



HIGHLAND
PRESBYTERIAN
CHURCH

Understanding the Aging Brain and Dementia

Edward G. Shaw, MD, MA

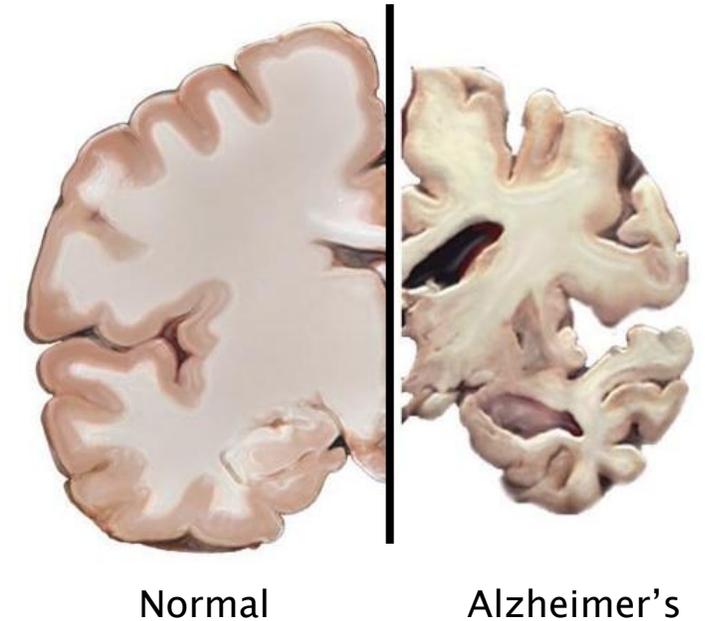
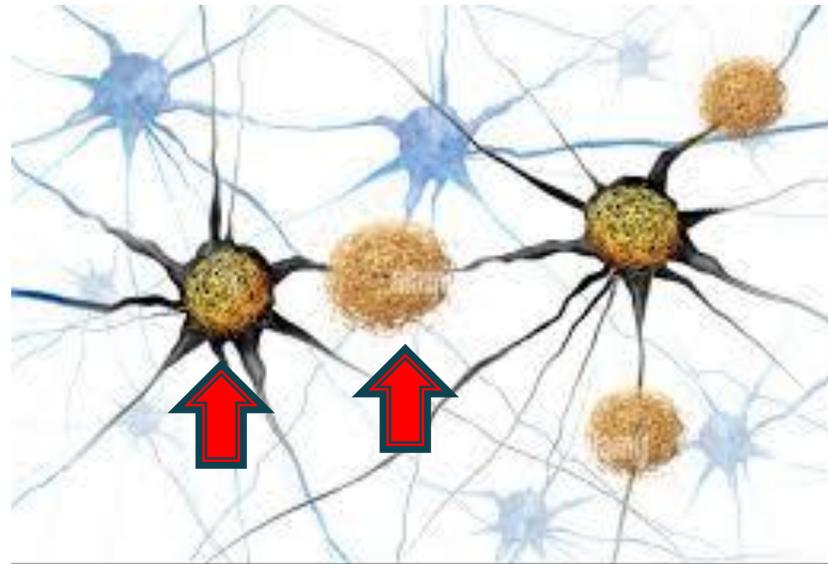
October 26, 2025

Our Family's Story



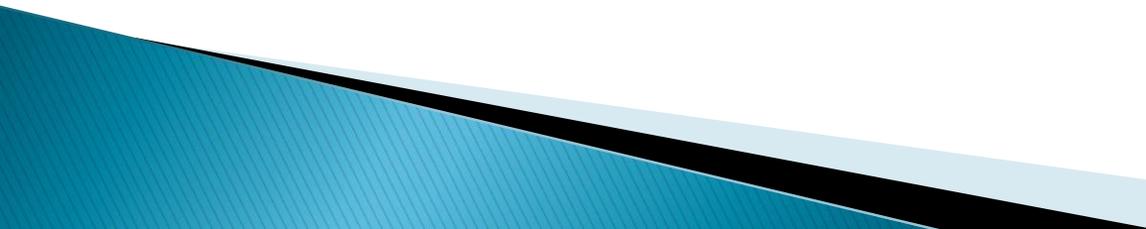
Alzheimer's disease

- ▶ Alzheimer's disease was discovered in 1906 by Dr. Alois Alzheimer ... 51yo woman with progressive memory loss



- ▶ We've had more advances in last 2 years than prior 117 years!!!

What is dementia?

- ▶ Dementia is the most common of the so-called neurodegenerative **brain diseases** (others include Parkinson's disease and ALS/Lou Gehrig's disease)
 - ▶ Dementia causes ***cognitive function loss*** resulting in, over time, ***functional dependence*** (i.e., loss of functional independence)
 - ▶ The most common type of dementia is Alzheimer's disease
- 

The U.S. Alzheimer's epidemic

- ▶ The number of Americans 65+ living with Alzheimer's disease is expected to nearly double from 7 million to 13 million by 2050
- ▶ The lifetime risk of developing Alzheimer's disease is 1 in 8
- ▶ The major risk factors for developing Alzheimer's disease are:
 - Age
 - Gender
 - Race/ethnicity
 - Family history/genetics (ApoEε4)
 - Hypertension/high cholesterol
 - Obesity/diabetes
 - Head injury
 - Many other lifestyle factors – diet, lack of exercise, smoking, alcohol, social isolation, insomnia/sleep apnea, poor hearing, depression, anxiety, and stress ...

To understand dementia, you have to understand some basic brain facts



- ▶ Size of 2 grapefruit
- ▶ Weighs 3 lbs
- ▶ 4 lobes per side
- ▶ Billions of neurons
- ▶ 90% is “on” 90% of the time
- ▶ Controls everything you think, feel, say and do!

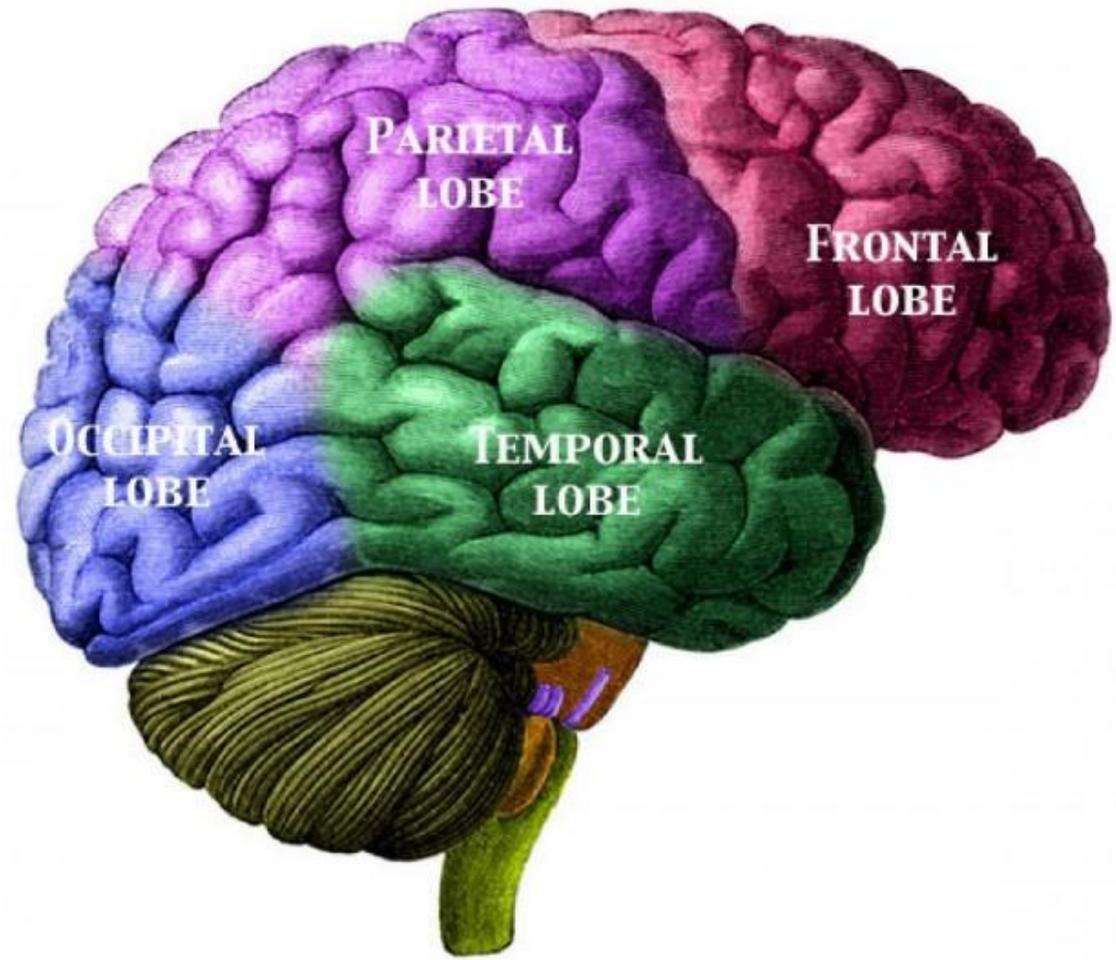
Cognitive Function: a simple view

Thinking functions

- ▶ Paying attention
- ▶ Multitasking
- ▶ Remembering
- ▶ Speaking/understanding language
- ▶ Spatial skills

Related functions

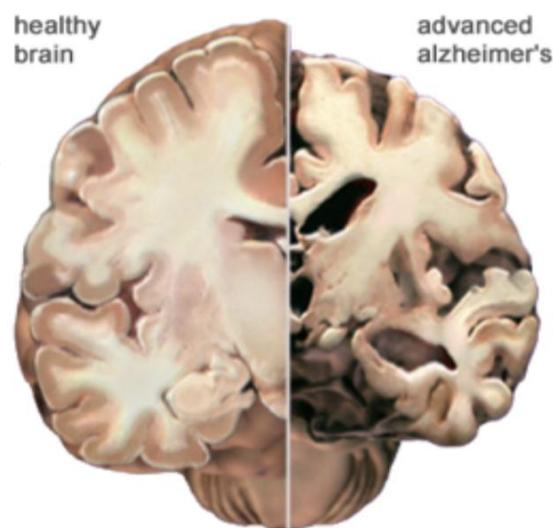
- ▶ Personality
- ▶ Emotions



Activities of Daily Living (Function): a simple view

▶ Instrumental Activities of Daily Living (IADLs)

- Cooking
- Driving
- Finances
- Housework
- Medication management
- Shopping
- Cell phone and computer use



▶ Activities of Daily Living (ADLs)

- Bathing
- Contenance and toileting
- Dressing
- Feeding
- Walking and transferring

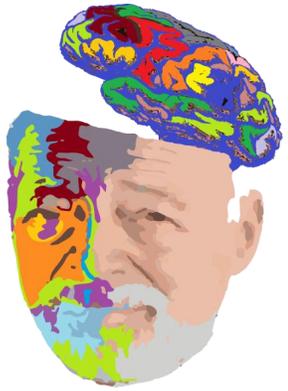
Stages of Dementia

- MCI → Early → Middle → Late

I can't remember her name



The spectrum of cognitive function



Normal
brain aging

Abnormal
brain aging

Dementia
Stages

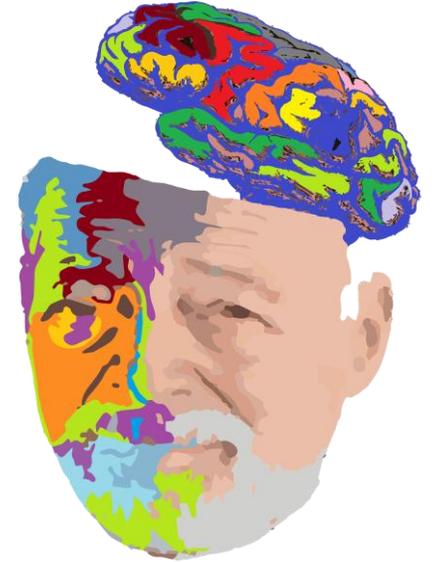
Mild Cognitive Impairment (MCI)

Early – Middle – Late

Alzheimer's is not an inevitable consequence of aging!

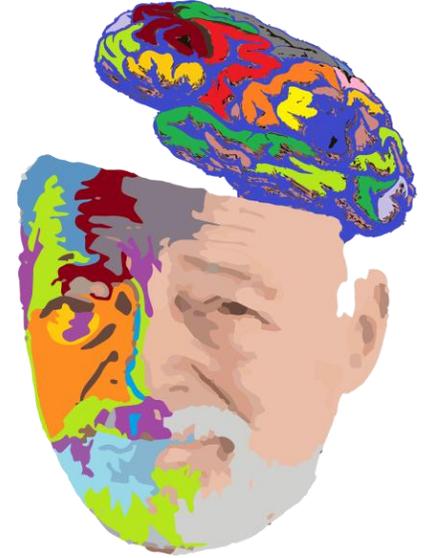
What is normal brain aging?

- ▶ Difficulty remembering names (people, places, objects, and the like)
- ▶ Mild short-term memory loss
- ▶ Slowing down of thought processes
- ▶ Decreased attention span
- ▶ More difficulty multitasking (focus on one thing at a time)
- ▶ Mild changes in personality (e.g., more serious), occasional lapses in judgment, moodiness or irritability



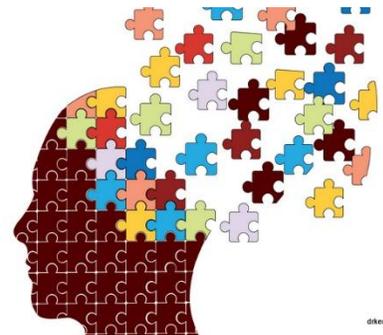
What is **ab**normal brain aging?

- ▶ Can't remember familiar names (spouse, children, grandchildren, friends)
- ▶ Loses train of thought in conversation
- ▶ Repeats stories, can't recall own background or basic facts of history
- ▶ Needs assistance with or can no longer do activities requiring planning/problem-solving/multitasking: driving, cooking, cleaning, washing, shopping, bill paying, managing meds, using phone or computer
- ▶ Major change in personality and/or significant lapse in judgement (e.g., getting catfished or scammed)
- ▶ New onset major depressive or anxiety disorder



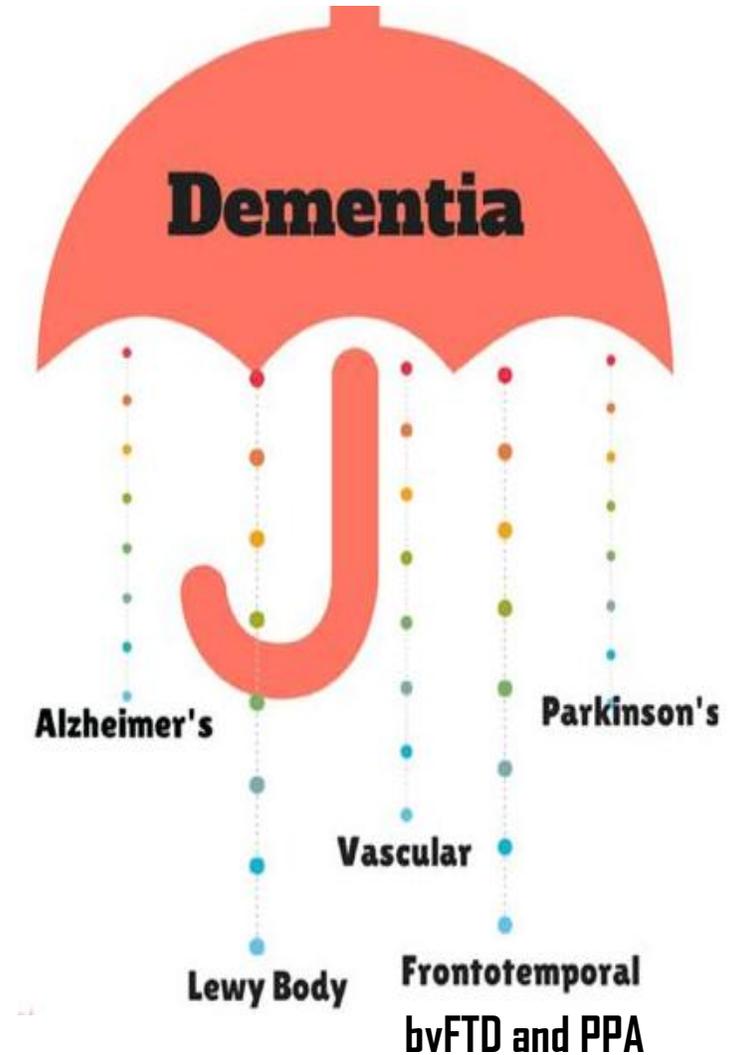
What is Mild Cognitive Impairment (MCI)?

- ▶ Intermediate state of brain function between normal brain aging and Alzheimer's/dementia
- ▶ Significantly more cognitive function loss (remembering, multitasking, speaking/understanding language, spatial skills) than expected for age and level of education (i.e., **ab**normal brain aging) but still functioning independently
- ▶ Half to three-quarters of people with MCI will develop Alzheimer's within 5 years of diagnosis
- ▶ Treatment with the new Alzheimer's drugs is most effective at MCI or early-stage

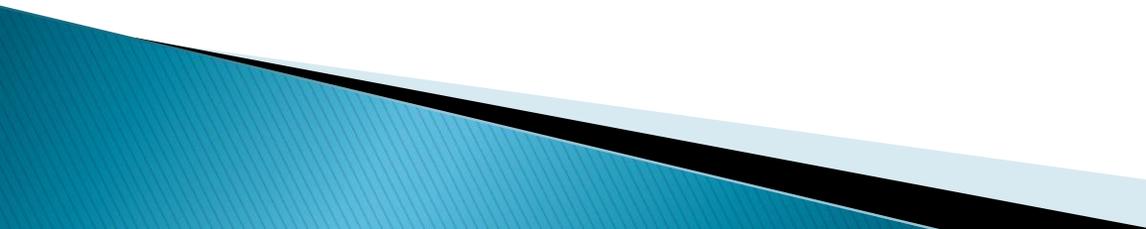


Most common types of dementia*

- ▶ Alzheimer's disease - 60%
- ▶ Vascular dementia - 20%
- ▶ Lewy body dementia and Parkinson's disease dementia (PDD) - 15%
- ▶ Frontotemporal dementias (FTD) - 5%
 - Behavior variant (bv) FTD
 - Primary Progressive Aphasia (PPA)
- ▶ Other causes - 1%

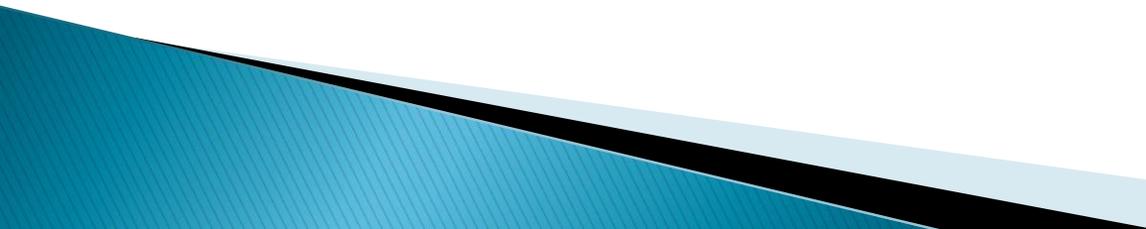


Not all dementias are created equal

- ▶ Alzheimer's disease: short-term memory loss, multitasking difficulties, spatial challenges (driving/falls)
 - ▶ Vascular dementia: similar symptoms as Alzheimer's plus stroke symptoms (face-arm-speech)
 - ▶ Frontotemporal dementia (FTD)
 - Behavior-variant – socially unacceptable behavior, language and multitasking difficulties
 - Primary progressive aphasia –language difficulties (speaking and/or understanding)
- 

Not all dementias are created equal

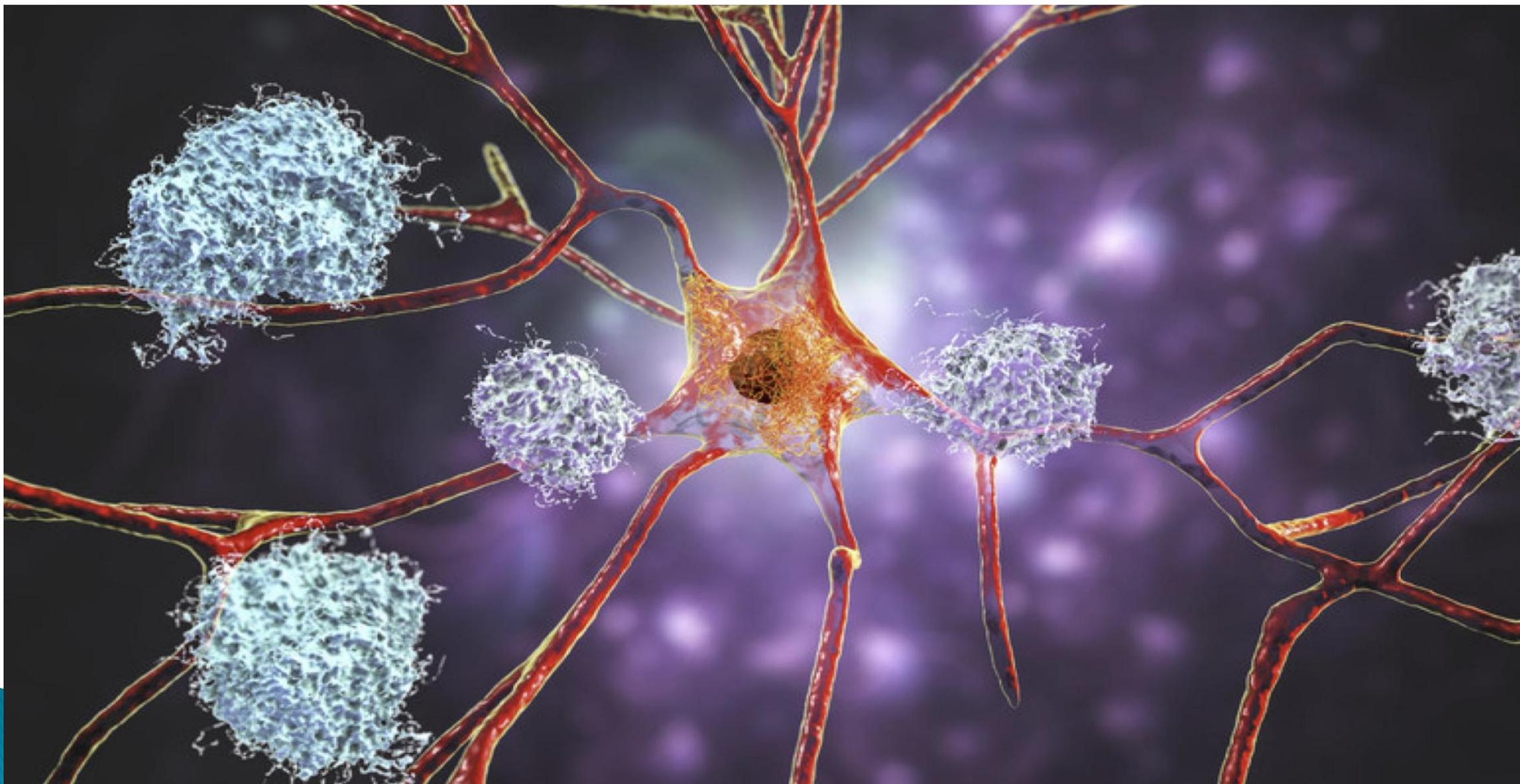
Lewy body dementia and Parkinson's disease dementia:

- ▶ Cognitive symptoms – multitasking difficulties, spatial challenges (falls), +/- short-term memory loss
 - ▶ Psychiatric symptoms – delusions, hallucinations, sleep behaviors
 - ▶ Parkinson's symptoms – tremor, shuffling gait, rigid muscles (falls)
 - ▶ Autonomic symptoms – fluctuating alertness, unstable blood pressure, incontinence
- 

When dementia progresses to late-stage:

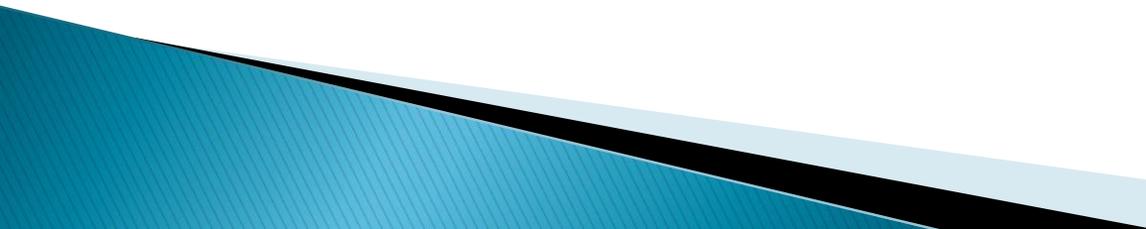
- ▶ Fatigue, need for more sleep, depression, anxiety, agitation, sundowning, weight gain or loss are more common
- ▶ People may experience any/all of the symptoms characteristic of Alzheimer's, vascular, frontotemporal, and Lewy body/Parkinson's dementia
- ▶ Caregiving becomes harder!
 - The *physical burden* of caregiving increases because the person with dementia (PWD) is dependent in all their IADLs and ADLs
 - The *emotional burden* of caregiving increases because the PWD becomes less and less emotionally receptive/reciprocating and more socially withdrawn

Alzheimer's diagnosis - amyloid and tau



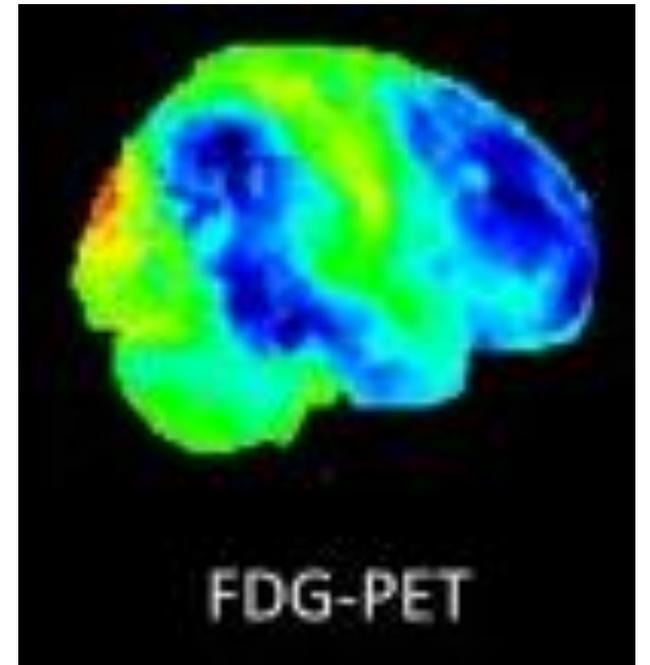
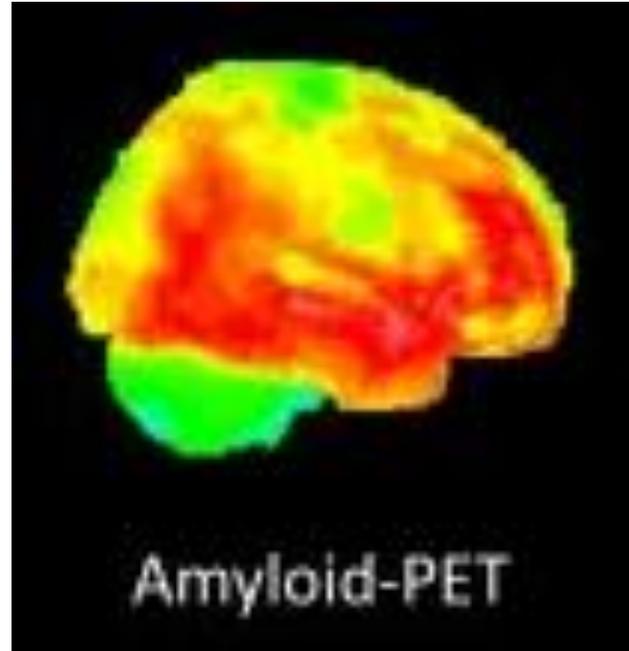
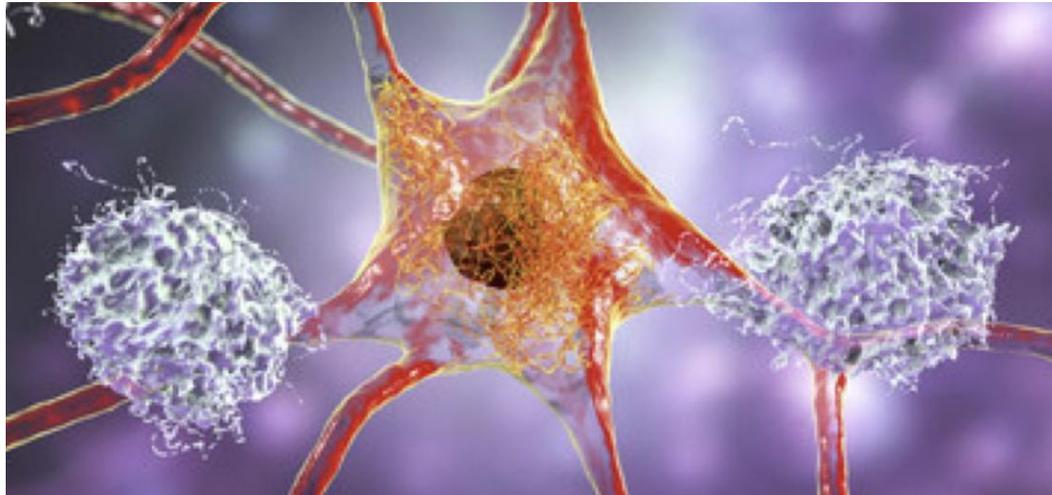
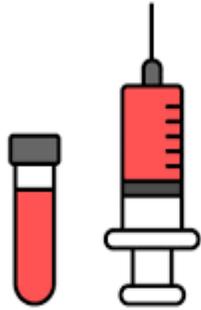
Dementia Diagnosis

Evaluation by a neurologist, psychiatrist, geriatrician, and/or neuropsychologist to include:

- ▶ Detailed medical history (clinical symptoms)
 - ▶ Physical/neurological exam
 - ▶ Depression and anxiety assessment
 - ▶ Cognitive function tests
 - ▶ Blood tests: thyroid, Vits B₁₂/D, p-tau-217 (the Alzheimer's blood test)
 - ▶ MRI scan of the brain
 - ▶ PET scan of the brain (amyloid PET, FDG PET)
 - ▶ Spinal tap
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Advances in Alzheimer's Diagnosis

p-tau-217 blood test



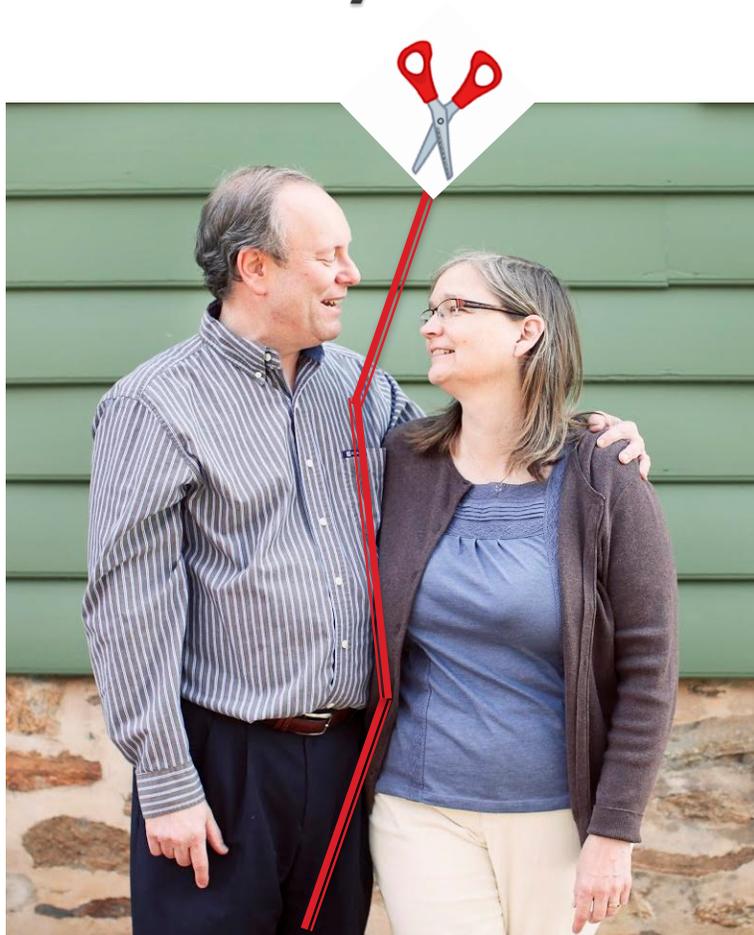
Advances in Alzheimer's Treatment

- ▶ We now have 2 FDA approved drugs to treat Alzheimer's disease: Leqembi™ (lecanemab) and Kisunla™ (donanemab)
 - Given intravenously every 2–4 weeks for 18+ months
 - Clear 95–100% of amyloid from brain
 - Slows progression (maintain better function) for 6–18+ months (but not a cure)
 - 20% risk brain swelling, bleeding, or stroke (most asymptomatic)
 - 1% risk of death
 - Cost \$50,000/year paid for by Medicare

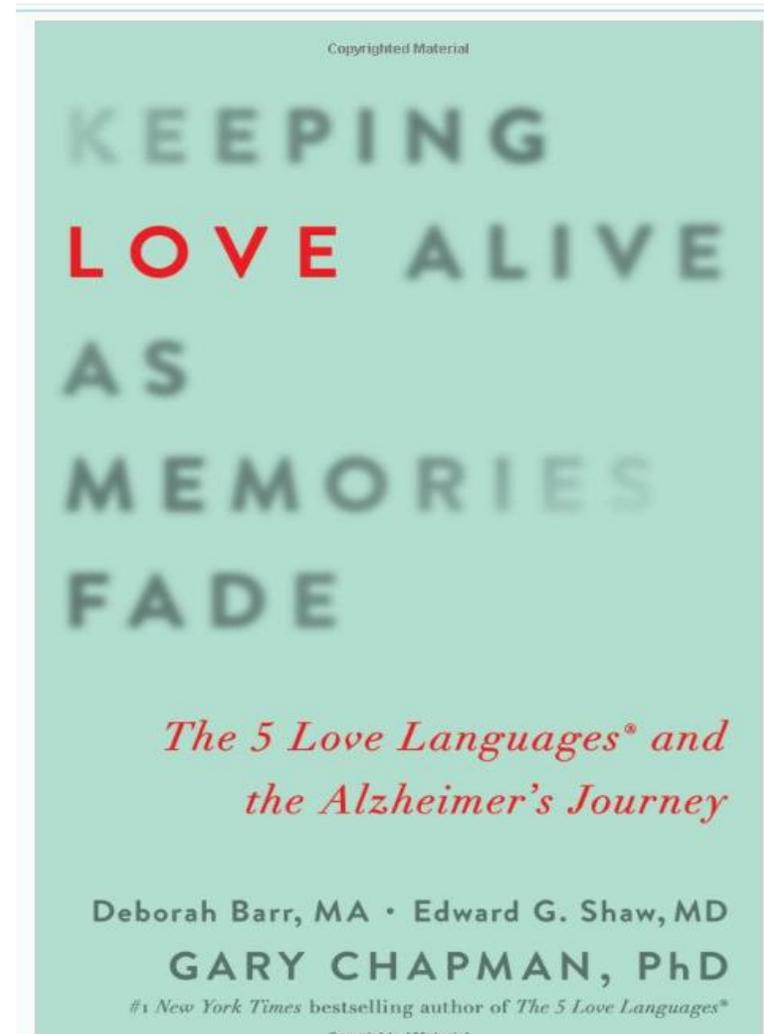


The Terrible Day

Agitation
Aggression
Paranoia
I want to go home!



Wandering
Resisting care
Depression
Sundowning



U.S. dementia care-partner (caregiver) facts and figures

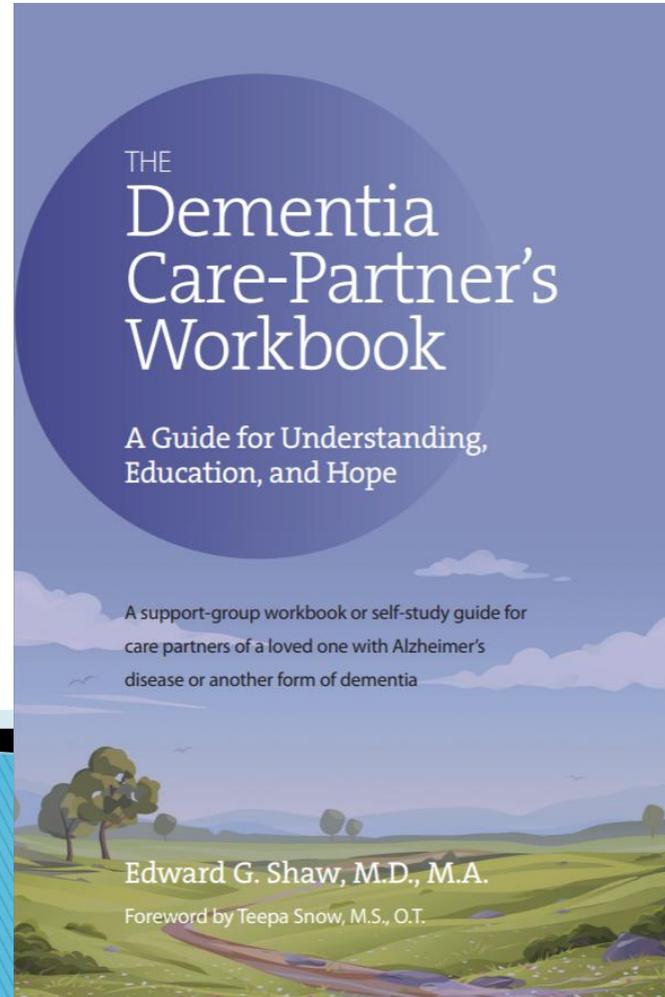
- ▶ 7.2 million people are living with Alzheimer's disease in the U.S.
- ▶ 83% of care for people living with dementia (PLWD) is unpaid care provided by family members and friends
- ▶ There are 12 million Alzheimer's family care-partners in the U.S. for PLWD
 - 1 of 3 are spouses
 - 2 of 3 are adult children
 - 2 of 3 are women
 - 1 in 4 are "sandwich generation" care-partners
- ▶ They provided 19 billion hours of unpaid care per year (about 100 hours per month per care-partner on average)

U.S. dementia care-partner (caregiver) facts and figures*

- ▶ Length of caregiving responsibilities: 86% for 1 year, 60% for 2 years, and 50% for 4 years
- ▶ Dementia care-partner roles and responsibilities:
 - 85% help manage household activities: shopping, cooking, cleaning, laundry, and paying bills
 - 66% help manage personal care such as feeding, dressing/grooming, bathing, and toileting (one-third of PLWD are incontinent)
- ▶ Caring for a PLWD is emotionally, physically, and financially taxing:
 - 60% of dementia care-partners report high or very high stress levels
 - 40% report they are depressed
 - 1 in 3 say their physical health has declined because of caregiving
 - 57% said caregiving negatively impacted their career in some way

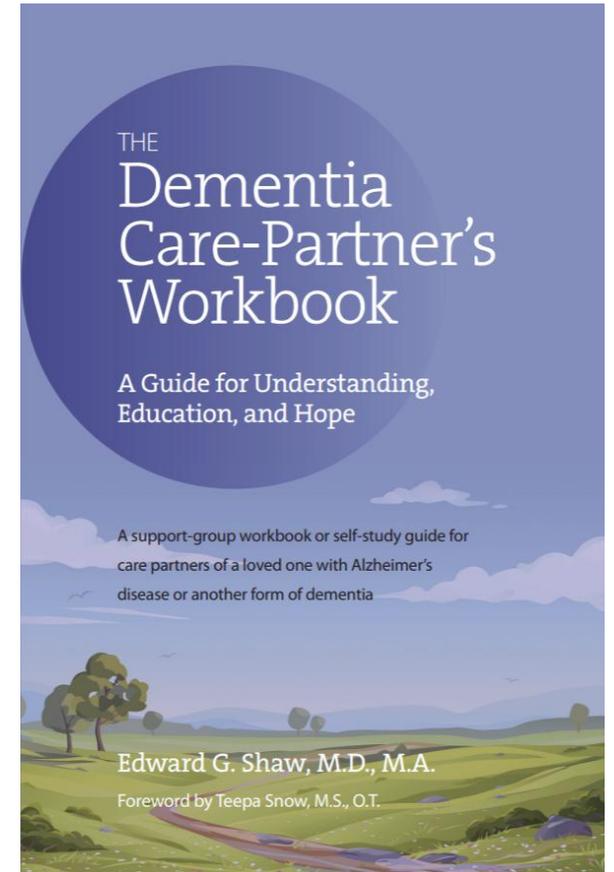
*summarized from alz.org (Alzheimer's Association)

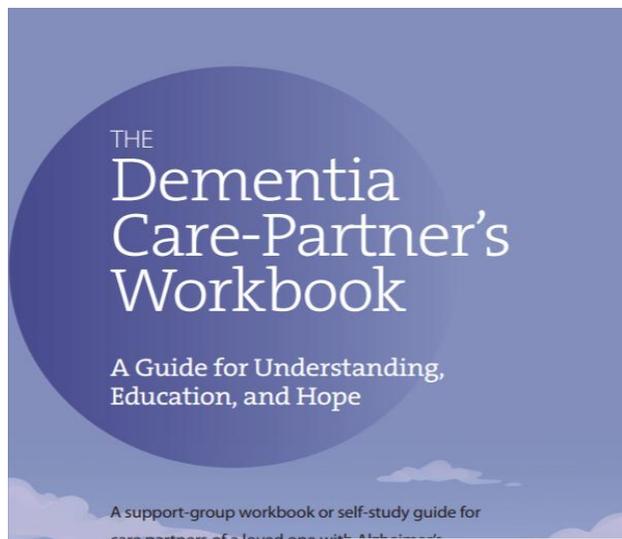
The Eight Central Needs of Dementia Care Partners



The Eight Central Needs of Dementia Care Partners

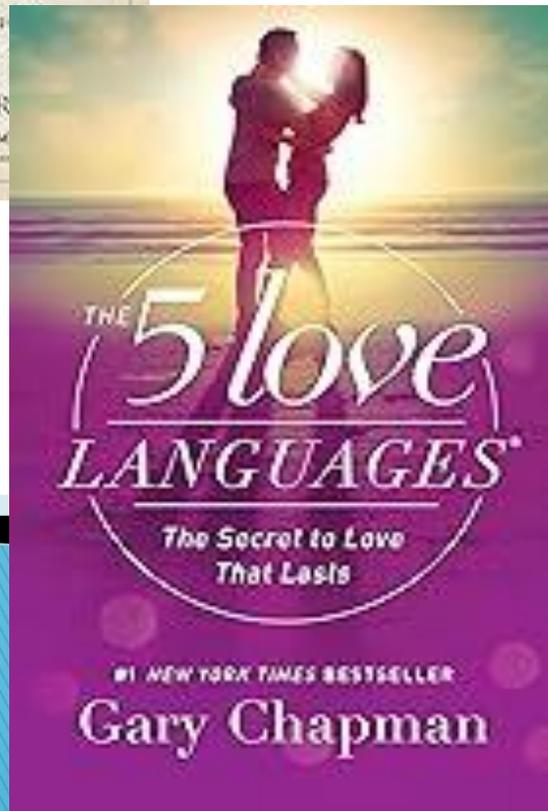
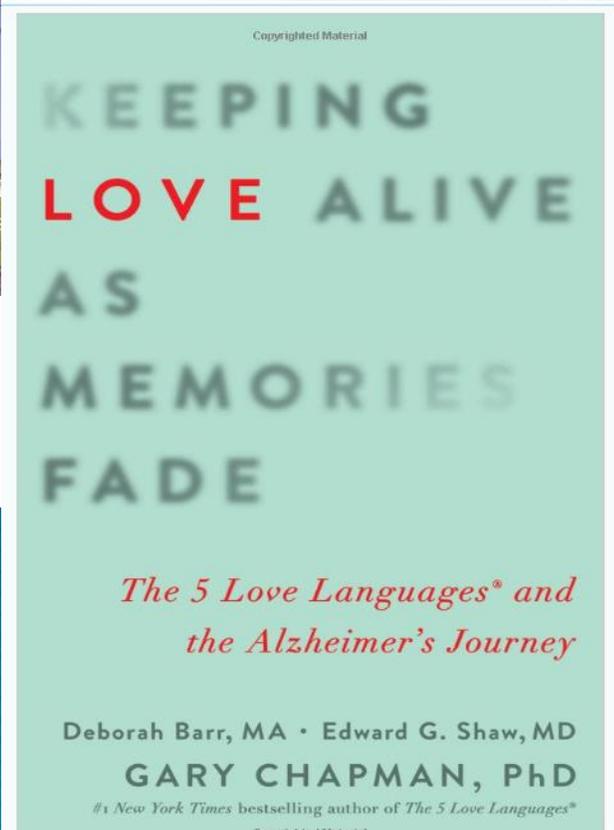
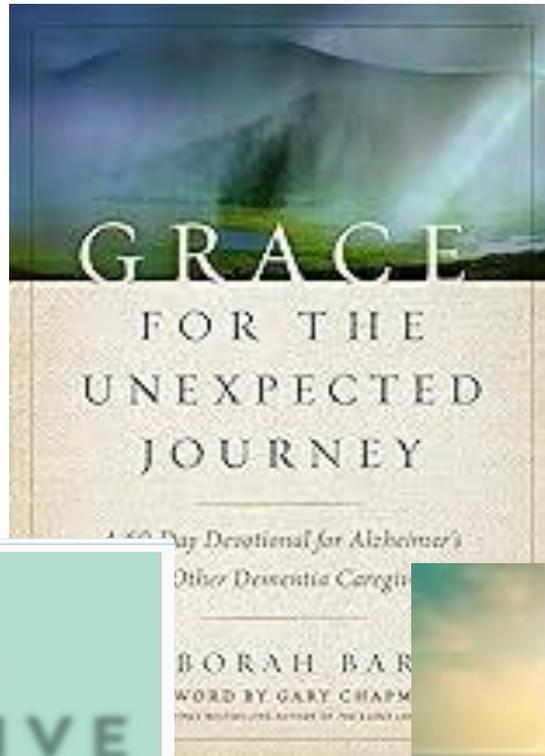
1. The need to tell and retell your story
2. The need to educate yourself
3. The need to adapt to changing relationships
4. The need to grieve your losses
5. The need to take care of yourself
6. The need to ask for and accept help
7. The need to prepare for what's ahead
8. The need to explore existential/spiritual issues to find meaning





A support-group workbook or self-study guide for care partners of a loved one with Alzheimer's disease or another form of dementia.

Edward G. Shaw, MD
Foreword by Teepa Snow, M.S.



Thank You!

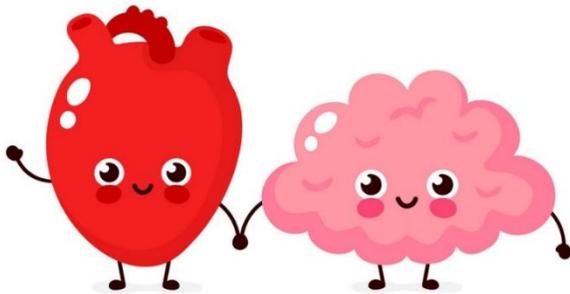
Please visit Claire at the bookstore

Time for Some Q&A

13 Ways to Keep Your Brain Healthy

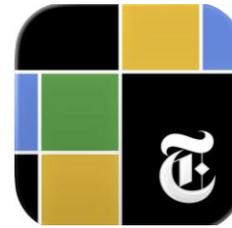
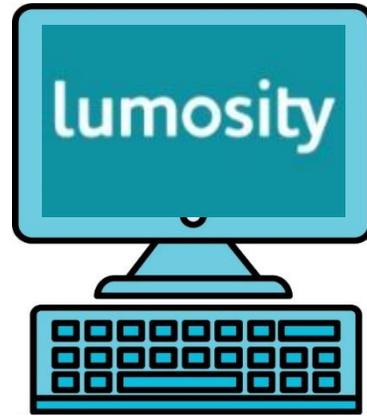


1. Keep BP < 130 systolic



2. Exercise your body:
90–150 minutes per week
or 7500 steps daily

3. Exercise your brain!



4. Follow the MIND diet



13 Ways to Keep Your Brain Healthy



5. Stay socially engaged



6. Don't smoke!



7. No to moderate alcohol intake

8. Supplements



Valuable:
Vitamins B12 and D,
multivitamin?

No value:
Prevagen, Neuriva,
coconut oil

9. Reduce stress



10. Sleep well for 7–9 hrs
and treat sleep apnea



