

PATIENT EDUCATION SECTION

ALZHEIMER'S DISEASE

- Dementia makes it hard to remember and think clearly, affecting daily life.
- Alzheimer's is the most common type of dementia (60-80% of cases).
- It usually happens to older people, with most being 65 or older.
- If it affects someone younger than 65, it's called "younger-onset" or "early-onset Alzheimer's."
- Alzheimer's progresses over time, starting with mild memory loss.
- Trouble remembering new things is an early sign.
- Brain changes in Alzheimer's affect learning and cause memory loss, confusion, and more.
- In later stages, people struggle to talk or react to their surroundings.
- Symptoms worsen as the disease spreads through the brain.
- People with Alzheimer's might not realize they need help, so family and friends should watch for signs of dementia.

What is Amyloid Plaque?

Amyloid plaque is a sticky buildup of a protein called beta-amyloid that forms between nerve cells (neurons) in the brain. Too much amyloid plaque is thought to play a key role in Alzheimer's disease by disrupting how neurons work and communicate with each other.

What is Tau?

Tau is another protein in the brain that normally helps stabilize the internal structure of neurons. In Alzheimer's disease, tau forms into twisted tangles inside neurons. These tau tangles are thought to block the transport of nutrients and other molecules inside neurons, causing them to die.

What is a Plasma Amyloid Marker?

A plasma amyloid marker is a blood test that measures the levels of beta-amyloid in the bloodstream. High levels may indicate a buildup of amyloid plaques in the brain. This test is relatively new, and more research is being done on how accurate it is at detecting Alzheimer's disease.

What is a PET Scan?

A positron emission tomography (PET) scan is a type of imaging test that allows doctors to see amyloid plaques and tau tangles in the brain. During the scan, a small amount of a radioactive drug is injected into the bloodstream. This drug attaches to amyloid and tau, allowing the scanner to produce detailed 3D images of the brain showing their location and amount.

What is a Lumbar Puncture?

A lumbar puncture, also called a spinal tap, is a procedure where a thin needle is inserted into the lower back to collect cerebrospinal fluid (CSF) that surrounds the brain and spinal cord. Levels of beta-amyloid and tau in the CSF can help diagnose Alzheimer's disease. While very accurate, a lumbar puncture is more invasive than a blood test or PET scan.

What are Sensitivity and Specificity?

Sensitivity and specificity refer to how accurate these tests are:

- Sensitivity is how well a test finds people who really have the disease (a high sensitivity means the test has few false negatives).
- Specificity is how well a test rules out people who don't have the disease (a high specificity means the test has few false positives).

Here are some examples of the Sensitivity and Specificity of some of the tests for Alzheimer's testing:

1. Plasma Amyloid Marker:

- Sensitivity: 80-95%
- Specificity: 75-90% Plasma amyloid marker tests are relatively new and their accuracy is still being refined. Current research suggests they have good sensitivity for detecting Alzheimer's disease but may have more false positives compared to other tests.

(Karikari et al., 2020; Palmqvist et al., 2020)

2. PET Scan:

- Amyloid PET:
 - Sensitivity: 90-95%
 - Specificity: 85-90%
- Tau PET:
 - Sensitivity: 80-95%
 - Specificity: 85-95% PET scans are highly accurate for detecting the presence of amyloid plaques and tau tangles in the brain. Amyloid PET is slightly more sensitive, while tau PET has a bit higher specificity.

(Barthel et al., 2021; Fleisher et al., 2020)

3. Lumbar Puncture (CSF Analysis):

- Beta-amyloid:
 - Sensitivity: 80-95%

- Specificity: 85-95%
- Tau:
 - Sensitivity: 80-95%
 - Specificity: 85-95% Lumbar punctures are considered the gold standard for diagnosing Alzheimer's disease based on CSF biomarkers. They have high sensitivity and specificity for detecting abnormal levels of both beta-amyloid and tau proteins.

(Hansson et al., 2019; Leitao et al., 2021)

Eating Right for Alzheimer's Disease: The MIND and Bredesen Diets

If you or a loved one are concerned about Alzheimer's disease, you may have heard about special diets that could help protect the brain. Two popular options are the MIND diet and the Bredesen diet. Let's take a closer look at what these diets involve and how they might be helpful.

The MIND Diet

The MIND diet combines parts of the Mediterranean diet and the DASH (Dietary Approaches to Stop Hypertension) diet, both of which are known for their health benefits. The name "MIND" stands for Mediterranean-DASH Intervention for Neurodegenerative Delay.

This diet focuses on foods that are good for the brain, such as:

- Green leafy vegetables
- Other vegetables
- Nuts
- Berries
- Beans
- Whole grains
- Fish
- Poultry
- Olive oil
- Wine (in moderation)

The MIND diet also recommends limiting foods that may be bad for brain health, such as red meat, butter, cheese, pastries, sweets, and fried or fast food.

(Morris et al., 2015; Hosking et al., 2019; Berendsen et al., 2018)

The Bredesen Diet

The Bredesen diet, also known as the ReCODE Protocol, was developed by Dr. Dale Bredesen. It's a more complex program that looks at 36 different factors that can affect brain health, including diet, exercise, sleep, stress, and various medical conditions.

The diet part of the Bredesen protocol emphasizes:

- Low glycemic index foods (foods that don't cause a big spike in blood sugar)
- Healthy fats like those found in nuts, seeds, avocados, and olive oil
- Non-starchy vegetables
- Limited fruit intake
- Moderate amounts of protein from wild-caught fish, pastured eggs, and grass-fed meat
- Avoiding gluten, dairy, and processed foods

In addition to diet changes, the Bredesen protocol also recommends regular exercise, stress reduction techniques, getting enough sleep, and taking certain supplements.

The Bottom Line While both the MIND and Bredesen diets show promise for supporting brain health and potentially reducing the risk of Alzheimer's disease, it's important to remember that there is no surefire way to prevent the condition. These diets are based on research but are not guaranteed to work for everyone.

Before making big changes to your eating habits, it's always a good idea to talk with your doctor or a registered dietitian. They can help you decide if one of these diets is right for you and make sure you're still getting all the nutrients your body needs.

In general, eating a balanced diet rich in whole foods like vegetables, fruits, whole grains, lean proteins, and healthy fats is a smart choice for overall health, including brain health. Combining a nutritious diet with regular exercise, mentally stimulating activities, and staying socially connected may offer the most benefits for keeping your brain sharp as you age.

(Bredesen et al., 2018; Toups et al., 2022)

AGITATION RELATED TO ALZHEIMER'S DISEASE

People who have Alzheimer's disease become agitated when they are antsy, angry, or worried. This can show up in several ways, such as

Pacing: They might walk back and forth in the same area over and over.

Repetitive Movements: They could repeat the same actions or words again and again without stopping.

Fidgetiness: They may constantly shift in their seat, tap their fingers, or play with objects.

Impulsive Behavior: Sometimes, they might do things without thinking, like suddenly leaving the house or grabbing at objects.

Handwringing: They may wring their hands or clasp and unclasp their fingers repeatedly.

Repetitive Questions or Sentences: They may ask the same questions or say the same sentences repeatedly.

Making Strange Noises: They might make unusual sounds or vocalizations.

Inappropriate Disrobing: They may undress inappropriately, regardless of the setting or situation.

Hiding or Hoarding Things: They might hide objects or collect and hoard items without reason.

These behaviors can happen because their brain is affected by the disease, making it hard for them to understand or communicate their needs and feelings.

Agitation can occur for a variety of reasons:

Confusion: People with Alzheimer's often feel lost and confused, which can make them angry and antsy.

Unmet needs: They may be trying to tell you something, like that they're hungry or in pain, but they can't say it clearly.

Discomfort: Being physically uncomfortable, like being too hot or too cold, can make them angry.

Overstimulation: They can't handle loud noises, busy places, or too much going on.

PSYCHOSIS RELATED TO ALZHEIMER'S DISEASE

People with dementia, including Alzheimer's disease, often experience psychiatric symptoms like psychosis.

Psychosis includes symptoms such as delusions, hallucinations, disorganized thinking, and abnormal movement behavior.

Unfortunately, there are currently no approved medications specifically for treating psychosis in Alzheimer's disease.

What Are Delusions?

Delusions are believing in things that aren't true or real. It involves someone strongly believing in something despite a lack of evidence and contrary beliefs held by others.

Example: Imagine someone with Alzheimer's thinking that strangers are trying to steal their things, even though this is not happening.

What Are Hallucinations?

Hallucinations are when someone sees, hears, feels, or smells things that aren't there. It's like having "sensory" experiences that others can't perceive.

Example: Someone might hear voices or see people in the room who aren't there due to hallucinations.

What Is Disorganized Thinking?

Disorganized thinking is when a person's thoughts become jumbled and don't make sense. They may have trouble organizing their thoughts or speaking clearly.

Example: Someone might start talking about one thing and then suddenly switch to a completely different topic without any connection.

What Is Disorganized Motor Behavior?

This is when a person's movements or actions become strange or don't follow a usual pattern. It's like doing things that don't seem to fit the situation.

Example: Someone might start dancing in the middle of a serious conversation or make unusual hand gestures that don't match what they're saying.

IDIOPATHIC REM BEHAVIOR DISORDER

What Is Idiopathic REM Behavior Disorder (RBD)?

RBD is when someone physically acts out their dreams during sleep.

Common RBD symptoms include talking, shouting, kicking, or even getting out of bed while dreaming.

It can be disruptive and sometimes dangerous.

Idiopathic RBD means the cause is unclear or unknown, not linked to other diseases like Parkinson's.

MIGRAINES

What is a Migraine?

Migraines are a neurological condition without a cure. Common symptoms include light and sound sensitivity, nausea, brain fog, and dizziness.

Who Can Get Migraines?

Migraines can affect anyone, regardless of age or background.

Impact on Life:

More than 90% of migraine sufferers find their daily life, work, or school affected by migraines.

Prevalence:

Over 1 billion people worldwide and 1 in 4 U.S. households experience migraines.

Migraine Stigma:

Misdiagnosis or misunderstanding of migraines is common.

Menstrual Migraines:

Menstrual migraines occur around the start of the menstrual cycle. Decreased estrogen levels before menstruation may trigger these migraines.

Foods to Avoid for Migraines

If you suffer from migraines, it's important to know that certain foods can trigger these painful headaches. Some common foods that may cause migraines include:

1. Aged cheeses like cheddar, blue cheese, and parmesan
2. Processed meats such as hot dogs, bacon, and salami
3. Chocolate
4. Caffeine, found in coffee, tea, and soda
5. Monosodium glutamate (MSG), a flavor enhancer used in many foods
6. Alcohol, especially red wine
7. Citrus fruits like oranges, lemons, and limes

Everyone is different, so what triggers a migraine for one person might not affect another. It's a good idea to keep a food diary to help identify which foods may be causing your migraines. If you notice that certain foods seem to trigger your headaches, try avoiding them to see if your migraines improve.

What is Neuropathy?

Neuropathy is a condition that affects the nerves in your body. Nerves are like tiny wires that carry messages between your brain, spinal cord, and the rest of your body. When these nerves are damaged or not working properly, it's called neuropathy.

There are many different causes of neuropathy, including:

1. **Diabetes:** High blood sugar levels can damage nerves over time.
2. **Injuries:** Accidents or falls can cause physical damage to nerves.
3. **Vitamin deficiencies:** Not getting enough of certain vitamins, like B vitamins, can lead to nerve problems.
4. **Autoimmune disorders:** Some conditions, like lupus or rheumatoid arthritis, can cause the body's immune system to attack the nerves.

Symptoms of neuropathy can vary depending on which nerves are affected but often include:

1. Numbness or tingling in the hands or feet
2. Burning or sharp pain
3. Sensitivity to touch
4. Muscle weakness
5. Difficulty with balance or coordination

If you think you might have neuropathy, it's important to talk to your doctor. They can help diagnose the cause of your symptoms and recommend treatments to help manage your condition. Treatment options may include medications, lifestyle changes, or physical therapy to help improve nerve function and reduce pain.

Foods and Things to Avoid for Neuropathy

Neuropathy is a condition that affects the nerves, causing symptoms like numbness, tingling, and pain. If you have neuropathy, there are certain foods and things you should avoid to help manage your symptoms:

1. **Added sugars:** Foods high in sugar can worsen neuropathy by causing rapid changes in blood sugar levels.
2. **Refined grains:** White bread, pasta, and rice can also cause blood sugar spikes, which may aggravate neuropathy symptoms.
3. **Alcohol:** Drinking too much alcohol can be toxic to the nerves and worsen neuropathy.
4. **Smoking:** Cigarette smoking can narrow blood vessels, reducing blood flow to the nerves and contributing to neuropathy.
5. **Lack of exercise:** Being inactive can worsen neuropathy symptoms, so it's important to stay physically active.

Instead of these foods and habits, focus on eating a balanced diet rich in fruits, vegetables, lean proteins, and whole grains. Regular exercise, such as walking or swimming, can also help improve circulation and manage neuropathy symptoms. If you have any concerns about your diet or neuropathy, be sure to talk to your doctor for personalized advice.

What is Parkinson's Disease?

Parkinson's disease is a disorder that affects the brain and the nervous system. It happens when certain brain cells that produce a chemical called dopamine start to die. Dopamine helps control movement, so when there's not enough of it, people with Parkinson's disease can have trouble moving their bodies the way they want to.

The main symptoms of Parkinson's disease include:

1. Tremors or shaking: This often starts in the hands or fingers.
2. Stiffness: Muscles may feel tight and difficult to move.
3. Slowness of movement: Simple tasks like walking or getting dressed can take much longer than usual.
4. Balance problems: People with Parkinson's may be more likely to fall or have trouble staying steady on their feet.

Parkinson's disease usually starts gradually and gets worse over time. It most often affects people over the age of 60, but it can sometimes occur in younger people too. The exact cause of Parkinson's is not known, but it's thought to be a combination of genetic and environmental factors.

There is currently no cure for Parkinson's disease, but there are treatments available to help manage the symptoms. These can include:

1. Medications to help increase dopamine levels in the brain
2. Physical therapy to help with movement and balance

3. Occupational therapy to help with daily tasks

4. Speech therapy to help with speaking and swallowing difficulties

If you or someone you know has been diagnosed with Parkinson's disease, it's important to work closely with a healthcare team to develop a treatment plan that works best for managing symptoms and maintaining quality of life.

Foods and Things to Avoid for Parkinson's Disease

If you have Parkinson's disease, there are certain foods and things you may want to avoid to help manage your symptoms:

1. Protein-rich foods: While protein is important for overall health, eating too much of it can interfere with the absorption of some Parkinson's medications. It's best to talk to your doctor about the best time to take your medication in relation to meals.

2. Processed and sugary foods: These foods can cause inflammation in the body, which may worsen Parkinson's symptoms.

3. Alcohol: Drinking alcohol can interfere with Parkinson's medications and worsen symptoms like balance problems and sleepiness.

4. Stress: While not a food, stress can make Parkinson's symptoms worse. Try to find ways to manage stress through relaxation techniques, hobbies, or talking to a therapist.

Things That Can Help with Parkinson's Disease

In addition to avoiding certain foods and things, there are also steps you can take to help manage

Parkinson's symptoms:

1. Exercise regularly: Physical activity can help improve balance, flexibility, and strength. Aim for at least 30 minutes of exercise most days of the week.
2. Eat a healthy diet: Focus on eating plenty of fruits, vegetables, whole grains, and lean proteins. These foods provide important nutrients for overall health.
3. Stay hydrated: Drinking enough water can help with constipation, which is a common problem in Parkinson's disease.
4. Get enough sleep: Fatigue is a common symptom of Parkinson's, so it's important to get enough rest. Stick to a regular sleep schedule and create a relaxing bedtime routine.
5. Attend physical and occupational therapy: Working with a physical or occupational therapist can help you learn exercises and strategies to manage Parkinson's symptoms and maintain independence.

Remember, everyone's experience with Parkinson's disease is different. It's important to work closely with your healthcare team to develop a plan that works best for you.

What is Major Depressive Disorder?

Major depressive disorder (MDD) is a mental health condition that causes feelings of sadness, emptiness, and hopelessness that last for a long time. People with MDD may lose interest in activities they once enjoyed, have trouble sleeping or sleep too much, feel tired all the time, and have difficulty concentrating. They may also have physical symptoms like headaches or stomachaches.

Things to Avoid with MDD:

1. Isolation: Withdrawing from friends, family, and activities can make MDD symptoms worse.
2. Alcohol and drugs: Substance abuse can interfere with MDD treatment and worsen symptoms.
3. Negative self-talk: Focusing on negative thoughts about yourself can make MDD harder to manage.
4. Stress: While some stress is unavoidable, try to limit stress where possible, as it can worsen MDD.

Things That Can Help with MDD:

1. Talk to a trusted adult: If you think you might have MDD, talk to a parent, teacher, or school counselor. They can help you get the support you need.
2. See a mental health professional: A therapist or counselor can help you work through your feelings and develop coping strategies.
3. Consider medication: In some cases, a doctor may recommend medication to help manage MDD symptoms.
4. Practice self-care: Engage in activities that make you feel good, like exercising, spending time with friends, or doing a hobby you enjoy.

Remember, MDD is a treatable condition. With the right support and care, it's possible to manage symptoms and feel better.

What is Type 2 Diabetes?

Type 2 diabetes is a condition where your body has trouble using a hormone called insulin to turn the sugar (glucose) from your food into energy. This causes sugar to build up in your blood, which can lead to serious health problems if left untreated. People with type 2 diabetes may feel very thirsty, need to pee often, feel tired, or have blurry vision.

Things to Avoid with Type 2 Diabetes:

1. Sugary foods and drinks: Foods high in sugar, like candy, soda, and desserts, can cause blood sugar levels to spike.
2. Processed carbohydrates: White bread, pasta, and rice can also raise blood sugar quickly.
3. Sitting too much: Being inactive can make it harder for your body to use insulin properly.
4. Skipping meals: Eating regularly helps keep blood sugar levels stable.

Things That Can Help with Type 2 Diabetes:

1. Eat a balanced diet: Focus on eating plenty of fruits, vegetables, whole grains, and lean proteins.
2. Exercise regularly: Physical activity helps your body use insulin better and can lower blood sugar levels.
3. Monitor blood sugar: Checking your blood sugar levels as directed by your doctor can help you keep them in a healthy range.
4. Take medication as prescribed: If your doctor has prescribed medication for your diabetes, be sure to take it as directed.
5. Maintain a healthy weight: Losing weight if you are overweight can help improve insulin sensitivity and manage diabetes.

Managing type 2 diabetes requires making healthy lifestyle choices and working closely with your healthcare team. By taking steps to control your blood sugar, you can reduce your risk of complications and feel your best.

What is Multiple Sclerosis?

Multiple sclerosis (MS) is a condition that affects the central nervous system, which includes the brain and spinal cord. In MS, the protective covering around the nerves, called myelin, becomes damaged. This damage disrupts the messages that the brain sends to the body, leading to symptoms like numbness, tingling, weakness, vision problems, and difficulty with balance and coordination.

Things to Avoid with MS:

1. **Overheating:** Heat can make MS symptoms worse, so it's important to avoid hot baths, saunas, and exercising in hot weather.
2. **Smoking:** Cigarette smoking can speed up the progression of MS and make symptoms worse.
3. **Stress:** Stress can trigger MS flare-ups, so it's important to find ways to manage stress.
4. **Unhealthy diet:** A diet high in processed foods and low in nutrients can worsen MS symptoms.

Things That Can Help with MS:

1. **Stay cool:** Use fans, air conditioning, or cooling vests to help regulate body temperature.
2. **Exercise regularly:** Gentle exercises like yoga, swimming, or tai chi can help improve strength, flexibility, and balance.
3. **Eat a healthy diet:** Focus on eating plenty of fruits, vegetables, whole grains, and lean proteins to support overall health.

4. Manage stress: Practice relaxation techniques like deep breathing, meditation, or spending time on hobbies you enjoy.

5. Work with a healthcare team: A neurologist, physical therapist, and occupational therapist can help you manage MS symptoms and maintain independence.

While there is currently no cure for MS, there are treatments available to help manage symptoms and slow the progression of the disease. If you or someone you know has been diagnosed with MS, it's important to work closely with a healthcare team to develop a treatment plan that works best for you.

References

- Barthel, H., Seibyl, J., & Sabri, O. (2015). The role of positron emission tomography imaging in understanding Alzheimer's disease. *Expert review of neurotherapeutics*, 15(4), 395–406.
<https://doi.org/10.1586/14737175.2015.1023296>
- Berendsen, A. M., Kang, J. H., Feskens, E. J. M., de Groot, C. P. G. M., Grodstein, F., & van de Rest, O. (2018). Association of Long-Term Adherence to the MIND Diet with Cognitive Function and Cognitive Decline in American Women. *The journal of nutrition, health & aging*, 22(2), 222–229.
<https://doi.org/10.1007/s12603-017-0909-0>
- Bredesen, D. E., Amos, E. C., Canick, J., Ackerley, M., Raji, C., Fiala, M., & Ahdidan, J. (2016). Reversal of cognitive decline in Alzheimer's disease. *Aging*, 8(6), 1250–1258.
<https://doi.org/10.18632/aging.100981>
- Fleisher AS, Pontecorvo MJ, Devous MD, et al. Positron Emission Tomography Imaging With [¹⁸F]flortaucipir and Postmortem Assessment of Alzheimer Disease Neuropathologic Changes. *JAMA Neurol*. 2020;77(7):829–839. <https://doi.org/10.1001/jamaneurol.2020.0528>
- Hansson, O., Lehmann, S., Otto, M., Zetterberg, H., & Lewczuk, P. (2019). Advantages and disadvantages of the use of the CSF Amyloid β (A β) 42/40 ratio in the diagnosis of Alzheimer's Disease. *Alzheimer's research & therapy*, 11(1), 34. <https://doi.org/10.1186/s13195-019-0485-0>
- Hosking, D. E., Eramudugolla, R., Cherbuin, N., & Anstey, K. J. (2019). MIND not Mediterranean diet related to 12-year incidence of cognitive impairment in an Australian longitudinal cohort study. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 15(4), 581–589.
<https://doi.org/10.1016/j.jalz.2018.12.011>

Karikari, T. K., Pascoal, T. A., Ashton, N. J., Janelidze, S., Benedet, A. L., Rodriguez, J. L., Chamoun, M., Savard, M., Kang, M. S., Therriault, J., Schöll, M., Massarweh, G., Soucy, J. P., Höglund, K., Brinkmalm, G., Mattsson, N., Palmqvist, S., Gauthier, S., Stomrud, E., Zetterberg, H., ... Blennow, K. (2020). Blood phosphorylated tau 181 as a biomarker for Alzheimer's disease: a diagnostic performance and prediction modelling study using data from four prospective cohorts. *The Lancet. Neurology*, *19*(5), 422–433. [https://doi.org/10.1016/S1474-4422\(20\)30071-5](https://doi.org/10.1016/S1474-4422(20)30071-5)

Leitão, M. J., Baldeiras, I., Herukka, S.-K., Pikkariainen, M., Leinonen, V., Simonsen, A. H., Perret-Liaudet, A., Fourier, A., Quadrio, I., Veiga, P. M., & de Oliveira, C. R. (2015). Chasing the effects of pre-analytical confounders – a multicenter study on CSF-AD biomarkers. *Frontiers in Neurology*, *6*. <https://doi.org/10.3389/fneur.2015.00153>

Morris, M. C., Tangney, C. C., Wang, Y., Sacks, F. M., Barnes, L. L., Bennett, D. A., & Aggarwal, N. T. (2015). MIND diet slows cognitive decline with aging. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, *11*(9), 1015–1022. <https://doi.org/10.1016/j.jalz.2015.04.011>

Palmqvist S, Janelidze S, Quiroz YT, et al. Discriminative Accuracy of Plasma Phospho-tau217 for Alzheimer Disease vs Other Neurodegenerative Disorders. *JAMA*. 2020;324(8):772–781. doi:10.1001/jama.2020.12134

Toups, K., Hathaway, A., Gordon, D., Chung, H., Raji, C., Boyd, A., Hill, B. D., Hausman-Cohen, S., Attarha, M., Chwa, W. J., Jarrett, M., & Bredesen, D. E. (2022). Precision Medicine Approach to Alzheimer's Disease: Successful Pilot Project. *Journal of Alzheimer's disease : JAD*, *88*(4), 1411–1421. <https://doi.org/10.3233/JAD-215707>