factors prevent up to **45%** of dementia cases
Diet + Regular Exercise + Social Engagement



Neuroplasticity, Cognitive Reserve and Brain Maintenance



Resilience



AGE remains the strongest **non-modifiable** risk factor



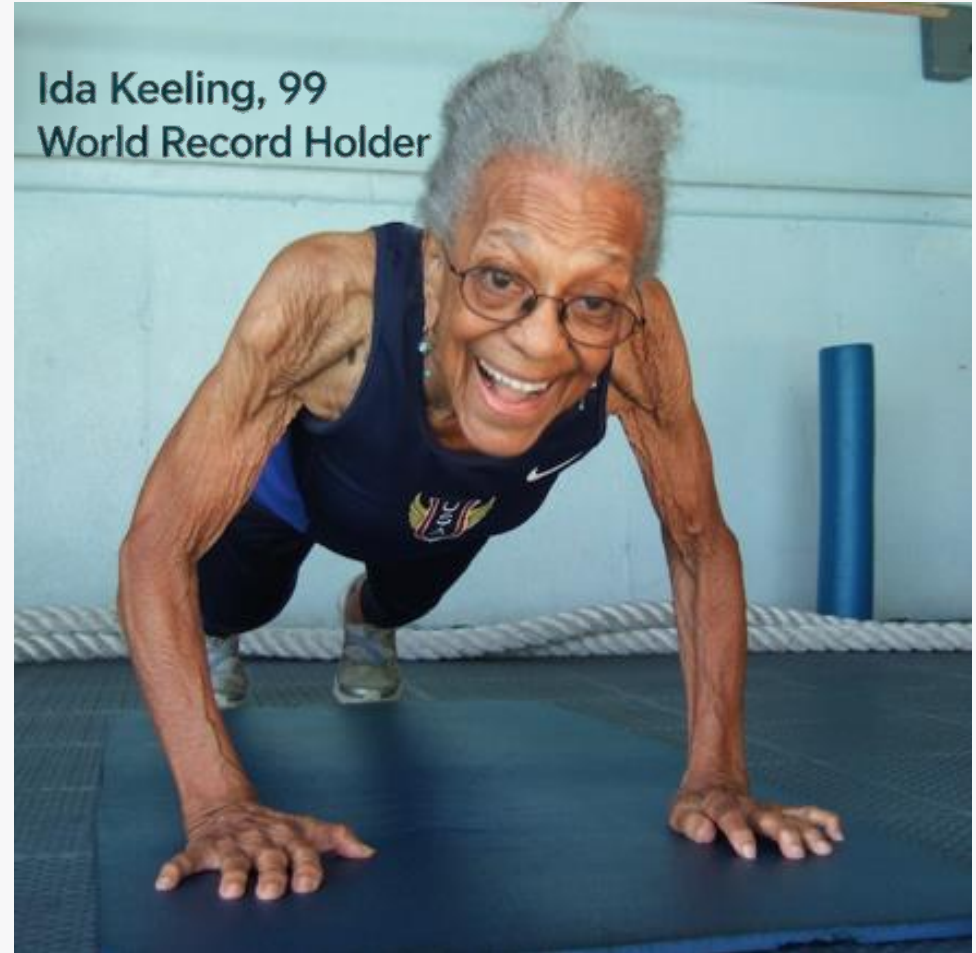
**THE MOST POWERFUL
TOOLS REMAIN OUR
DAILY HABITS**

Ida's Longevity Secrets

“

“Eat for nutrition.
Not for taste.
Do what you need to do,
not what you want to do
and don't leave out your
daily exercise. Love
yourself.”

Ida Keeling, 99
World Record Holder





THANK YOU

for your attention



 Questions?