



BRAIN HEALTH

& the

MEDITERRANEAN DIET

SAMARA STERLING, PHD



The
**Peanut
Institute**
HEALTH | RESEARCH | EDUCATION

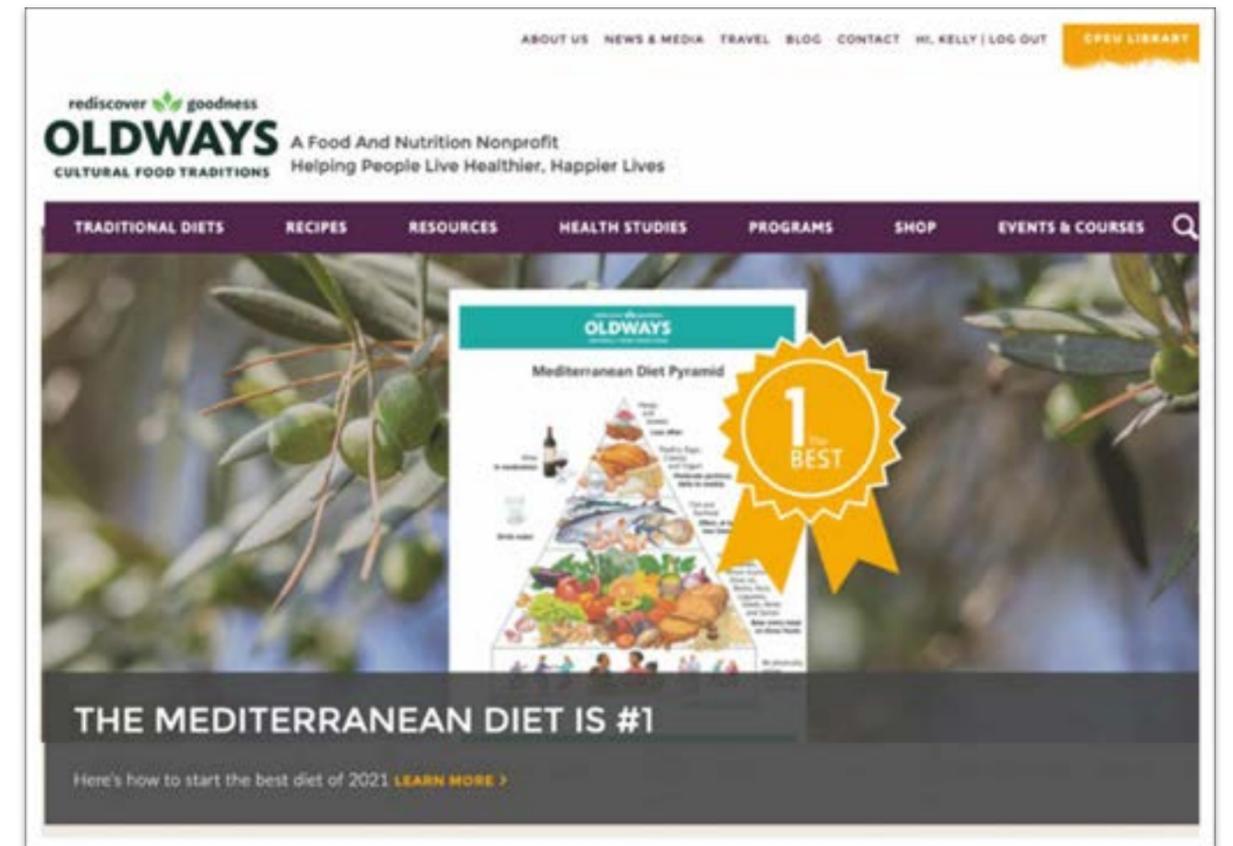
rediscover  goodness

OLDWAYS
CULTURAL FOOD TRADITIONS

*Food plates include recipes developed by The Peanut Institute and Oldways

About Oldways

- Nutrition nonprofit founded in 1990
- **Mission:** To inspire people to embrace the healthy and sustainable joys of the old ways of cooking and eating
- **Best Known for** Creating the Whole Grains Council and Whole Grain Stamp, Culinary Travel, Creating the Mediterranean Diet Pyramid



Housekeeping

- Attendees will receive an email within ONE WEEK with **CPEU certificate, slides, and recording**
- Visit **oldwayspt.org/CPEU** to register for upcoming webinars or view recordings of previous webinars
- Please submit any questions using the Q&A function in Zoom
- Thank you to The Peanut Institute for sponsoring this session!

Continuing Education Performance Indicators

- 8.1.4 Integrates knowledge of macro- and micronutrients for digestion, absorption and metabolism throughout the lifespan in practice.
- 8.2.3 Analyzes new information and how it impacts medical nutrition therapy.
- 8.5.1 Plans and designs nutritionally sound meals, menus and meal plans that promote health and disease management, and meet client needs.
- 13.2.6 Modifies recipes and menus to accommodate economic and cultural needs.

WHAT IS HEALTH?

TOWARD A DEFINITION

01

The state of being free from illness or injury

Defined by medicine. Could be healthy today, diseased tomorrow. What about missed diagnoses?

02

A state of complete physical, mental, and social well-being

Almost seems unattainable. If one aspect is missing, am I unhealthy or incomplete?

03

A process of preserving balance within a person's social and physical environment





“Poor health is not caused by something you don't have; it's caused by disturbing something that you already have. Health is not something you need to get, it's something you have already if you don't disturb it.”



- DEAN ORNISH

LOVE EXPANDS

Healthy Eating is Important Now More Than Ever

72% of Americans say the pandemic is changing the way they eat and prepare food and 60% try to eat healthy in general

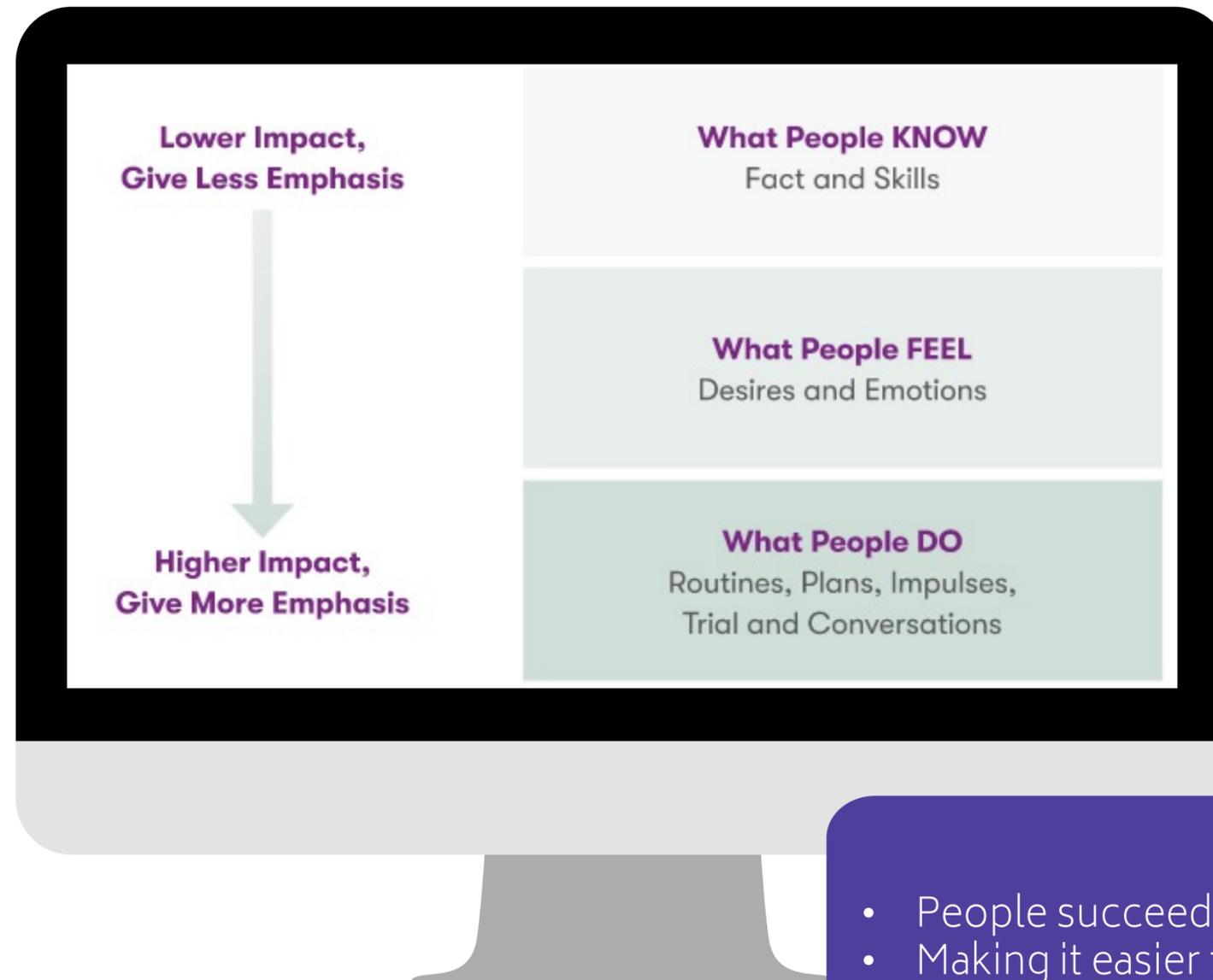
Americans define a "healthy eating pattern" with three key attributes:

- Appropriate portion sizes
- Avoiding processed foods
- Eating the right mix of different foods

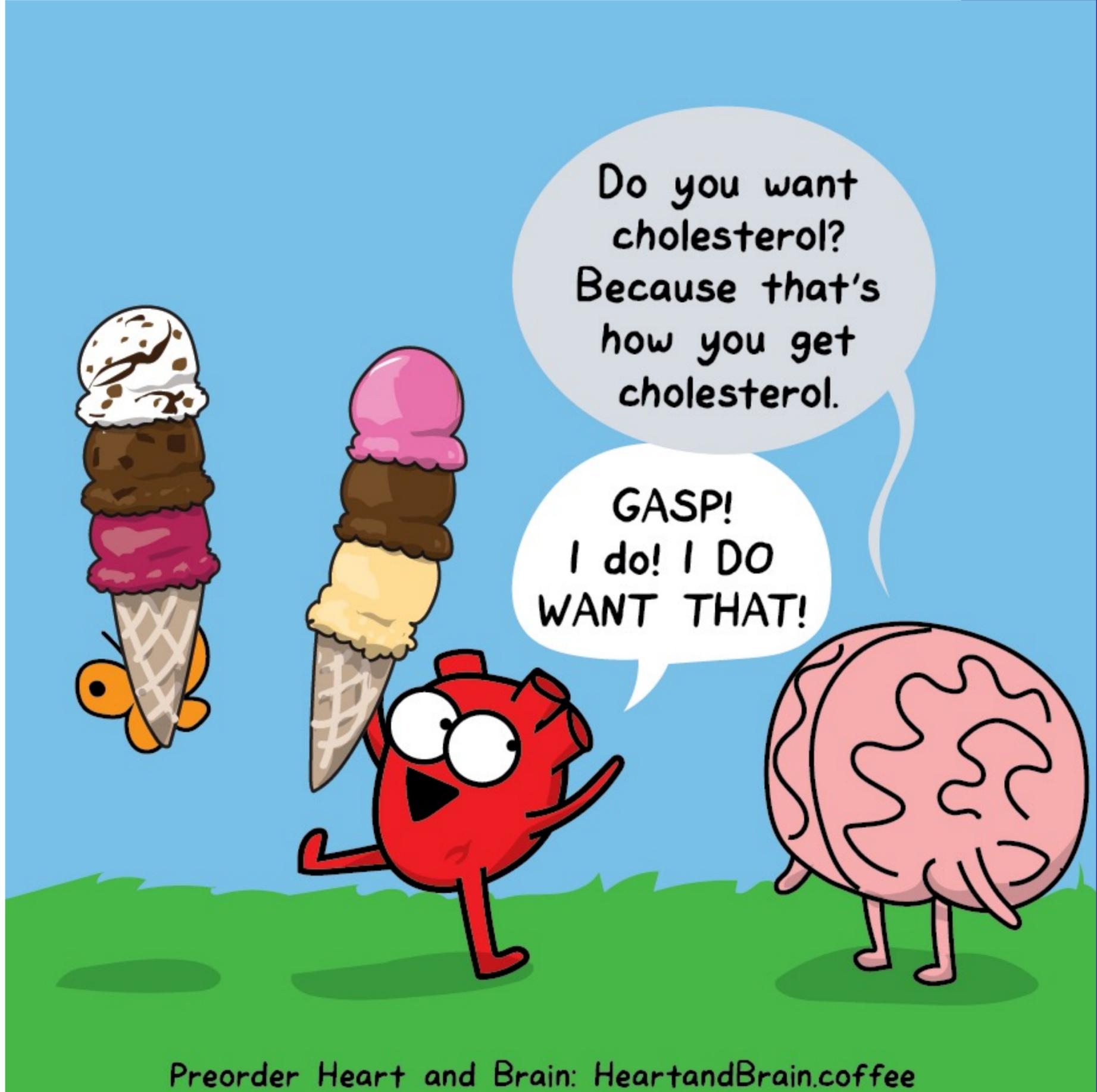


What helps people succeed in healthy eating?

Meta-analysis of almost 300 interventions



- People succeed when they can act on their knowledge
- Making it easier for them to consume healthy foods
- Healthy foods should be accessible, in front of people at the time of consumption, hassle free, and salient
- Feelings are an important motivation

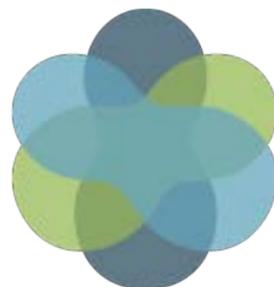


How We Use Our Brains to Decide

- We need both the rational and emotional centers in our brains to make long-lasting decisions—WHAT IS YOUR WHY?
- Our challenge as nutrition professionals is to ensure that as we educate patients on nutritious lifestyles that we also give them the emotional and sensible tools to make the best decisions.
 - Healthy foods should also be tasty
- Aiming for habits rather than goals



Spring Pea
Peanut Paella



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Benefits of a Mediterranean Diet



- 01 Versatile**
A variety of foods fit in the pattern
- 02 Covers all major food groups**
Protein, grain, fruits, vegetables
- 03 Low in saturated fat**
Supports heart & vascular health
- 04 Diverse flavors**
Global cuisine





Plant-forward Eating

Mediterranean Plate

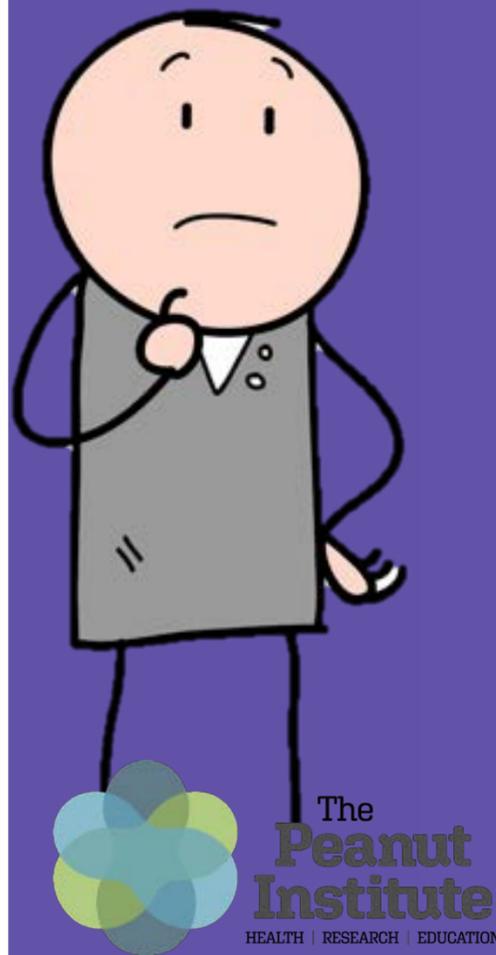
The Mediterranean diet is plant-forward. It puts plants in the center of the plate and limits (although it does not avoid) consumption of animal foods. Healthy fats are emphasized. A plant-forward style of eating is attractive because it feels attainable for many patients and consumers.



The Cycle of Food and Brain Health

The interesting irony is this:

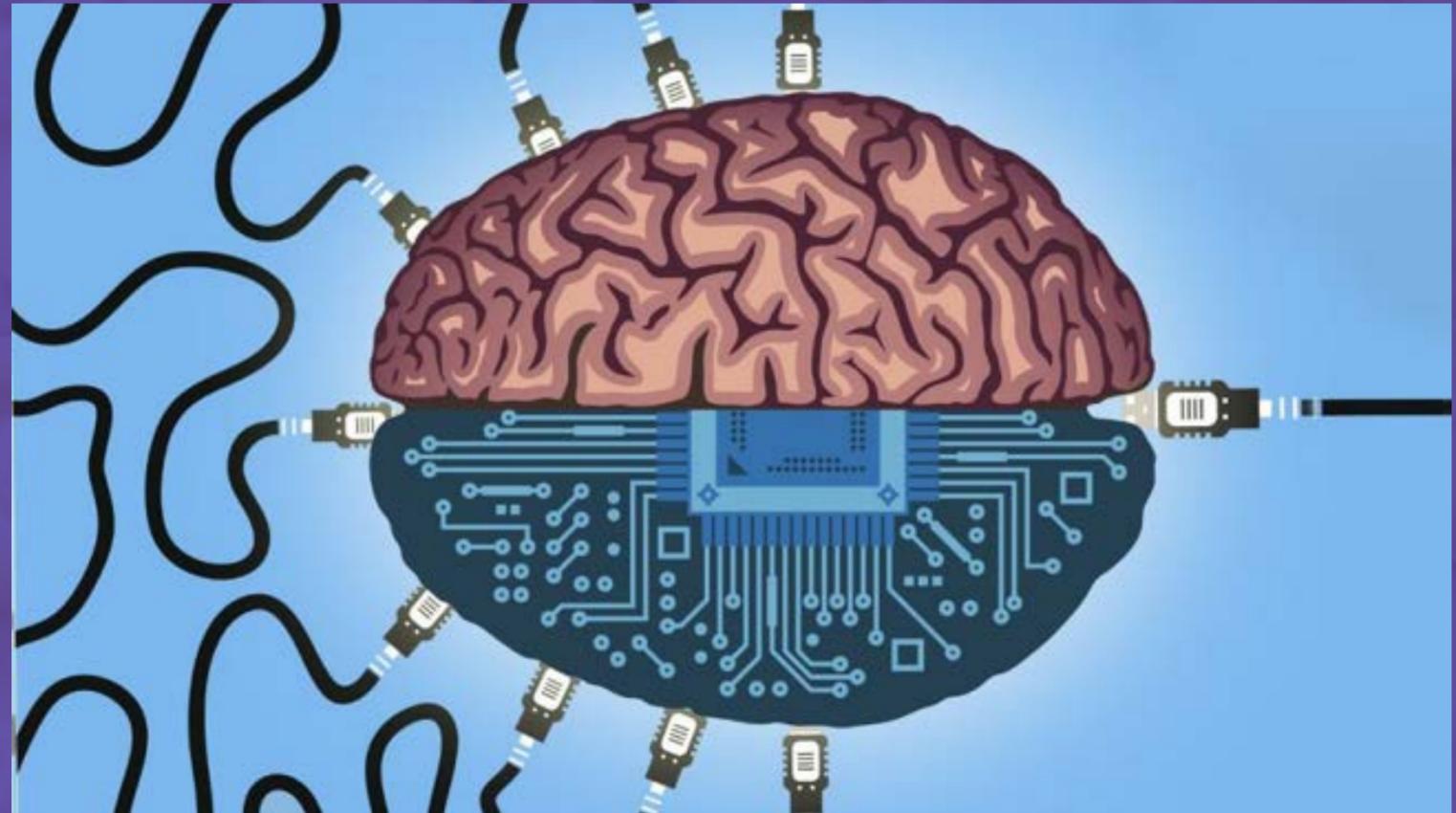
- Our **brains help us decide** which foods to eat
- In turn the **foods we eat can help our brains** think, reason, process, feel, and decide.
- Foods contained in a Mediterranean-style diet helps us achieve both



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Food is to the brain what electricity is to a computer



01

Create + power neurons to transmit information

02

Facilitate storage of memory

03

Process + use data coming in

Brain Foods in the Mediterranean Diet



A Mediterranean-style diet is not only nutritious, but accessible, fun, and versatile

Little additions

Focus on additions, not subtractions

- ✓ **Berries**
- ✓ **Dark green vegetables**
- ✓ **Beans & Legumes**
- ✓ **Nuts**



BLUEBERRIES

- Anthocyanins regulate free-radical oxidative damage of amyloid peptides that cause Alzheimer's Disease
- May improve glucoregulatory control through insulin sensitivity and cerebral blood flow to improve cognition
- Associated with improved memory, learning ability, and motor skills
- Recommendation: At least 2-3x per week
- Also appropriate for T2D, CVD, and ESRD diets



GREEN LEAFIES

- Lutein/zeaxanthins, phyloquinones, and folate can help slow cognitive decline as we get older
- “Pregnancy brain” — double benefit with folate and fetal development
- Likely work synergistically to attenuate mitochondrial stress, phospholipid peroxidation, and neuroinflammation
- Recommendation: 1-2 servings/day



BEANS & LEGUMES

- Rich in folate and other B vitamins, which support proper function of neurotransmitters
- High antioxidant activity due to various glycosides. Can target neuroinflammation
- Fava beans contain an amino acid known as levodopa, which is an active ingredient in many Parkinson's medications. Helpful to manage symptoms like tremors, stiffness, and slowness of movement
- Recommendation: 1-2 servings/day
 - For Parkinson's, be mindful of medication doses to avoid unwanted effects





NUTS

- Unsaturated fats and amino acids could improve vascular function
- Antioxidants fight free radical damage
- Recommendation: 1-2 servings/day

PEANUTS



- Peanuts are less well known in a Mediterranean diet context
- Various compounds may impact both cognitive and mental health



UNIVERSITAT DE
BARCELONA

Effect of Peanut Intake on Brain Health

- November 2020-June 2021
- 63 college students aged 18-33
- Healthy
- Measures of cognition and mental state taken at the beginning and end
- Microbiome changes measured

Parilli-Moser I, Domínguez-López I, Trius-Soler M, Castellví M, Bosch B, Castro-Barquero S, Estruch R, Hurtado-Barroso S, Lamuela-Raventós RM. Consumption of peanut products improves memory and stress response in healthy adults from the ARISTOTLE study: A 6-month randomized controlled trial. *Clin Nutr.* 2021 Nov;40(11):5556-5567. doi: 10.1016/j.clnu.2021.09.020. Epub 2021 Sep 20. PMID: 34656952.



What is cognition?

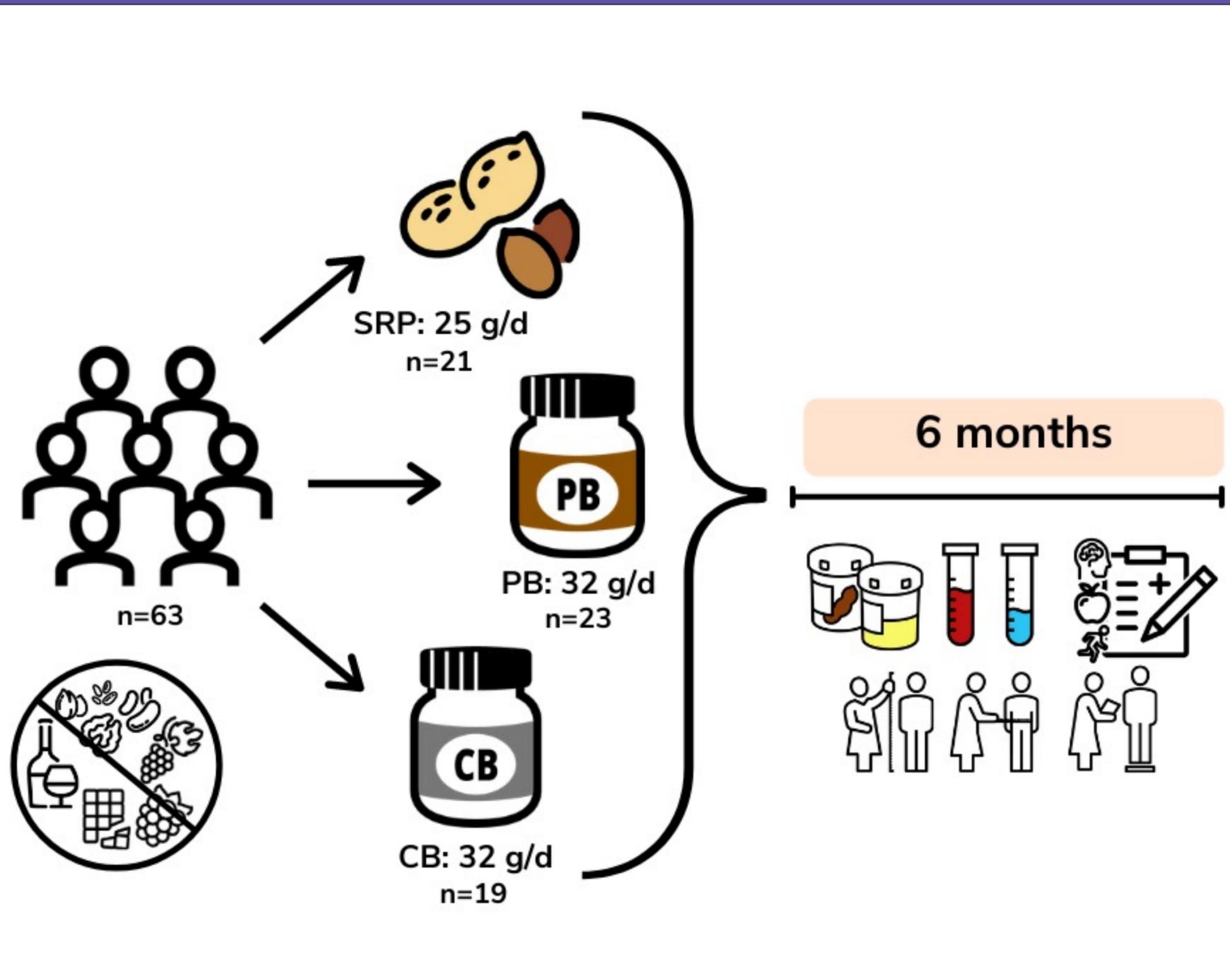
Mental processes our brains use to gain knowledge and comprehension



Includes:

- Thinking
- Knowing
- Remembering
- Judging
- Problem-solving

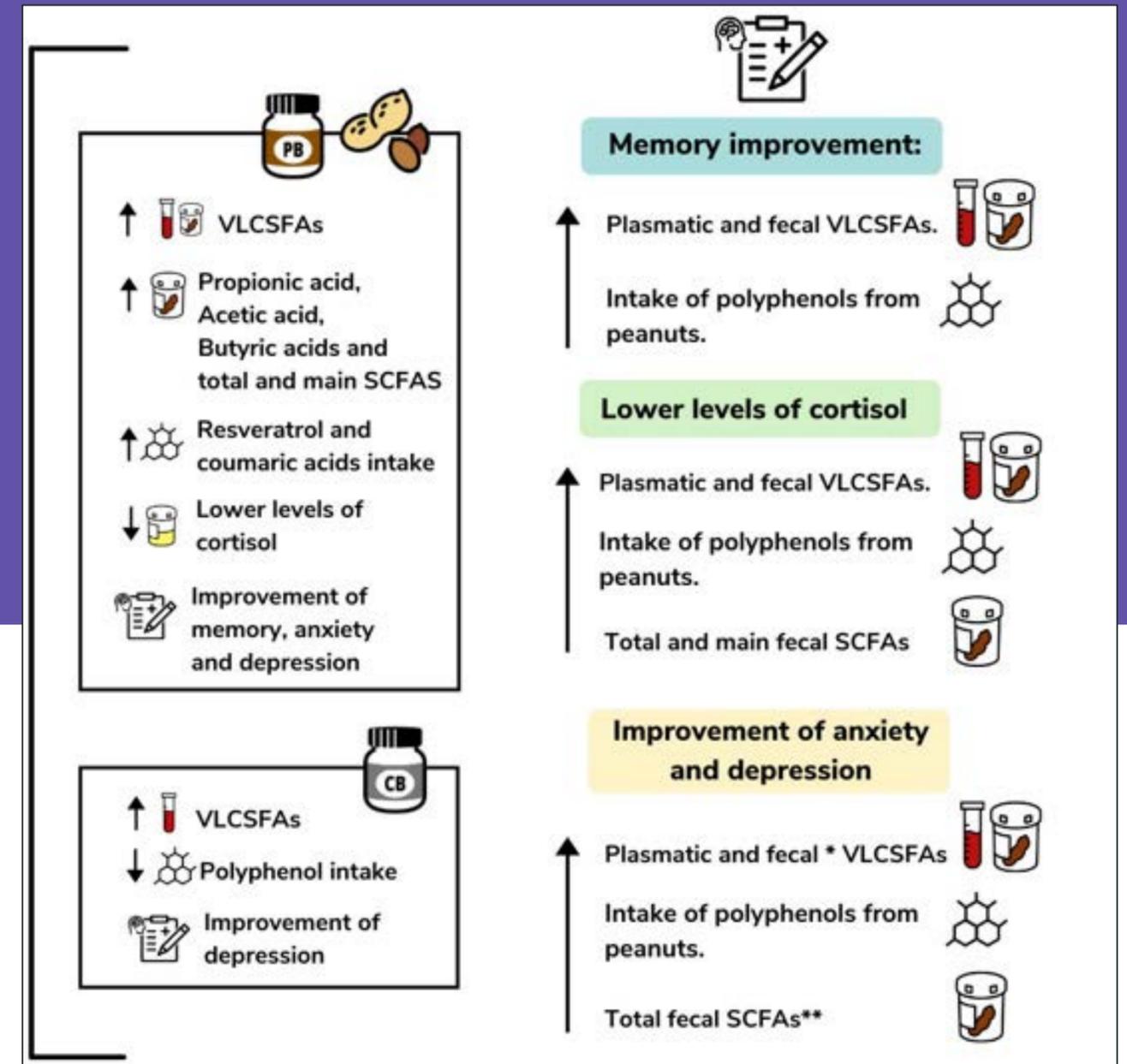
METHODS



RESULTS

Main findings:

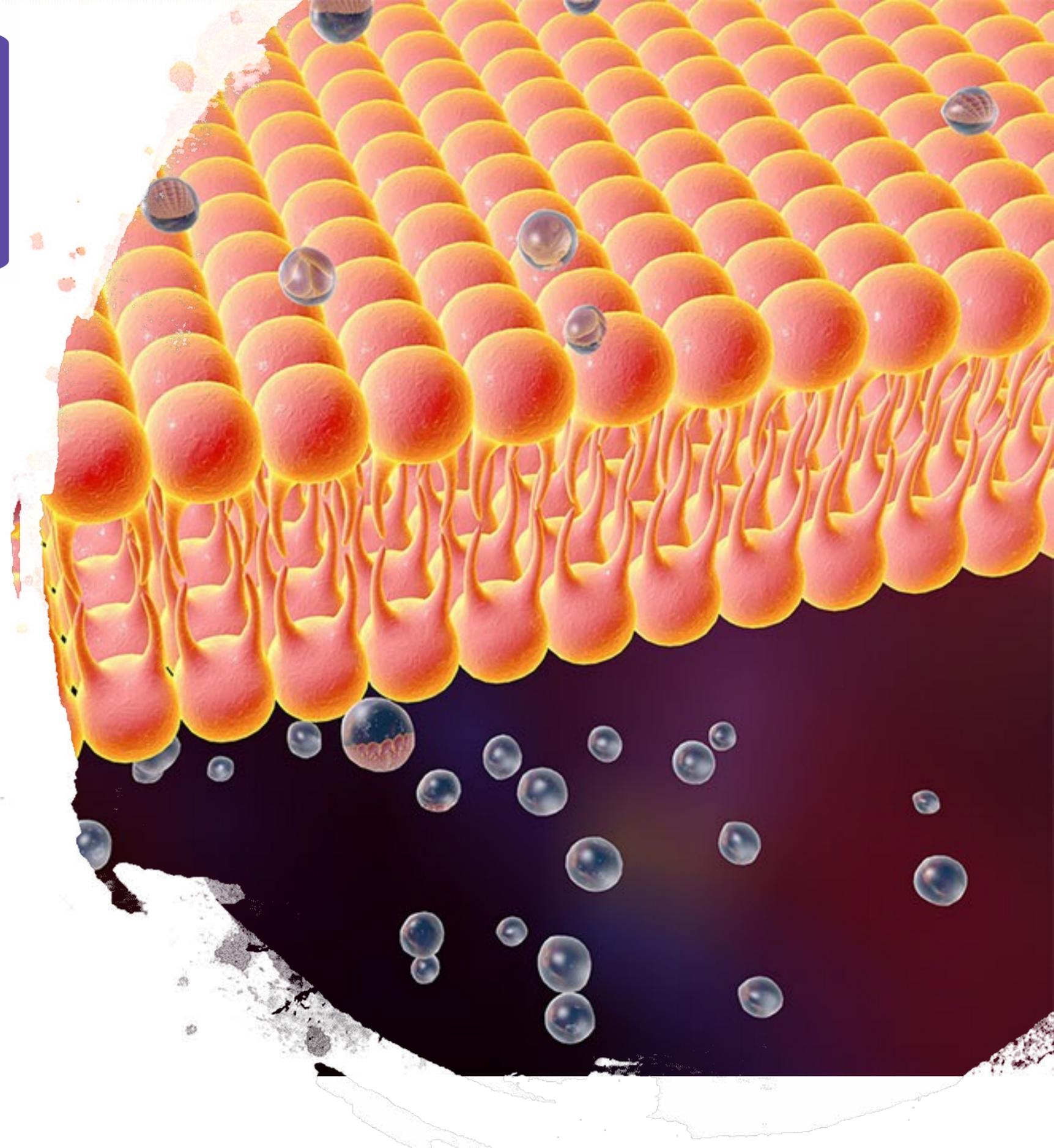
- Improvement in **memory** and **perceptual reasoning**
- Lower **depression** scores
- Lower **anxiety** scores
- Lower **cortisol** levels



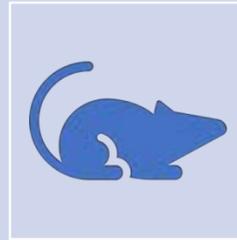
STRUCTURE:

Healthy fats surrounding cell membranes

- Some evidence that the type of fat that surrounds the membranes matter
- Unsaturated fats may make membrane more fluid
- Certain saturated fats may stiffen membrane



Effects of a Saturated Fat and High Cholesterol Diet on Memory and Hippocampal Morphology in the Middle-Aged Rat



Rats fed either saturated fat (coconut oil) or unsaturated fat (soybean oil) for 8 weeks



Sat-Fat treated rats committed more working memory errors, especially at higher memory loads.

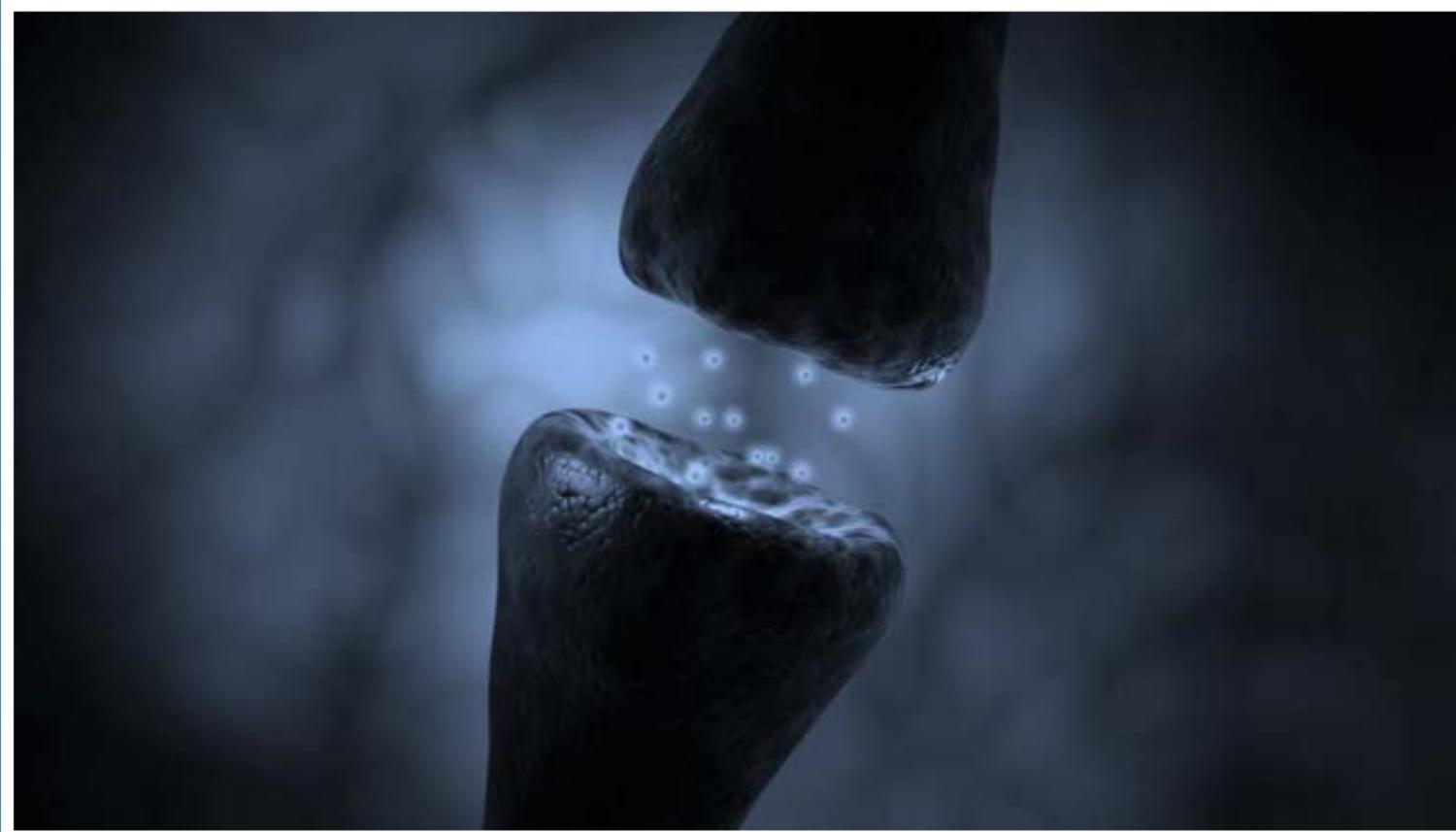
Indication of a loss of function of dendrites
More inflammation



These data suggest that saturated fat, hydrogenated fat and cholesterol can profoundly impair memory and structure of the hippocampus

FUNCTION: BLOOD FLOW

- Arginine in peanuts help to dilate blood vessels
 - Increased blood flow would improve oxygen delivery
 - Improvement in nutrients/antioxidants to fight off inflammation
 - May improve cognition
-



P-COUMARIC ACID: ANXIETY AND DEPRESSION

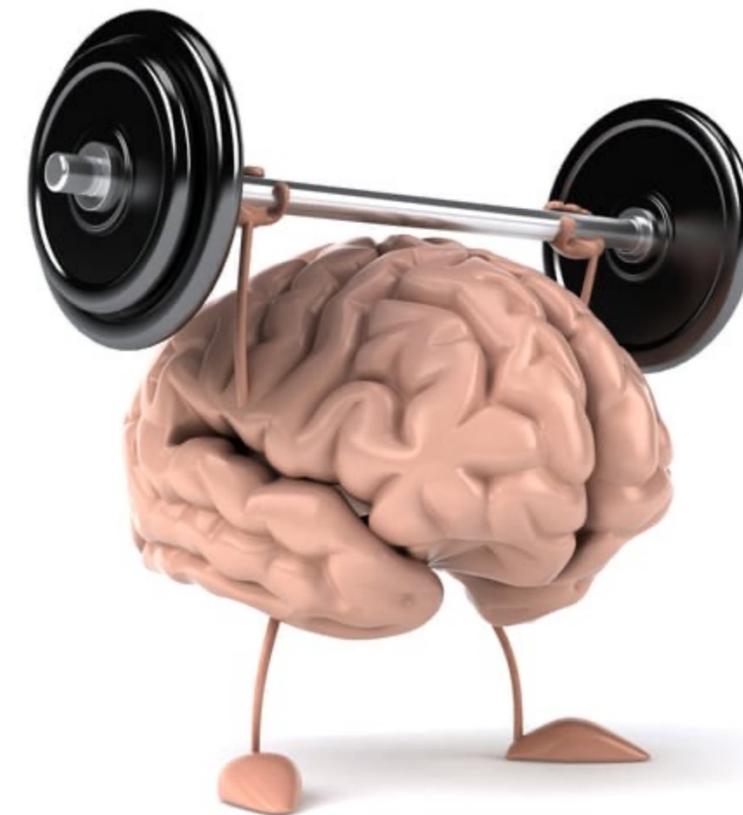
- P-coumaric acid can activate GABA, a specific neurotransmitter in the brain that regulates mood and decreases anxiety
- p-coumaric acid may be a safe and effective alternative for reducing stress and anxiety in humans. Another study reported that p-coumaric acid was effective for preventing and treating depression
- Regular peanut consumption may promote better mental health



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Brain Health in Older Patients **PEANUTS & COGNITION**

Older adults who did not consume peanuts/peanut butter were up to **71% more likely to do poorly** on cognition tests than those who did. These findings suggest an association between P/PB consumption and cognitive function; however, this is a cross sectional study and a causal relationship cannot be established. More studies are needed to determine causality.



Katzman EW, Nielsen SJ. The Association between Peanut and Peanut Butter Consumption and Cognitive Function among Community-Dwelling Older Adults. *J Prev Alzheimers Dis.* 2021;8(4):436-441. doi: 10.14283/jpad.2021.32. PMID: 34585217.



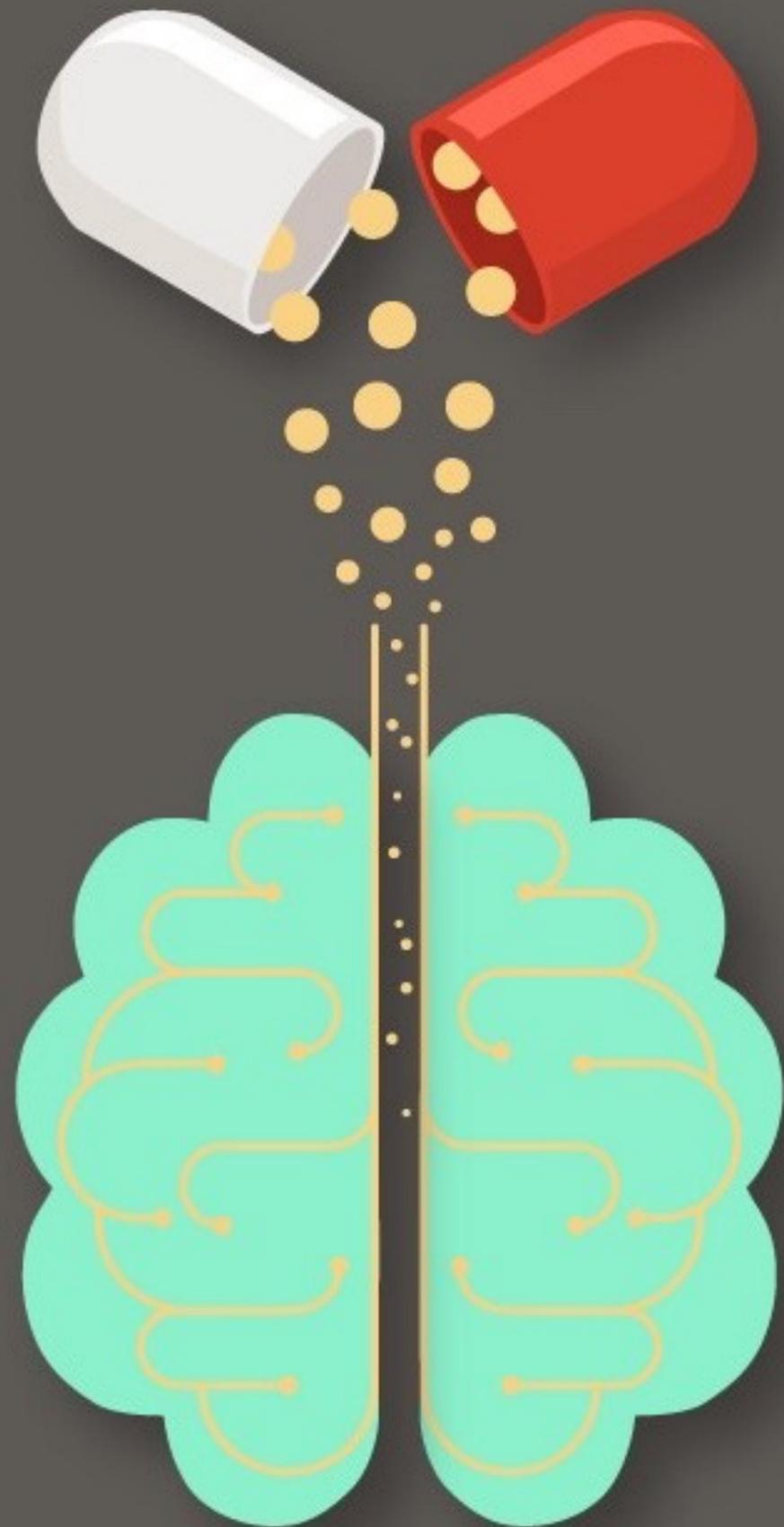
Longevity and The Brain



THERE ARE
THREE SIGNS
OF OLD AGE.
THE FIRST IS
MEMORY LOSS.
I FORGET THE
OTHER TWO.

As we age, our risk for developing brain-related diseases increases

Alzheimer's disease is the only one of the top 10 diseases that **cannot be cured**



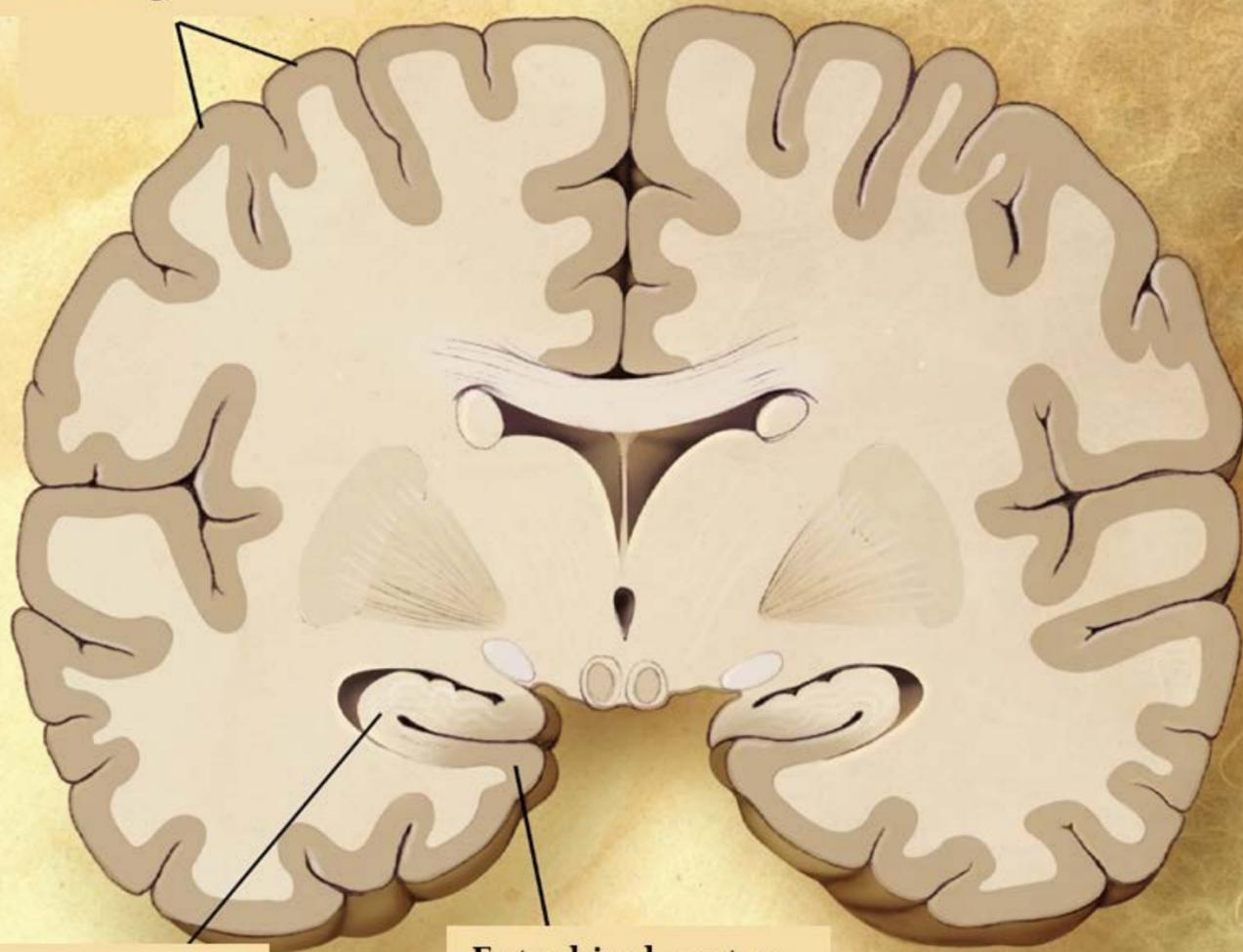
DRUG DEVELOPMENT FOR ALZHEIMER'S DISEASE UNSUCCESSFUL

- **99.6%** failure rate in the decade of 2002 to 2012
- Currently, the success rate continues at the same low level.
- Primary prevention is the key
 - Focusing on the foods we eat

Normal Brain

Cerebral Cortex

Thinking, planning,
remembering



Hippocampus

New memories

- Short-term
- Long-term

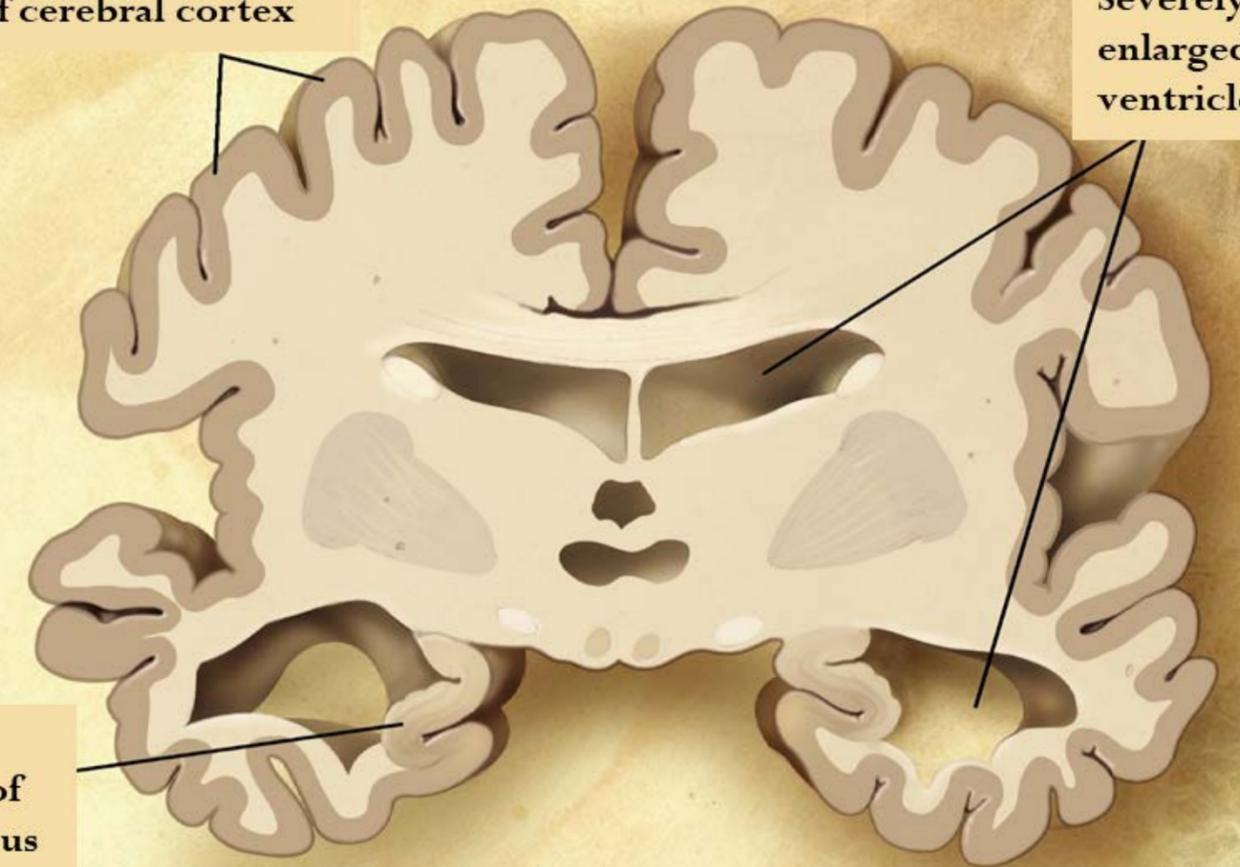
Entorhinal cortex

Relay messages to and
from hippocampus

Alzheimer's Brain

Extreme shrinkage
of cerebral cortex

Severely
enlarged
ventricles



Extreme
shrinkage of
hippocampus

PEANUTS AND THE MIND DIET



The MIND diet takes components of both the Mediterranean and DASH diets that are considered “brain foods” (berries, leafy greens, nuts/peanuts)

Uses this combination for fighting cognitive decline as we age (**53% lower Alzheimer’s risk**)

Both peanuts and peanut butter are excellent sources of niacin and good sources of vitamin E, found to **lower risk of Alzheimer’s Disease by 70%**

Morris MC, Tangney CC, Wang Y, Sacks FM, Barnes LL, Bennett DA, Aggarwal NT. MIND diet slows cognitive decline with aging. *Alzheimers Dement.* 2015 Sep;11(9):1015-22. doi: 10.1016/j.jalz.2015.04.011. Epub 2015 Jun 15. PMID: 26086182; PMCID: PMC4581900.

Bulgur Peanut Pilaf



Peanuts & the MIND Diet

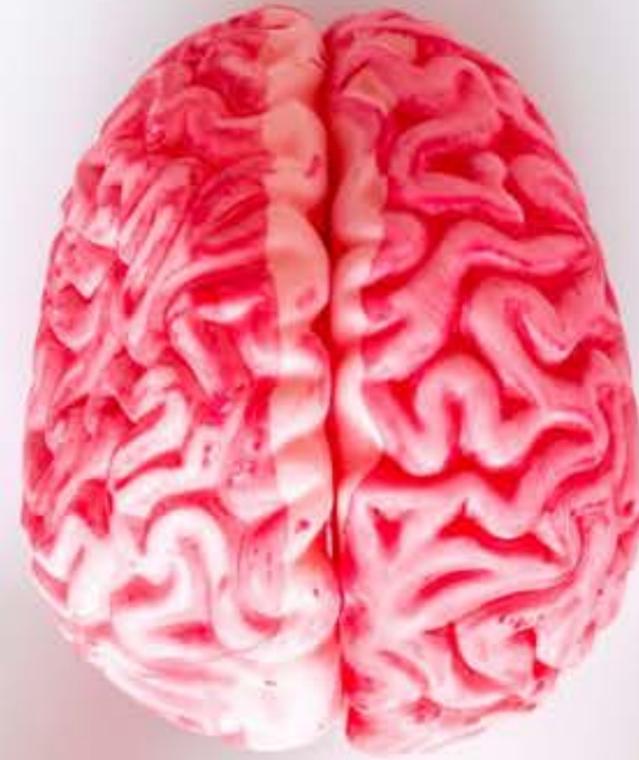
Mediterranean-DASH Intervention for Neurodegenerative Delay

“People who eat peanuts regularly have a lower risk of heart disease; and there is growing evidence that the risk of developing Alzheimer’s disease is associated with risk of cardiovascular disease. We surmise that **peanuts could be an important component of a diet that prevents cognitive decline with aging.** That is one reason why we included peanuts in the MIND study.”

Dr. Frank Sacks, Harvard University

Small Changes Make a Big Difference in Preserving Health

Easy
Accessible
Tasty



1 cup / day



1 cup / day



1 cup / day

1 handful / day





www.peanutinstitute.com



Amber Pankonin, MS, RD LMNT is an award-winning nutrition educator, personal chef and podcaster based in Lincoln, Nebraska. As a Culinary Dietitian and Recipe Developer, Amber shares her love for food and food photography at Stirlist.com and is the host of *Healthy Under Pressure*, a podcast for busy professionals. Most recently, Amber has joined the staff at Great Plains Culinary Institute at Southeast Community College and is also a local radio and television personality. She was named the 2021 Outstanding Dietitian Of The Year from the Nebraska Academy of Nutrition and Dietetics and was named one of "10 Dietitians to follow on social media" by US News & World Report



Brandon Harpster, CEC is a Chef-Instructor for the Great Plains Culinary Institute at Southeast Community College and Managing Partner/Corporate Chef for all the Single Barrel Restaurant Concepts. As a Chef and self-taught butcher who has spent his entire career in the hospitality industry, Brandon is credentialed through the American Culinary Federation as a Certified Executive Chef. Brandon was awarded Chef of the Year in 2013 by the Nebraska Restaurant Association and has been included in Best Chefs America since 2013.

Stay in Touch: @RDamber | @Brandon.Harpster

Cooking Demonstration

Amber Pankonin MS RD LMNT & Brandon Harpster CEC

Peanut Pesto



01 Why Registered Dietitians & Chefs love peanuts

02 Mediterranean Inspired recipes utilizing peanuts

Why RDs & Chefs Love Peanuts

The Mediterranean Diet emphasizes grains (at least half which are whole grains), fruits and veggies, nuts and legumes (including peanuts) – which are all foods high in fiber.

01

Nutrition

7 grams of protein
2 grams of fiber
19 vitamins & minerals

02

Affordable

14-16 cents per oz.



Eastern Mediterranean Plate

03

Versatility

Peanuts ,Peanut Butter,
Peanut Oil, Powdered

04

Flavor & Texture

Adds richness to any dish



01

Peanut Hummus

02

Greek Salad with a
simple peanut
vinaigrette

03

Peanut Pesto with
grilled Shrimp &
Polenta

04

Peanut Butter Tart



Questions?

Stay in Touch:

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Brandon Harpster: [@Brandon.Harpster](#) (Twitter/Instagram)

