

Whole Food Plant-Based Diet and Alzheimer's Disease

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Mission Statement

As pharmacy students, we have the *responsibility* to **promote health** and **encourage patients** to take control of their own well-being by **maintaining a whole-food, plant-based diet**



Our focus is to *educate* the general public and *communicate* the impact this diet has on **delaying the progression of Alzheimer's Disease**

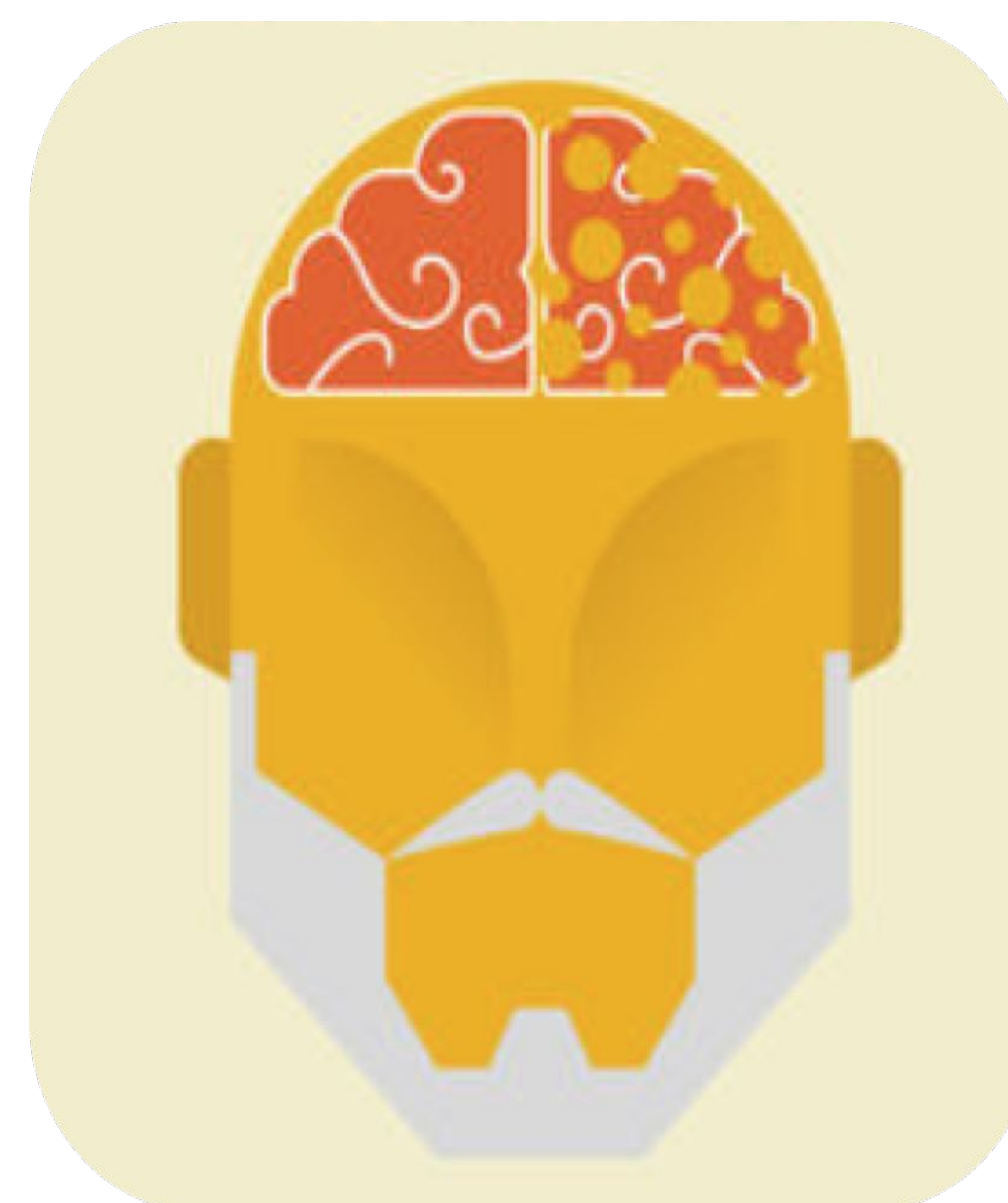
What is Alzheimer's Disease?

Most Common Type of Dementia

Causes impairment of:
Memory Thinking Behavior

Progressive Disease

Survival 4-20 years

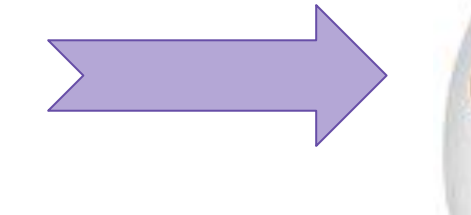


1 in 10 people ages 65 and older have Alzheimer's disease

RISK FACTORS

↑ age
APOE-e4 genotype
↓ socioeconomic status
↓ educational attainment
Poverty
Missed diagnoses

Current Treatment



Mild to Moderate

Cholinesterase Inhibitors:

- Razadyne (galantamine)
- Exelon (rivastigmine)
- Aricept (donepezil)

Moderate to Severe

N-methyl D-aspartate receptor antagonists:

- Namenda (memantine)

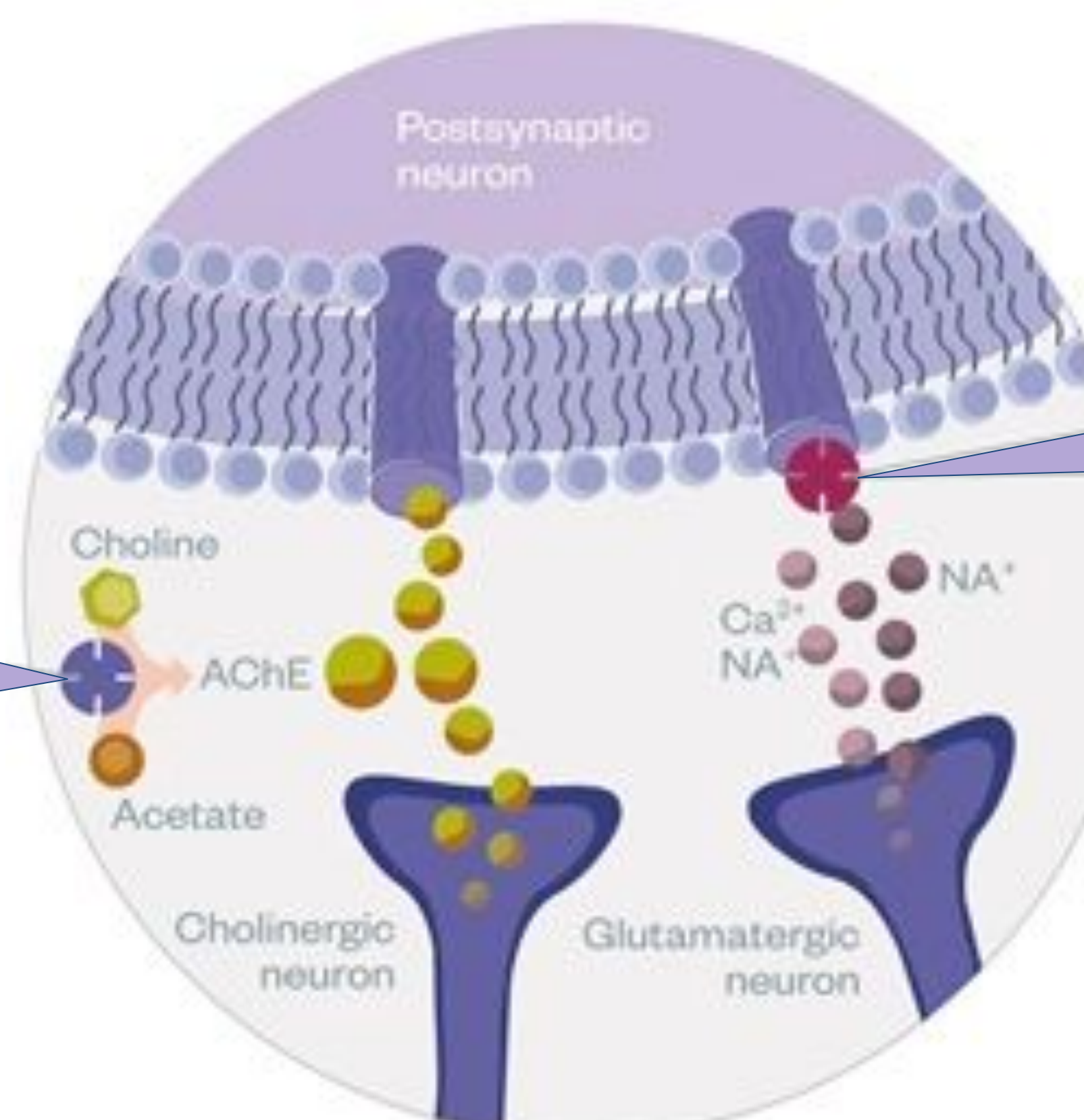
Cholinesterase Inhibitors:

- Aricept (donepezil)
- Namzaric (memantine ER & donepezil)

Cholinesterase Inhibitors

Prevents breakdown of acetylcholine, which is involved in memory and judgement

Slows down the development of symptoms



NMDA receptor antagonists

Regulates activity of glutamate, a neurotransmitter that attaches to NMDA receptors

Prevents excessive exposure to calcium which speeds up cell damage

Western Diet

Lacks phytonutrients and antioxidant-rich vegetables and fruits
1985: rate of Alzheimer's disease in Japan was only **1%**
2008: rate of Alzheimer's disease in Japan **rose by 7%** due to Western diet
Leads to a 4% chance of developing Alzheimer's disease

Processed Cheeses

Contains **diacetyl**, which has the potential to increase amyloid plaques in the brain

Processed Meats

Contains **nitrosamines** which causes the liver to produce fats that are toxic to the brain

Beer

Contains **nitrites** which can be reduced to nitrosamines and cause cellular alterations

White Foods

Causes a spike in **insulin and glucose** levels and lead to inflammation

Whole Foods Plant-Based Diet

A diet consisting of **fruits, vegetables, legumes, whole grains, nut, and seeds**, **but excludes meat, dairy, eggs, and refined foods**

Blueberries



Contain **polyphenols** which helps to reduce the release of proinflammatory cell signaling molecules from T-lymphocytes

Turmeric



Inhibition of Egr-1 DNA binding reduces inflammation.
Decreases the main inflammatory chemical and the transcription of inflammatory cytokines
Exposure to curcumin affected the production of pro-inflammatory cytokines (IL-1, IL-6, TNF-)

Walnuts



Rich in antioxidants which help with reducing inflammation
Source of omega-3 which plays a role in anti-inflammation

Alzheimer's Biomarkers

Low levels of CSF AB42 are linked to Alzheimer's disease as AB42 clumps into plaques → **less** are able to enter into the cerebrospinal fluid

F2-isoprostanes are lipids that **mark neuronal injury**

Diet High in Saturated Fats

CSF AB42	F2-isoprostanes
Lower levels	Higher levels

Diet Low in Saturated Fats

CSF AB42	F2-isoprostanes
Higher levels	Lower levels

Conclusions and Impact

- Current medications slow down the progression of symptoms, but none are able to cure or reverse the disease
- Prevention through change in diet could be the biggest impact we have on Alzheimer's disease
- Cells are difficult to repair once damaged; it is more efficient to maintain and prolong the health of these cells