

Our aging brains: Meeting the changes and challenges

Jeff Hamm, Executive Director

Alzheimer's and Dementia Alliance of Wisconsin

March 22, 2022





- *Mission:* Serve individuals and families impacted by dementia
- Cover 10 counties in south-central and southwestern Wisconsin
- 10 staff, including 6 service providers
- *Partners along the journey*



ADAW

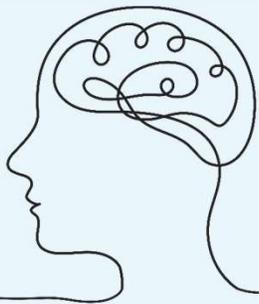
Programs and Services

1. Care consultations
2. Education programs
3. Support groups for caregivers/care partners
4. Programs for persons living with a diagnosis
5. Outreach to the Black community in Dane County
6. Dementia respite grants in Dane County

All programs and services are free to participants

Today's Topics

- Normal aging and cognition
- When we might worry
- Getting answers
- Maintaining our brain health



We expect physical changes as we age

- Eyesight
- Hearing
- Mobility
- Smell and taste
- Ability to heal

We should also expect changes in how our brains work (“cognition”)





What is Cognition?

- Memory and learning
- Paying attention
- Using language
- Reasoning and decision-making (executive function)
- Sensing, perceiving, and moving in space
- Personality and behavior

Age-related changes in cognition

- Some changes are for the better
- Some changes are not



Changes for the better

- “Crystalized knowledge” —practiced and familiar skills, abilities, and knowledge (Harada, Love and Triebel, 2013)
 - Includes vocabulary and general knowledge (facts)
 - Stable or even improving over lifespan
- Improved emotional well-being
- Wisdom



Changes we don't like to see

- “Fluid processing”—“ability to process and learn new information, solve problems, and attend to and manipulate one’s environment” (Harada, Love and Triebel, 2013)
- Abilities peak in our 30s and then decline
- Areas of decline:
 - Processing speed
 - Attention
 - Memory
 - Language
 - Visuospatial abilities
 - Executive functioning

Processing Speed



- Older brain takes longer to take in information, process it, and formulate a response
- We can struggle with complex tasks that require fast processing
- Example: Driving

Attention

- Attention = “capacity for processing information” (Blazer et al., 2015)
- 2 types of attention decline with age:
 - *Selective attention* = “ability to focus on specific information in the environment while ignoring irrelevant information”
 - *Divided attention* = “ability to focus on multiple tasks simultaneously”
- Example: Driving (again. Sorry!)

Memory

- Memory is complicated; scholars posit several types (Blazer et al., 2015)
- Aging negatively affects
 - *Working memory* (briefly holding and manipulating items in mind; e.g., calculating tips in our heads)
 - *Episodic memory* (experiences; e.g., remembering where the car was parked)
 - *Prospective memory* (plans for the future)
- 2 types of memory remain stable: semantic (vocabulary words) and procedural (how to do things)

Language

- Areas of decline (Harada, Love and Triebel, 2013; Blazer et al., 2015)
 - Word finding, “tip of the tongue” phenomenon
 - “Verbal fluency”—ability to generate words for a category
- Generally, not substantial declines in language abilities
- Language changes may suggest a more serious issue

Visuospatial abilities

- Sensing, perceiving, moving in space
- Affected by changes in eyesight and hearing
- “Visual construction skills”—ability to put individual parts together to make a whole—decline with age (Harada, Love and Triebel, 2013)
- Otherwise, abilities remain mostly intact
- No expected decline in ability to recognize familiar objects or spatial perception. These can occur with brain disease.

Executive function

- Definition: “Ability to self-monitor, plan, organize, reason, be mentally flexible, and solve problems” (Harada, Love and Triebel, 2013)
- Examples:
 - Follow steps in a process
 - Plan and organize an activity
 - Explain reasoning
 - Control impulses
 - Make good decisions
- Some decline with age, but should not affect daily life

This is probably normal aging

- Forgetting someone's name and remembering later
- Losing things from time to time
- Making a bad decision once in a while
- Forgetting which day it is and remembering it later
- Missing a monthly payment
- Sometimes forgetting which word to use

(National Institute on Aging, 2020)



Maybe not normal aging

- Making poor judgments and decisions a lot of the time
- Problems taking care of monthly bills
- Losing track of the date or time of year
- Trouble having a conversation
- Misplacing things often and being unable to find them

(National Institute on Aging, 2020)



“Red Flags”

- Getting lost, especially along familiar routes
- Repeating stories or questions
- Persistent language problems—word finding, making sense, keeping train of thought
- Attention problems (e.g., long periods staring into space)
- Forgetting familiar routines
- Consistently making poor decisions
- Significant changes in personality or behavior
- Problems with senses and perception: e.g., loss of smell/taste, increased sensitivity to sound/noise, unusual vision problems
- Delusions (false beliefs) or hallucinations (seeing/hearing things not present)

Myth: “You’re fine if you think you have a problem”

- **Myth:** Brain disease means no insight—you won’t realize there is a problem
- **Fact:** “Subjective Memory Complaints” (SMC) have been associated with risk of future cognitive decline (Mitchell et al., 2014)
- Take memory concerns seriously



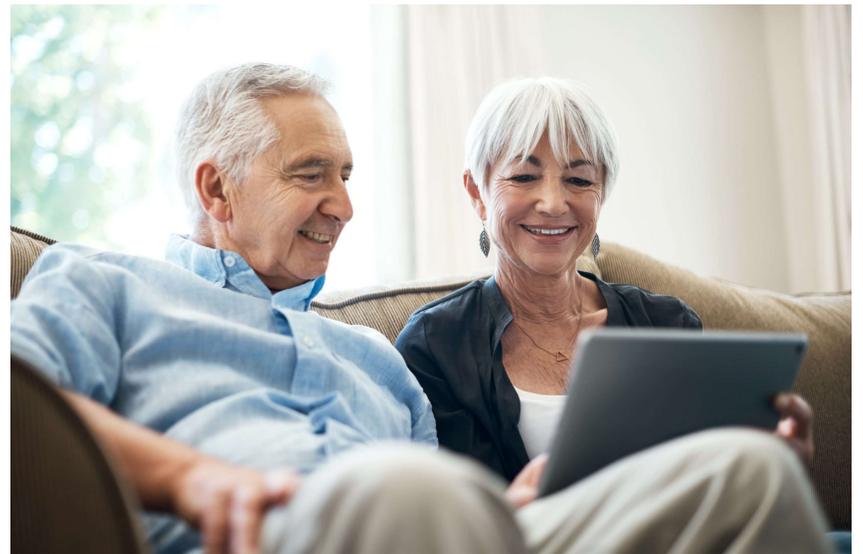
Getting Answers



- Rule out medical issues, especially if change occurs quickly
- Get screened (primary medical provider can do this)
- If screen is positive, get full cognitive assessment
 - Interviews
 - Neuropsychological testing
 - Physical exam
 - Labs and scans
- Truth is—estimated 50-66% of those who screen positive don't get full assessment (Fowler et al., 2015)

- Rule out treatable causes (e.g., infection, depression, sleep problems, nutritional deficiencies, medication effects, head trauma)
- Make plans: healthcare, legal, financial, living arrangements, long-term care
- Start medications early
- Adjust your lifestyle
- Get involved in clinical trials
- Make choices, maintain quality of life, fulfill dreams, retain autonomy

Why learn more?



Activities supporting brain health



- Make brain healthy changes
- Exercise
- Eat healthy
- Get adequate sleep
- Reduce stress
- Stay socially involved
- Use your brain

- Control blood pressure, cholesterol, blood sugar
- Reduce/stop smoking
- Reduce alcohol use (no more than 1-2 drinks/day)
- Monitor and possibly lose weight
- Treat sleep disorders
- Treat depression
- Protect head (wear seat belt and helmet, prevent falls)

Brain-healthy changes



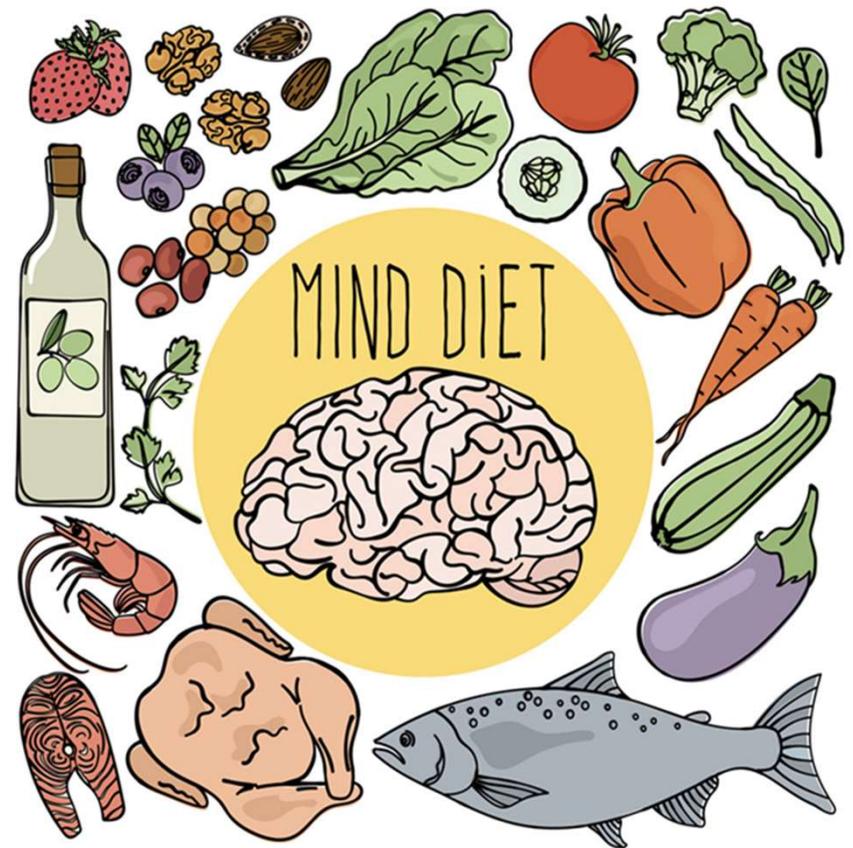
Physical exercise



- Reduces risk of dementia
- Delays dementia onset
- Benefits those with a diagnosis
- Improves sleep, immune system, mental health

Eat Healthy

**Mediterranean Dietary
Intervention for
Neurodegenerative
Delay**



Get adequate sleep



- Research suggests that sleep is connected to brain health
- Consider getting a sleep study
- There are ways we can improve our sleep

Reduce stress

- Evidence for relationship between stress and cognitive problems, but scientists not sure why
- Possibly related to immune system
- Consider how you handle stress



Stay socially involved



- Stay active in the workplace or volunteer
- Join social groups
- Spend time with family
- Travel
- Meet new people
- Maintain goals and purpose

Use your brain!

- Intellectually stimulating activities and new experiences = increased “cognitive reserve”
- Learning may be rewiring our brains
- Some evidence that engaging our brains reduces risk of dementia, delays cognitive decline



Cognitive activities supported by research



- Crossword puzzles
- Card games
- Computer use
- Arts and crafts
- Cognitive training programs
- Do something new (Krivanek et al, 2021)
- Do what you enjoy

Memory aids

- Write it down!
- Calendar
- Post-its
- To-do lists
- Notebook/journal
- Email or text to self
- Reminder apps: phone, Google assistant, Alexa
- Pill boxes, whiteboards, labels
- Establish routines
- “Conscious forgetting”—just let it go

IMPORTANT: It's OK to forget!



Summary

- Our brains age like the rest of our bodies
- We should expect brain changes around attention, memory, executive function
- Normal brain aging can affect lifelong activities—e.g., driving
- Important to distinguish between normal brain aging and a problem
- Take memory or other cognitive concerns seriously
- The causes of some cognitive problems are treatable!
- Get checked out by medical provider
- Do things that support brain health: exercise, diet, sleep, stress, social involvement, using your brain

References

- Blazer, D. G., Yaffe, K., & Liverman, C. T. (Eds.). (2015). Cognitive aging: Progress in understanding and opportunities for action (p. 21693). National Academies Press.
<https://doi.org/10.17226/21693>
- Fowler, N. R., Frame, A., Perkins, A. J., Gao, S., Watson, D. P., Monahan, P., & Boustani, M. A. (2015). Traits of patients who screen positive for dementia and refuse diagnostic assessment. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 1(2), 236–241. <https://doi.org/10.1016/j.dadm.2015.01.002>
- Harada, C. N., Natelson Love, M. C., & Triebel, K. L. (2013). Normal cognitive aging. *Clinics in Geriatric Medicine*, 29(4), 737–752. <https://doi.org/10.1016/j.cger.2013.07.002>
- Krivanek, T. J., Gale, S. A., McFeeley, B. M., Nicastrì, C. M., & Daffner, K. R. (2021). Promoting successful cognitive aging: A ten-year update. *Journal of Alzheimer's Disease*, 81(3), 871–920. <https://doi.org/10.3233/JAD-201462>
- Mitchell, A. J., Beaumont, H., Ferguson, D., Yadegarfar, M., & Stubbs, B. (2014). Risk of dementia and mild cognitive impairment in older people with subjective memory complaints: Meta-analysis. *Acta Psychiatrica Scandinavica*, 130(6), 439–451.
<https://doi.org/10.1111/acps.12336>
- National Institute on Aging. (2020, October 21). Memory, forgetfulness, and aging: What's normal and what's not? Health Information. <https://www.nia.nih.gov/health/memory-forgetfulness-and-aging-whats-normal-and-whats-not>

Questions / Comments

*Thank
you*

Contact information:

Jeff.hamm@alzwisc.org

608-232-3400, ext 112

