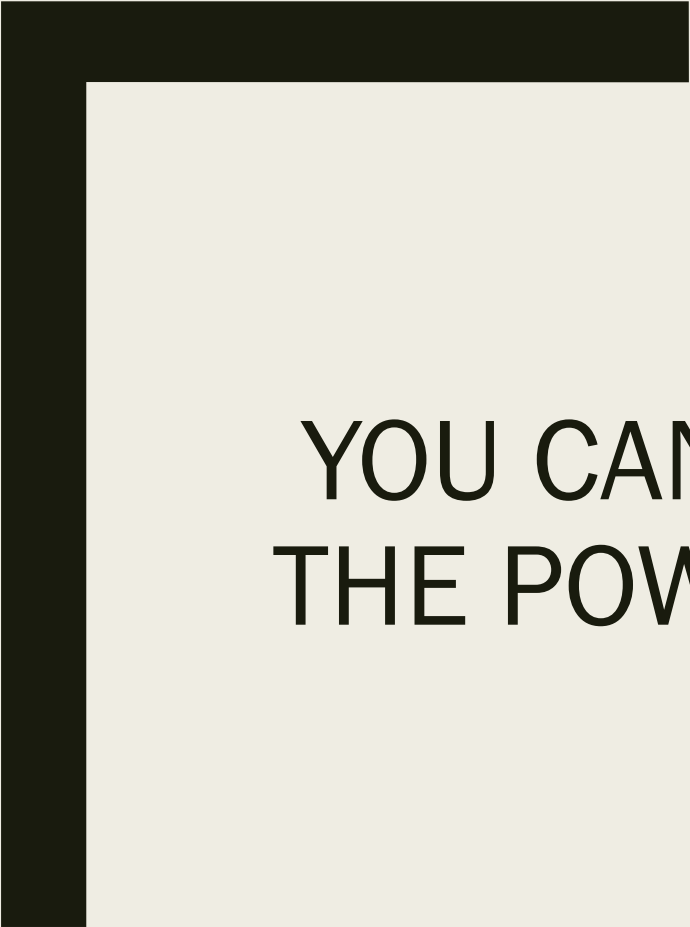


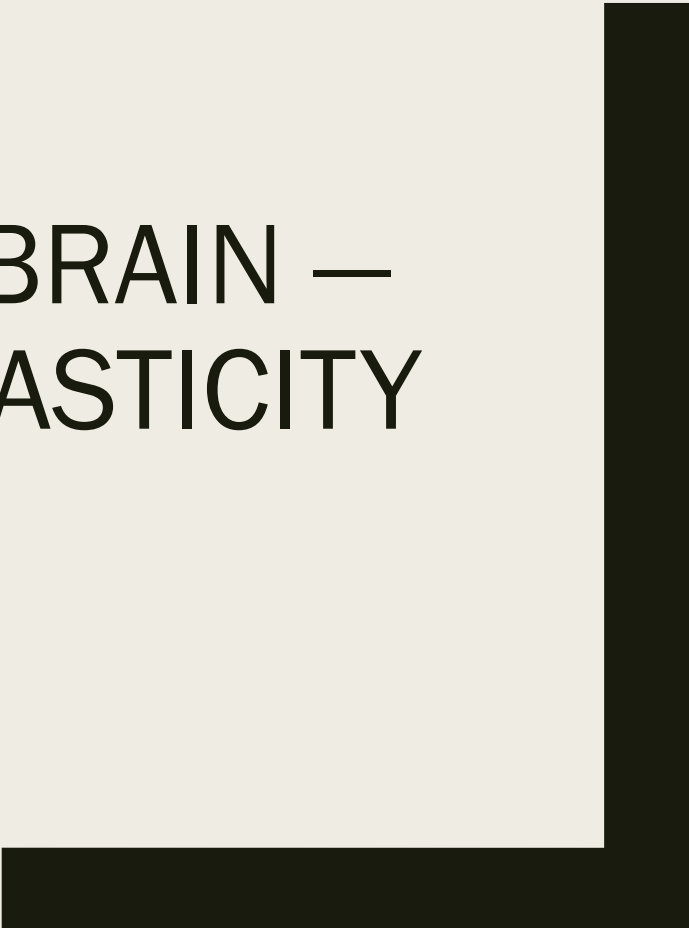


YOU CAN CHANGE YOUR BRAIN — THE POWER OF NEUROPLASTICITY

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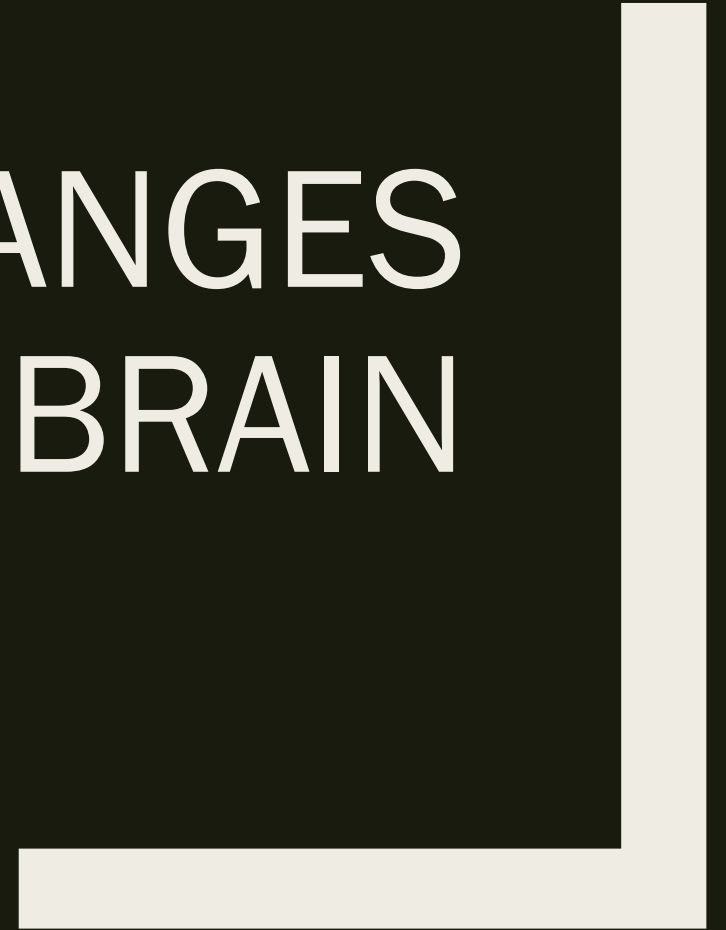
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THE ONGOING CHANGES OF THE AGING BRAIN

Our Brain Starts Aging From the Minute We Are Born!



Normal Brain Aging

- Throughout our youth, teens, and twenties – our brain creates massive synaptic connections increasing brain volume
- We develop many thinking abilities that appear to **peak at age 30**
- Then they decline with age
- These age-related declines include
 - *Slowness in thinking*
 - *Difficulties sustaining attention*
 - *Multitasking*
 - *Holding information in mind*
 - *Word-finding*



Normal Brain Aging



- Age-related changes in brain structures
 - *Decreased hippocampal, frontal, and temporal lobes*
- Common aspect of aging – contributes to some thinking changes
- Cell loss is modest
- Loss of synaptic connections is primary reason for loss of brain mass

Brain Aging Changes / Cognitive Abilities Altered

Brain Mass: Frontal Lobe and Hippocampus shrink more than other areas of the brain

Frontal Lobes: largest lobe in human brain

Considered to be human behavior and emotional centers of personalities

Hippocampus: embedded deep in temporal lobes

Plays a major role in learning and memory





Brain Aging Changes / Cognitive Abilities Altered

Cortical Density:

Thinning of the outer corrugated surface of the brain

Due to decreasing synaptic connections

The Cerebral Cortex: wrinkled outer layer of the brain

Contains neuronal cell bodies — thins with age

Lower density leads to fewer connections

Few connections lead to slower cognitive processing

Brain Aging Changes / Cognitive Abilities Altered

White Matter:

- Myelinated nerve fibers bundled into tracts – transmit nerve signals between cells
- Myelin shrinks with age

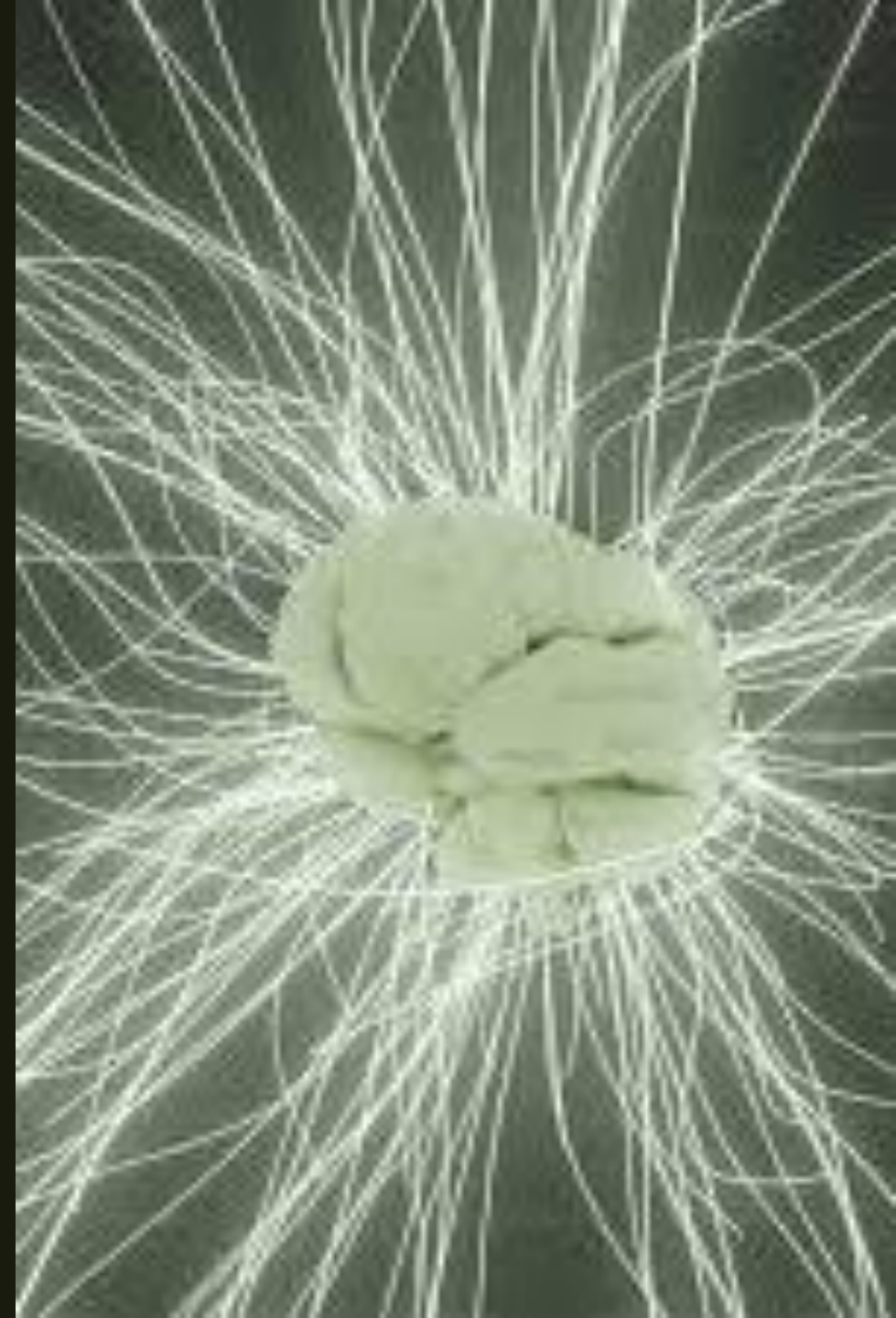
Neurotransmitter System:

- Brain produces different levels of chemicals
 - *Affect neurotransmitters and protein production*
 - *Leads to decline in cognitive function*



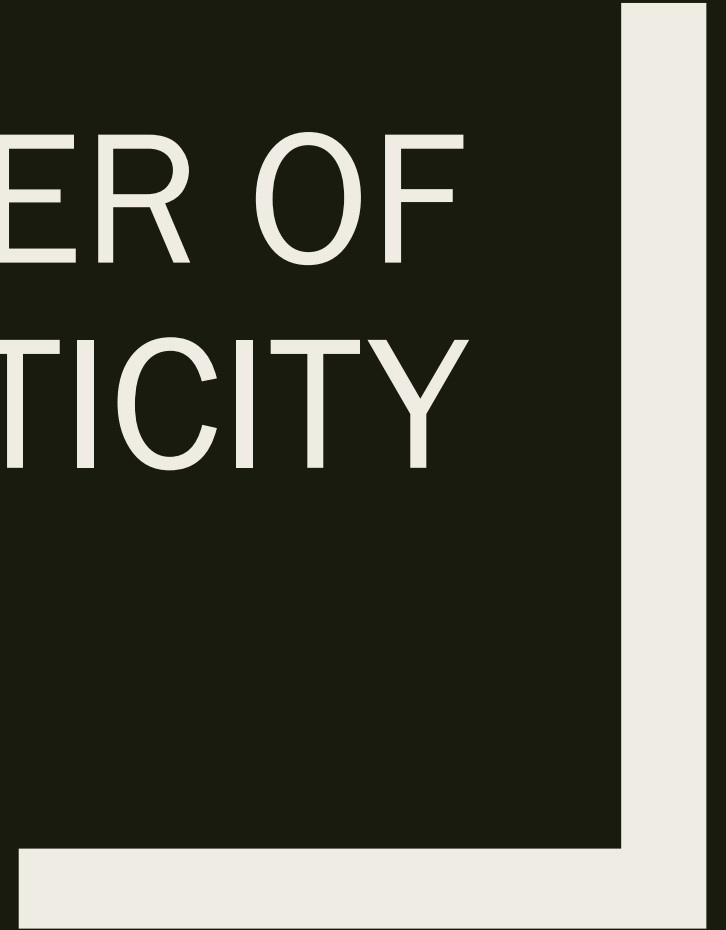
Why the Neuroscience Lesson?

- These changes have a major impact on brain function
- Translates into these realities:
- **Difficulty learning something new;** committing new information to memory
- **Multitasking:** Slow processing makes planning parallel tasks more difficult
- **Recalling names and numbers:** Strategic memory begins to decline at age 20
- **Remembering appointments:** Without cues to recall — brain stores information and not access them unless something jogs the person's memory



THE POWER OF NEUROPLASTICITY

You are never too young or too old to change your brain!





Neuroplasticity

- The brain's ability to change and adapt its structure and function throughout life
- Remains relevant even in the aging brain
- Allows older adults to:
 - *Learn new skills, maintain cognitive function, mitigate age-related decline by rewiring neural connections in response to new experiences and stimulation*
- Rate of neuroplasticity decreases with age making it more challenging to learn new things

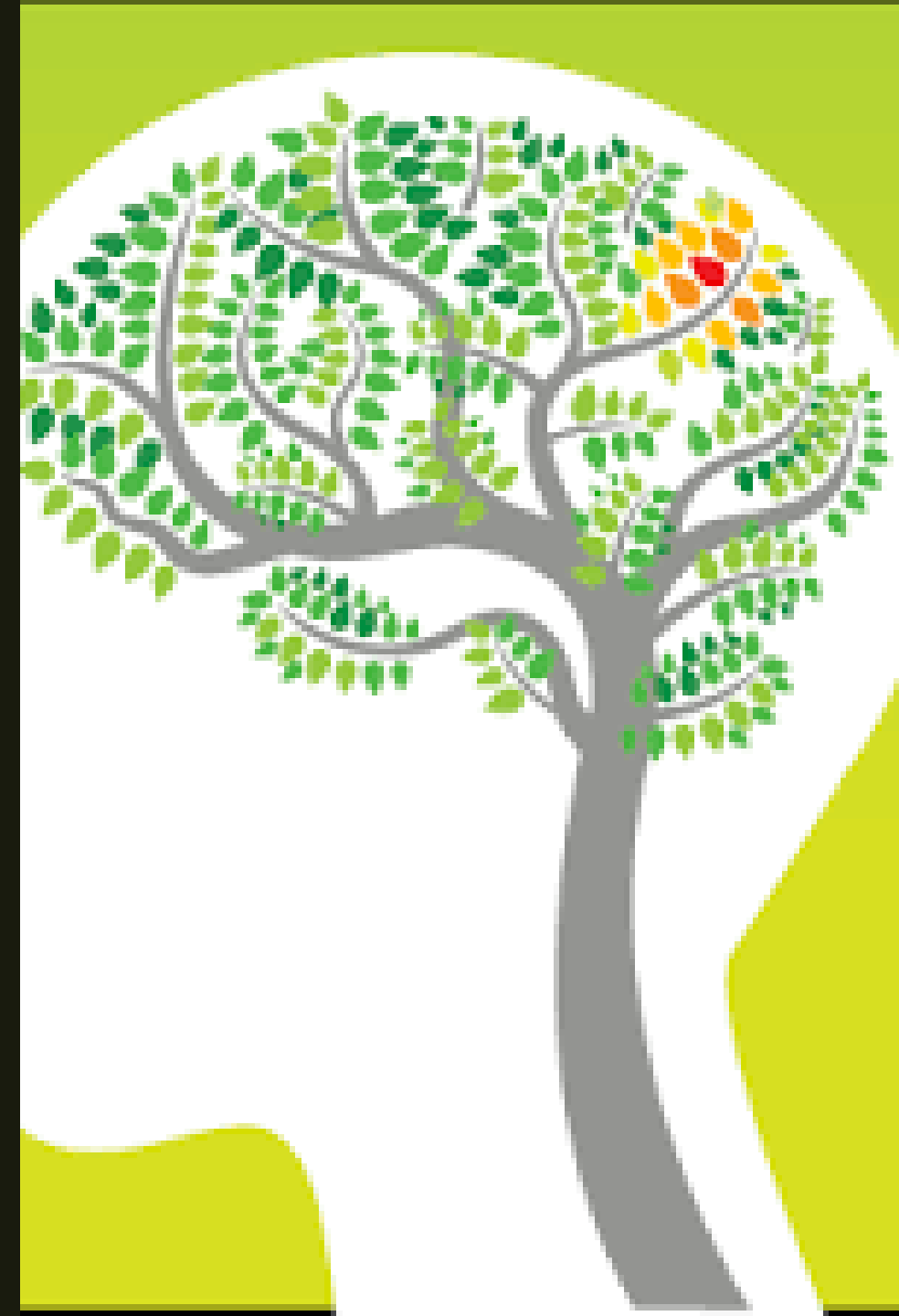
Neuroplasticity

- Neuroplasticity plays a critical role in numerous areas of brain functioning:
- Learning
- Memory
- Sensory processing
- Motor processing
- Emotional regulation



How Does Neuroplasticity Impact My Life?

- Recovering from Injury or Disease
- Stroke — significant changes in brain structure and function
 - *Loss of neurons and synapses*
 - *Altering how brain processes information*
 - *Brain has ability to reorganize by forming new neural connections and rewiring existing pathways*
- Learning new skills
 - *Learning a new language or musical instrument*
 - *Practicing mindfulness and meditation – enhance cognitive health by promoting new neural connections*



Benefits of Neuroplasticity



- Improvement in cognitive function
- Ability to adapt to and recover from brain injuries
- Potential to delay or prevent age-related decline in brain function

Three Factors That Promote Neuroplasticity

- Environment (exercise, diet, socialization, stress, sleep, cognitive stimulation)
- Genetics (brain structure and function)
- Hormones (dopamine, serotonin, growth factors)

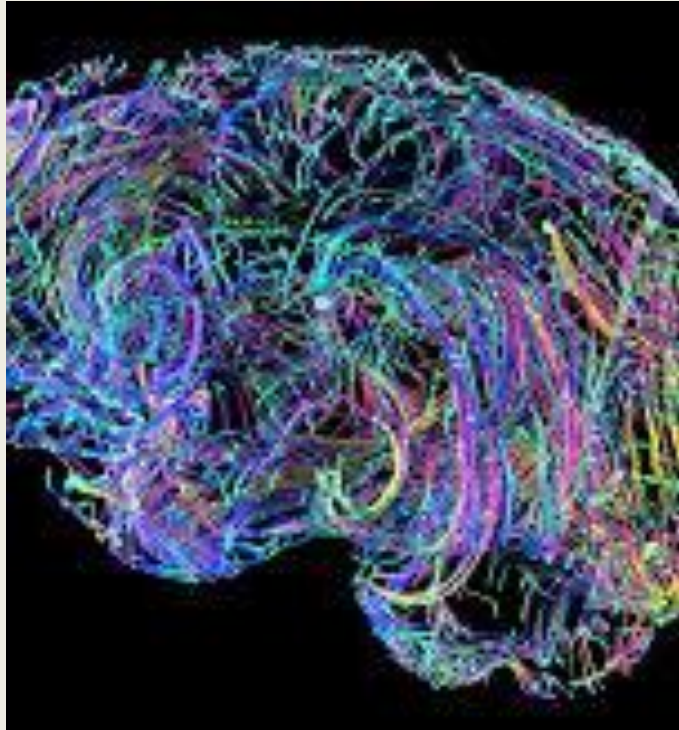


Key Points About Neuroplasticity and the Aging Brain

- Lifelong adaptability:
 - *Brain undergoes decline with age, but neuroplasticity means the brain can still adapt and learn new things throughout life.*
- Cognitive benefits:
 - *Engaging in activities that stimulate the brain, older adults can potentially improve memory, reasoning, and overall cognitive function through neuroplasticity.*
- Reduced plasticity with age:
 - *As we age, the brain's ability to form new connections and restructure itself slows down, making it more challenging to learn new things.*



Key Points About Neuroplasticity and the Aging Brain



- Importance of engagement:
 - *To maintain neuroplasticity in the aging brain, it is crucial to engage in mentally stimulating activities, physical exercise, social interaction*
- Potential for recovery:
 - *Neuroplasticity can also play a role in recovery from brain injuries or neurological conditions; reorganize itself to compensate for damaged areas.*
- Mental health:
 - *Neuroplasticity deficits may contribute to conditions like anxiety and depression*
 - *Some antidepressants are believed to work by promoting neuroplasticity*

Principles of Neuroplasticity to Optimize Brain Function



- Use It or Lose It:
 - *Learning something once doesn't mean you will know it forever*
- Use It and Improve It:
 - *Practice makes perfect*
- Specificity:
 - *Be tactical in your approach*
 - *Focus on the exact skill you want to learn*
- Repetition:
 - *Doing a task repeatedly can eventually make it feel second nature*

Principles of Neuroplasticity to Optimize Brain Function

- Intensity matters:
 - *Go all-in*
 - *A half-hearted effort often brings halfway results*
- Timing matters:
 - *If you have a brain injury, don't delay on trying to rebuild pathways*
 - *Early action brings better results*
- Salience matters:
 - *You will do better at something if it is truly meaningful to you*
 - *Commit yourself to the effort*
- Age Matters:
 - *Anybody at any age can benefit from neuroplasticity*
 - *The process goes a bit easier when you are younger*
 - *If you are older, take a bit more time and practice*



The Boomer Brain

Relax. Managing stress improves memory.

- “The Boomer Brain offers valuable strategies to reduce dementia risk and enhance mental sharpness.”
- “The Boomer Brain captures the why and how of aging changes and turns them into a starting point for making critical updates to your brain.”

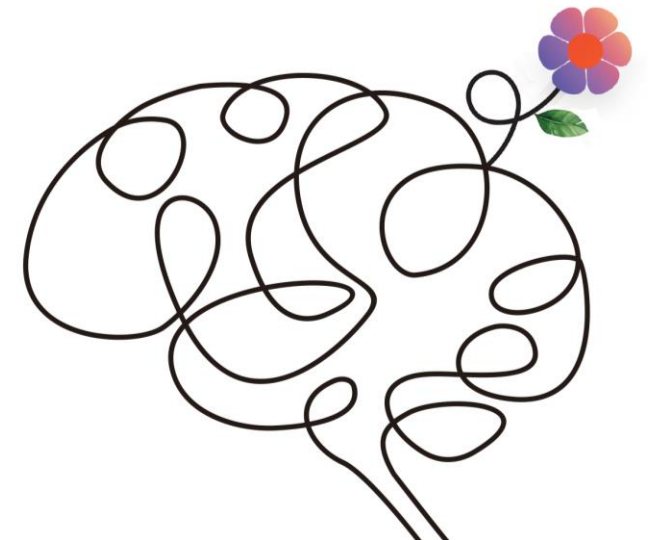
THE BOOMER BRAIN

Available on Amazon

<https://Amazon.com/dp/1962133613>



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THANK YOU!

- It has been a pleasure being with you today!
- Please call me with questions, follow-ups or general information.
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