What's Up Doc?

June is Alzheimer's and Brain Awareness Month.
Alzheimer's disease (AD) is the most common form of dementia, affecting millions of individuals. Recent estimates are approximately 6.5 million Americans aged 65 and older are living with Alzheimer's disease. This number is expected to double to 13 million within 10 years according to the Alzheimer's Association.

Alzheimer's disease (AD) is a specific neurodegenerative disorder characterized by progressive cognitive decline, memory loss, and behavioral changes. It is classified as a form of dementia. AD is marked by distinct pathological features, including the accumulation of amyloid-beta plaques and neurofibrillary tangles (tau proteins) in the brain. These changes lead to neuronal loss, synaptic dysfunction, and neuroinflammation.

Cognitive decline or impairment refers to a general deterioration in cognitive function that can affect memory, attention, reasoning, and other mental processes. It is not a specific diagnosis and can result from various underlying causes. The Alzheimer's Association estimates an additional 16 million Americans are suffering from cognitive decline

To sum up Alzheimer's disease is a specific, progressive neurodegenerative condition with distinct pathological features and a definitive trajectory. Cognitive decline encompasses a broader range of cognitive impairments that can result from numerous factors, some of which may be reversible.

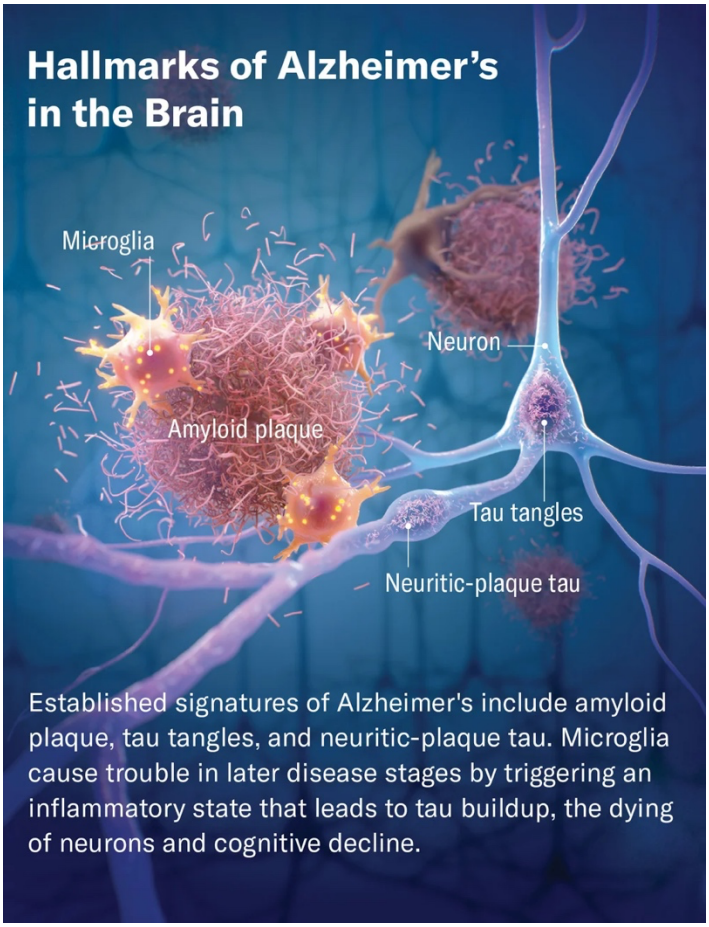
What are Amyloid-Beta Plaques?

Amyloid plaques are clumps of protein that build up in the brains of people with Alzheimer's disease. These plaques are primarily made up of a protein called amyloid-beta. Amyloid-beta is produced naturally in the brain. In Alzheimer's, this protein starts to misfold and stick together, forming sticky plaques. Over time, these plaques accumulate between nerve cells (neurons). The plaques can interfere with the communication between neurons, making it harder for them to send signals to each other. The presence of amyloid plaques triggers an inflammatory response in the brain, which can lead to further damage to brain cells. As more plaques form, they contribute to the death of neurons, leading to the loss of brain function and the symptoms of Alzheimer's disease, such as memory loss and confusion.

What Are Tau Tangles?

Tau tangles are twisted fibers made up of a protein called tau that can accumulate inside nerve cells (neurons) in the brain. In healthy brains, tau helps stabilize structures called microtubules, which are essential for transporting nutrients and other important materials within the cell. In Alzheimer's disease, tau proteins undergo abnormal chemical changes, causing them to detach from microtubules. This leads to the formation of twisted tangles inside the neurons.

When tau proteins form tangles, the microtubules can't function properly. This disrupts the transport system within neurons, making it hard for them to receive necessary nutrients. As tau tangles accumulate, they contribute to the death of neurons. This loss of brain cells leads to cognitive decline and memory loss. The presence of tau tangles is closely linked to the severity of symptoms in Alzheimer's. As more tangles form cognitive functions such as thinking, memory, and reasoning become increasingly impaired.



In Alzheimer's disease, both tau tangles and amyloid plaques contribute to the progression of the disease. Here's how they relate to each other:

Amyloid plaques, composed of amyloid-beta proteins, often form in the brain before tau tangles appear. This accumulation happens in the early stages of Alzheimer's. Once the amyloid plaques are present, they can trigger changes in tau proteins, leading to the formation of neurofibrillary tangles (NFTs) within neurons. The presence of amyloid plaques starts a cascade of events that results in the abnormal phosphorylation of tau proteins. This process destabilizes tau, causing it to form tangles. Amyloid plaques create a toxic environment in the brain that can promote neuroinflammation and oxidative stress, further exacerbating tau pathology and neuronal damage.

While both amyloid plaques and tau tangles are related to Alzheimer's, tau tangles are more closely associated with the severity of cognitive decline. The spread of tau tangles indicates the progression and severity of symptoms more so than amyloid plaques alone.

Causes of Alzheimer's Disease

In essence the two main causes of Alzheimer's Disease (AD) are genetic and environmental

Genetic Factors

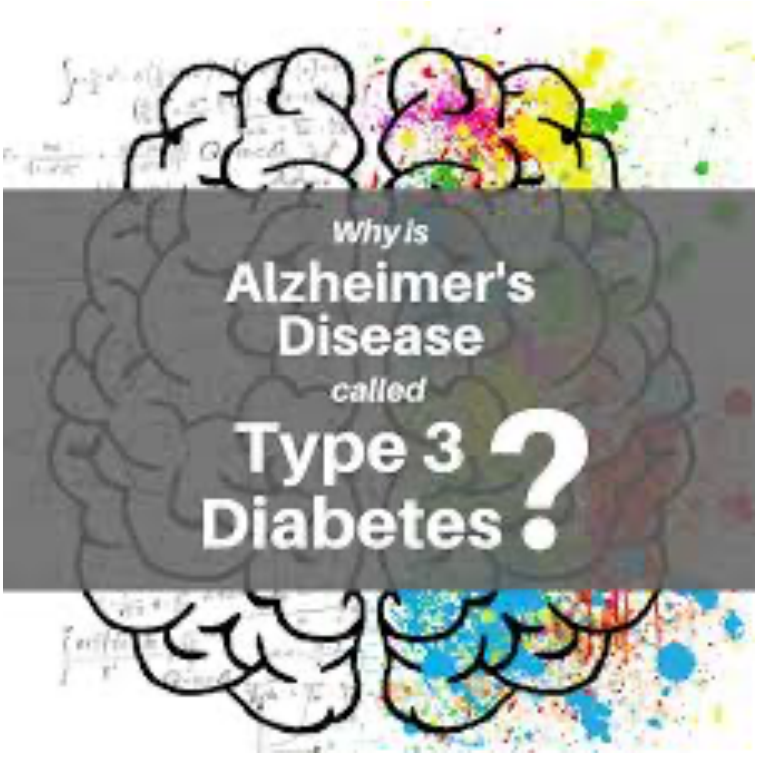
APOE ε4 Allele; refers to a specific variant of the apolipoprotein E (APOE) gene and is a genetic factor that can increase the risk of Alzheimer's disease. The APOE gene has three common alleles: ε2, ε3, and ε4 The APOE protein helps transport fats and cholesterol in the brain. The ε4 variant is less effective at clearing amyloid-beta, a protein that can form harmful plaques in the brains of Alzheimer's patients. Individuals with one or two copies of the ε4 allele have a higher likelihood of developing Alzheimer's compared to those with the more common ε2 or ε3 alleles.

APP, PSEN1, and PSEN2; are genes that play important roles in the development of Alzheimer's disease.

APP (Amyloid Precursor Protein) is a protein that is normally found in the brain. It can be broken down into smaller pieces, including amyloid-beta. When APP is improperly processed, it can lead to the accumulation of amyloid-beta plaques.

PSEN1 (Presenilin 1) PSEN2 (Presenilin 2). Mutations in the PSEN1 and less common PSEN2 genes cause the production of abnormal amyloid-beta, leading to increased plaque formation. This is often associated with early-onset Alzheimer's.

Environmental Factors:



Sometimes referred to as "diabetes type 3" due to the observed links between insulin resistance, glucose metabolism, and neurodegeneration in the brain. In diabetes, the body becomes resistant to insulin, which is crucial for regulating blood sugar levels. Similarly, in Alzheimer's, there is evidence that brain cells can become resistant to insulin. The brain relies on glucose for energy. Insulin is necessary for glucose uptake into cells. When brain cells become insulin resistant, they cannot effectively use glucose, leading to energy deficits that can harm neurons. Both diabetes and Alzheimer's are associated with inflammation and oxidative stress, which contribute to cell damage and neurodegeneration. There are common risk factors for both conditions, such as obesity, metabolic syndrome, and poor diet, suggesting that the two diseases may share underlying biological mechanisms.

Diet: Diets high in saturated fats, refined sugars, and processed foods can lead to inflammation and oxidative stress, both of which are linked to Alzheimer's.

Elevated Glucose Levels: Conditions like insulin resistance and diabetes can damage blood vessels and neurons, increasing the risk of cognitive decline.

Oxidative Stress: A lack of antioxidants in the diet can exacerbate neuronal damage, as oxidative stress hampers the repair of damaged cells.

Lifestyle Factors: Sedentary behavior, smoking, and chronic stress are additional contributors to the risk of developing Alzheimer's

Cardiovascular Health: Conditions such as hypertension, high cholesterol, diabetes, and obesity contribute to an increased risk.

Allopathic Interventions

Common drugs used to treat Alzheimer's disease primarily aim to manage symptoms rather than cure the disease. Here are the main categories and examples:

Cholinesterase Inhibitors
These drugs work by increasing levels of acetylcholine, a neurotransmitter associated with memory and learning.
Donepezil (Aricept)
Rivastigmine (Exelon)
Galantamine (Razadyne)

NMDA Receptor Antagonists
These drugs regulate glutamate, another neurotransmitter involved in learning and memory.
Memantine (Namenda)

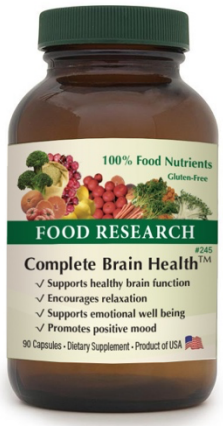
Effectiveness?
The effectiveness of these medications varies among individuals. Some may experience noticeable improvement, while others may see minimal benefits.

Common side effects include nausea, diarrhea, insomnia, and dizziness. Monitoring by healthcare providers is essential to manage these effects.
While these drugs can help manage symptoms, they do not stop the progression of Alzheimer's. The benefits diminish over time as the disease progresses.

New drugs in development for Alzheimer's disease are for the most part described as Monoclonal antibody. Their aim is to target and reduce amyloid-beta plaques in the brain. The two notable ones being Aducanumab (Aduhelm). The FDA approval of Aduhelm was controversial due to lack of clinical benefits and side effects. It was removed from the market last year 2024.
lecanemab (Leqembi) likewise is a monoclonal antibody currently available. It is administered by IV infusion over one to two hours every two weeks. There is currently a class action law suit underway due to brain bleeds and swelling.

Nutritional Support

Complete Brain Health Dose 1 -3 Per Day



A combination of ingredients which collectively enhance brain health through antioxidant support, neurotransmitter function, cellular repair, and stress management, all essential for maintaining optimal cognitive function.
Here is a breakdown and explanation of all the ingredients in Complete Brain Health which demonstrate why this product is key to Cognitive health
Complete Brain Health includes the following powerful antioxidants, **Vitamin C, Vitamin E, Selenium, Grape Seed Extract, Fermented Grain Extracted L-Carnosine.**

It includes specific **Glandulars sourced from New Zealand** providing nutrients, peptides and enzymes which promote cellular repair and regeneration in brain tissue enhancing cognitive function and repair.
Vitamin B-6 Essential for neurotransmitter synthesis, influencing mood and cognitive function; key in cognitive development.
Folate (Vitamin B-9 Vital for DNA synthesis and repair; low levels are linked to cognitive decline and increased risk of dementia.
Vitamin B-12 – Methylated Crucial for maintaining myelin sheaths around nerve cells and supporting neurotransmitter function; low levels lead to cognitive impairment.
Choline Supports the production of acetylcholine, a vital neurotransmitter for memory and learning.
Inositol Key for cell signaling and improves mood and cognitive function.
Corn Silk Extract (4:1) Rich in vitamins, minerals and antioxidants. Has been shown in studies to influence neurotransmitter systems, enhancing mood and cognitive clarity.
Eleuthero Root. An adaptogen that helps the body manage stress, reducing anxiety and enhancing focus and cognitive performance.
Fermented Grain Extracted L-Methionine An essential amino acid that supports neurotransmitter production, critical for mood regulation and cognitive function.
Fermented Grain Extracted L-Tyrosine Vital in the production of neurotransmitters, especially during stress, enhancing mood and cognitive performance.
Flax Extracted Alpha Lipoic Acid A potent antioxidant to improve energy metabolism in brain cells and protect against neurodegeneration.
Food Extracted Ribonucleic Acid (Saccharomyces Cerevisiae) Supports cellular function and enhances energy levels, contributing to overall brain vitality and function.
Organic Sunflower Lecithin Provides phospholipids essential for maintaining cell membrane integrity, crucial for neuronal function and communication.
Wild Salmon Extracted Deoxyribonucleic Acid supports cellular repair and regeneration in the brain, promoting overall cognitive health and function.

Turmeric-Boswellia C. Dose 1 -3 per Day

A unique combination of Turmeric, Boswellia, Vitamin C, Fenugreek and Ginger, which improves the absorption and bio availability of curcumin. Numerous studies and trials published in but not limited to, *Journal of Biological Chemistry, Frontiers in Aging Neuroscience, & The American Journal of Geriatric Psychiatry* have found
Curcumin not only prevents the formation of Amyloid Beta plaques but also removes them, reducing the amount of Amyloid Beta plaques in the brain.

This unique product offers a multifaceted approach to supporting cognitive function and addressing Alzheimer's disease. By reducing inflammation, providing neuroprotection, and enhancing antioxidant defenses, to improve overall brain health and slow the progression of cognitive decline and Alzheimer’s disease.

Lith-Mag Forte. Dose 1 per Day.

Commonly used for bi-polar disorders and a renowned mood stabilizer. Numerous studies recently have shown the benefits of small doses of Lithium Orotate to prevent Alzheimer's.
The therapeutic dose in studies is 1mg per day.
Lith-Mag Forte contains
1mg of Lithium Orotate the bioavailable form of Lithium produced in the body. 1mg is the recommended daily does to prevent cognitive decline Lithium Orotate crosses the Blood Brain Barrier (BBB) within 20 minutes of ingestion
110mg of food magnesium.
Offers a protective a shield for the Brain and Nervous System.
Protects against brain shrinkage.
Boosts cognitive function and the ability to focus. Improves Mood. Slows cognitive decline in Alzheimer's Patients.

"Lithium is, by far, the most proven drug to keep neurons alive, in animals and in humans, consistently and with many replicated studies. If lithium prevents dementia, then we may have overlooked a very simple means of preventing a major public health problem." Dr.Nassir Ghaemi MD Professor of Psychiatry at Tufts Medical Center & Harvard Medical School.

Anna Fels a prominent psychiatrist, states that many scientists believe Lithium should be classified as an essential trace mineral and that lithium micro-dosing offers brain health

Omega 3/ EPA / DHA. Dose 1- 3 per Day

Extracted from wild Herring because of its natural sources of EPA, DHA and Vitamin E and lack of heavy metal toxicity.
Improves cognitive performance, including memory, attention, and executive function.Omega-3 supplementation is associated with better cognitive outcomes in aging populations in addition to improved mood and mental health through their effects on neurotransmitter function and inflammation.

PRL Premier Creatine. Dose 1 scoop per Day

Most of us think of Creatine as an energy supply for muscles during exercise or helping in muscle recovery and growth. Those attributes also benefit cognitive health, particularly in conditions like Alzheimer's disease. Creatine plays a crucial role in the production of ATP (adenosine triphosphate), the primary energy carrier in cells. Enhanced ATP availability supports neuronal function and health. Creatine supports brain plasticity, which is essential for learning and memory, allowing the brain to adapt and reorganize itself. This improves memory and cognitive performance, particularly in tasks requiring quick thinking or information processing.

PRL Melatonin ND. Dose 1 dropper before bed.

Melatonin ND is a unique vegetarian liquid form of Melatonin cultured from probiotics to improve bioavailability. Melatonin is a hormone primarily known for regulating sleep. Sleep is crucial for cognitive health as poor sleep cycles have been proven to aid cognitive decline. Perhaps less well-known melatonin inhibits the formation of amyloid-beta plaques, a hallmark of Alzheimer's disease.

PRL Premier NADH. Dose 2 per Day.

NADH (nicotinamide adenine dinucleotide + hydrogen) plays a critical role in the production of ATP, the energy currency of cells. Enhanced ATP availability supports neuronal function and overall brain health. Likewise, NADH is essential for proper mitochondrial function, which increases neuronal survival and is crucial in combating cognitive decline. In studies NADH supplementation has been shown to improve cognitive functions, particularly memory, and learning abilities.

Finally, do not forget the gut-brain axis (GBA).

This bidirectional communication network linking the gastrointestinal (GI) tract is vital for cognitive health and Alzheimer's disease.
"Probiotics for the treatment of Alzheimer's disease: a systematic review" (2021) PMID: 35010895 PMCID: **PMC8746506**
“Probiotics are known to be one of the best preventative measures against cognitive decline in AD. Numerous in vivo trials and recent clinical trials have proven the effectiveness of selected bacterial strains in slowing down the progression of AD.”

Role of gut-brain axis, gut microbial composition, and probiotic intervention in Alzheimer's disease (2021) PMID: 33169684
As aging together with poor diet and gut-derived inflammatory response due to dysbiosis contributes to the pathogenesis of AD, modification of gut microbial composition by uptake of probiotic-rich food can act as a preventive/therapeutic option for AD.

A European pre and Probiotic backed by clinical trials, used exclusively by Gastroenterologists in Europe with 45Billion CFU’s per capsule. Details in last month’s newsletter

https://www.solelypractitioner.com/resources Click on May Newsletter

Free shipping on orders of 6 or more. Intro offer 1 month supply $21.00

Colicron™

We are now representing a European company that specializes in gut health and supplies products exclusively to Gastroenterologists in Europe. Their flagship product Colicron™ has been clinically trialed as a treatment for Irritable Bowel Syndrome (IBS) the most commonly diagnosed gastrointestinal condition in the Western world.
This is only available to Practitioners and will not appear on Amazon or similar sites
The two trials below specifically used Colicron™

https://pubmed.ncbi.nlm.nih.gov/38186311/

https://pubmed.ncbi.nlm.nih.gov/38240683/

Colicron™ is a combination of 3 different species and 9 different strains of Probiotics each strain has been clinically researched. There are 5 Billion Colony Forming Units (CFU's) per strain giving a total of **45 Billion CFU's per capsule**.

Three key additional ingredients are included in the formula:-

Palmitoylethanolamide (PEA)
a cannabimimetic mediator, naturally present in our body, which offers analgesic and anti-inflammatory properties in addition to regulating intestinal transit.

UNDARIA (Wakami Edible Seaweed)
a brown seaweed as a source of fucoxanthin. Fucoxanthin is hydrolyzed in the gastrointestinal tract to form fucoxanthinol. Fucoxanthinol binds to the NAAA enzyme, reducing its activity and its ability to degrade PEA.

HERICIUM ERINACEUS (Lion's Mane Mushroom)
An edible and medicinal fungus which in addition to its the ability to modulate the immune system, stem inflammation and repair the gut is a prebiotic.

Colicron is produced using a freeze dry process followed by a unique internal and external coating which is used to protect the probiotics. An external polysaccharide coating protects the probiotics from both heat and humidity changes in the environment. A second internal coating stops the Probiotics reactivating. During GI transit the Probiotics face harsh condition from acid pH, digestive enzymes, and bile salts, the internal coating protects the Probiotics and is slowly and gradually released during the GI transit. When the probiotics reach the gut, they reactivate themselves, proliferate, and adhere to the intestinal mucosa.