

Alzheimer's Disease 2024

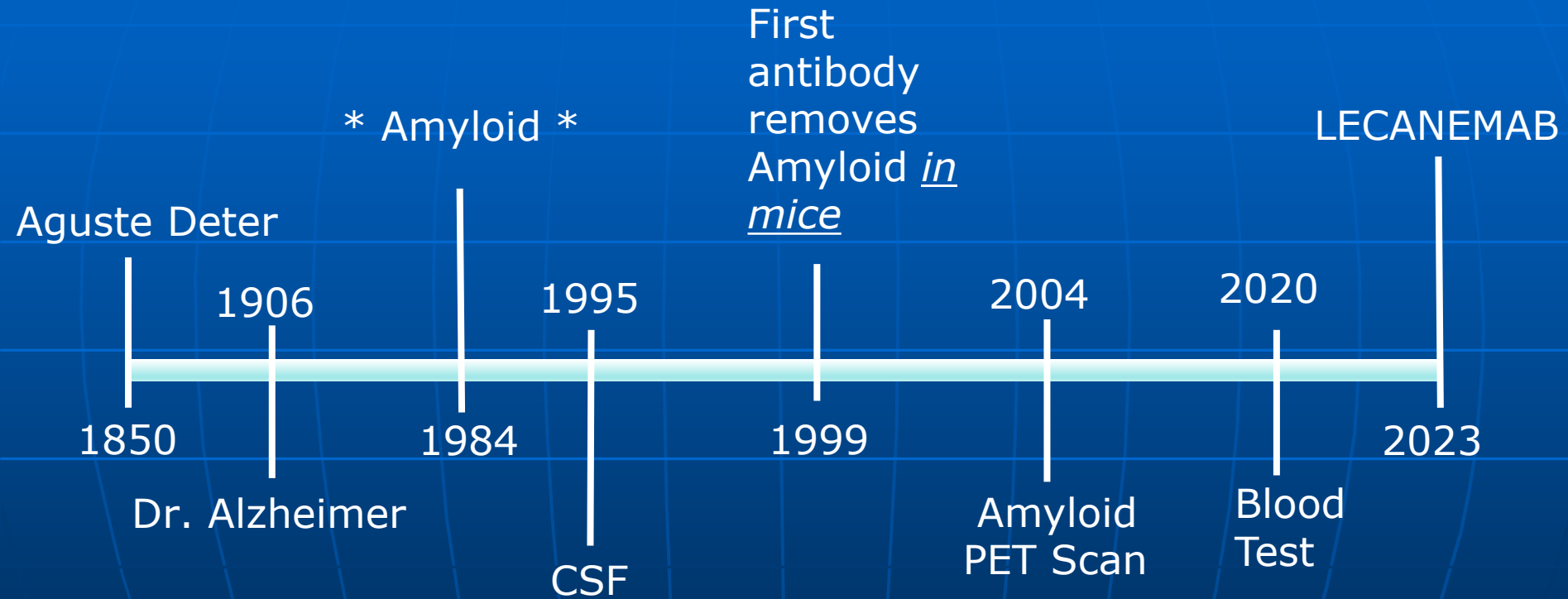
Craig Curtis, M.D.

**Sharon Morse Building
The Villages, FL**

Seminar Rules

- Remember to smile, it looks good on you

Alzheimer's Timeline

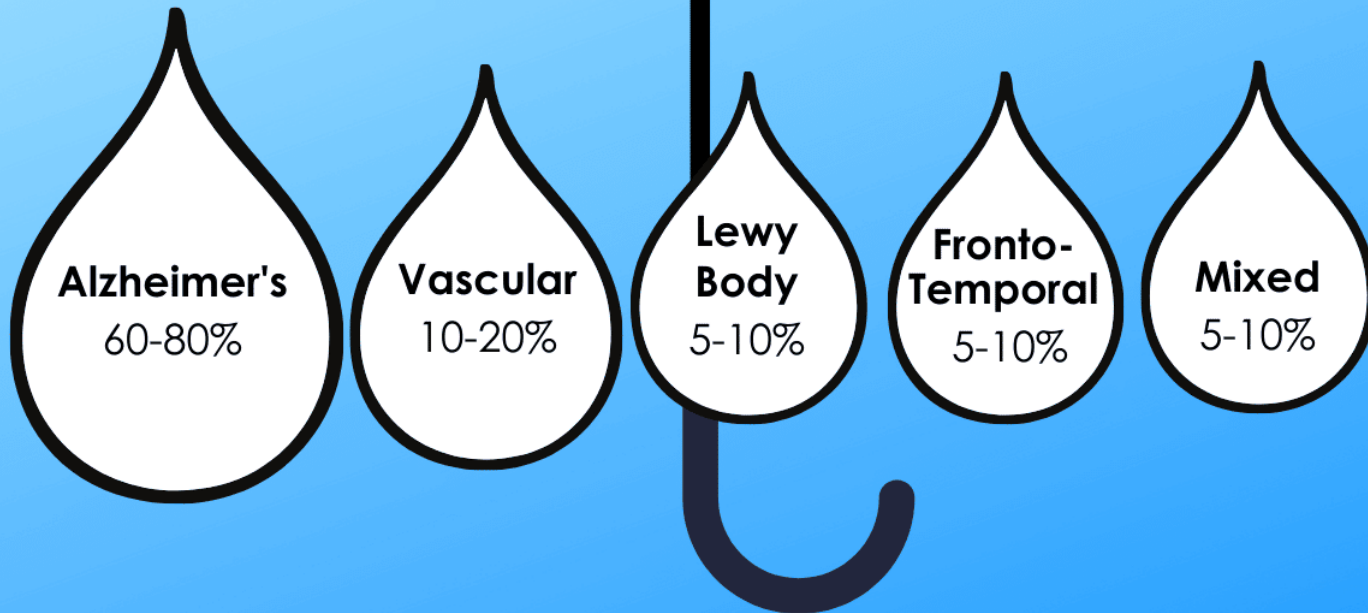


Dementia

- Progressive memory loss that interferes with daily functioning
- Many types of Dementia:
 - **Alzheimer's – 75%**
 - Vascular
 - Others (Lewy Body, FTD, PD, Hipp Sclerosis, PPA, PSP, CBS, PCA, NPH, LATE, PART)

DEMENTIA

Umbrella term for a condition that causes changes to a person's memory, reasoning, and thinking in a way that interferes with daily life



Types of Dementia

An infographic of an umbrella with the title "Types of Dementia" and ten circles hanging from the canopy, each containing a type of dementia. The circles are arranged in two rows of five. The top row contains: Alzheimer's Disease, Vascular Dementia, Dementia with Lewy Bodies, Mixed Dementia, and Frontotemporal Dementia. The bottom row contains: Huntington's Disease, Korsakoff Syndrome, Creutzfeldt-jakob Disease, and Normal Pressure Hydrocephalus. The circle for Parkinson's Disease is present in the top row but has no circle hanging below it.

Alzheimer's Disease

Vascular Dementia

Dementia with Lewy Bodies

Mixed Dementia

Fronto-temporal Dementia

Parkinson's Disease

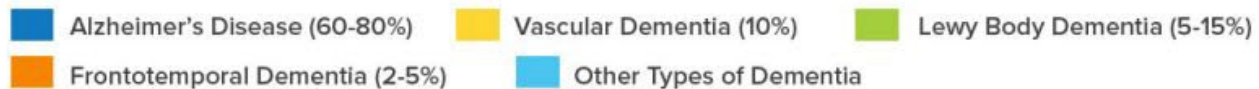
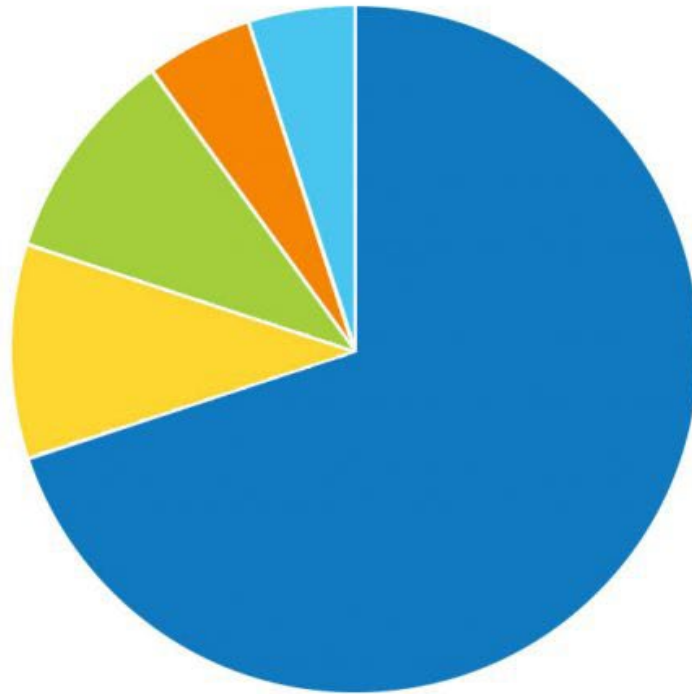
Huntington's Disease

Korsakoff Syndrome

Creutzfeldt-jakob Disease

Normal Pressure Hydrocephalus

Different Types of Dementia (by %)

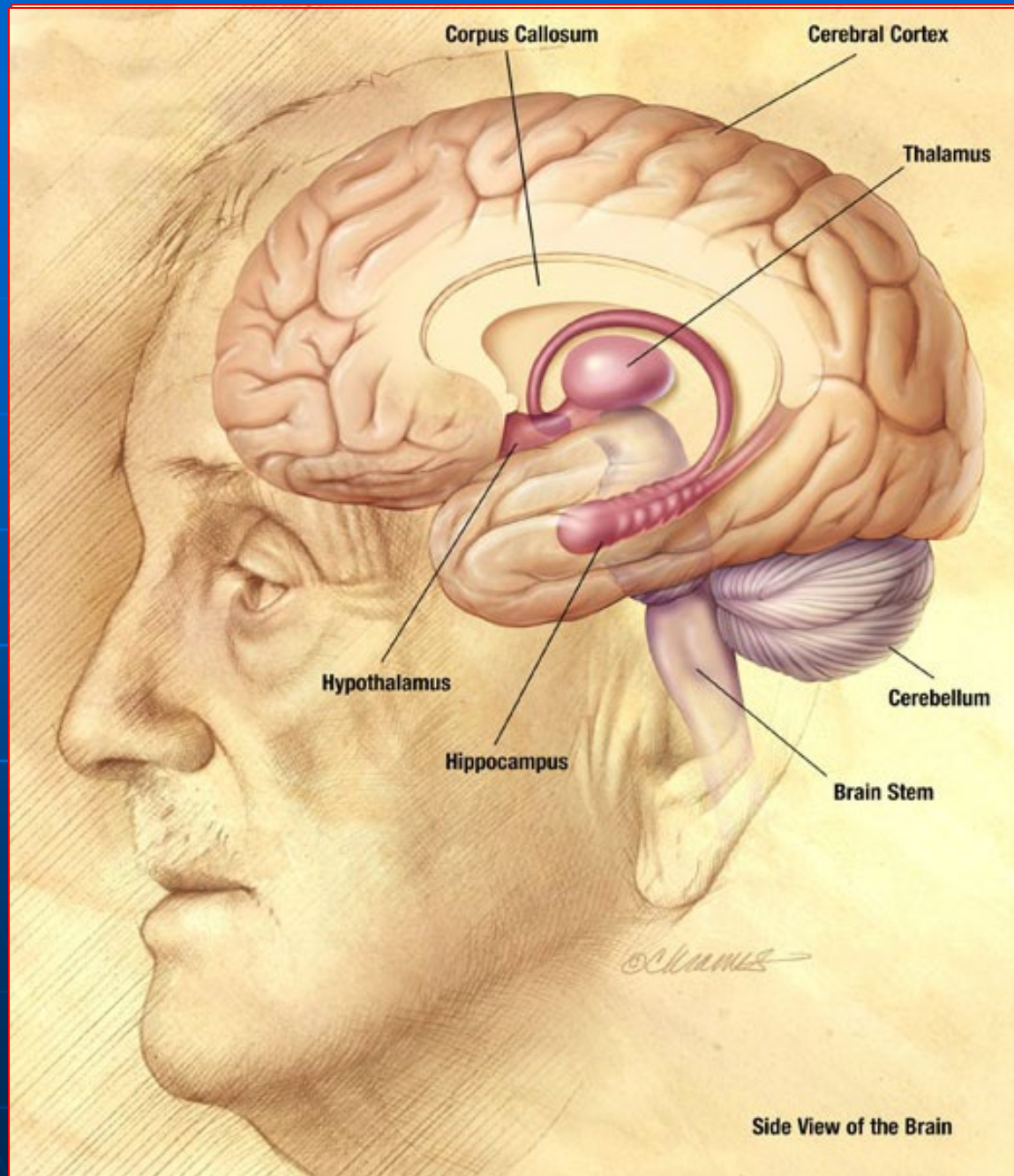


Alzheimer's Risk Factors

- Risk Factors:
 - Age *#1 by far*
 - Genetics

Inside the Human Brain

To understand Alzheimer's disease, it's important to know a bit about the brain...



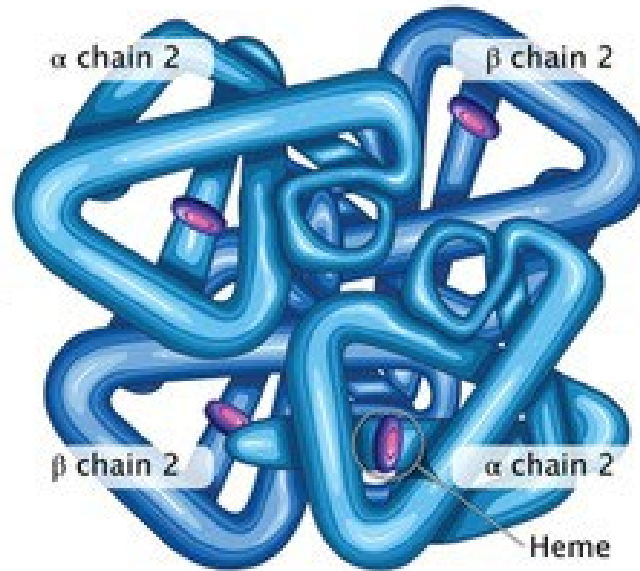
The Brain's Vital Statistics

- Adult weight: about 3 pounds
- Adult size: a medium cauliflower
- Number of neurons: 100,000,000,000 (100 billion)
- Number of synapses (the gap between neurons): 100,000,000,000,000 (100 trillion)

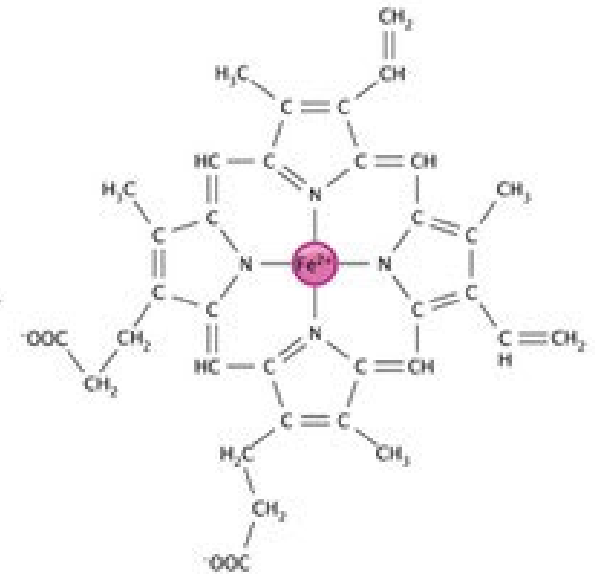
Example: Protein



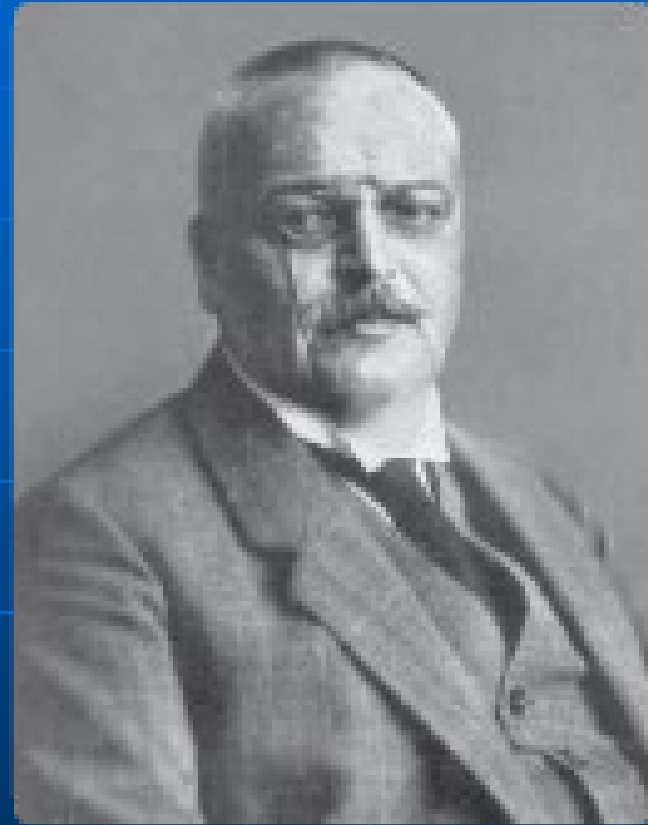
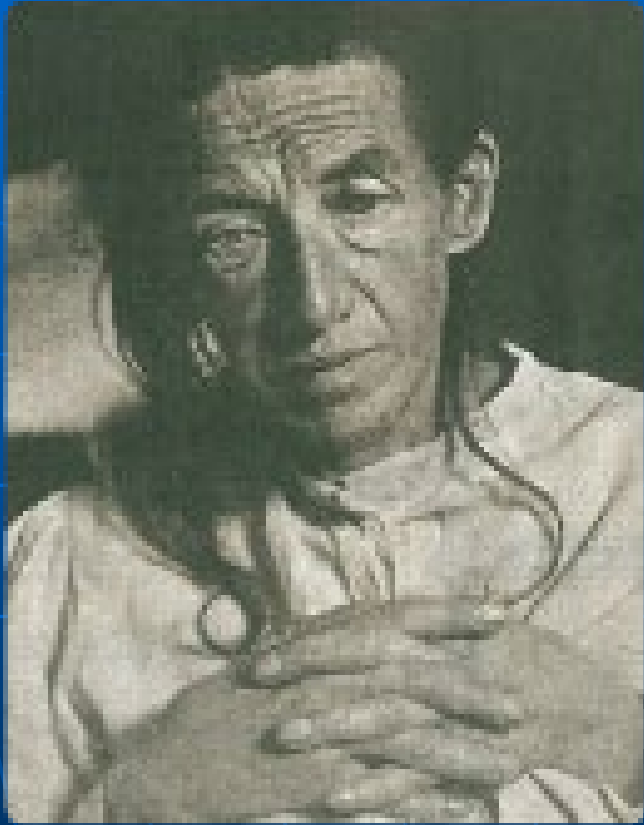
Red blood Cell



Hemoglobin molecule

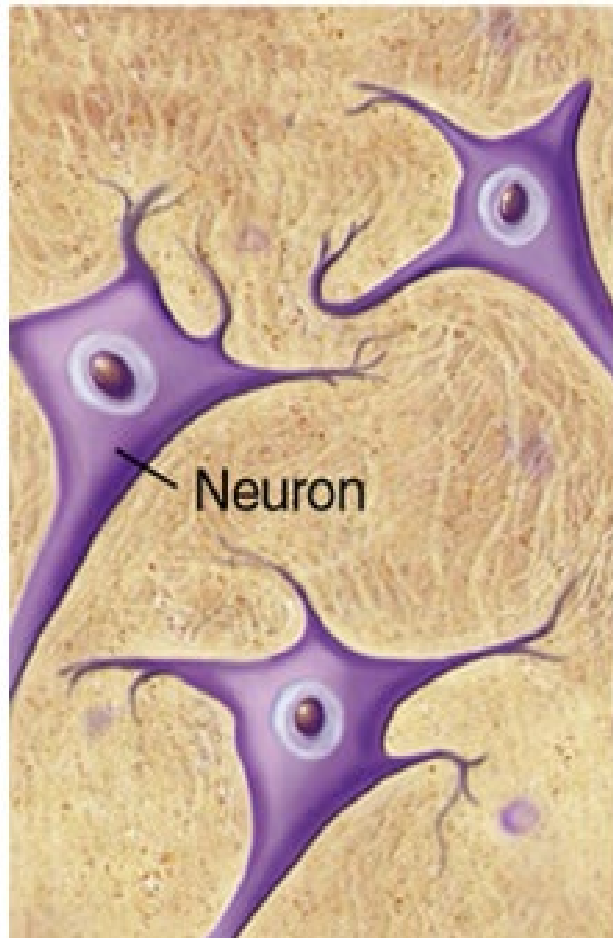


Heme

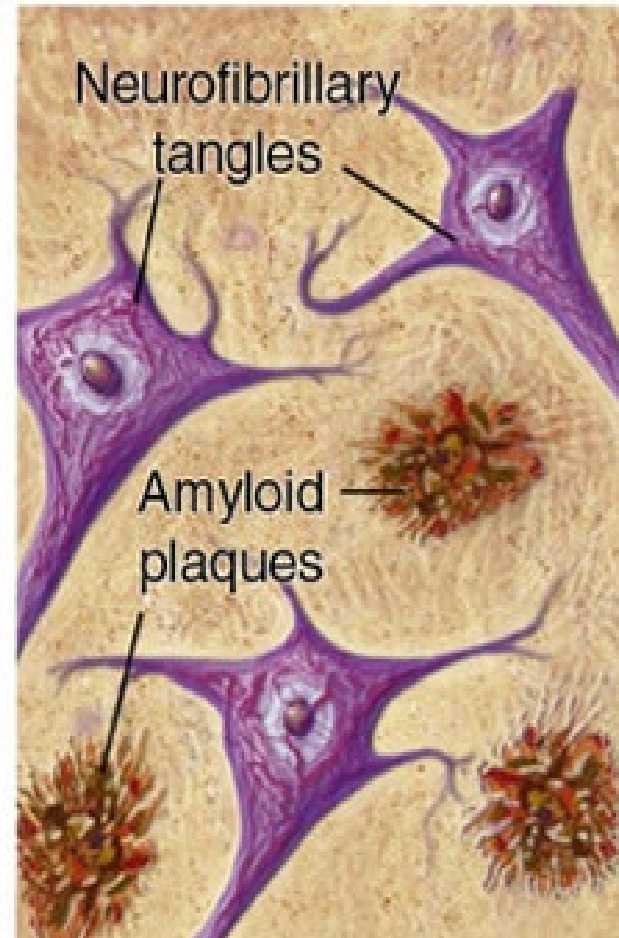


Dr. Alzheimer: what he saw

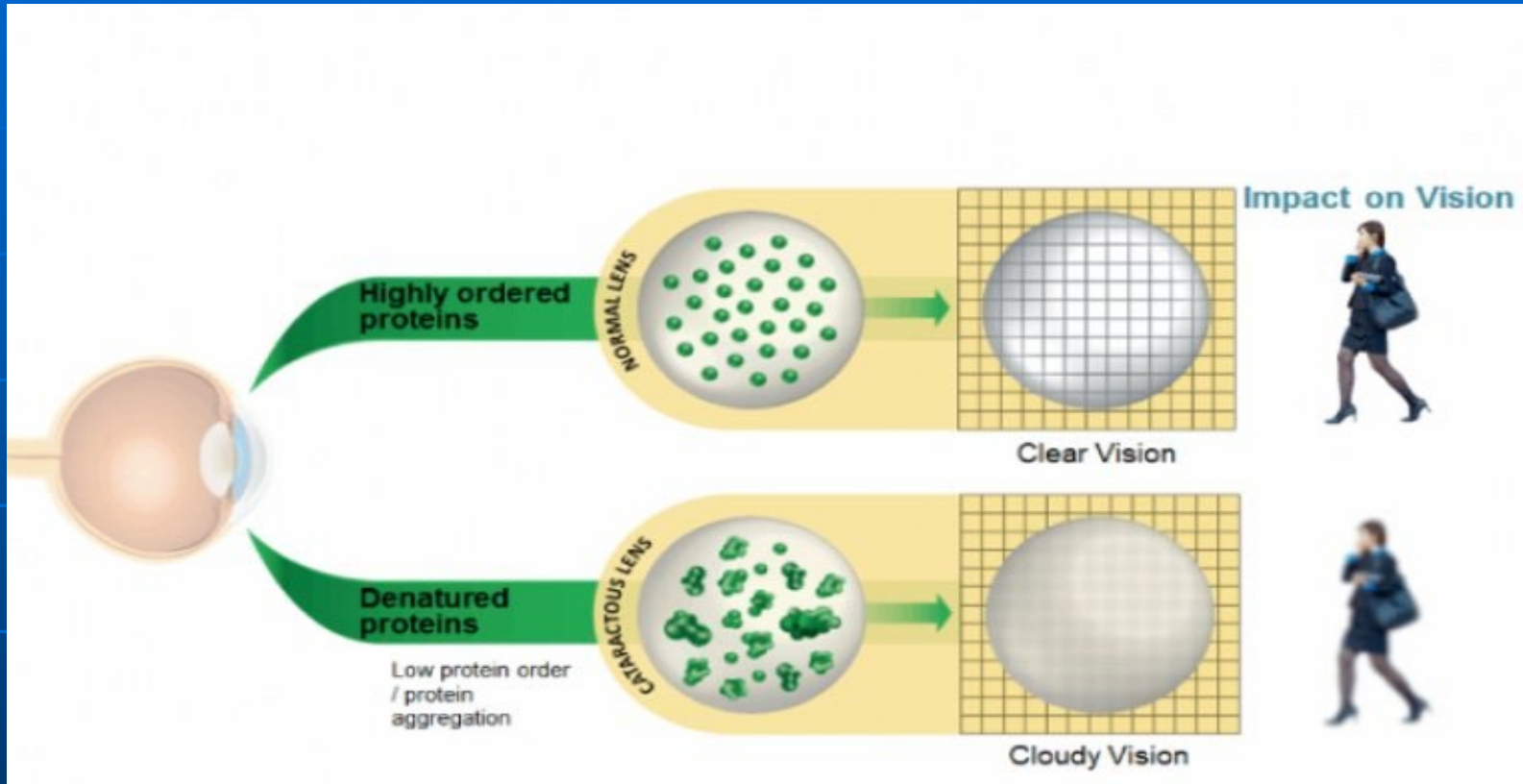
Normal



Alzheimer's



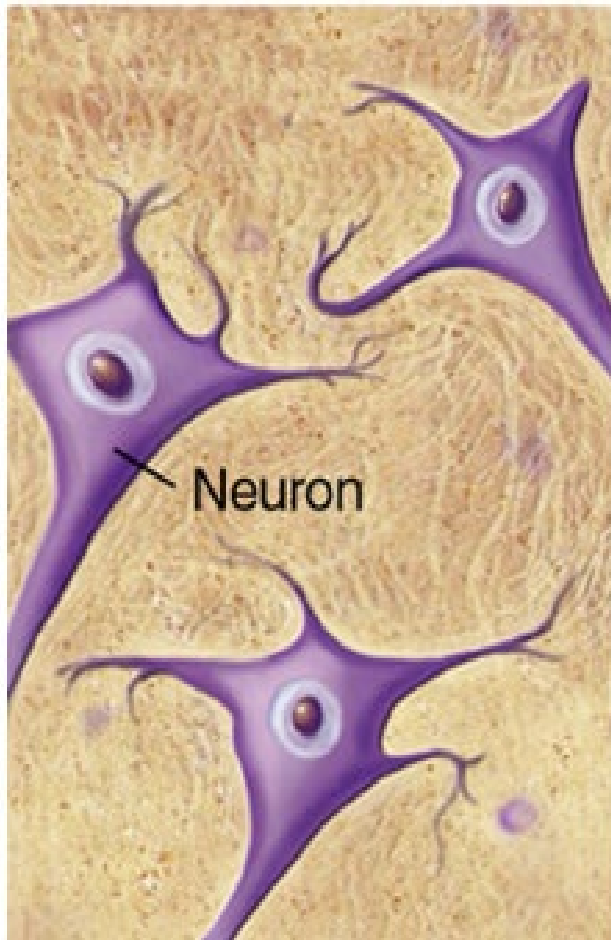
Protein plaque deposits



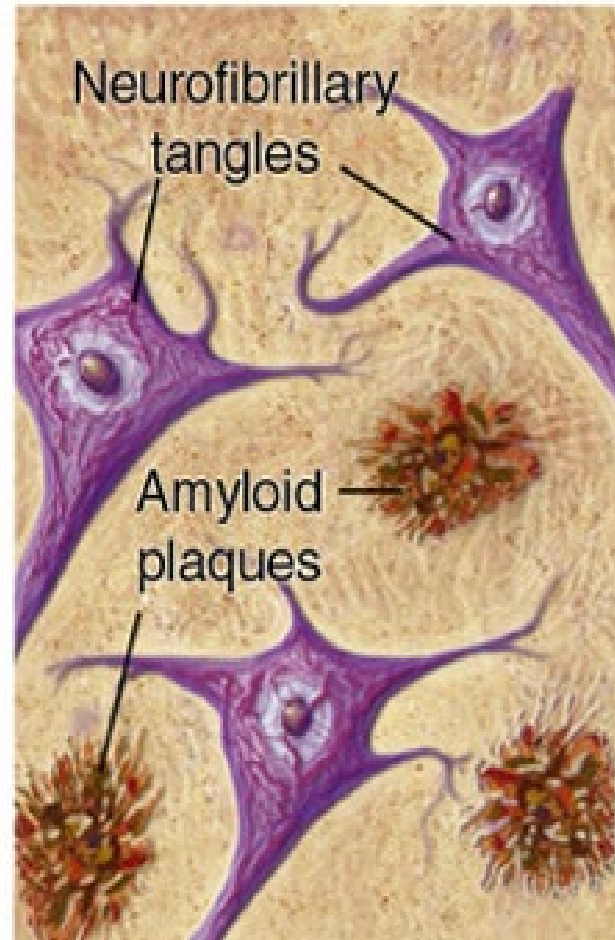
Denatured proteins aggregate and obstruct light, causing cloudy vision

Amyloid & Tau

Normal



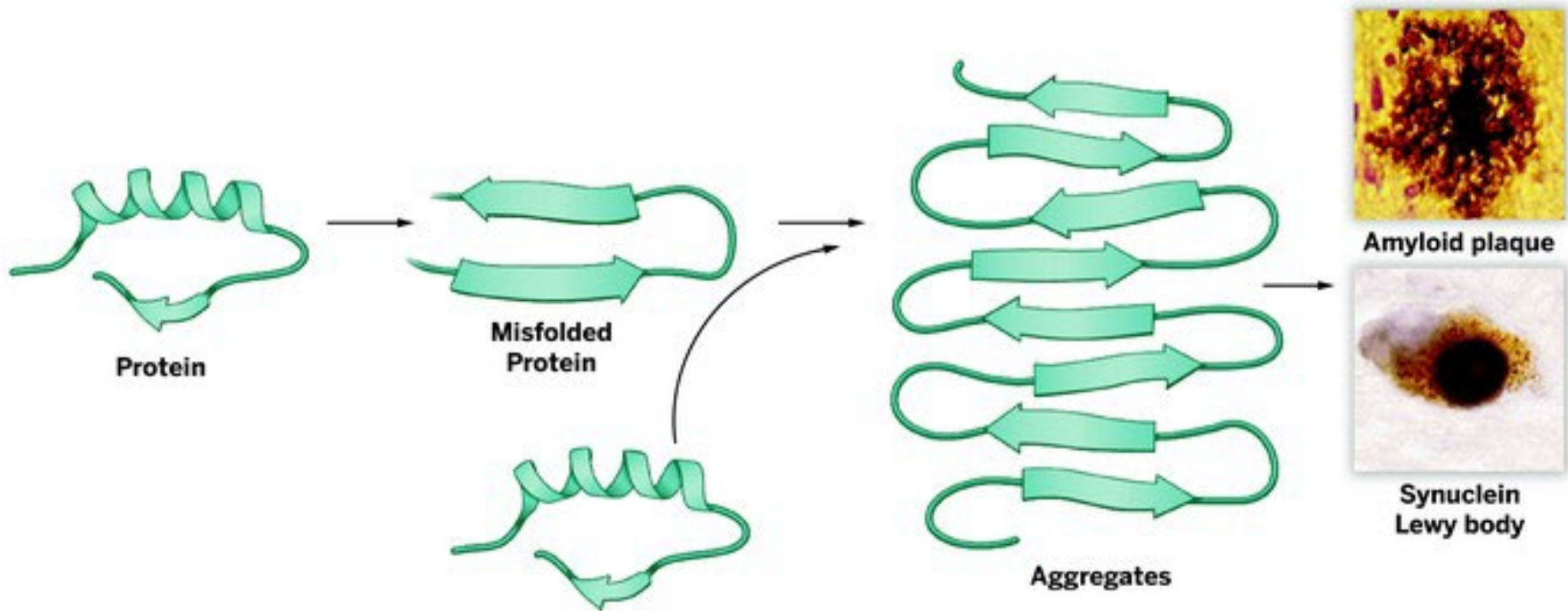
Alzheimer's



Proteins Misfolding and Clumping ??

- Alzheimer's (Amyloid, Tau)
- Cataracts (crystallin AB)
- PD, DLB (alpha synuclein)
- Lou Gehrig's (TDP-43)
- FTD (TDP-43)

Protein Misfolding

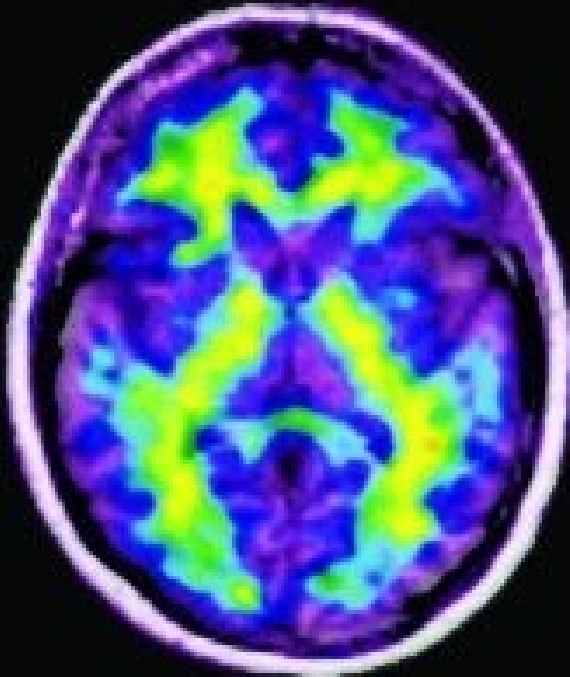


Diagnosis of Alzheimer's Dis

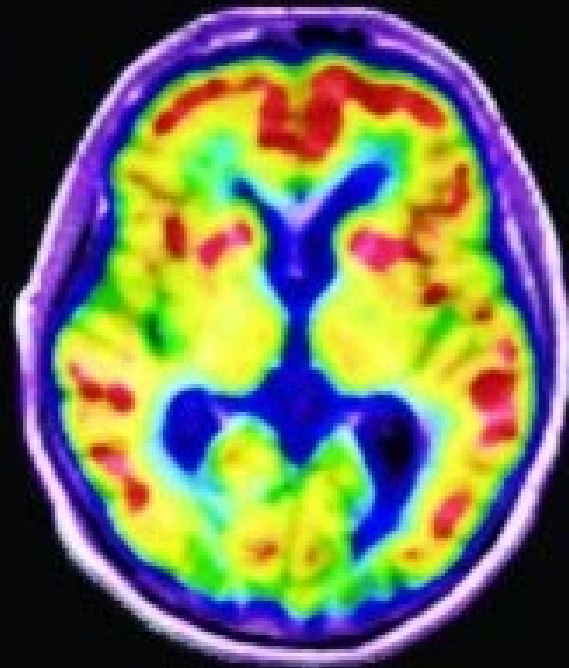
- Symptoms
 - Progressive short term memory loss, Orientation, Language
- Physical Exam and blood/urine
 - Rule out other causes of memory loss
- PET SCAN
 - Amyloid

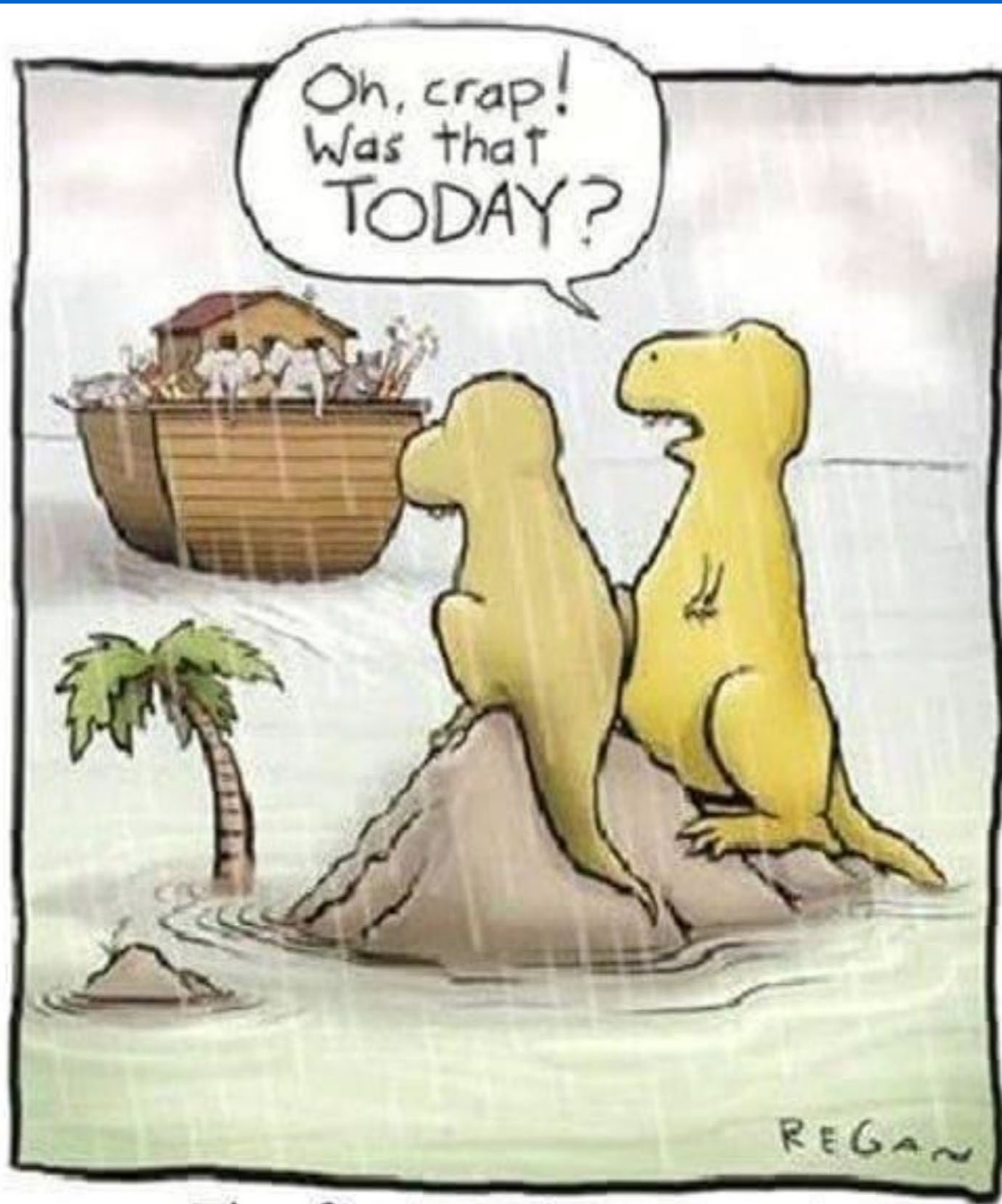
PET Scan

Normal



Amyloid present





The first senior moment.

- Raise your hand if you have had a senior moment

WILLIAM
SHATNER

JEAN
SMART

CHRISTOPHER
LLOYD



MAR

California

2021

SENIOR MOMENT

a film by Giorgio Serafini

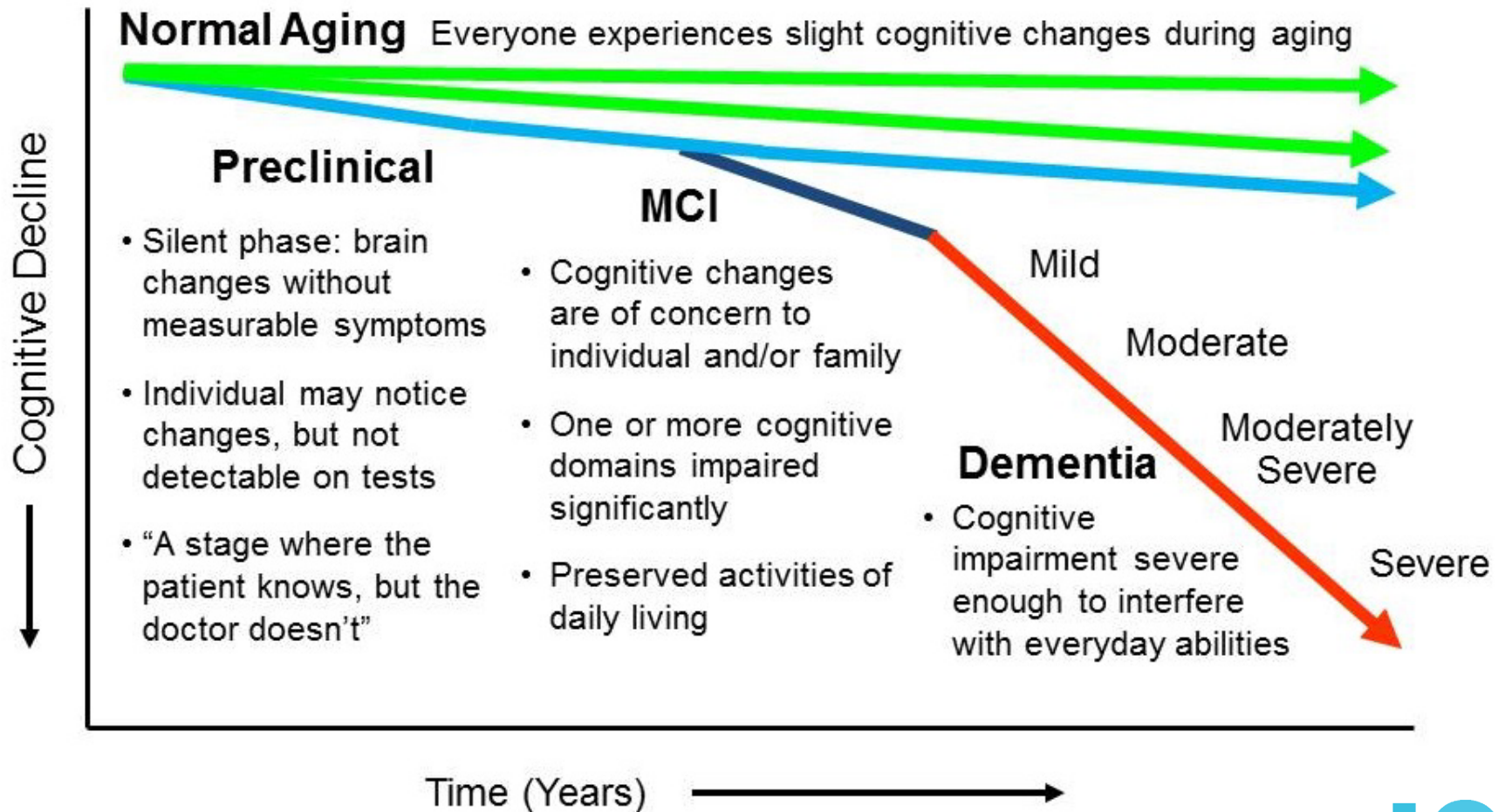


SCREEN MEDIA PRESENTS A BOFF PRODUCTION IN ASSOCIATION WITH CHUDEN WHALE PRODUCTIONS A FILM BY GIORGIO SERAFINI "SENIOR MOMENT" STARRING WILLIAM SHATNER JEAN SMART
DON MORGANIS KATRINA BOWDEN WITH ESAU MORALES AND CHRISTOPHER TAYLOR PRODUCED BY PATRICIA McBRIDLEY C.S.A. AND KATJA ZARUDNISKI C.S.A. WRITTEN BY LAURA KAHNMAN PRODUCED BY COLLEEN HALSEY C.C.C.
PHOTOGRAPHY BY MARIO CAPPETTA A.C.M.A.S.G. EDITOR HOLLY MINNITI EXECUTIVE PRODUCERS FRED MINNITI DAVID VISSER RODNEY STONE ERIKA ADLIANDOVA MATTHEW ROAZEN STEPHAN ANSPICHLER
LARRY LANNING THOMAS HOWLAN NICHOLAS SPANIS PRODUCED BY BOFF WRITTEN BY KURT BRUNGARDT AND CHRISTOPHER MUMFEE DIRECTED BY GIORGIO SERAFINI

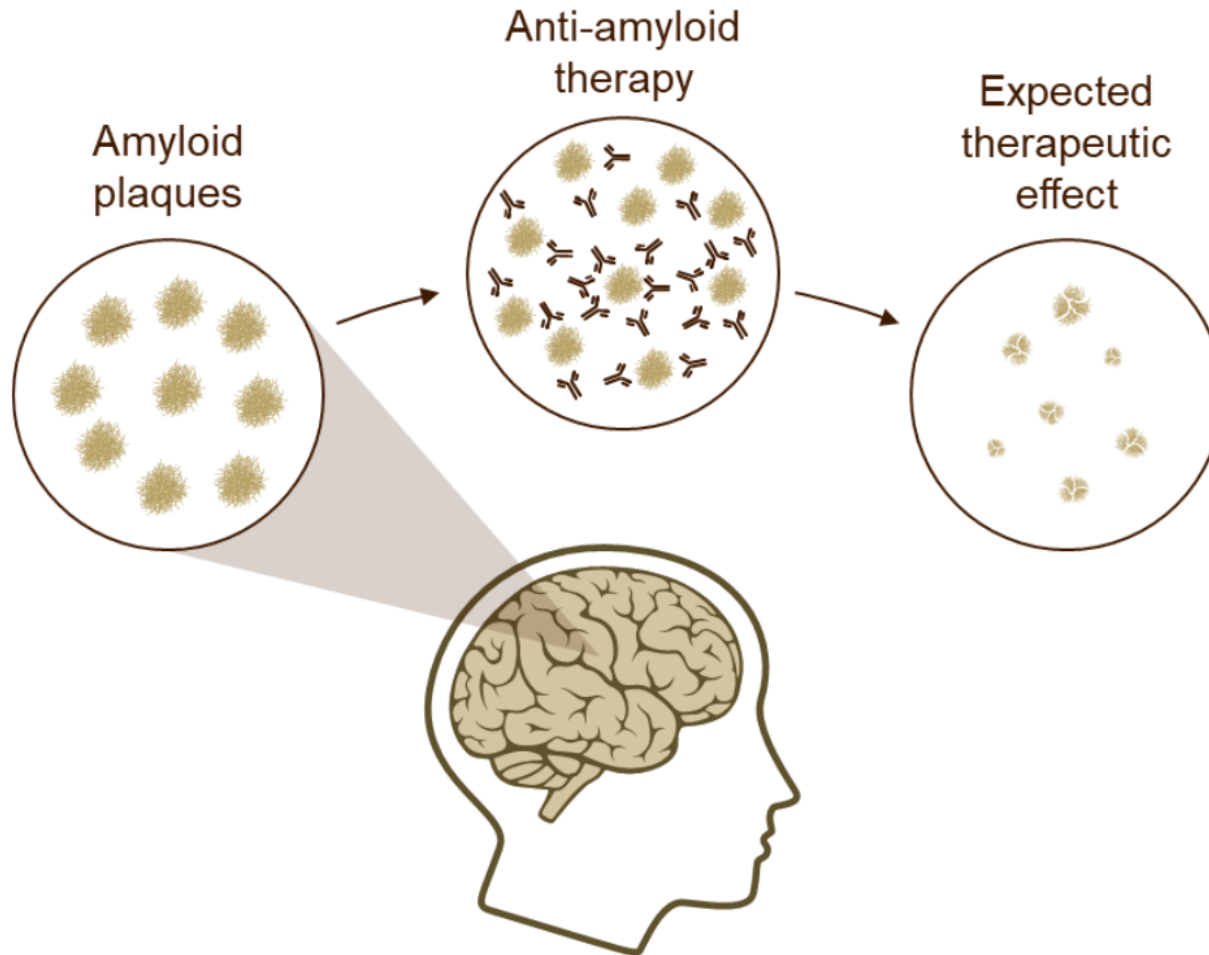


SCREEN MEDIA

When does Alzheimer's begin?



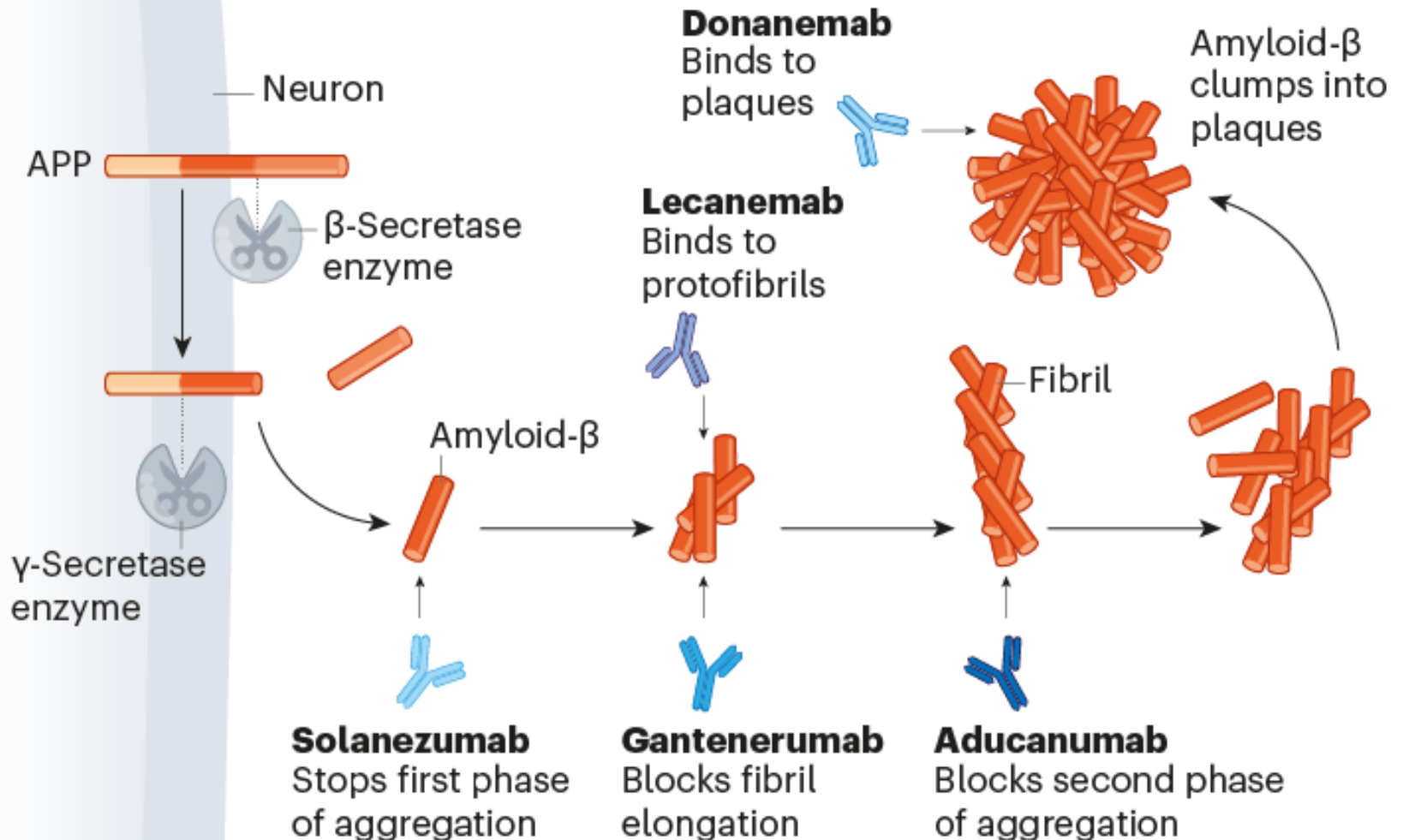
Mechanism of action of monoclonal antibodies against A β



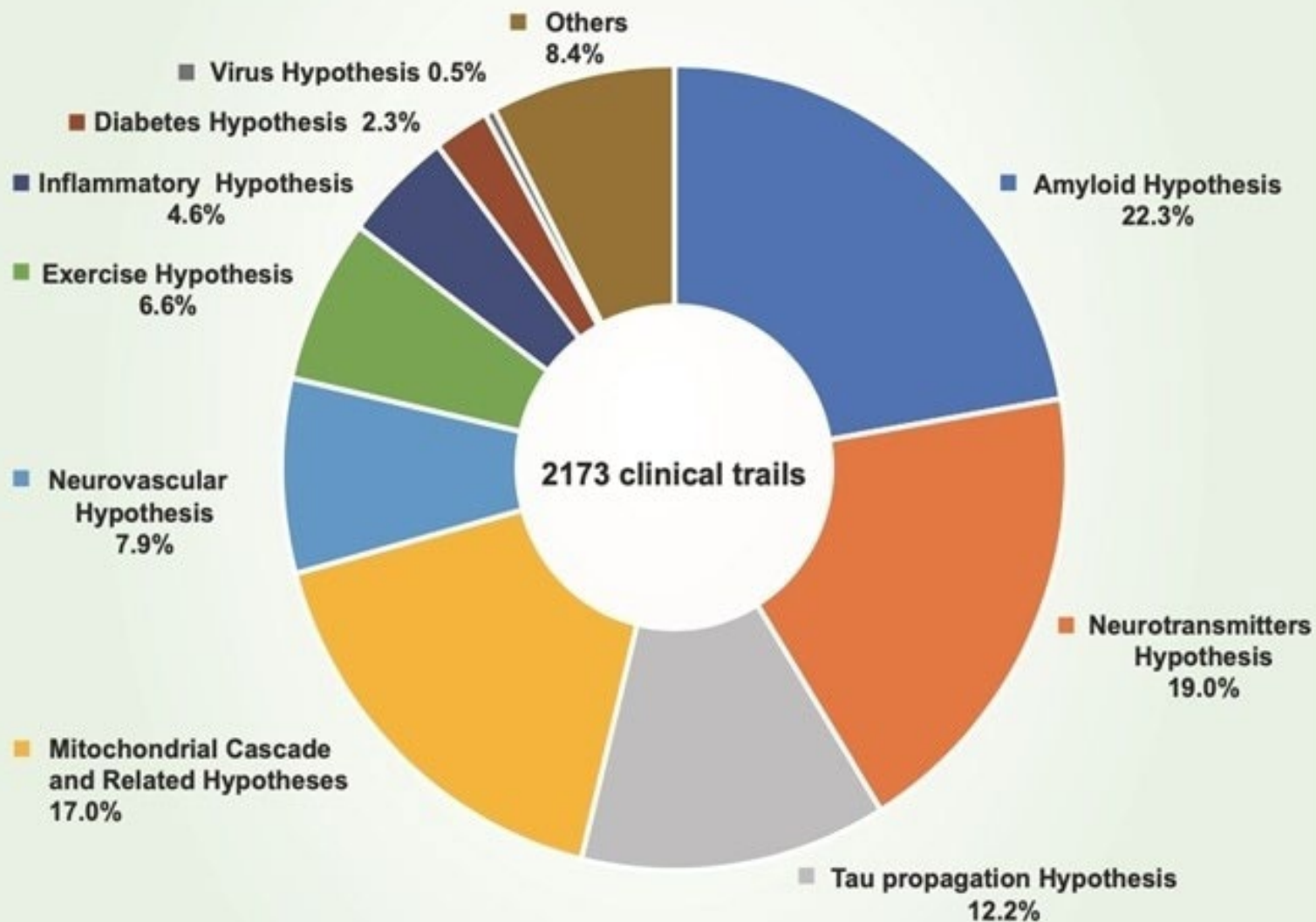
A β =amyloid-beta

Gauthier S. et al., 2022. World Alzheimer Report 2022: Life after diagnosis: Navigating treatment, care and support. London, England: Alzheimer's Disease International.

Antibodies binding Amyloid



Various Hypotheses of Alzheimer's Disease in Clinical Trails up to 2019



When does Alzheimer's begin?

- The first brain changes begin 15-20 years before memory loss
- We need to diagnose and treat early (like heart disease)

IS PREVENTION POSSIBLE?

- Now that we can successfully remove Amyloid in patients with AD, can we remove Amyloid BEFORE symptoms start?

Prevention Trials

2013-2023



2020-2027

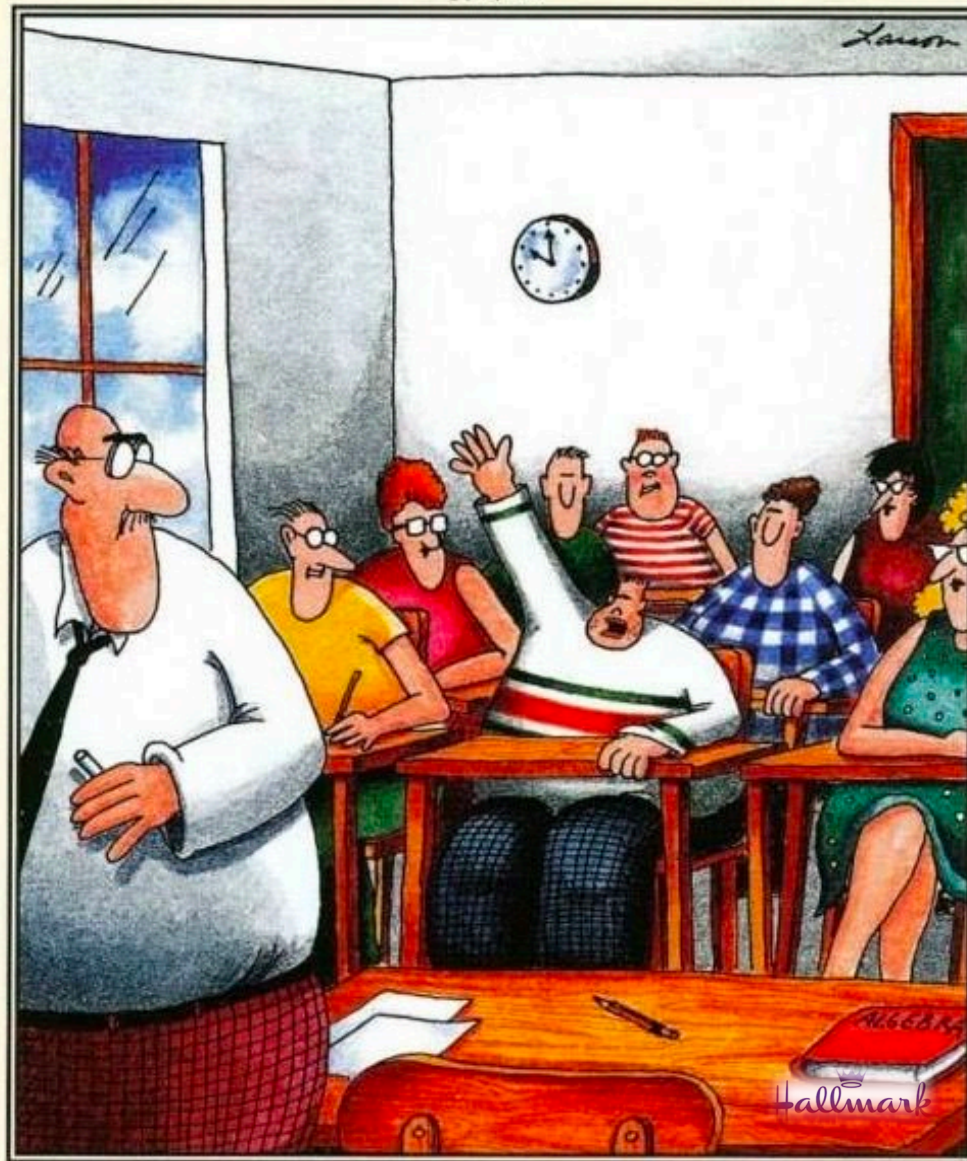


AHEAD STUDY



HERE in
The Villages, FL

9/8/86



“Mr. Osborne, may I be excused? My
brain is full.”

Genetics of AD

ApoE

- Gene coding for lipoprotein involved in cholesterol transport
- 2,3,4
- 4/4 = 10-20x
- 3/4 = 2-4x

PSN 1

Prevention

Exercise as often as possible

Stay socially engaged

Keep your brain active

Greek Islands

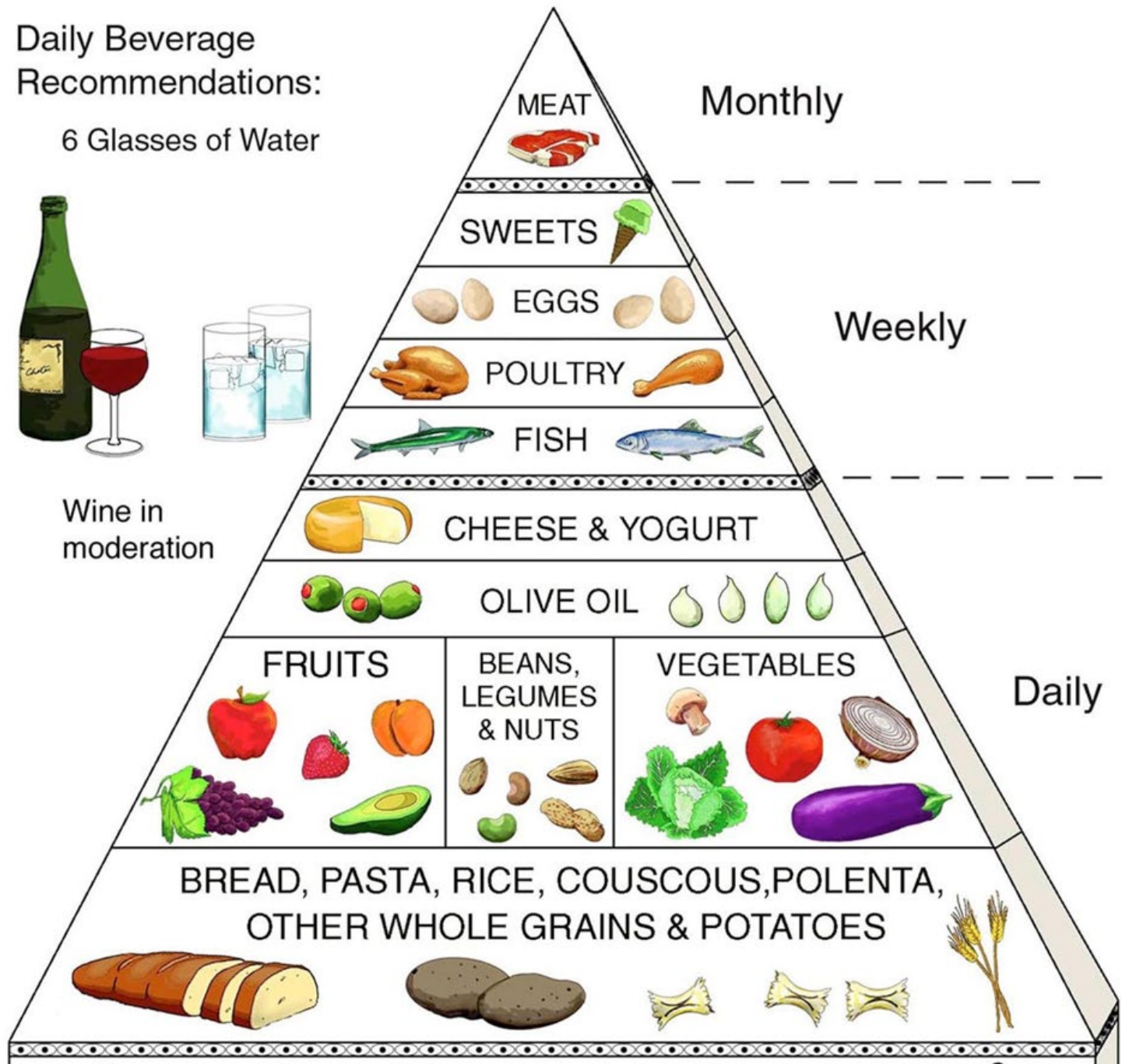
- Mediterranean diet

Daily Beverage
Recommendations:

6 Glasses of Water

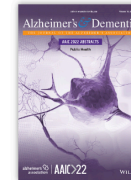


Wine in
moderation



MIND Diet

- Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND):
 - Can slow memory loss
 - Reduced Alzheimer's dementia risk
 - Reduce chance of brain shrinkage by 70%
 - greater brain volume.
 - less Alzheimer's disease (AD) pathology.



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MIND diet associated with less hippocampal sclerosis: A Community-Based Neuropathologic Study

Puja Agarwal, Sonal Agrawal, Laurel J Cherian, Neelum T. Aggarwal, Bryan D James, Thomas Monroe Holland, David A Bennett ... [See all authors](#)

First published: 20 December 2022 | <https://doi.org/10.1002/alz.067178>

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Abstract

Background

Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet is associated with slower cognitive decline, reduced Alzheimer's dementia risk, and greater brain volume. We have also shown MIND

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Conclusion

Moderate to High adherence to the MIND diet is associated with a **60-70% lower likelihood of hippocampal disease.**

Why might MIND Diet work?



Why might MIND Diet work?

- Fatty Acids (Omega 3 and 6)
- Polyphenols (plant micronutrients)
 - Act as antioxidants

Polyphenols

■ Plant micronutrients:

- **8,000 types** (resveratrol, quercetin, capsaicinoids)
- **Powerful Antioxidants** (blood vessel health, promote circulation, reduce chronic inflammation; control blood sugars; lower cancer risk; raise immunity)
- **Studies >650mg/day**

Polyphenol Foods

- **1. Berries** (blue 535mg serving; elderberries 900mg)
- **2. Herbs and spices** (Cloves 542mg; peppermint, star anise, oregano, sage, rosemary, thyme)
- **3. Cocoa powder** (515mg/tbsp, milk only 35mg UGH!)
- **4. Nuts** (chestnuts 350mg/ounce; pecans, almonds)
- **5. Flaxseeds** (229mg/tbsp)
- **6. Vegetables** (3 cups per day - artichokes, onion, spinach)

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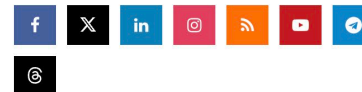
Study links certain fatty acids in blood to decreased Alzheimer's risk

by Eric W. Dolan — January 6, 2024 in Alzheimer's Disease



(Photo credit: OpenAI's DALL-E)

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Volume 79, Issue 1
January 2024

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JOURNAL ARTICLE

Associations Between Blood Nutritional Biomarkers and Cerebral Amyloid- β : Insights From the COGFRAIL Cohort Study [Get access >](#)

Natasha A Grande de França, PhD ✉, Gustavo Díaz, MSc, Laetitia Lengelé, PhD, Gaëlle Soriano, PhD, Sylvie Caspar-Bauguil, PhD, Laure Saint-Aubert, PhD, Pierre Payoux, MD, PhD, Laure Rouch, PhD, Bruno Vellas, MD, PhD, Philippe de Souto Barreto, PhD ... [Show more](#)

The Journals of Gerontology: Series A, Volume 79, Issue 1, January 2024, glad248, <https://doi.org/10.1093/gerona/glad248>

Published: 25 October 2023 **Article history ▾**

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Abstract

Understanding the relationship between blood nutrients and neurodegeneration could contribute to devising strategies for preventing Alzheimer’s disease. We investigated the associations between fatty acids, vitamins D, B6, B12, folate, homocysteine, and the cerebral load of amyloid β ($A\beta$). This cross-sectional study included 177 older adults (70–96 years, 65% female) with objective cognitive impairment, prefrail, or frail. Cerebral $A\beta$ load was determined using positron emission tomography Standardized Uptake



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Fatty Acids?

- 177 Patients Amyloid PET Positive
- Measured Various Nutrients:
Vitamins, Amino Acids, Fatty Acids
(Omega 3, Omega 6)
- Statistically significant finding of
Omega 3 EPA (metabolite) = less
Amyloid!!

CraigCurtisMD.com



- THANK YOU
- Sharon Morse Bldg
- (352) 500-5252



Memory Supplements

health.harvard.edu/mind-and-mood/dont-buy-into-brain-health-supplements

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MIND & MOOD

Don't buy into brain health supplements

August 8, 2023



Forget about those over-the-counter products that promise better memory.

A recent survey found that about 25% of adults over age 50 take a [supplement](#) to improve their brain health with the promise of enhanced memory and sharper attention and focus.



Brain Health Club

Colony Recreation Ctr. - 1st & 3rd Mon. At 1-2pm

TVBrainHealthClub@gmail.com

Are you a member of a club?

- If you are a member of a club and would like Dr. Curtis to speak please don't hesitate to talk to him!!

Thank you!

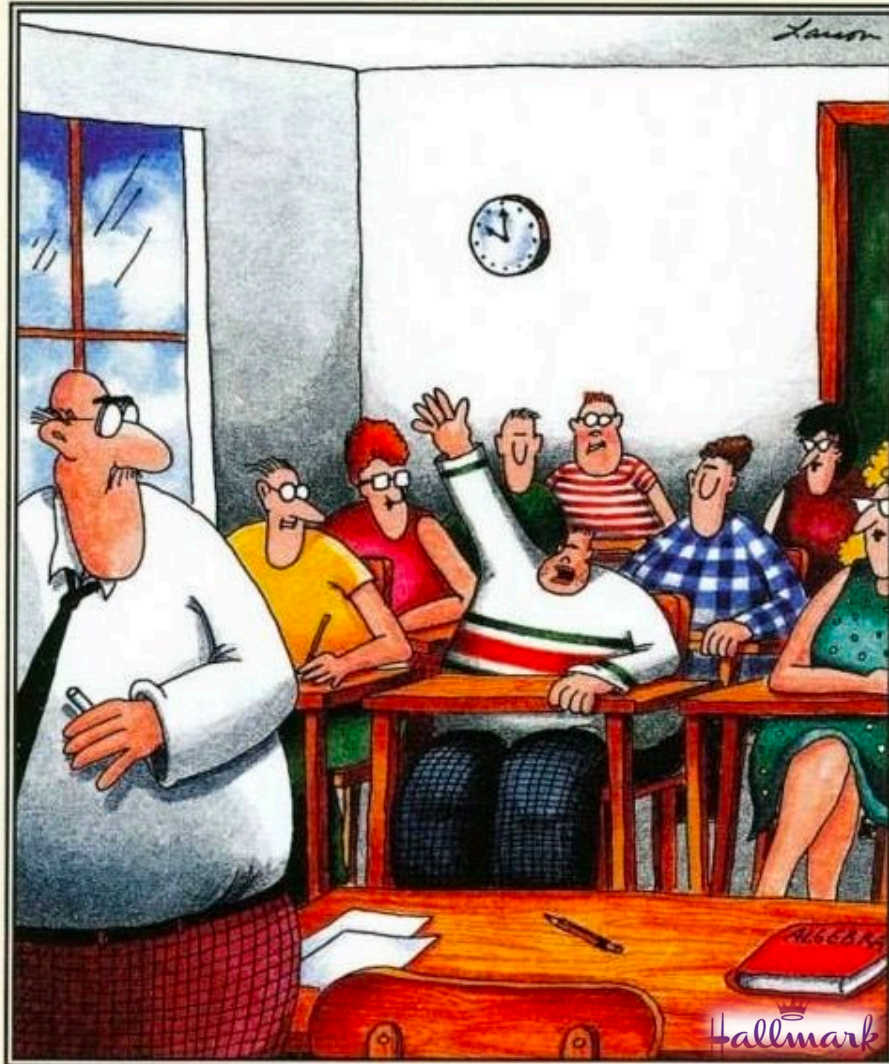


Craig Curtis, MD

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9/8/86



“Mr. Osborne, may I be excused? My brain is full.”