

# 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



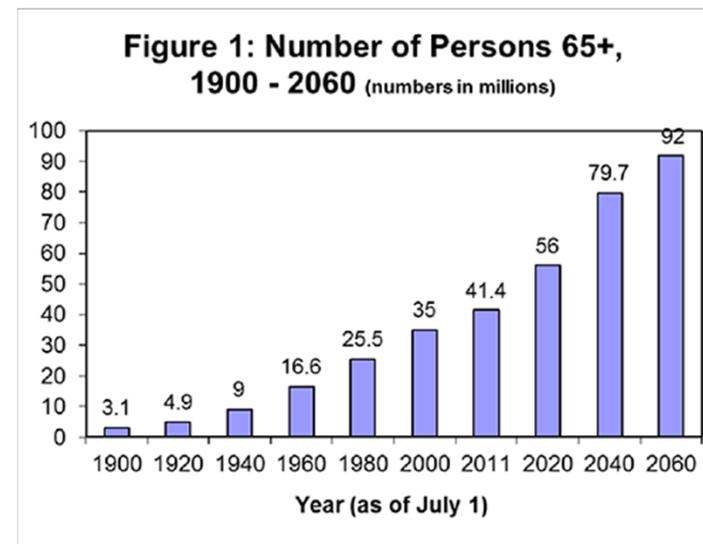
“Demographic tsunami” of older adults



KY has ranked 49<sup>th</sup> 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



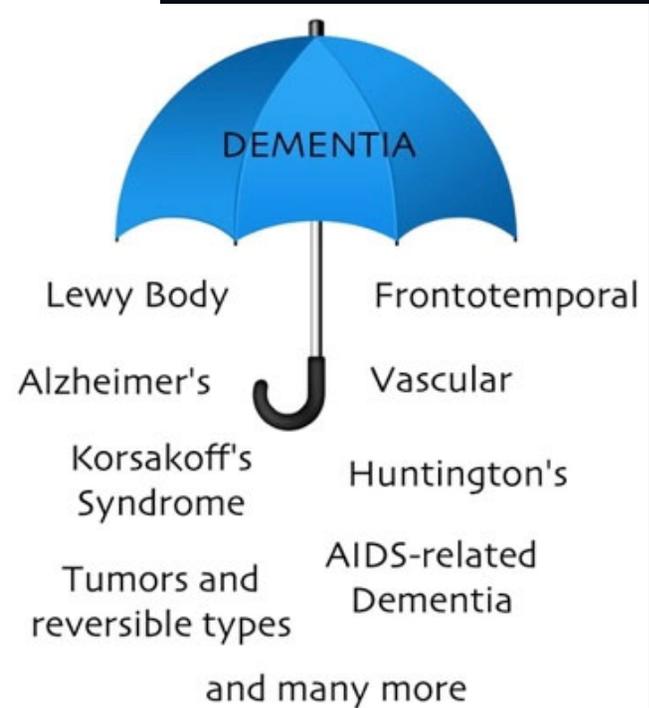
*Innovative initiatives are needed to improve aging health, well-being, and quality of life.*



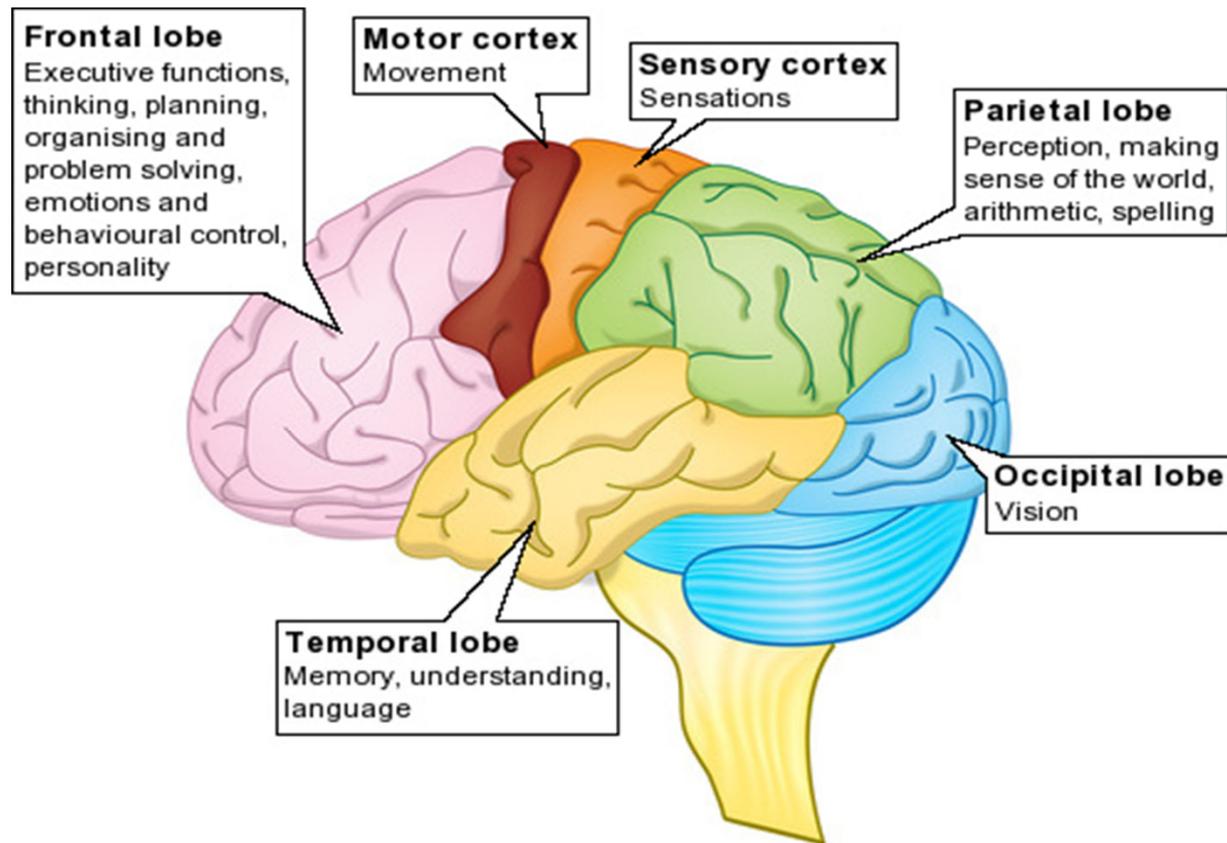
# Dementia Defined

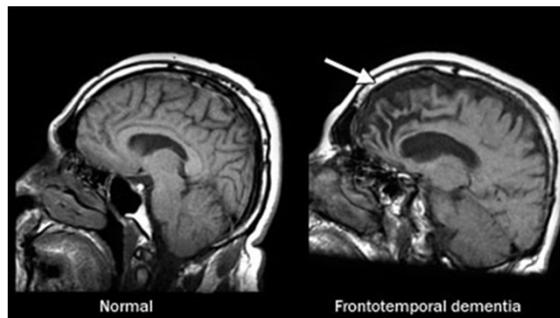
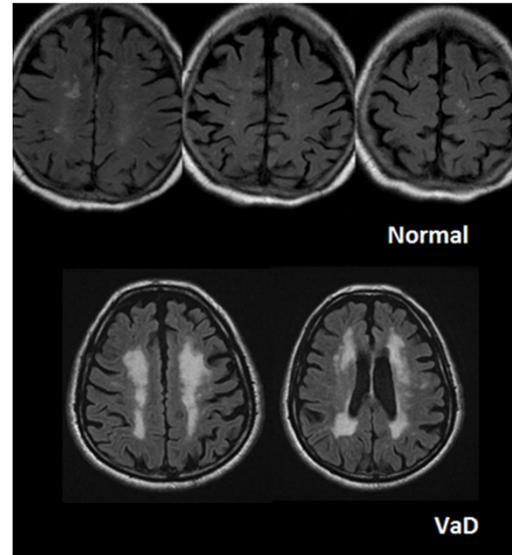
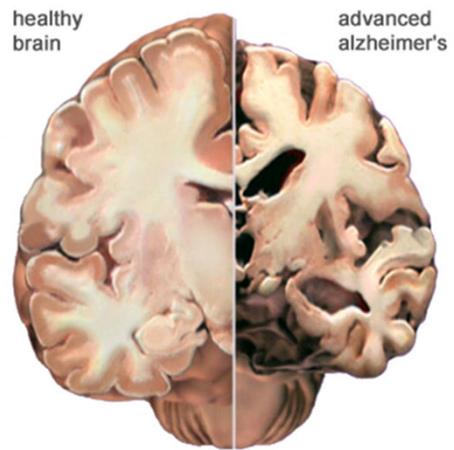
*“Dementia is a general term that describes a group of symptoms-such as loss of memory, judgment, language, complex motor skills, and other intellectual function-caused by the permanent damage or death of the brain's nerve cells, or neurons,” (Alzheimer’s Foundation of America, 2015)*

- 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)

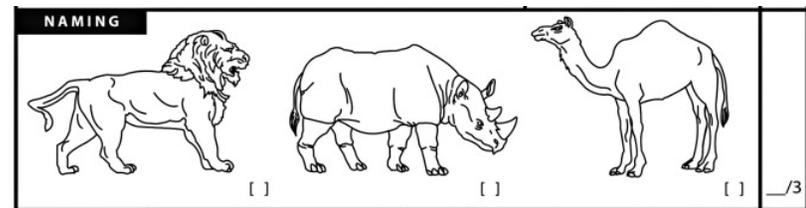
**Mini-mental state exam (MMSE):** a 30-point screening tool for cognitive impairment that examines orientation, registration, attention and calculation, recall, language and visuospatial ability. Less than 24pts indicates follow up.

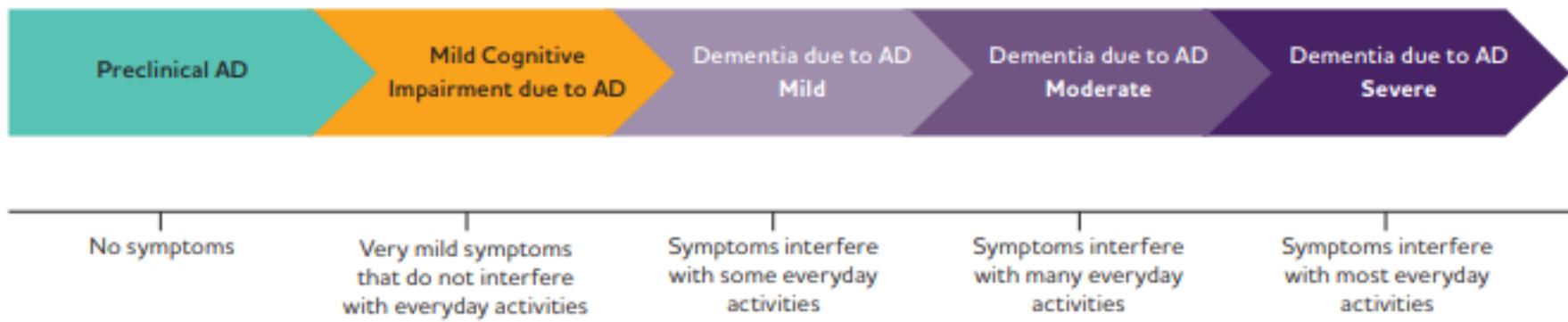
**Mini-cog:** 3-minute test consisting of a recall test for memory and a scored clock-drawing test. It can be used effectively after brief training and results are evaluated by a health provider to determine if a full-diagnostic assessment is needed.

**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<sup>®</sup>** 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

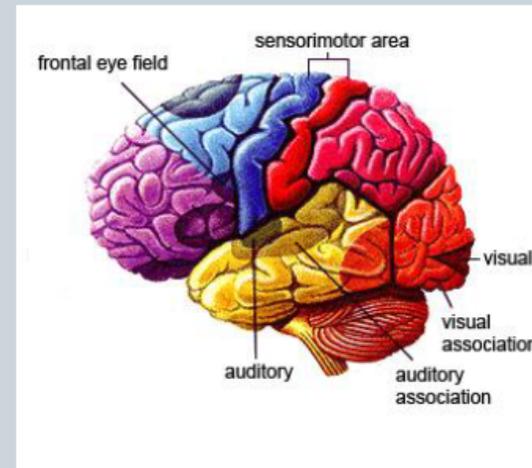
Phonologic retrieval

- connect meaning to word
- recall sound of word

“BILL GATES!”

Articulation

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



Phonological access during production



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

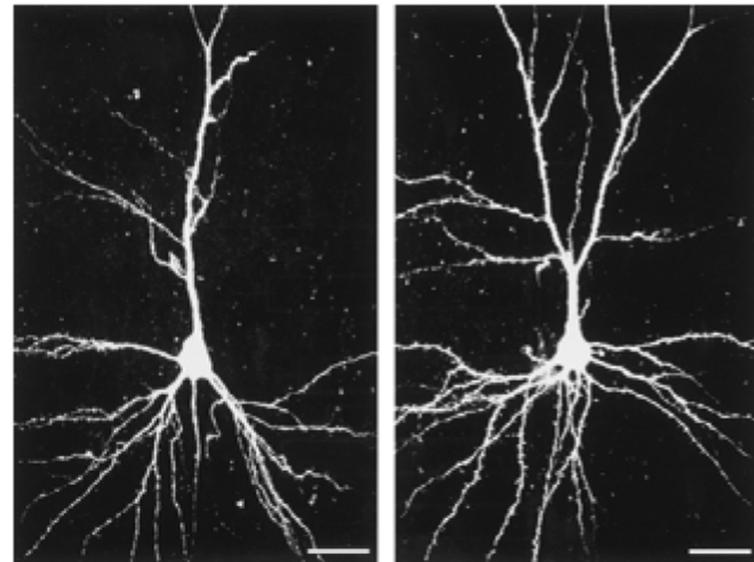
# Engagement to support cognitive function



- **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; Mustrup, 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.

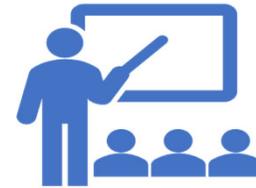
Inglis FM, Fibiger HC. Increases in hippocampal and frontal cortical acetylcholine release associated with presentation of sensory stimuli. *Neuroscience*. 1995;66(1):81-86. doi:10.1016/0306-4522(94)00578-s





## 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

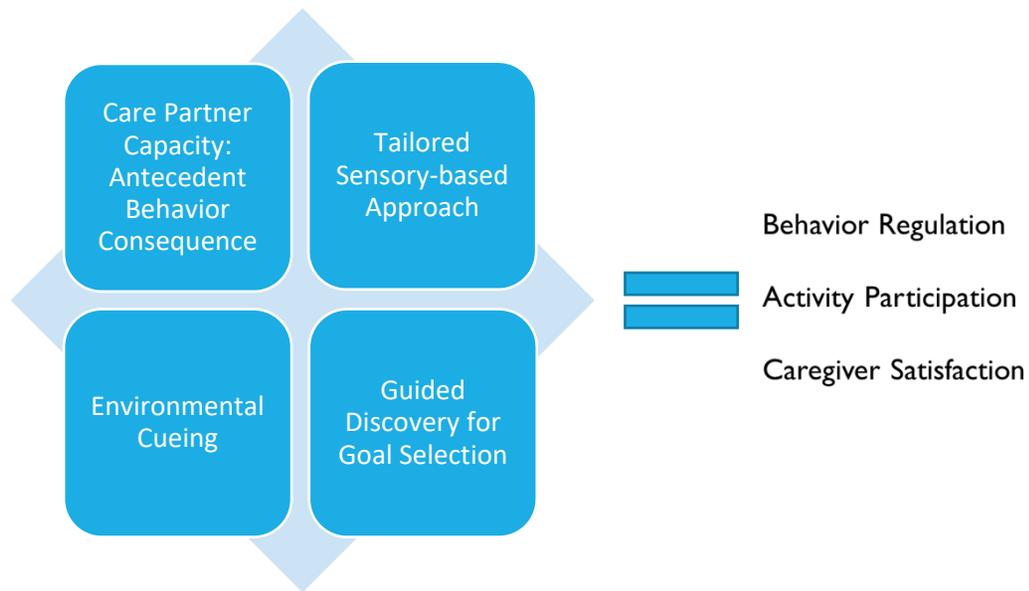
# Enriching the Environment

- **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*)

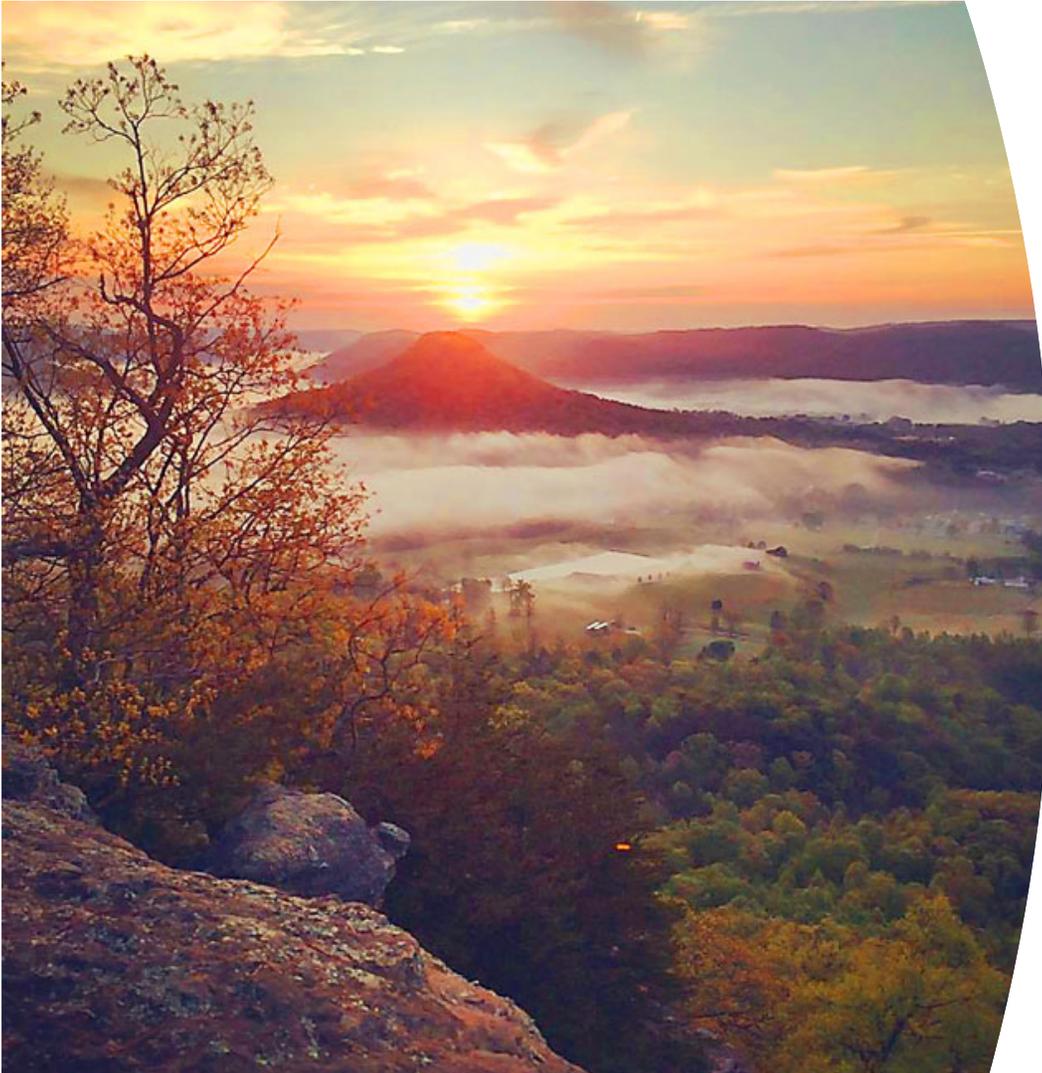


## The power of sensory processing:

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

 quote fancy

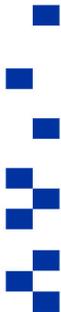
References available upon request

# THANK YOU!

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