The Do’s and Don’ts of Healthy Brain Aging

Martin Sliwinski, PhD
Gregory Wolf Professor of Aging Studies
Professor of Human Development & Family Studies
The Center for Healthy Aging
(healthyaging.psu.edu)

Scholarship that promotes lifelong health and well-being
Today’s Goals

Current Trends in Brain Health (bad news/good news)

2 brain health strategies that I prefer (paper and pen for a check-up later!)

Take home message and discussion
None of this is medical advice!

Prioritize facts, but listen to informed opinions

Your situation is unique

YOUR
MILEAGE
MAY
VARY
How worried are adults age 50–64 about developing dementia?

- 6% Very worried
- 38% Somewhat worried
- 56% Not worried

May/June 2019 Report: Thinking About Brain Health

Bad news about our brain health

Approved drugs help with symptoms, but not underlying disease
There are no effective preventive treatments for brain health

Supplements are not regulated as therapeutics (only as food!)
Class action suit against makers of Prevagen

Who's Eligible
Individuals who purchased one or more Prevagen products from a Quincy Bioscience or an authorized retailer between Jan. 1, 2007 and July 21, 2020.

Potential Award
30% cash refunds of up to $70.
Which supplements for brain health?

None!

Supplements *may* work, but there is no evidence.

Fish intake ↓ risk for cognitive decline.
Omega-3 supplements don’t help.
Waiting for a pill to prevent dementia?

You are in for a long wait…
Good news: Rates of Dementia Are Decreasing!

“Even without a breakthrough in medication…there are things we can do to decrease [dementia] risk.”

https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2587084
12 modifiable risk factors account for around 40% of worldwide dementia

**Early Life**
- 7% Less Education

**Midlife**
- 8% Hearing Loss
- 3% Traumatic Brain Injury
- 2% Hypertension
- 1% Alcohol use (>21 units/week)
- 1% Obesity

**Later Life**
- 5% Smoking
- 4% Depression
- 4% Social Isolation
- 2% Physical inactivity
- 2% Air pollution
- 1% Diabetes

https://www.thelancet.com/article/S0140-6736(20)30367-6/fulltext
Dementia prevention, intervention, and care: 2020 report of the *Lancet* Commission

12 modifiable risk factors account for around 40% of worldwide dementia

The remaining 60% may also be preventable

**Early Life**
- 7% Less Education

**Midlife**
- 8% Hearing Loss
- 3% Traumatic Brain Injury
- 2% Hypertension
- 1% Alcohol use (>21 units/week)
- 1% Obesity

**Later life**
- 5% Smoking
- 4% Depression
- 4% Social Isolation
- 2% Physical inactivity
- 2% Air pollution
- 1% Diabetes

https://www.thelancet.com/article/S0140-6736(20)30367-6/fulltext
Six Pillars of Brain Health

(https://healthybrains.org/pillars/)

Physical Exercise
(Get moving!)

Food & Nutrition
(Eat smart!)

Mental Fitness
(Use it or lost it!)

Social Interaction
(Stay connected!)

Sleep & Relax
(Restore yourself!)

Medical Health
(Control conditions!)
How might diet impact dementia risk?

Chronic Inflammation can “kick start” neurodegeneration

- Increases production of **beta-amyloid** in inflamed regions
- Reduces ability of microglia to “clear out” expelled waste
- Also linked to vascular dementia

High inflammatory diet: 27% ↑ in risk of cognitive impairment


Low inflammatory diet: 50% ↓ in dementia incidence

The Mediterranean Intervention for Neurodegenerative Delay
(The MIND diet)
The Mediterranean Intervention for Neurodegenerative Delay
(The MIND diet)

Give yourself 1 point for each YES

• >= 3 servings of whole grains a day
• Green leafy vegetables >= 6 times a week
• Other vegetables at least once a day
• Berries >=2/week
• Fish >=1/week
• Poultry >= 2/week
• Beans >=3/week
• Nuts >5/week
• Mainly olive oil for cooking
• Red meat < 4/week
• Fried or fast food < 1/week
• <1 tablespoon of butter/day
• <1 serving of cheese/week
• <5 five pastries or sweets a week
• One glass of wine or other alcoholic drink a day

>=7.5 cut risk by dementia 50%

>=10 points: brains were 7.5 years younger

Sleep & Relax
(Restore yourself!)

There are only two times I feel stress:
Day and night.
Chronic stress harms brain health

In people 70+, high stress lasting one month doubled the risk of mild cognitive impairment.

Work stress during midlife
- Risk of vascular dementia
- Faster cognitive decline
Stress affects our health behaviors

Neglect friends/
Self isolate

Poor diet

Stress promotes behaviors that increase risk for dementia (and other diseases)

Interfere with exercise

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”

Sleep disturbances
Evidence-based stress management

Practice Mindfulness

Volunteering / help others

Keep your pleasurable activities

Take a moment in nature

https://www.apa.org/topics/stress/tips
A room with a view…

Surgical patients randomly assigned a room during recovery…

Just viewing green space improved recovery
↓ postoperative stays
↓ demand for potent pain meds

Try taking your brain for a walk!
Immediate benefits to your brain!

↑ Memory function (8 IQ points)
↑ Attention (10 IQ points)

Interacting with green space could be a “quick fix” to boost your brain function

https://ehp.niehs.nih.gov/doi/abs/10.1289/isesisee.2018.O01.03.35
Longer term effects of proximity to green space

Proximity to roads is associated with ↑ risk for neurodegenerative conditions

Air pollution exacerbates risk

Green space *may* mitigate risk

The data says we need more data.

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)32399-6/fulltext
Take Home Points

Dementia Rates are decreasing!

Dementia is Preventable Condition

- **Early Life**: 7% Less Education
- **Midlife**: 8% Hearing Loss, 3% Traumatic Brain Injury, 2% Hypertension, 1% Alcohol use (>21 units/week), 1% Obesity
- **Later Life**: 5% Smoking, 4% Depression, 4% Social Isolation, 2% Physical inactivity, 2% Air pollution, 1% Diabetes

Things we should do

- **Physical Exercise** (Get moving!)
- **Social Interaction** (Stay connected!)
- **Food & Nutrition** (Eat smart!)
- **Sleep & Relax** (Restore yourself!)
- **Mental Fitness** (Use it or lose it!)
- **Medical Health** (Control conditions!)
The Do’s and Don’ts of Healthy Brain Aging

THANK YOU!