

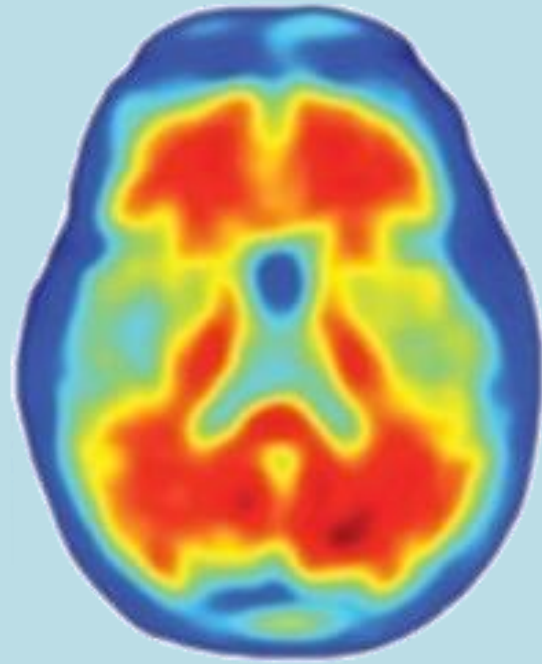
Alzheimer's Disease: Inside the Science

Stephanie Aghamoosa, PhD

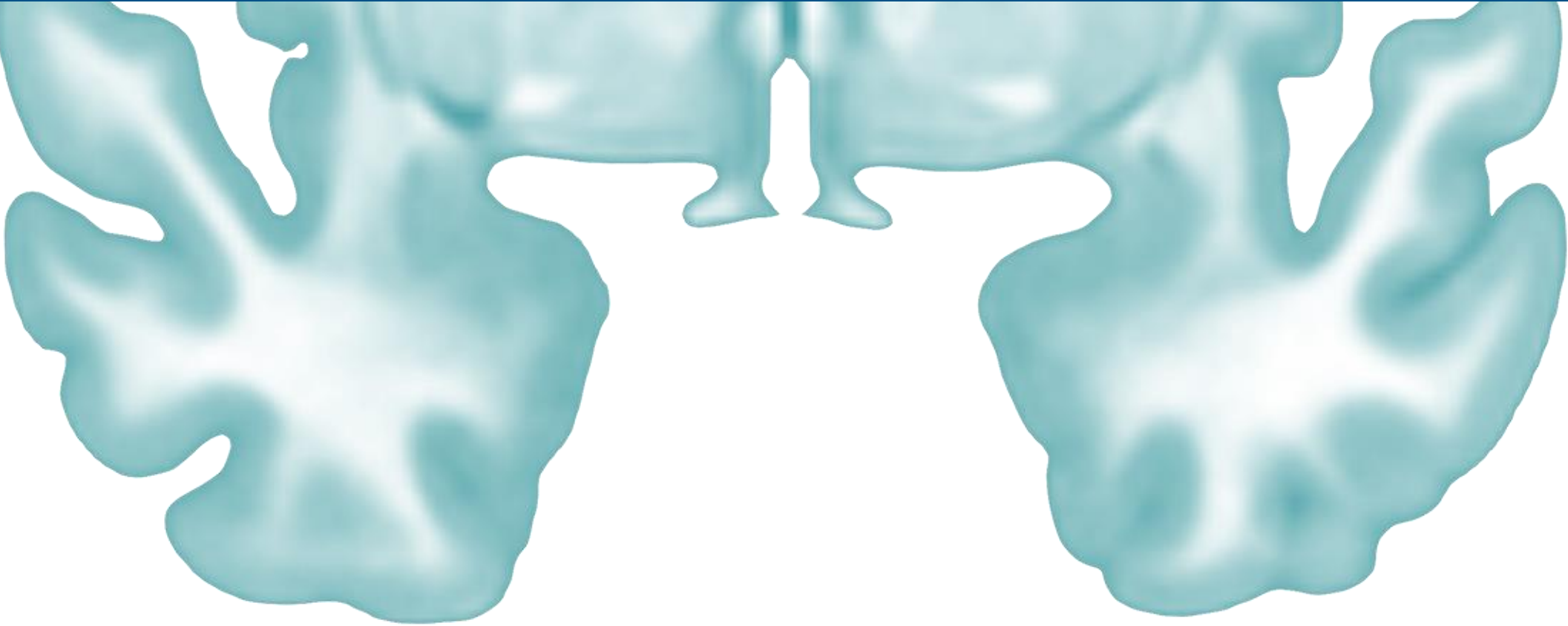
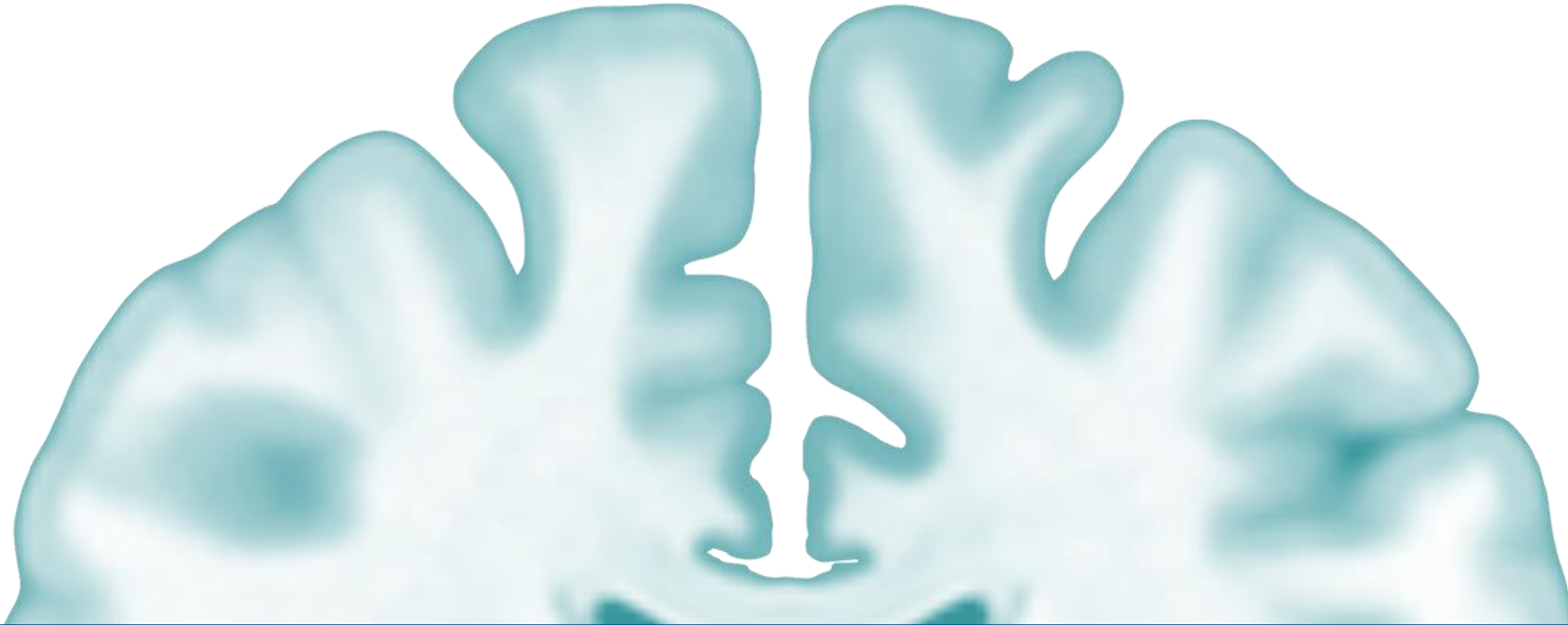
Assistant Professor, MUSC

Respite Care Charleston | Spotlight on Research



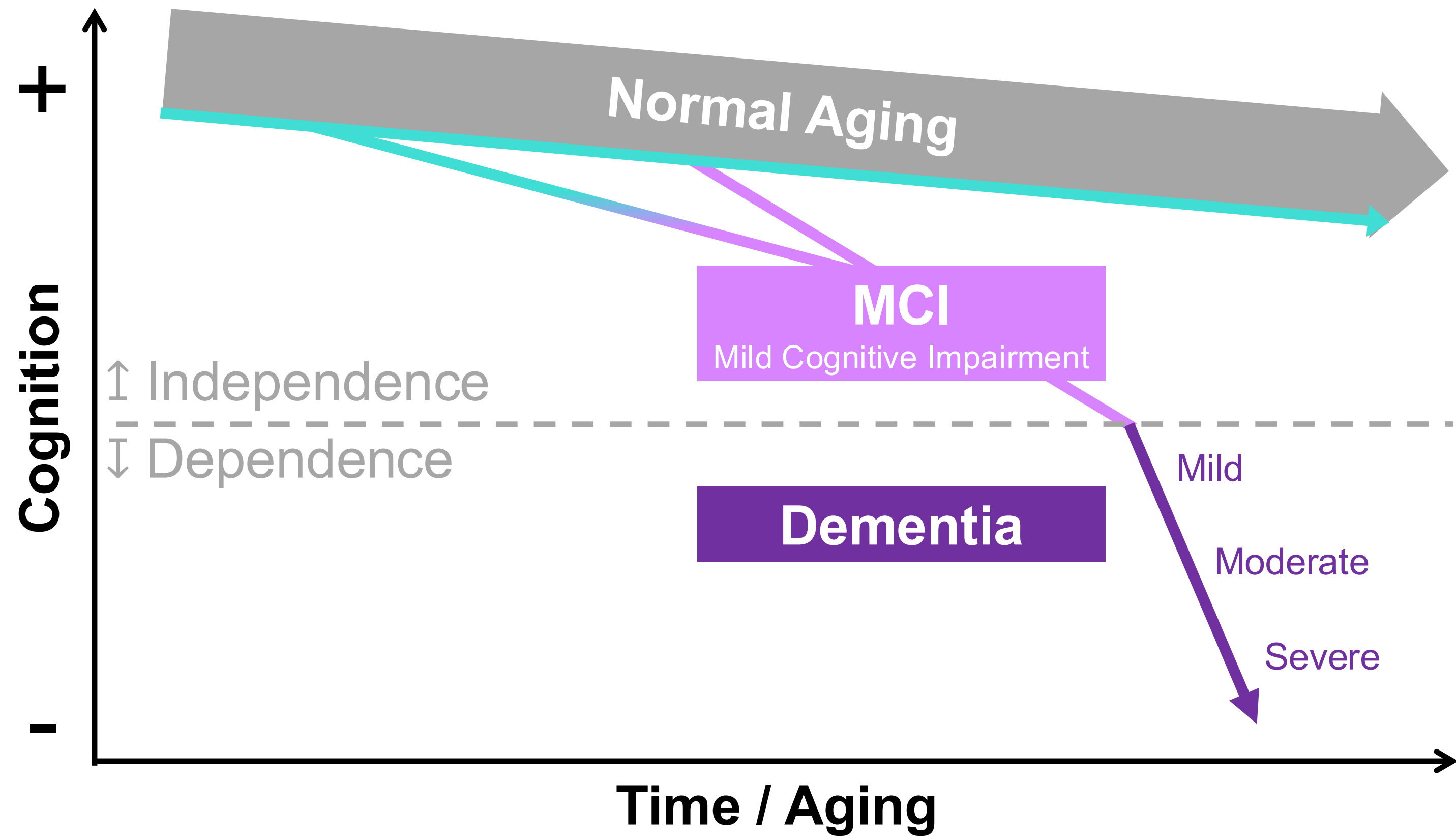


- What is **Alzheimer's disease**?
- Where does it get **diagnosed**?
- When does it get **treated**?
- How is research making a **difference**?

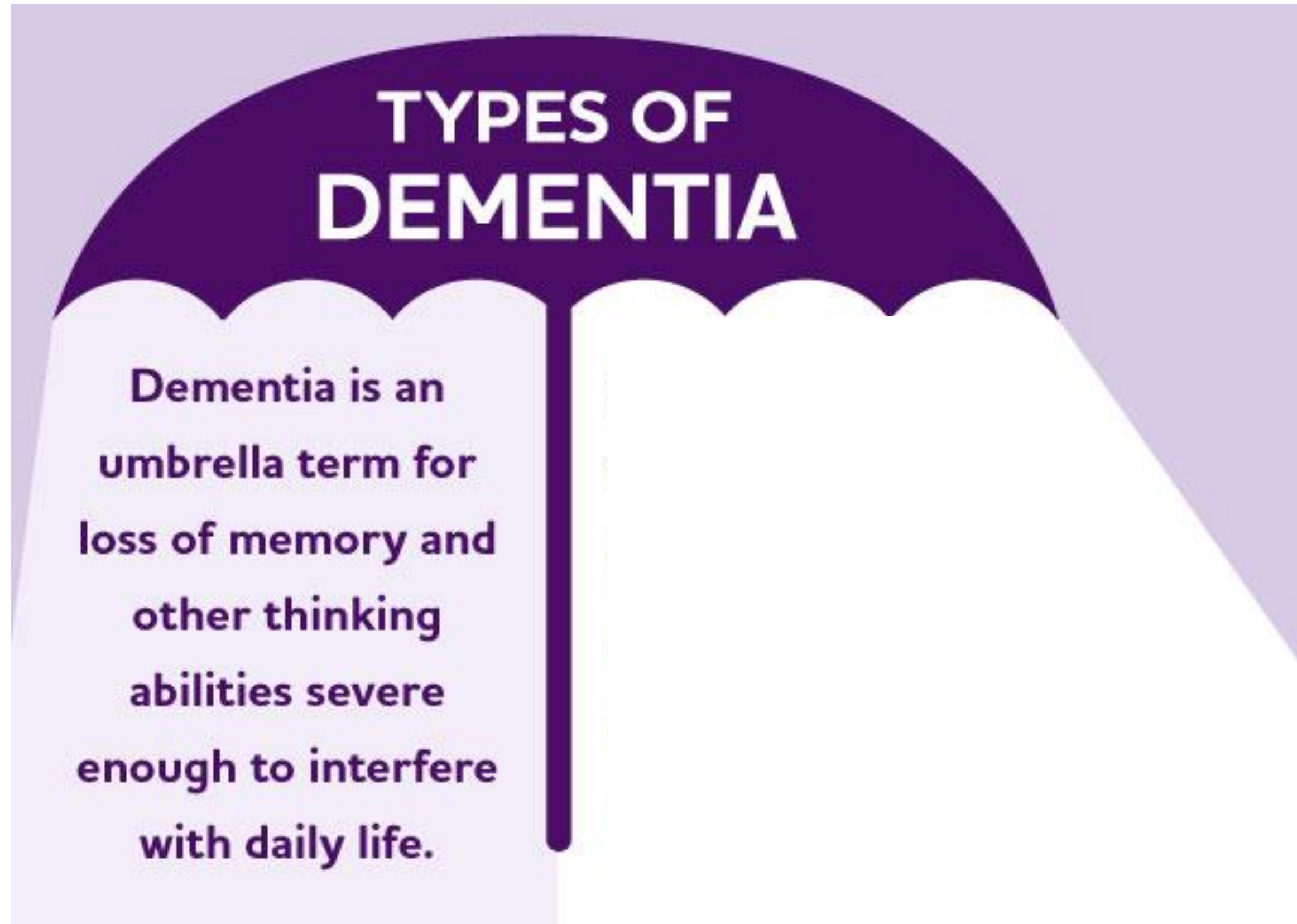


What is **Alzheimer's disease**?

What is Alzheimer's disease?

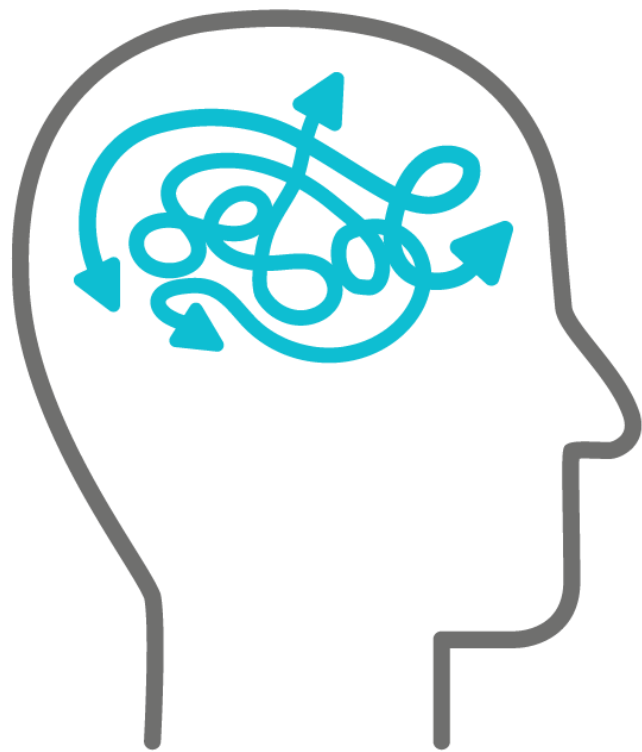


What is Alzheimer's disease?



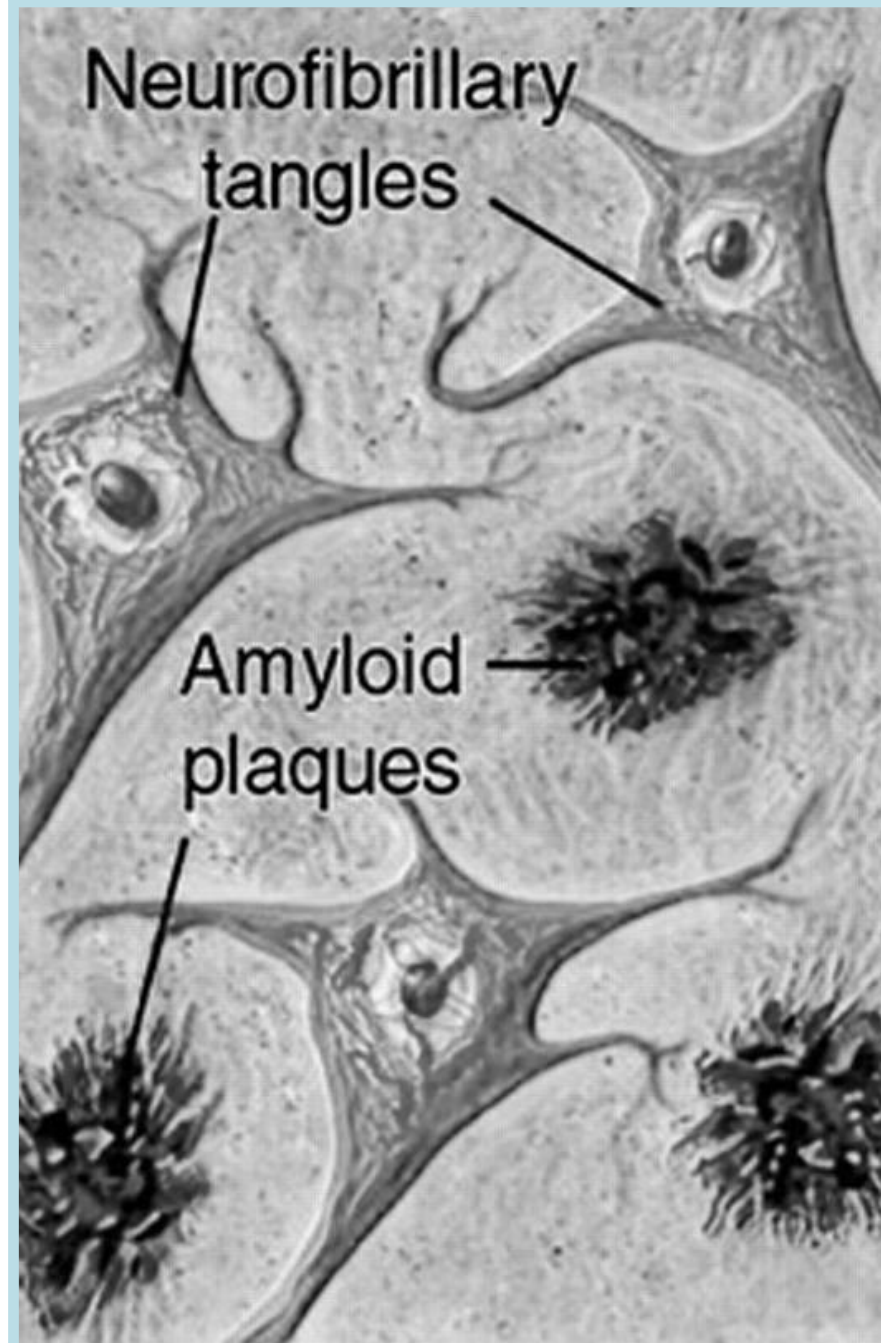
What is Alzheimer's disease?

**Disorder of
Memory and
Thinking**

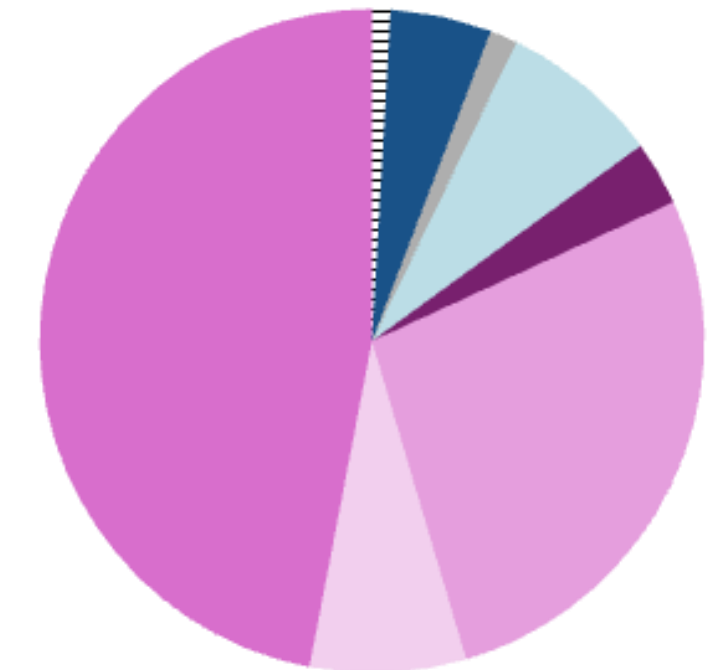


Dementia

**Characterized by
Brain Pathology**



**Affects Most
Dementia Patients**



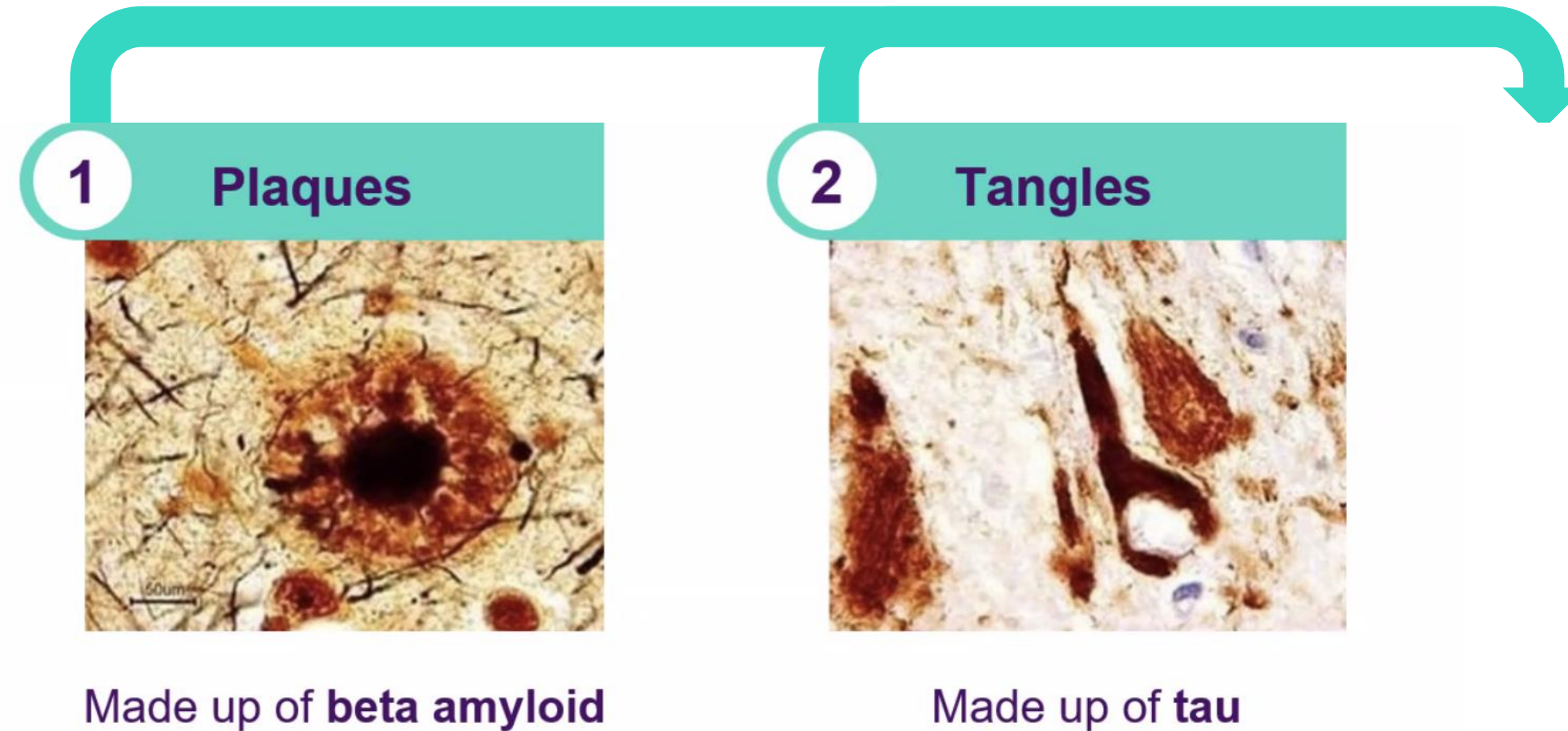
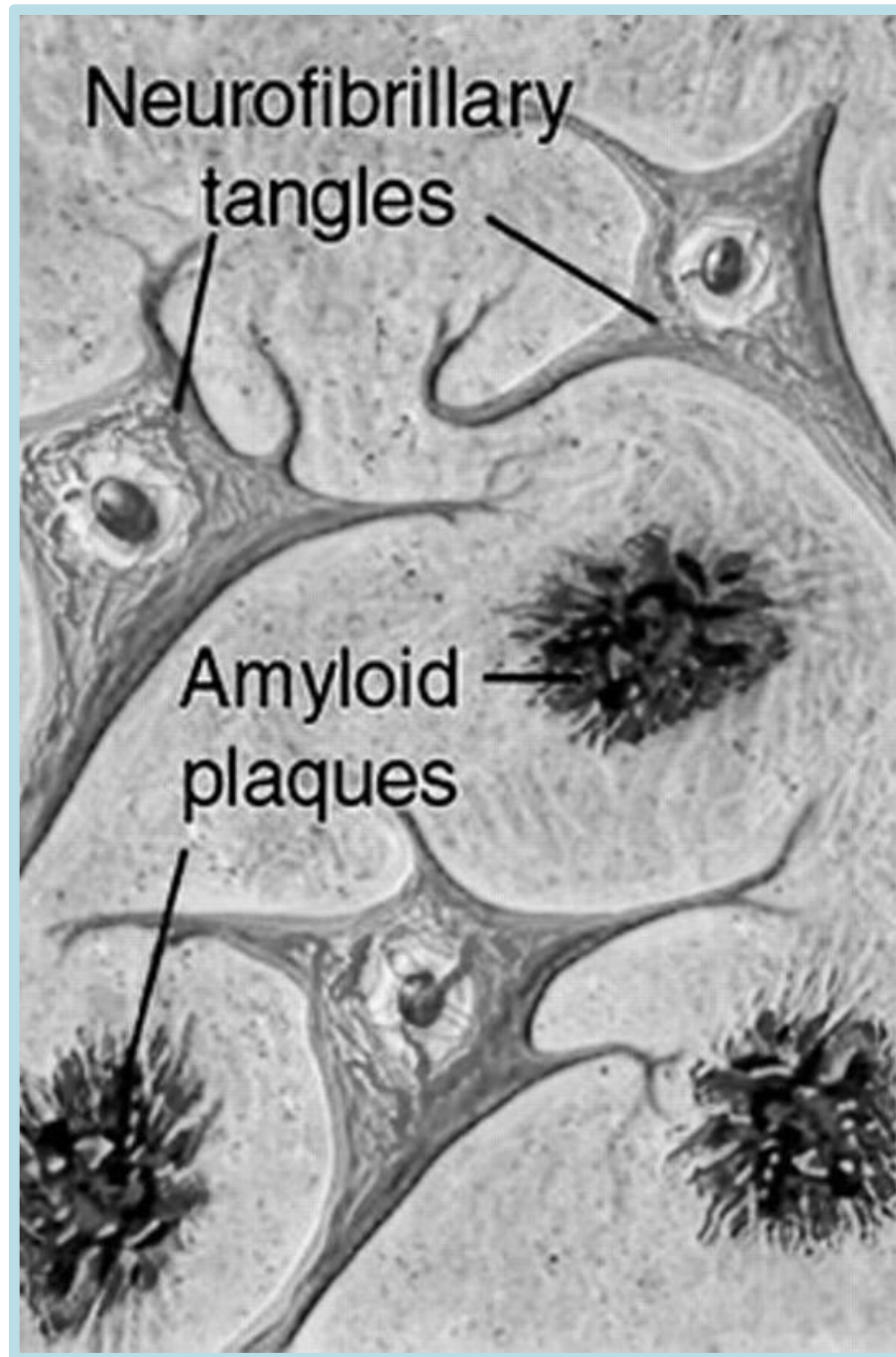
= None
■ Vascular
■ Other
■ Other + Vascular
■ AD
■ AD + Vascular
■ AD + Other
■ AD + Other + Vascular

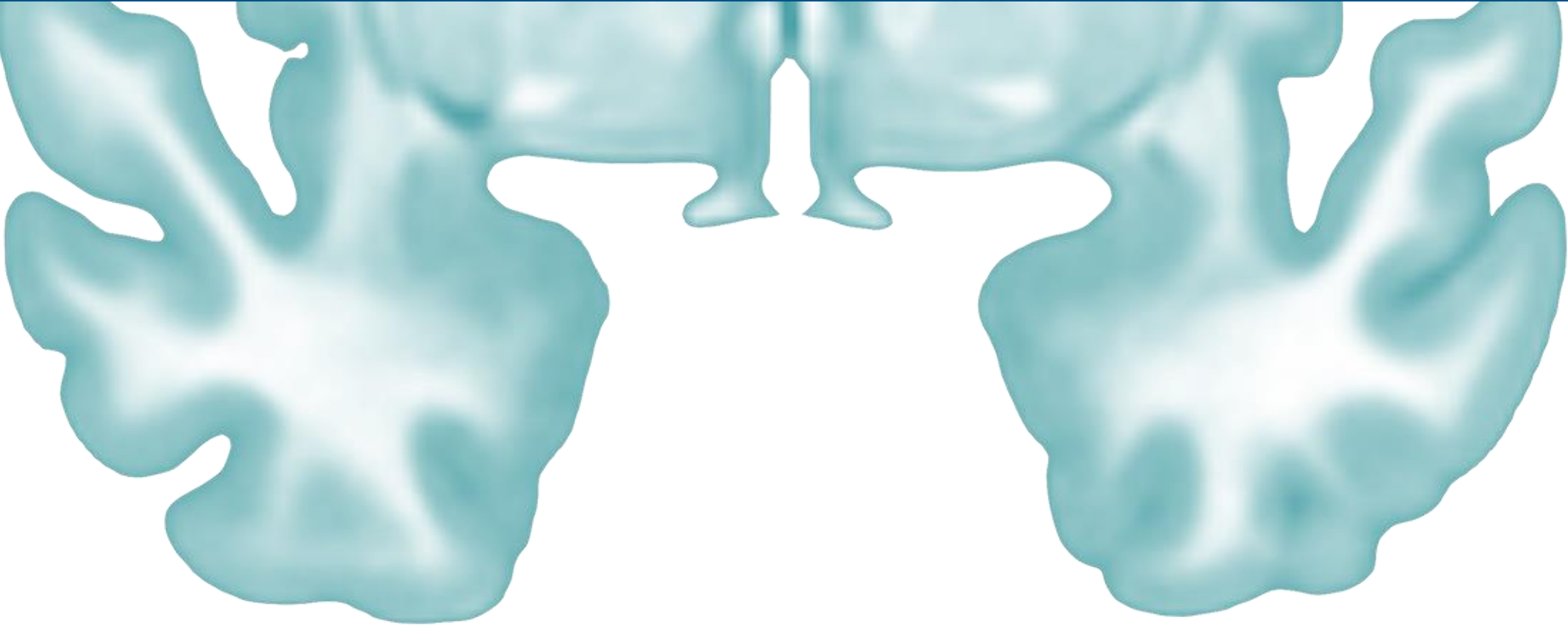
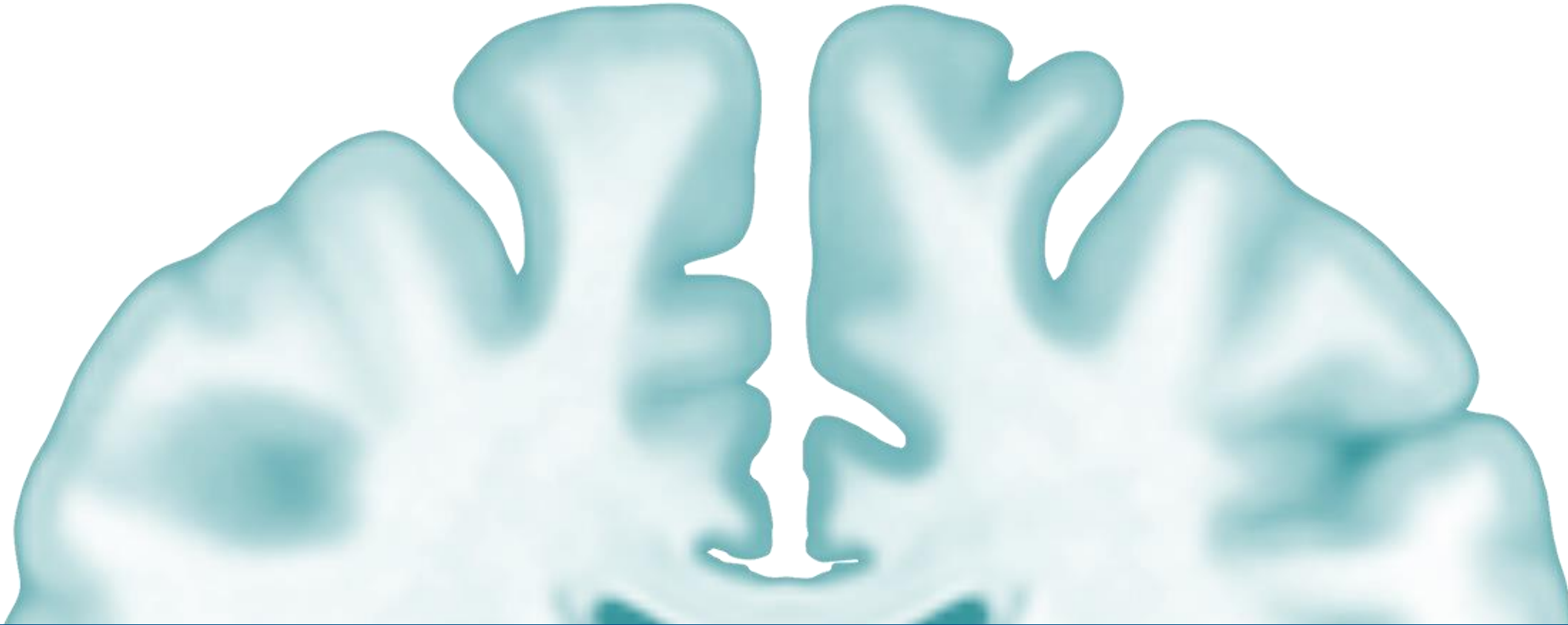
85%

Kapasi et al. (2017) Acta Neuropath

What is Alzheimer's disease?

Hallmark Brain Changes



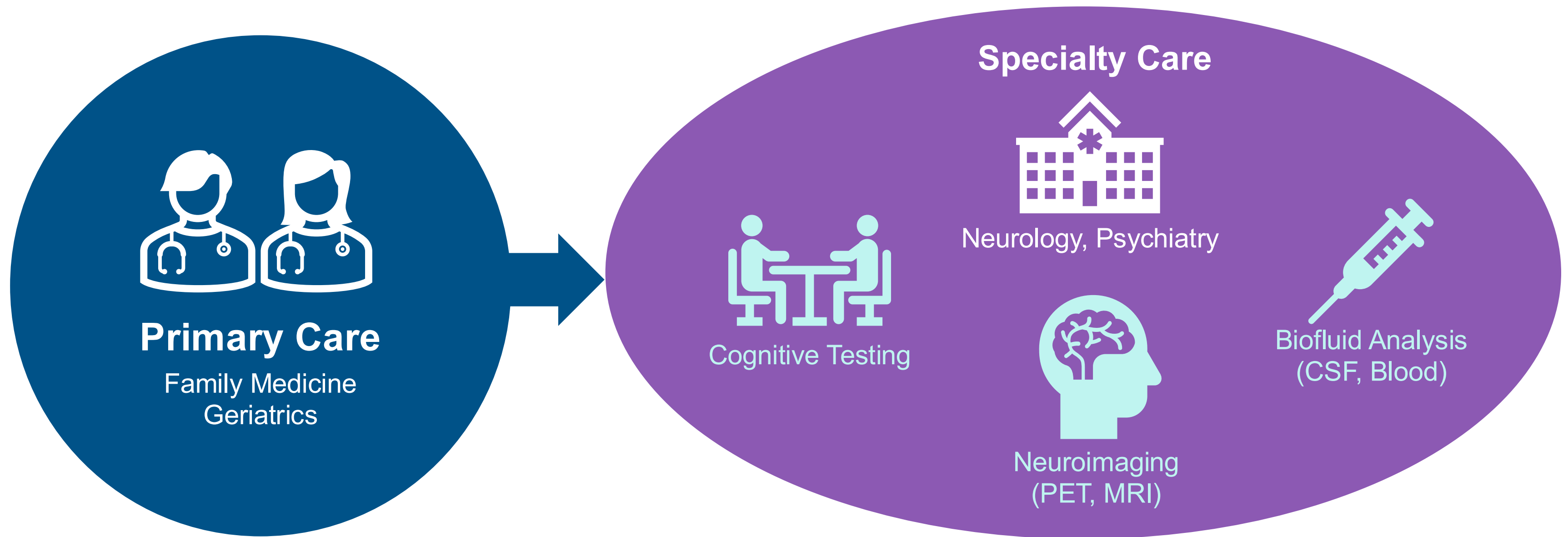


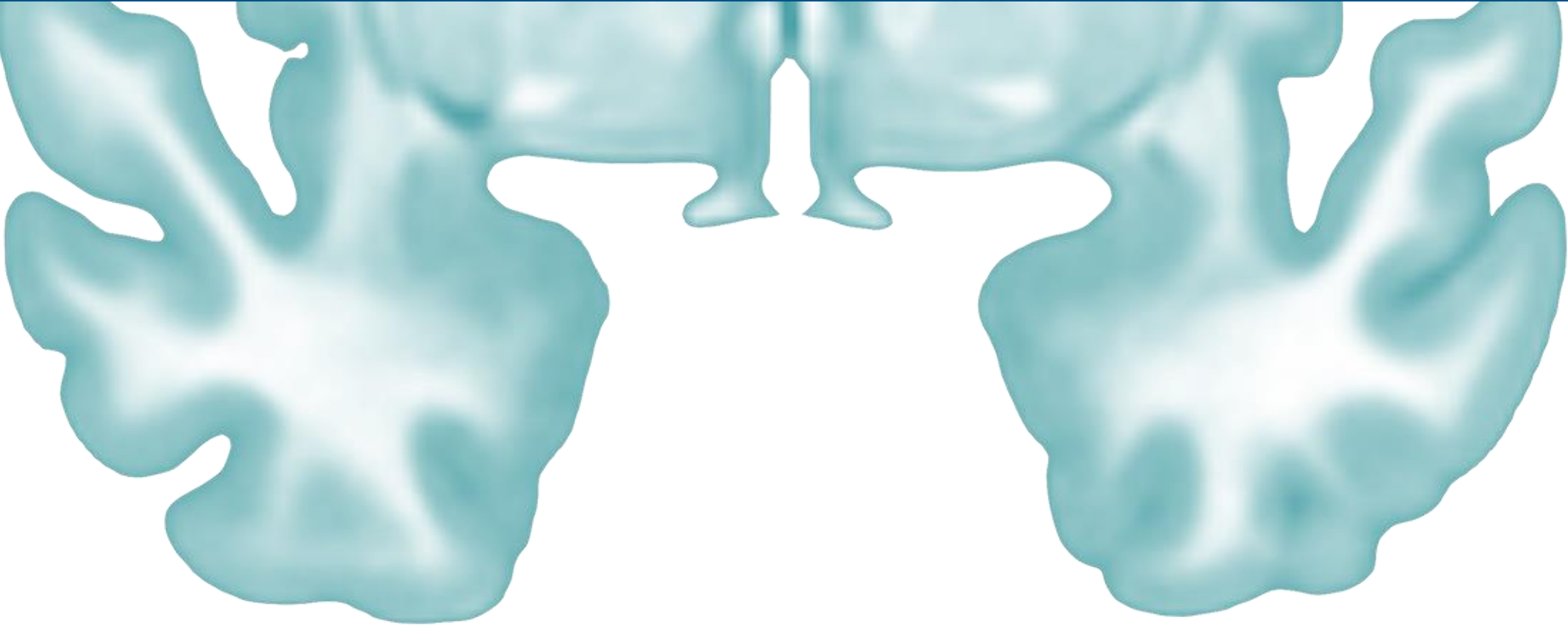
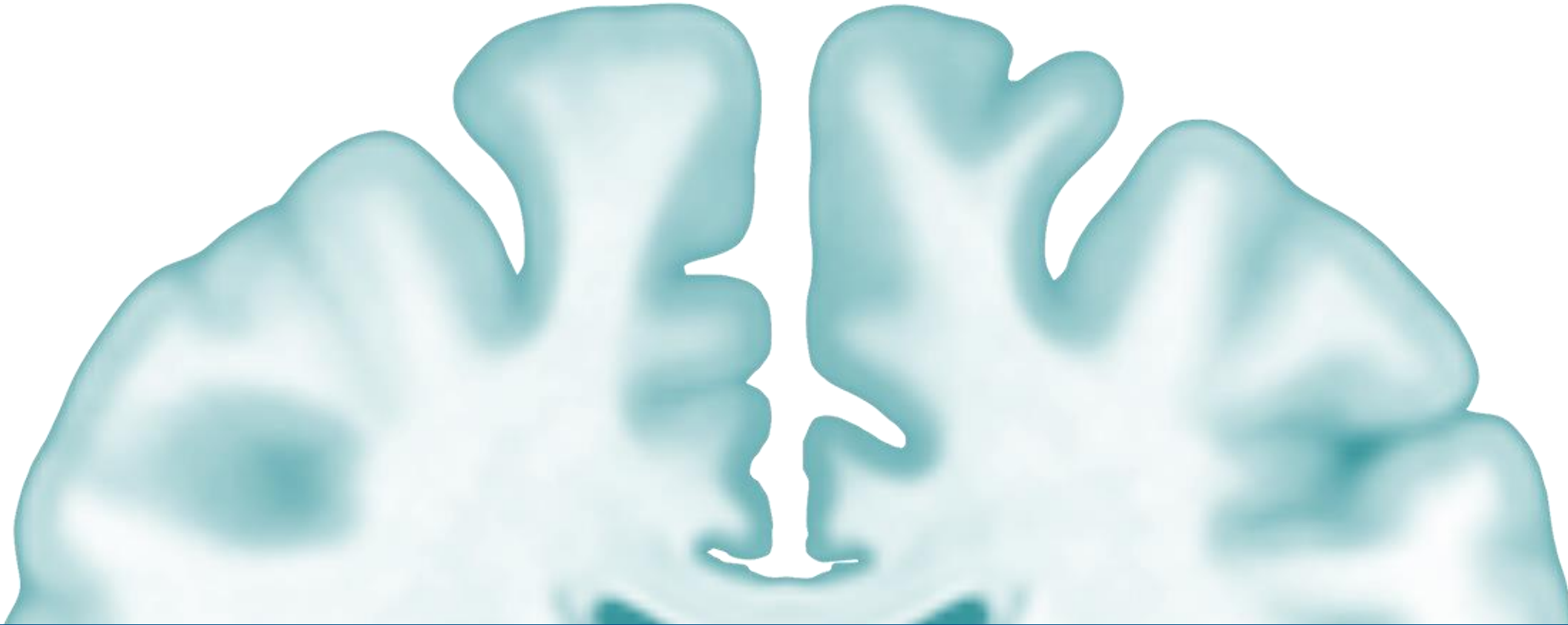
Where does it get **diagnosed**?

Where does it get diagnosed?

1 Memory loss that disrupts daily life	2 Challenges in planning or solving problems	3 Difficulty completing familiar tasks	4 Confusion with time or place
5 Trouble understanding visual images and spatial relationships	6 New problems with words in speaking or writing	7 Misplacing things and losing the ability to retrace steps	8 Decreased or poor judgement
9 Withdrawal from work or social activities	10 Changes in mood or personality		

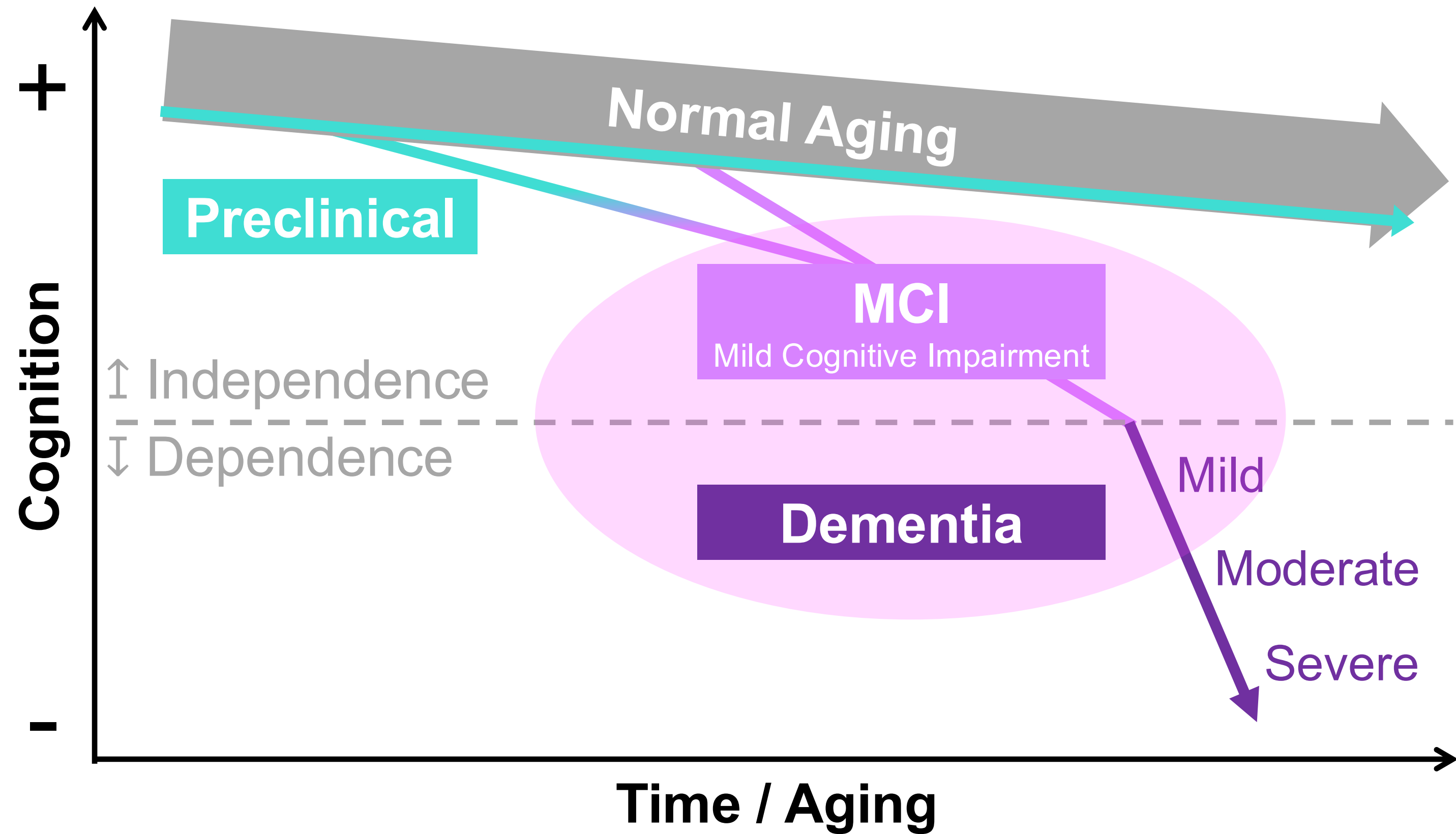
Where does it get diagnosed?





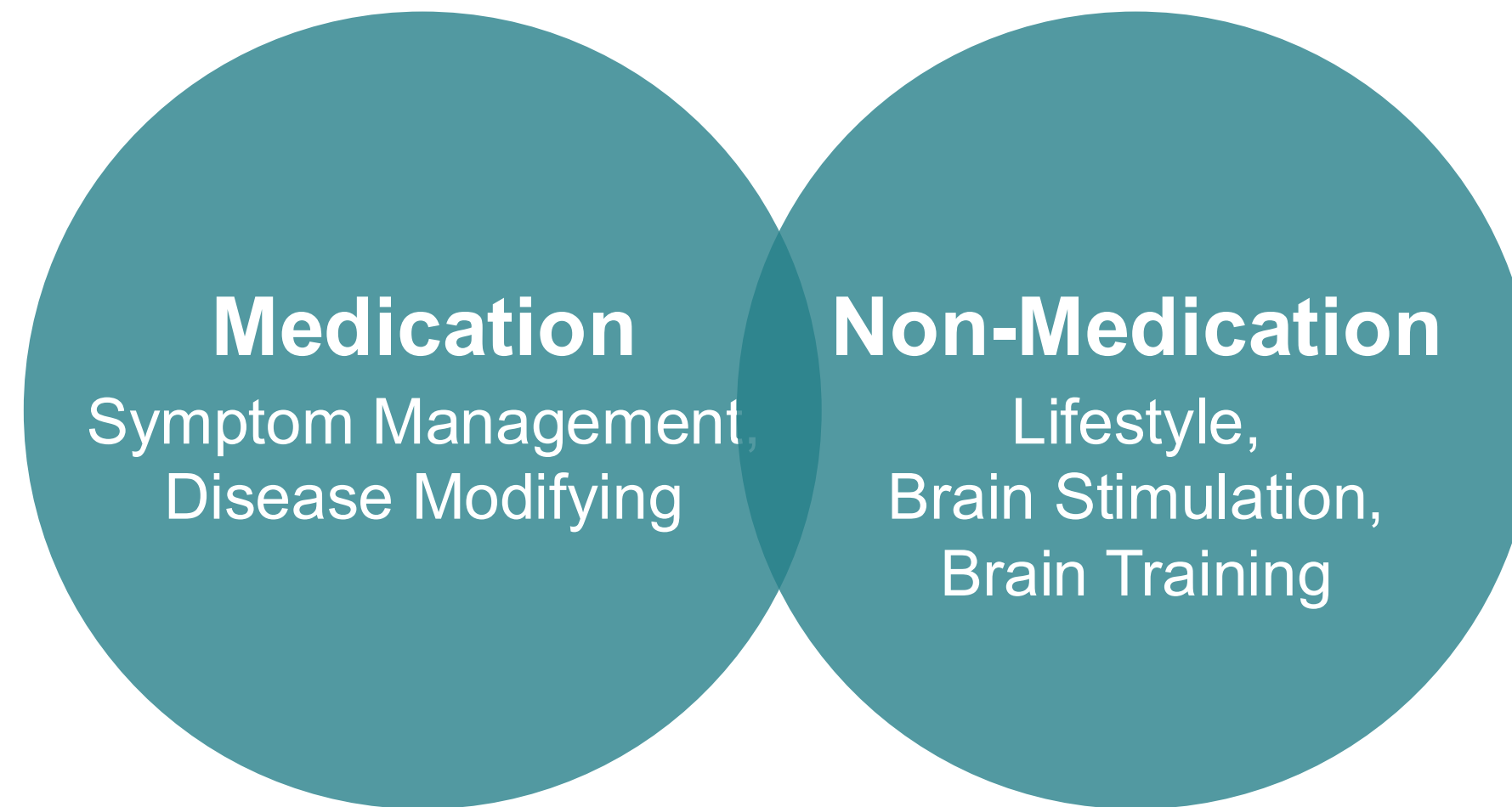
When does it get **treated**?

When does it get treated?



When does it get treated?

Treatment Options



When does it get treated?

Medication

Symptom Management,
Disease Modifying

Non-Medication

Lifestyle,
Brain Stimulation,
Brain Training

10 WAYS TO LOVE YOUR BRAIN



START NOW. It's never too late or too early to incorporate healthy habits.



BREAK A SWEAT

Engage in regular cardiovascular exercise that elevates heart rate and increases blood flow. Studies have found that physical activity reduces risk of cognitive decline.



HIT THE BOOKS

Formal education will help reduce risk of cognitive decline and dementia. Take a class at a local college, community center or online.



BUTT OUT

Smoking increases risk of cognitive decline. Quitting smoking can reduce risk to levels comparable to those who have not smoked.



FOLLOW YOUR HEART

Risk factors for cardiovascular disease and stroke – obesity, high blood pressure and diabetes – negatively impact your cognitive health.



STUMP YOURSELF

Challenge your mind. Build a piece of furniture. Play games of strategy, like bridge.

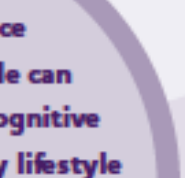
BUDDY UP

Staying socially engaged may support brain health. Find ways to be part of your local community or share activities with friends and family.



TAKE CARE OF YOUR MENTAL HEALTH

Some studies link depression with cognitive decline, so seek treatment if you have depression, anxiety or stress.



HEADS UP!

Brain injury can raise risk of cognitive decline and dementia. Wear a seat belt and use a helmet when playing contact sports or riding a bike.



FUEL UP RIGHT

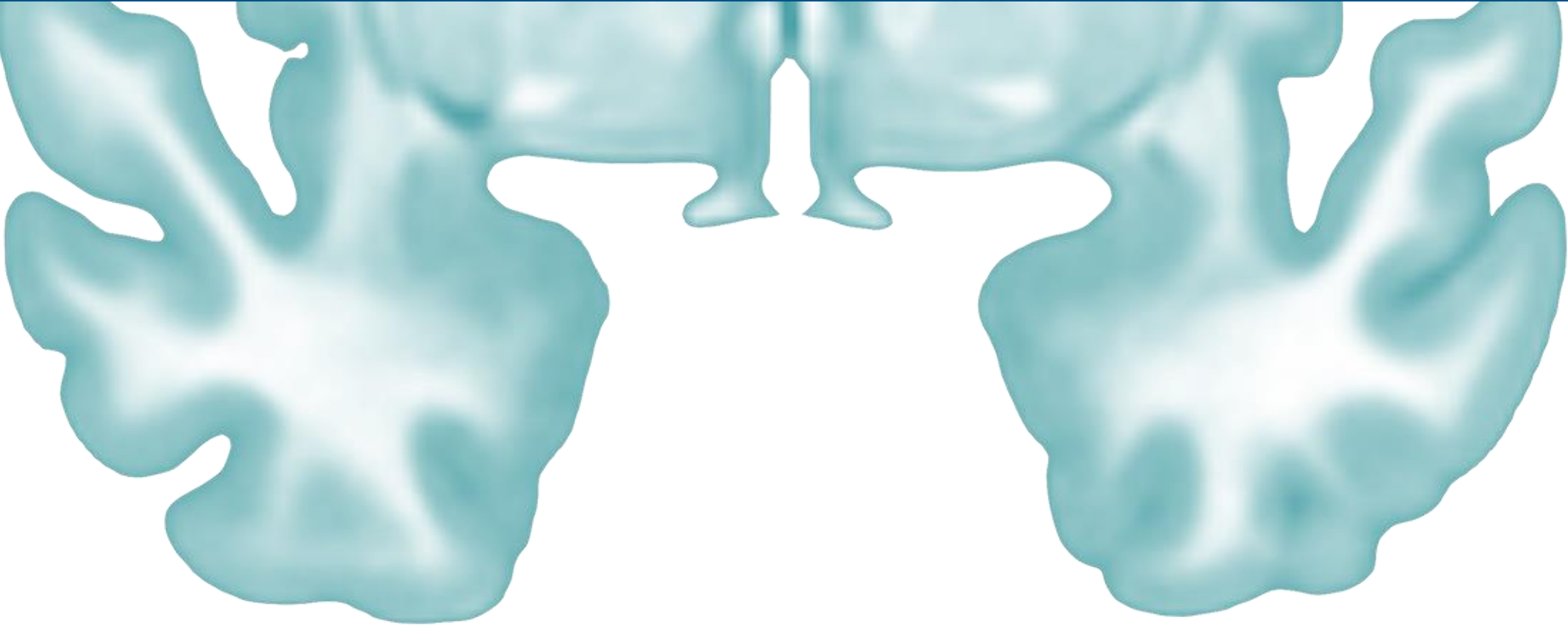
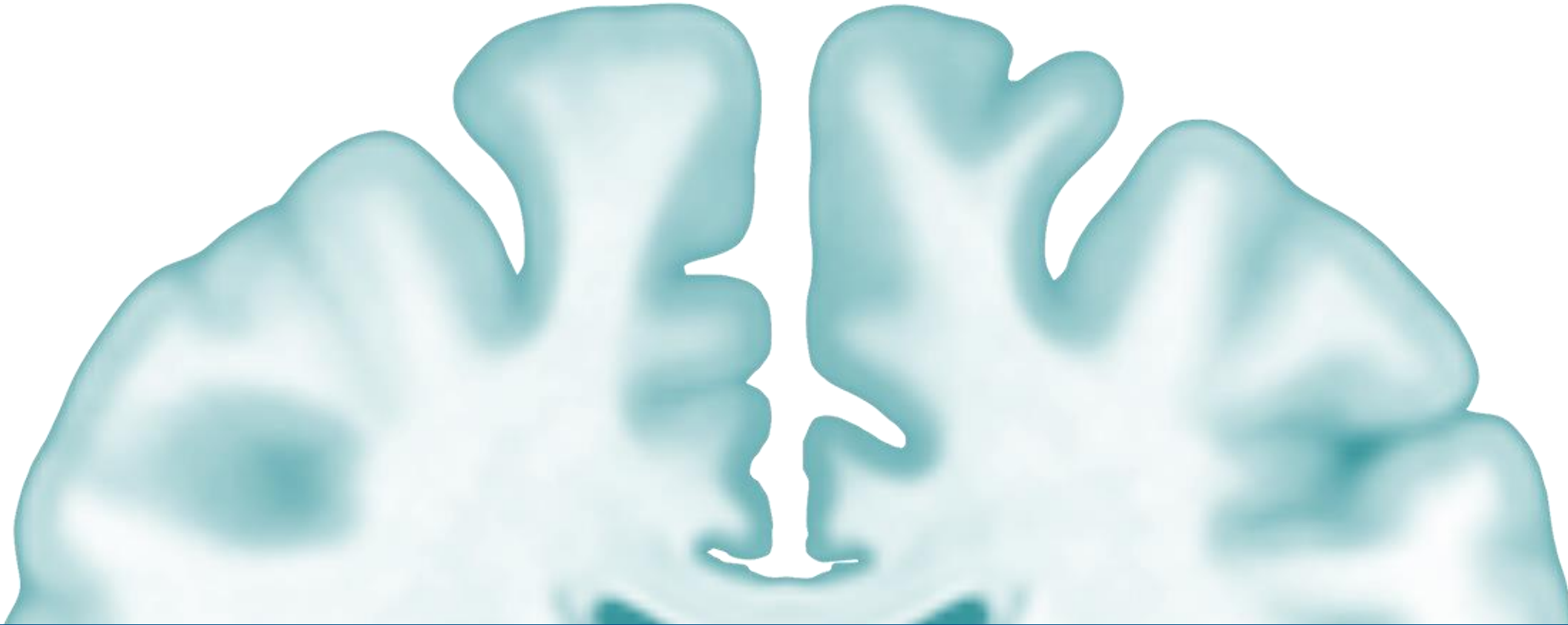
Eat a balanced diet that is higher in vegetables and fruit to help reduce the risk of cognitive decline.



CATCH SOME ZZZ'S

Not getting enough sleep may result in problems with memory and thinking.

Growing evidence indicates that people can reduce their risk of cognitive decline by adopting key lifestyle habits. When possible, combine these habits to achieve maximum benefit for the brain and body.



How is research making a **difference**?

We have studies focused on....

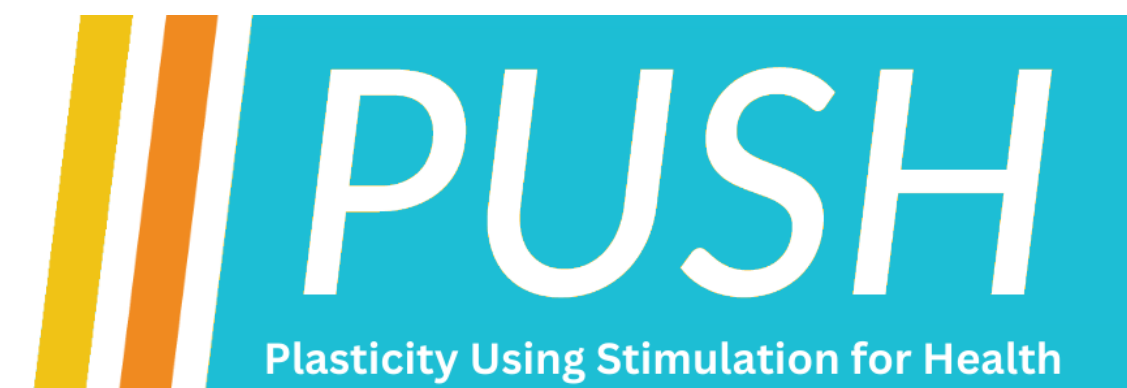
Early Detection



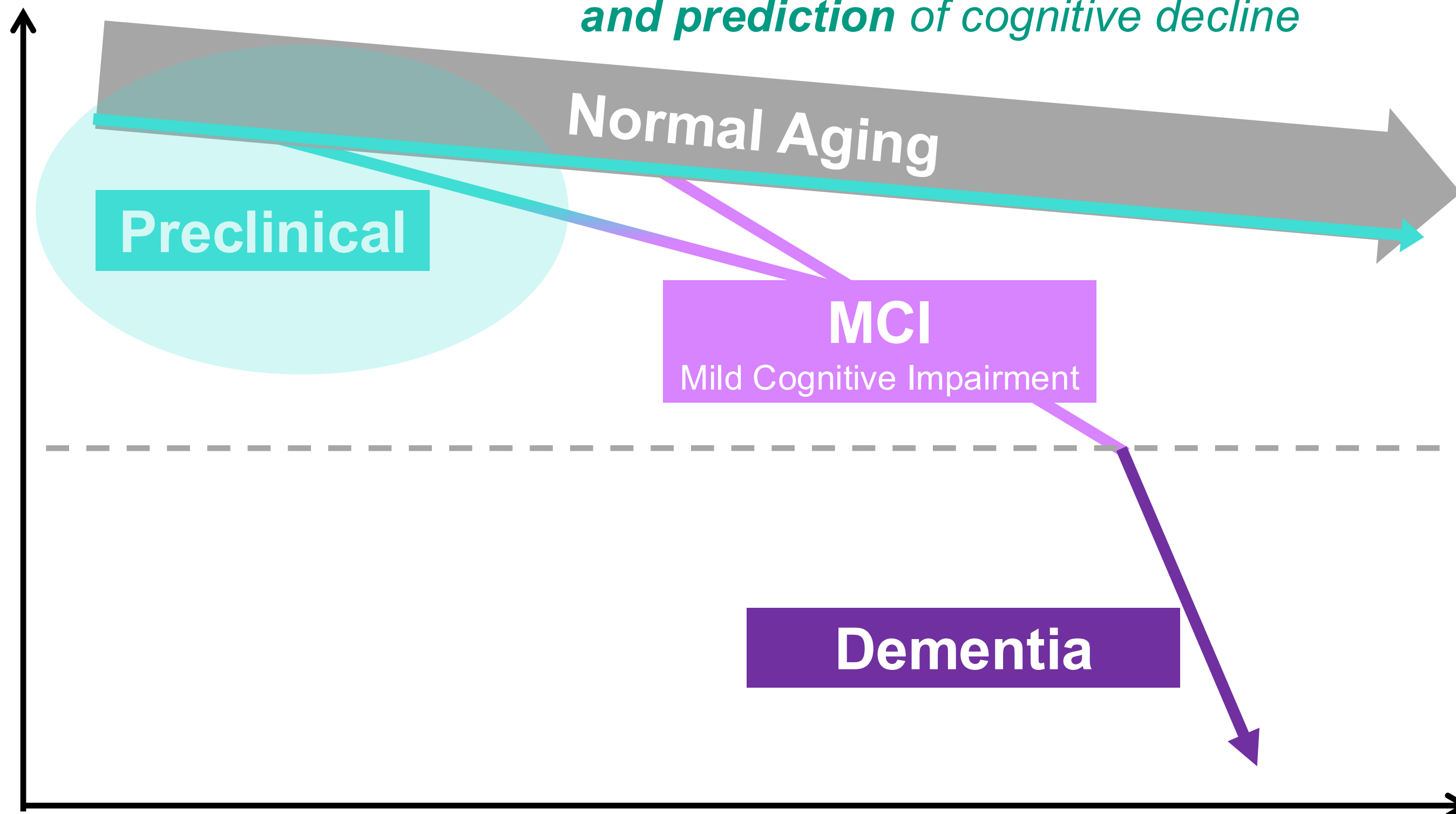
Mild Cognitive Impairment

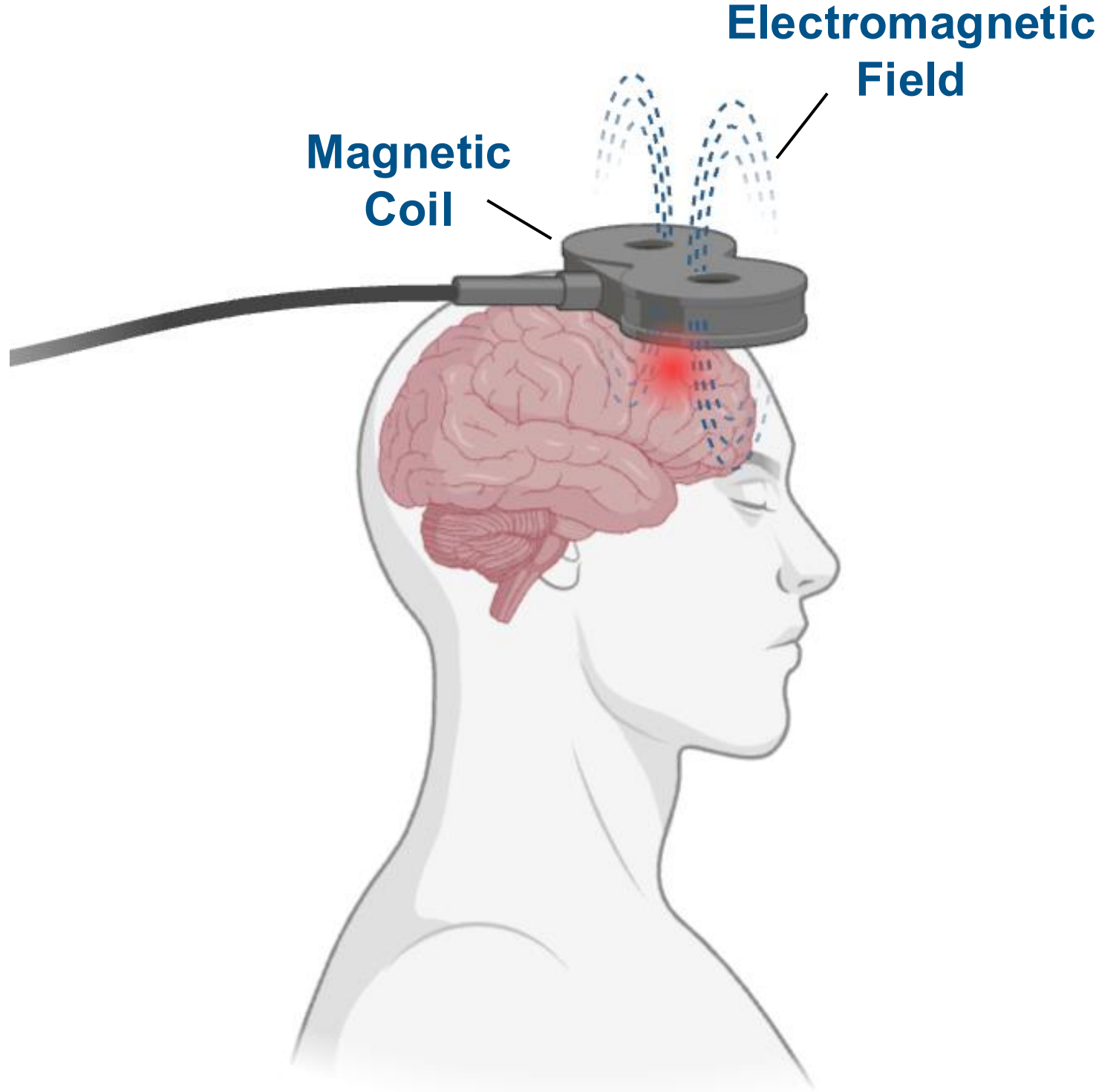
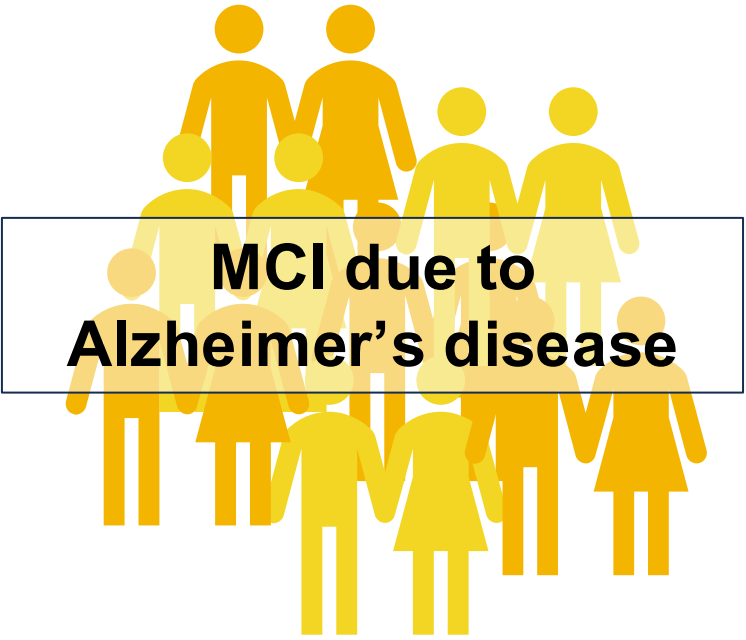


Non-Medication Treatments



*Goal: Develop MRI biomarkers for **early detection**
and **prediction** of cognitive decline*

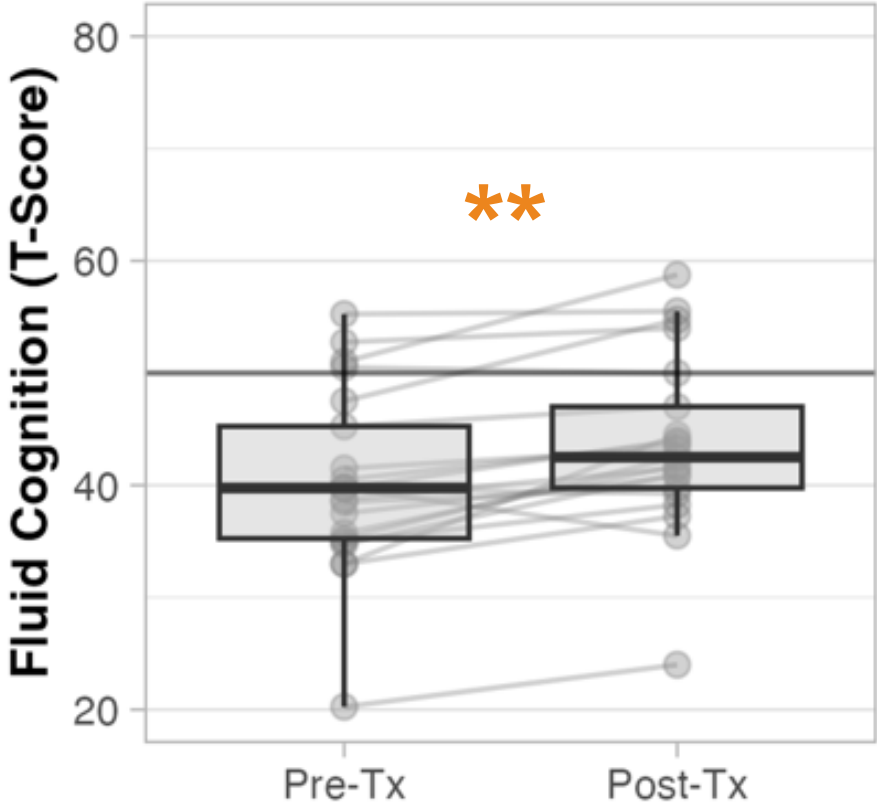


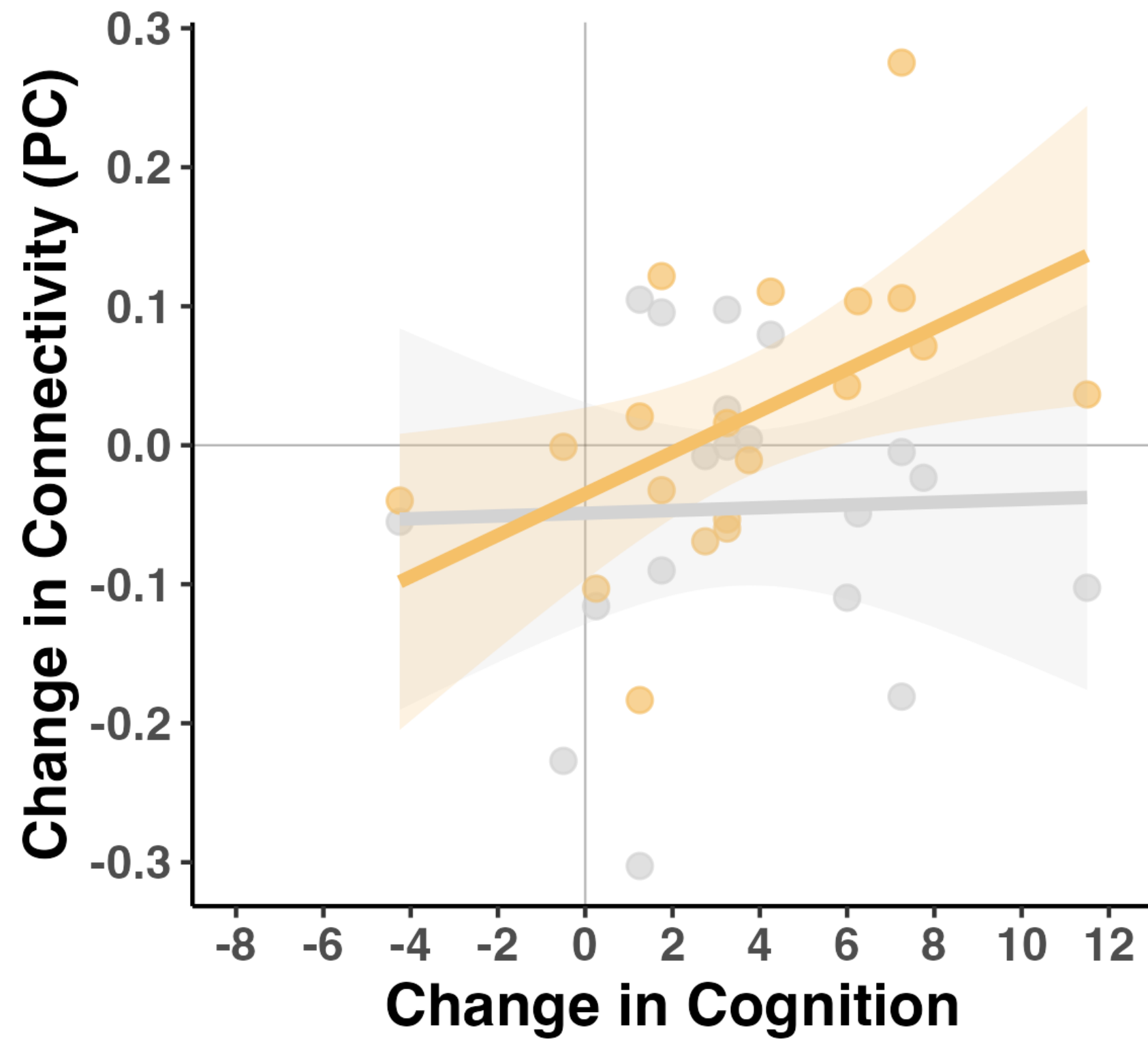
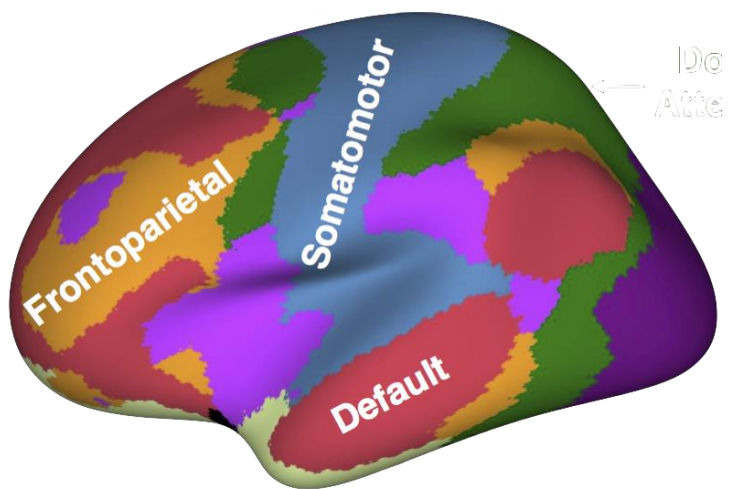
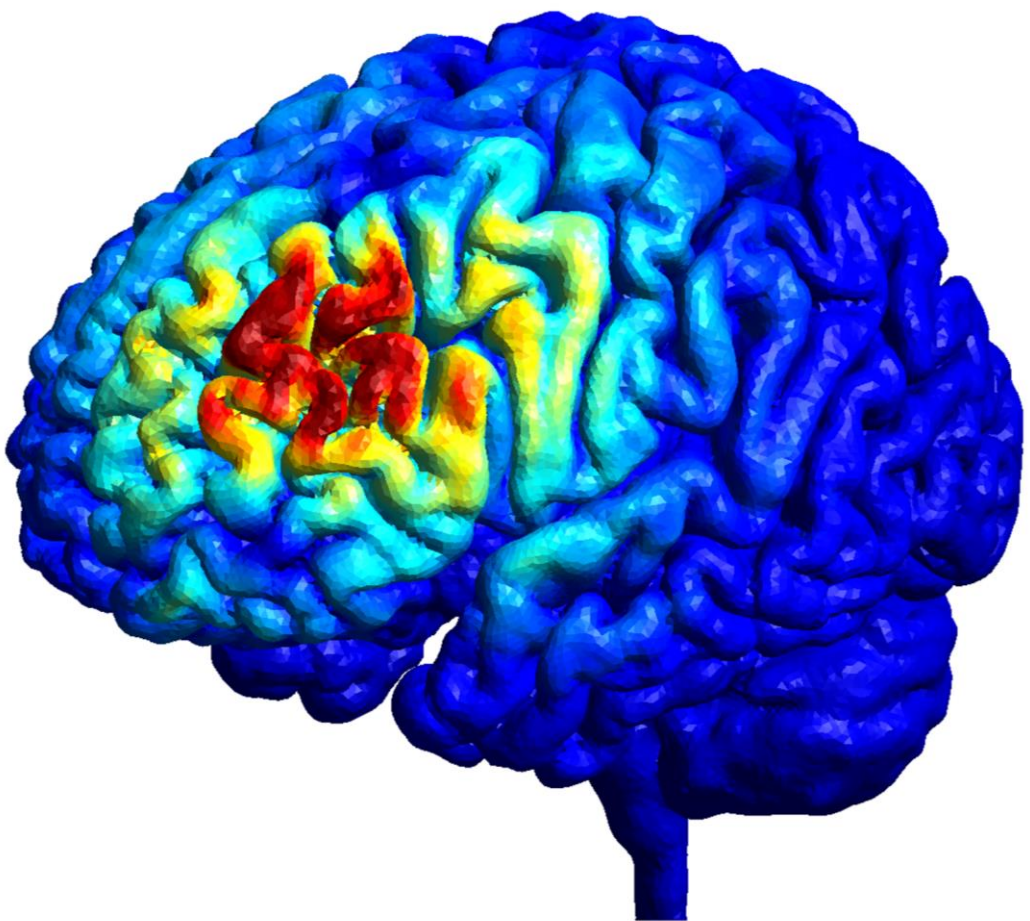


Phase I Trial

- ✓ Safe
- ✓ Feasible
- ✓ Acceptable
- ✓ Tolerable

✓ Improved Cognition







PUSH

Plasticity Using Stimulation for Health



RISE

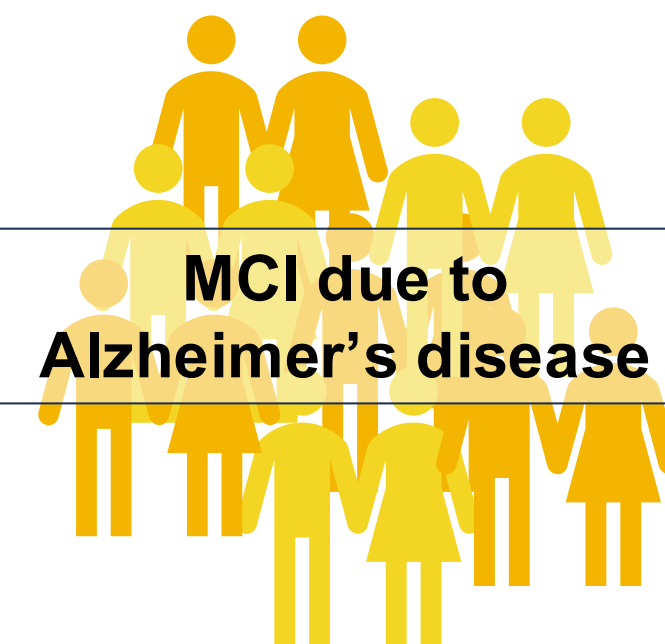
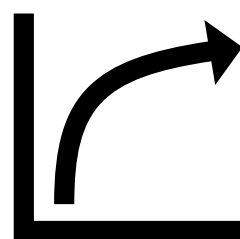
A Pilot Trial
for MCI

Resilience through Stimulation and Engagement



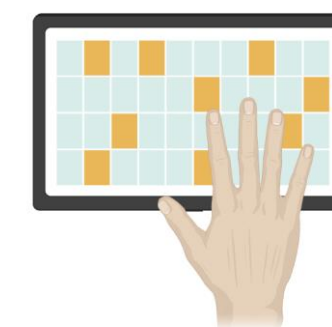
MCI and any history of
Depression

What's the right dose of
stimulation to improve
symptoms?



MCI due to
Alzheimer's disease

Does adding brain
games enhance the
benefits?





Participant REgistry for
Prevention-focused
Aging/dementia REsearch

A registry for non-medication research studies
for **Mild Cognitive Impairment (MCI)**

SCAN FOR
MORE INFO



HOW IT WORKS



Enroll

MCI participants join
PREPARE by providing
their information.



Connect

PREPARE connects
investigators with MCI
participants.



Inform

Participants receive alerts
about MCI research
opportunities.



prepare@musc.edu



843-608-1674



<https://www.bridge-lab.org/prepare>

Acknowledgments



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