

Alzheimer's Disease

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What is Alzheimer's Disease?

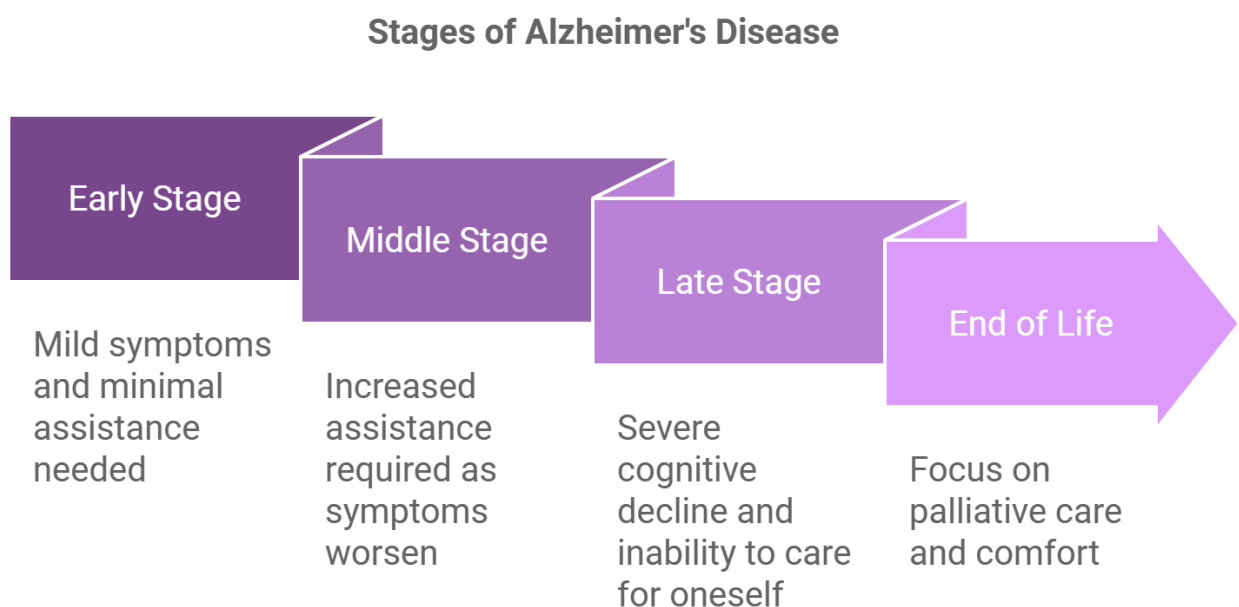
Alzheimer's disease is a brain disorder that gradually impairs memory, cognitive abilities, and the capacity to perform simple tasks.

Alzheimer's disease is the most common type of dementia, representing 60 to 80% of all dementia cases.

Alzheimer's disease is a fatal condition that gradually impacts every aspect of a person's life, including their thoughts, emotions, and behaviors. The disease progresses through stages, which indicate the severity of the symptoms.

Stages of Alzheimer's Disease

1. **Early stage:** Symptoms are mild. A person at this stage is fully aware of their condition and only needs minimal assistance. Common symptoms include forgetfulness, difficulty learning new things, difficulty following conversations and concentrating, mood changes, and mild coordination problems.
2. **Middle stage:** Symptoms become more noticeable, and the person needs more assistance with daily tasks. Memory and cognitive abilities continue to decline, but some awareness of their condition may remain.
3. **Late stage:** Once the person reaches this stage, they will eventually be unable to communicate verbally or look after themselves. The person in the late stage of Alzheimer's disease will experience severe impairment in memory, processing new information, and recognizing time and place. They will need assistance to eat, walk, and use the toilet.
4. **End of life:** Cognitive decline has progressed to the point where the individual requires 24-hour care. The focus shifts to palliative care and ensuring comfort to maintain quality of life.



Causes of Alzheimer's Disease

Only rare instances of Alzheimer's disease are caused by a single inherited gene variant, accounting for less than five percent of all cases. Most of the time, Alzheimer's is due to the complex interaction of multiple genes in combination with lifestyle and environmental factors.

Alzheimer's is a long, chronic process that leads to many brain changes, likely starting ten to twenty years before symptoms appear.

So, it has been challenging for scientists to determine the precise triggers and causes of the many symptoms of Alzheimer's.

Scientists noticed that the brains of Alzheimer's patients display an abnormal buildup of a compound called beta-amyloid. These plaques can build up in the spaces between neurons and interfere with normal brain signaling.

But this isn't the whole story. While all patients with Alzheimer's have plaques, not all people with plaques have or will develop dementia.

And Alzheimer's symptoms don't always become more severe as plaques accumulate in the brain.

Tau, another protein, has been identified as a potential factor in the development of Alzheimer's Disease.

Tau's typical function is to serve as a scaffolding protein, reinforcing the internal structure of neurons and giving them their shape.

But in Alzheimer's patients, tau is modified, causing it, like beta-amyloid, to become sticky and to clump. These tau tangles accumulate within neurons and are toxic, causing the cells to eventually die.

To add complexity, recent studies have discovered a close connection between Alzheimer's and changes in the function of immune cells, called microglia, in the brain.

Other studies have found that Alzheimer's may also be caused by problems in the junctions between neurons, known as synapses.

Alterations in how the brain produces and uses energy may also be an underlying factor.

Together, all this suggests that a complex series of events likely causes Alzheimer's.

Treatment Options

While there is currently no cure for Alzheimer's, there are things patients can do to manage symptoms better.

Healthy lifestyle behaviors such as staying active, learning new skills, and even participating in daily activities seem to slow disease progression.

Medications targeting neurotransmitters, the brain's signaling molecules, can slow memory loss and aid learning and reasoning.

And scientists are continuously developing new therapies, such as drugs targeting beta-amyloid, which have shown promise.

Alzheimer's disease won't go away anytime soon, with Dementia cases projected to double in the next 20 years.

However, ongoing research holds the promise of improved treatment and, possibly, a cure as scientists assemble the pieces of the Alzheimer's puzzle.

Tips for Caregivers

Behavior changes can be challenging for caregivers, family, and friends of a person with Alzheimer's. It's important to remember that the disease is responsible for these changes, not the person. Learning ways to manage behavior changes can make everyday life less stressful for their caregivers,

Tips to help manage behavior changes in Alzheimer's Disease:

- Be patient and try not to show frustration
- Try to understand what is causing the behavior
- Focus attention on an object of activity
- Create a comforting home setting
- Find ways to be physically active.
- Keep the person with Alzheimer's safe

Sources:

What is Alzheimer's disease?

<https://alzheimer.ca/en/about-dementia/what-alzheimers-disease>

Why is Alzheimer's disease so difficult to treat?

<https://www.youtube.com/watch?v=oT5pDvdMzhk>

Alzheimer's Disease Fact Sheet

<https://www.nia.nih.gov/health/alzheimers-and-dementia/alzheimers-disease-fact-sheet>

Tips for Caregivers and Families of People With Dementia

<https://www.alzheimers.gov/life-with-dementia/tips-caregivers>

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