

Supporting Aging in Place While Living With Cognitive Impairment

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Faculty Disclosures

No Commercial Disclosures

EDUCATIONAL NEED/PRACTICE GAP

Gap = Aging in place with cognitive impairment has substantial challenges without clear pathways for intervention.

Need = Additional training and awareness of available tools and strategies to support aging in place with cognitive impairment can help this clinical care gap.

OBJECTIVES

By the end of this presentation, attendees will:

- 1) Describe 3 brief cognitive assessments which can be used with older adults.
- 2) Identify at least two behavioral and psychiatric symptoms of dementia that are often observed in community-residing older adults with cognitive impairment.
- 3) Discuss 3 approaches to encourage improved functional performance in daily activities to support aging in place for older adults with cognitive impairment.



EXPECTED OUTCOME

Providers will have increased sense of comfort and interest in supporting aging in place for older adults with cognitive impairment.



When a flower doesn't
bloom, you fix the
environment in which it
grows, not the flower.

-Alexander Den Heijer

Background



Shifting demographics in the US will dramatically change healthcare over the next 40 years



“Demographic tsunami” of older adults

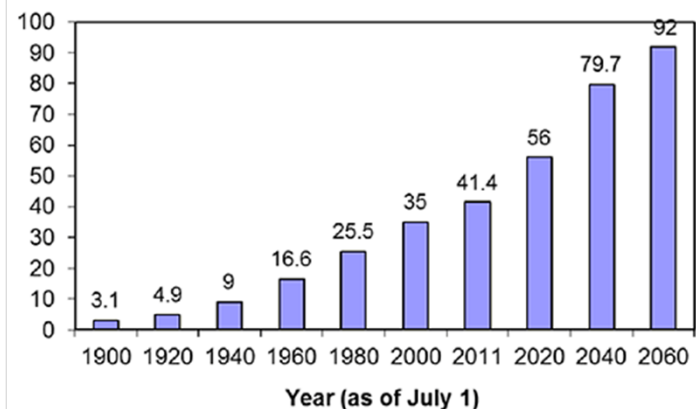


KY has ranked 49th out of 50 states for health care



Two counties in top 25 in the country for Alzheimer’s disease and related dementias among African Americans

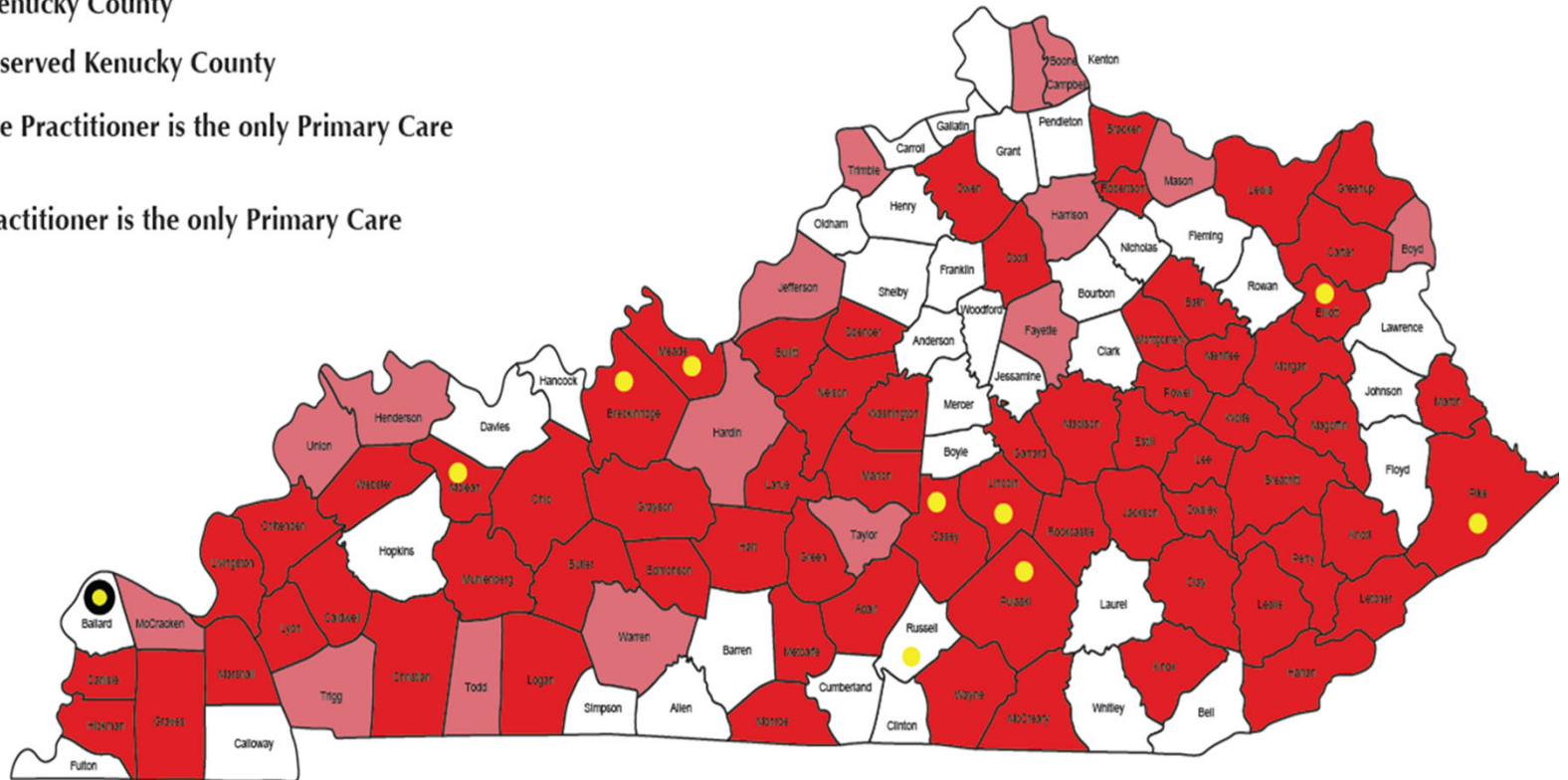
Figure 1: Number of Persons 65+, 1900 - 2060 (numbers in millions)



Innovative initiatives are needed to improve aging health, well-being, and quality of life.

Medically Under-served Areas in Kentucky

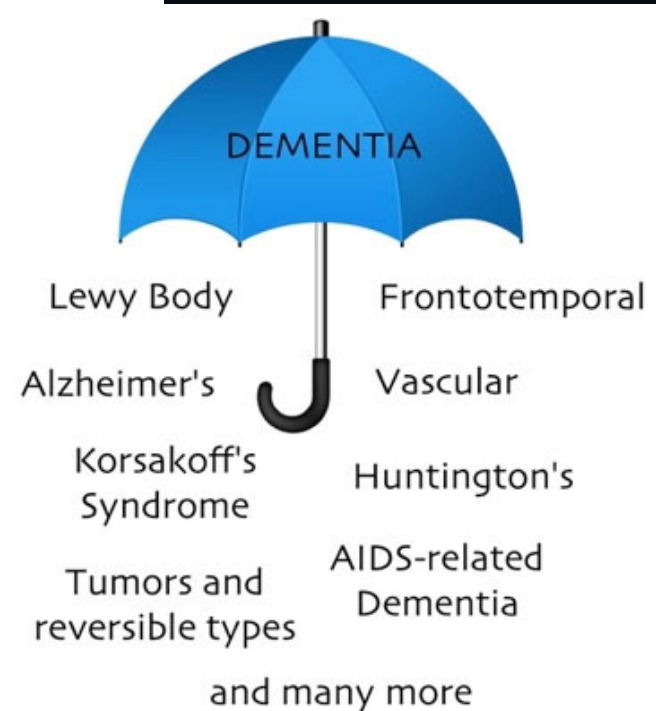
- Medically Under-served Kentucky County
- Partially Medically Under-served Kentucky County
- Community where a Nurse Practitioner is the only Primary Care Provider
- County where a Nurse Practitioner is the only Primary Care Provider



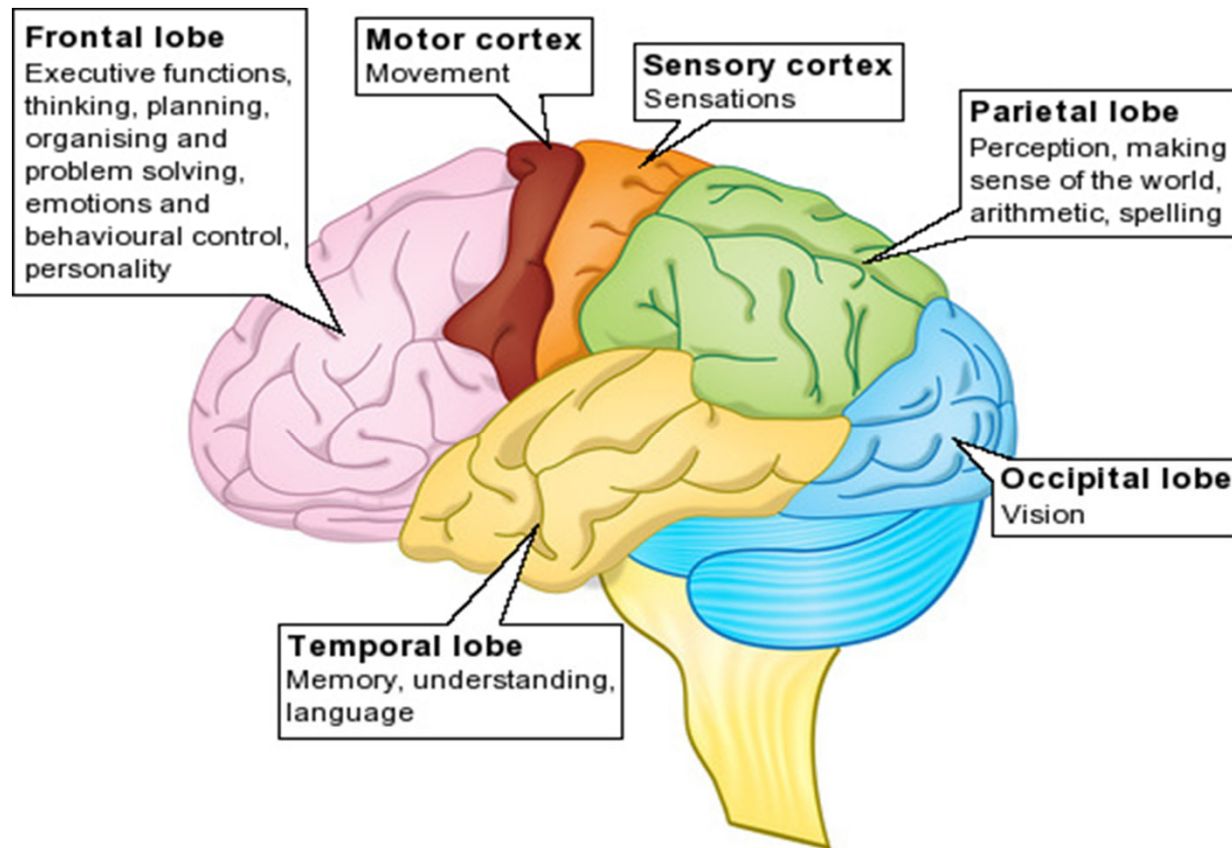
Dementia Defined

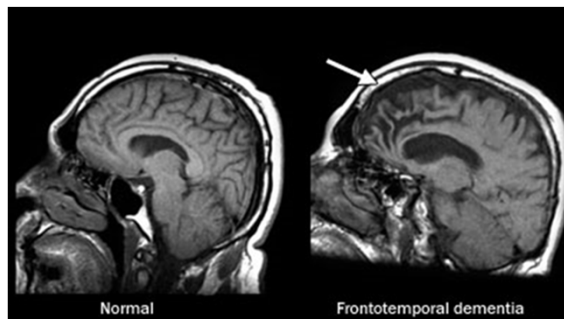
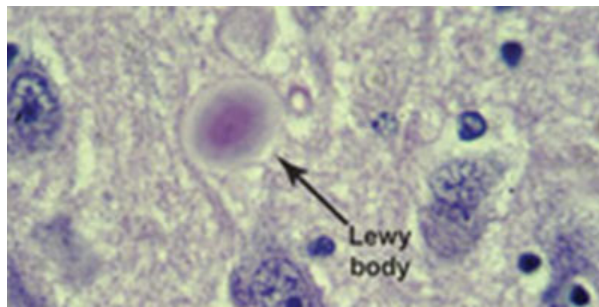
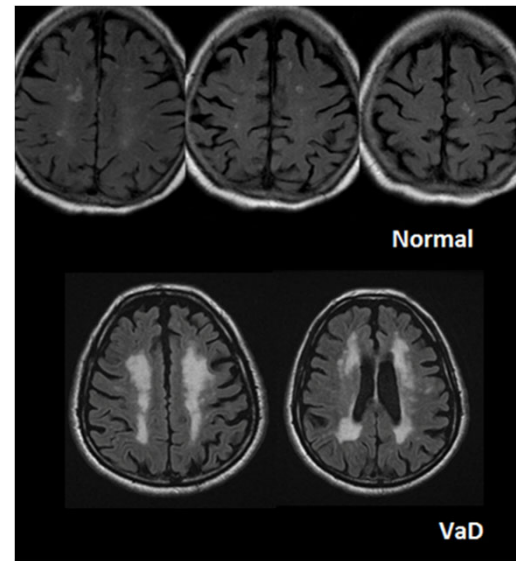
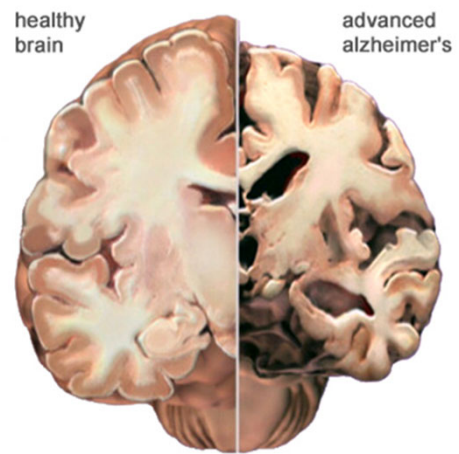
"Dementia is a general term that describes a group of symptoms-such as loss of memory, judgment, language, complex motor skills, and other intellectual function-caused by the permanent damage or death of the brain's nerve cells, or neurons," (Alzheimer's Foundation of America, 2015)

- Types of Dementia
 - Alzheimer's Dementia
 - Vascular Dementia
 - Lewy Bodies Dementia
 - Frontotemporal Dementia
 - Several other causes and similarities



The brain as a map to function...





RECOMMENDED ASSESSMENTS

General Practitioner Assessment of Cognition (Part 1): a screening tool for cognitive impairment designed for use in primary care. (If the patient scores less than 8 on Part 1 of the test, additional information is needed)

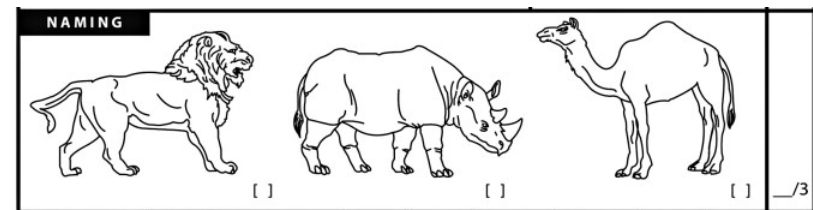
Mini-mental state exam (MMSE): a 30-point screening tool for cognitive impairment that examines orientation, registration, attention and calculation, recall, language and visuospatial ability. Less than 24pts indicates follow up.

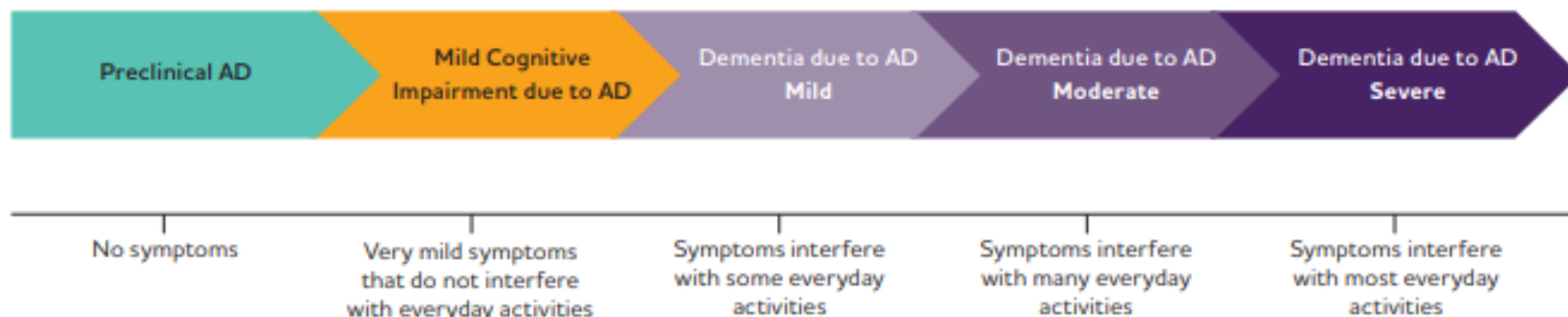
Mini-cog: 3-minute test consisting of a recall test for memory and a scored clock-drawing test. It can be used effectively after brief training and results are evaluated by a health provider to determine if a full-diagnostic assessment is needed.

Montreal cognitive assessment (MOCA): a rapid screening instrument for mild cognitive dysfunction. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. Scores of 25 or lower indicate follow up needed

SPECIAL CONSIDERATIONS:

- WHEN LANGUAGE OR READING ARE IMPAIRED, USE NUMBER SYMBOL CODING TEST OR COG STATE
- CONSIDERATION FOR TRANSLATION
- COMPLETED BY PATIENT OR INFORMANT?
- CONFIRM USE OF HEARING OR VISUAL AIDS PRIOR TO STARTING





*Although these arrows are of equal size, the components of the AD continuum are not equal in duration.



- 1 in 9 adults over the age of 65 have Alzheimer's disease and related dementias (ADRD)
 - 1 in 3 adults over the age of 85 have ADRD
 - \$355 billion in paid caregiving and \$256.7 billion in unpaid caregiving
- (Alz. Association, Facts and Figures 2023)

Nearly 90% of those with ADRD experience behavioral and psychiatric symptoms of dementia

(Baum 1993; Gerlach & Kales, 2020)

Behavioral symptoms include:

- Anxiety
- Apathy
- Agitation
- Depression
- Disinhibition
- Hallucinations and delusions
- Motoric agitation
- Sleep disturbance

Behavioral symptoms increase:

- Caregiver distress
- Institutionalization
- Overuse of psychotropic medications
- Morbidity
- Mortality



WARNING: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

See full prescribing information for complete boxed warning.
Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. RISPERDAL® is not approved for use in patients with dementia-related psychosis. (5.1)

Pharmacological and non-pharmacological approaches options lack strong evidence to support treatment of behavioral symptoms of dementia

Sensory Systems

- Sight
- Sound
- Smell
- Taste
- Touch
- Pressure
- Movement
- Interoception



Audience Participation

On the next 3 slides, I am going to show you a series of photos.

If you recognize the person in the photo, yell out their name as quickly as you can.

**This activity borrowed from Dr. Heather Whitson, MD of Duke University







What your brain just did with that visual cue



200ms

See picture

- dimensions
- color
- contours

300ms

Semantic access

- recognize
- ascribe meaning
- recall

400ms

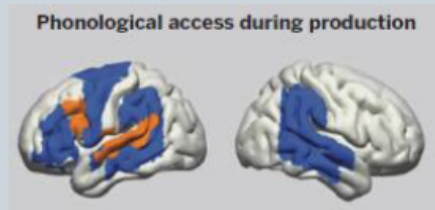
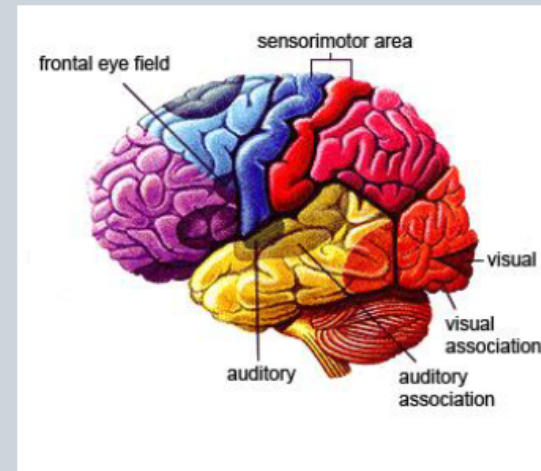
Phonologic retrieval

- connect meaning to word
- recall sound of word

“BILL GATES!”

Articulation

- produce utterance (or sense “tip of the tongue”)



Shafto MA & Tyler LK *Science* 2014

Sight



COLOR AWARENESS
FADES; USE HIGH
CONTRAST, REDS AND
BRIGHT GREENS



DECREASED
AWARENESS TO
PERIPHERALS AND
ABOVE 48" FROM
FLOOR



DEPTH AWARENESS
DECREASES, DARK
COLORS ON FLOOR
LOOK LIKE HOLES IN
THE GROUND



PICTURES MAY HELP
WHEN VERBAL
COMMUNICATION
GOES DOWN

Sound

- It can take up to 90 seconds to process what they hear
--SLOW DOWN--
- Allow for pause and their response
- They may only pick up 1 out of every 3 words
- Music is calming, sing while offering care
- Use music from their golden years (15-25 years old)
- Nature sounds are soothing

Smell/Taste

Perception of smell may decrease, but chemical reaction still occurs in brain—ensure pleasant smells

Lavender is calming, citrus is alerting

Sugar may help people eat more food

Touch

- Deep touch is can be calming and light touch can be alerting
- Hold hands often
- Stand to the side and offer your hand to help
- Encourage touching environment

Pressure

- Calming input throughout the lifespan
- Massage
- Hand over hand
- Gentle Joint Compressions



Movement

- Walking should be encouraged several times throughout the day
- Rocking is calming
- Stretching is calming
- Use hand under hand approach with other hand on person's back when encouragement to walking is needed

Engagement to support cognitive function

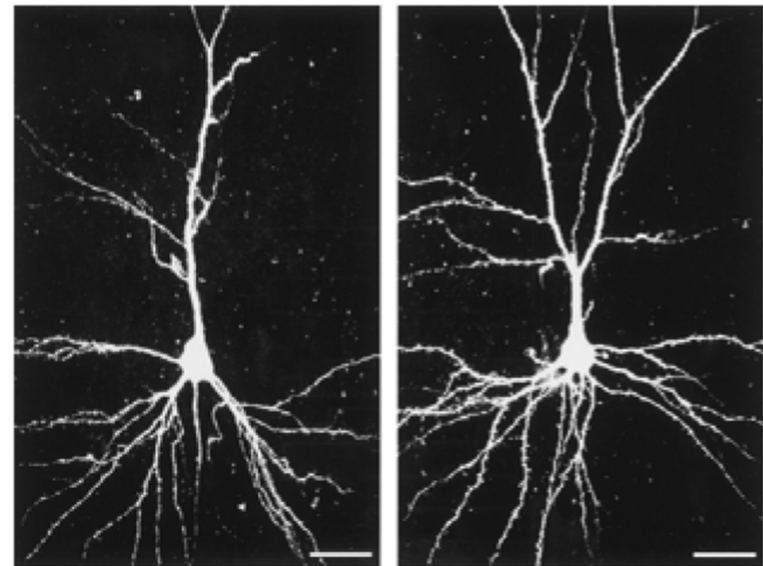


Landrum, R. Eric, et al. *Everyday Applications of Psychological Science: Hacks to Happiness and Health*. Routledge, 2022.

- **Sensory Stimulation**- Specific release of acetylcholine in cortex and hippocampus
- **Physical Exercise**- Neurotrophic changes leading to neurogenesis and synaptogenesis; specific neurogenesis in hippocampus (Kleim, Jones, Schallert, 2003; Mustroph, et al., 2012)
- **Social** – Social activity is a critical element for cognitive stimulation
- **Cognitive challenge**- Novel activities build neurological pathways
- **Nutrition**- Required for brain health
- **Sleep**- Restores and cleanses brain toxins

Engaging environments are neuroprotective

- Produces neurogenesis across the life span in hippocampus, olfactory bulbs, frontal, parietal, and occipital cortices of animals and humans
- Increased cortical weight and thickness
- Life time synaptogenesis
- Creation of cognitive reserve



Vaquero-Rodríguez A, Ortuzar N, Lafuente JV, Bengoetxea H. Enriched environment as a nonpharmacological neuroprotective strategy. *Experimental Biology and Medicine*. 2023;248(7):553-560. doi:10.1177/15353702231171915

Speisman RB, Kumar A, Rani A, et al. Environmental enrichment restores neurogenesis and rapid acquisition in aged rats. *Neurobiol Aging*. 2013;34(1):263-274. doi:10.1016/j.neurobiolaging.2012.05.023

Enriching the Environment

- **Social**
 - Be around others and interacting: talking, singing, touching
 - Watching others: family, children, cars
- **Sensation**
 - Touch and feel a *variety* of textures
 - Use the hands to immerse into the environment
 - Music, movement, smells, tastes~ talk about sensations

Hikichi, Hiroyuki, et al. "Social interaction and cognitive decline: Results of a 7-year community intervention." *Alzheimer's & Dementia: Translational Research & Clinical Interventions* 3.1 (2017): 23-32.

Inglis FM, Fibiger HC. Increases in hippocampal and frontal cortical acetylcholine release associated with presentation of sensory stimuli. *Neuroscience*. 1995;66(1):81-86. doi:10.1016/0306-4522(94)00578-s





Physical

Get active in the fresh air and sunshine
~150 minutes of activity per week



Cognitive Challenge

Stimulate thinking by staying engaged and participating in activities

Novelty matters, use activities that are the 'just right challenge'

Quiet and unoccupied does not always equate to happy and satisfied

Bradley J. Baranowski, Daniel M. Marko, Rachel K. Fenech, Alex J.T. Yang, and Rebecca E.K. MacPherson. 2020. Healthy brain, healthy life: a review of diet and exercise interventions to promote brain health and reduce Alzheimer's disease risk. *Applied Physiology, Nutrition, and Metabolism*. **45**(10): 1055-1065. <https://doi.org/10.1139/apnm-2019-0910>

Enriching the Environment

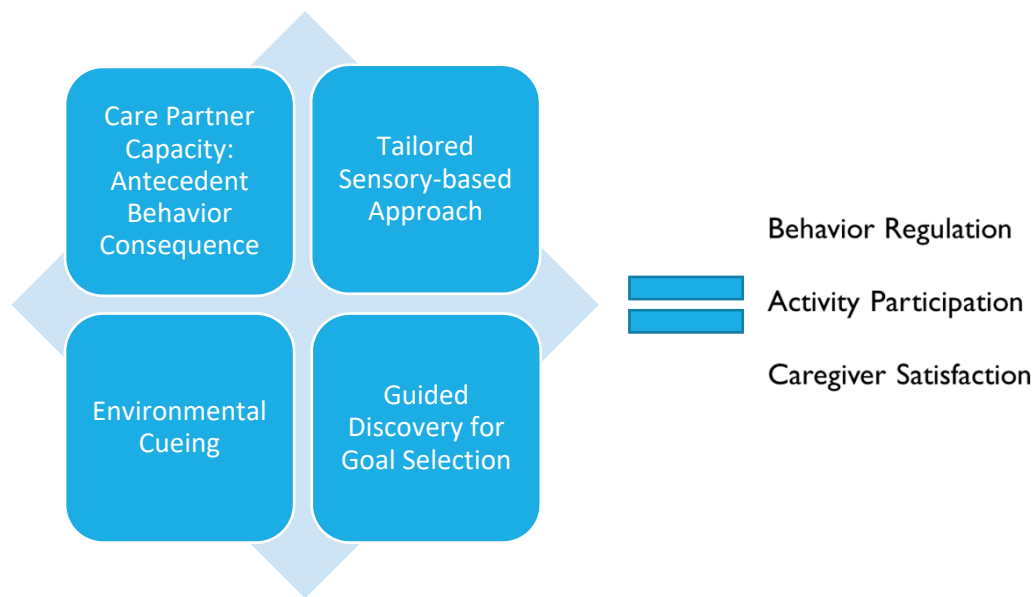
- **Sleep**
 - Sleep Preparation: Cool, dark, quiet space
 - Sleep Hygiene: Uninterrupted; 7-9 hours
 - Sleep cleanses the brain
- **Diet**
 - Mediterranean diet is best
 - Low sodium
 - MIND Diet principles:
 - Whole foods
 - Health fats
 - Low red meat and processed foods

Gilley RR. The Role of Sleep in Cognitive Function: The Value of a Good Night's Rest. *Clinical EEG and Neuroscience*. 2023;54(1):12-20. doi:[10.1177/15500594221090067](https://doi.org/10.1177/15500594221090067)
Puri, S., Shaheen, M., & Grover, B. (2023). Nutrition and cognitive health: A life course approach. *Frontiers in public health*, 11, 1023907.
<https://doi.org/10.3389/fpubh.2023.1023907>



Harmony at HOME

(Helping Online to Modify the Environment)



Specialization in sensory-based assessment and intervention for **enriched environment** used for cueing functional activity engagement

Gap in Clinical Practice: Lack of behavioral interventions to support health and quality of life while aging with dementia particularly in rural communities

(Rhodus et al., 2023, *Amer. J of Occ Ther*)

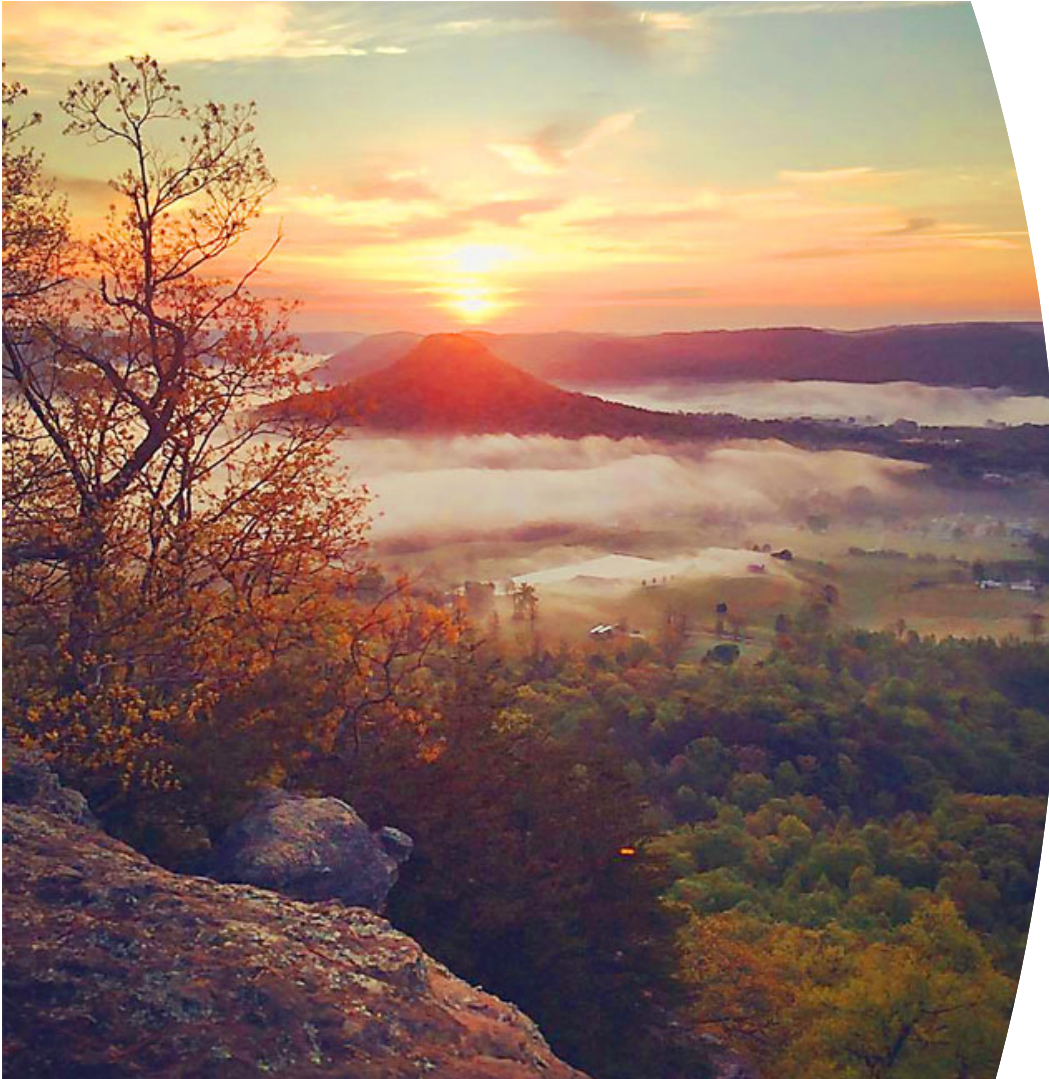


The power of sensory processing:

She (the OT) told me... [to] give him time to catch up, because I would talk, and...I would expect that immediate response.

[When] I didn't get the response from the first question, I was going on with the next two or three. Maybe he don't understand that you know like, well, good morning, are you ready to get up? or you hungry this morning? I've got so and so for breakfast, you know, that's too much to throw at him. And she (the OT) said it takes them longer to process what you've said, process the words, and then to think of their thought to answer back.

So, I have slowed down when I ask a question or say something to him. I've learned one thing at a time. Good morning, wait for a minute. He'll say good morning back...that's helped a lot, because ***I've just thought he didn't want to talk to me.***



DISCUSSION

- Assessment of cognitive impairment with emphasis to preserve daily function
- Intervention to encourage daily activities:
 - Sensory stimulation
 - Physical exercise
 - Social
 - Cognitive challenge
 - Nutrition
 - Sleep

Questions and Comments?

People will forget what you said,
people will forget what you did, but
people will never forget how you
made them feel.

Maya Angelou

 quoteafancy

References available upon request

THANK YOU!

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