

Alzheimer's disease

Definition

Alzheimer's disease is a progressive disease that destroys memory and other important mental functions.

It's the most common cause of dementia — a group of brain disorders that results in the loss of intellectual and social skills. These changes are severe enough to interfere with day-to-day life.

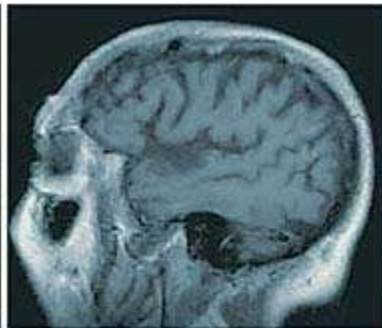
In Alzheimer's disease, the brain cells themselves degenerate and die, causing a steady decline in memory and mental function.

Current Alzheimer's disease medications and management strategies may temporarily improve symptoms. This can sometimes help people with Alzheimer's disease maximize function and maintain independence.

But because there's no cure for Alzheimer's disease, it's important to seek supportive services and tap into your support network as early as possible.



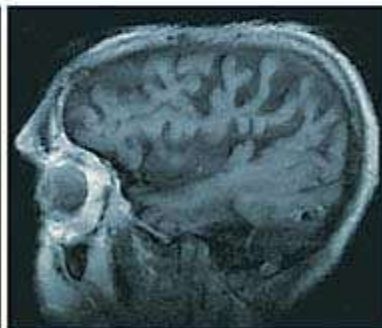
Normal



Mild Alzheimer's



Moderate Alzheimer's



Severe Alzheimer's

Symptoms

At first, increasing forgetfulness or mild confusion may be the only symptoms of Alzheimer's disease that you notice. But over time, the disease robs you of more of your memory, especially recent memories. The rate at which symptoms worsen varies from person to person.

If you have Alzheimer's, you may be the first to notice that you're having unusual difficulty remembering things and organizing your thoughts. Or you may not recognize that anything is wrong, even when changes are noticeable to your family members, close friends or co-workers.

Brain changes associated with Alzheimer's disease lead to growing trouble with:

Memory

Everyone has occasional memory lapses. It's normal to lose track of where you put your keys or forget the name of an acquaintance. But the memory loss associated with Alzheimer's disease persists and worsens, affecting your ability to function at work and at home. People with Alzheimer's may:

- Repeat statements and questions over and over, not realizing that they've asked the question before
- Forget conversations, appointments or events, and not remember them later
- Routinely misplace possessions, often putting them in illogical locations
- Eventually forget the names of family members and everyday objects

Disorientation and misinterpreting spatial relationships

People with Alzheimer's disease may lose their sense of what day it is, the season, where they are or even their current life circumstances. Alzheimer's may also disrupt your brain's ability to interpret what you see, making it difficult to understand your surroundings. Eventually, these problems may lead to getting lost in familiar places.

Speaking and writing

Those with Alzheimer's may have trouble finding the right words to identify objects, express thoughts or take part in conversations. Over time, the ability to read and write also declines.

Thinking and reasoning

Alzheimer's disease causes difficulty concentrating and thinking, especially about abstract concepts like numbers. It may be challenging to manage finances, balance checkbooks, and keep track of bills and pay them on time. These difficulties may progress to inability to recognize and deal with numbers.

Making judgments and decisions

Responding effectively to everyday problems, such as food burning on the stove or unexpected driving situations, becomes increasingly challenging.

Planning and performing familiar tasks

Once-routine activities that require sequential steps, such as planning and cooking a meal or playing a favorite game, become a struggle as the disease progresses. Eventually, people with advanced Alzheimer's may forget how to perform basic tasks such as dressing and bathing.

Changes in personality and behavior

Brain changes that occur in Alzheimer's disease can affect the way you act and how you feel. People with Alzheimer's may experience:

- Depression
- Anxiety
- Social withdrawal
- Mood swings
- Distrust in others
- Irritability and aggressiveness
- Changes in sleeping habits
- Wandering
- Loss of inhibitions
- Delusions, such as believing something has been stolen

Many important skills are not lost until very late in the disease. These include the ability to read, dance and sing, enjoy old music, engage in crafts and hobbies, tell stories, and reminisce.

This is because information, skills and habits learned early in life are among the last abilities to be lost as the disease progresses. Capitalizing on these abilities can allow you to continue to have successes and maintain a high quality of life even when you are into the moderate phase of the disease.

Causes

Scientists believe that for most people, Alzheimer's disease results from a combination of genetic, lifestyle and environmental factors that affect the brain over time.

Less than 5 percent of the time, Alzheimer's is caused by specific genetic changes that virtually guarantee a person will develop the disease.

Although the causes of Alzheimer's are not yet fully understood, its effect on the brain is clear. Alzheimer's disease damages and kills brain cells. A brain affected by Alzheimer's disease has many fewer cells and many fewer connections among surviving cells than does a healthy brain.

As more and more brain cells die, Alzheimer's leads to significant brain shrinkage. When doctors examine Alzheimer's brain tissue under the microscope, they see two types of abnormalities that are considered hallmarks of the disease:

- **Plaques.** These clumps of a protein called beta-amyloid may damage and destroy brain cells in several ways, including interfering with cell-to-cell communication. Although the ultimate cause of brain-cell death in Alzheimer's isn't known, the collection of beta-amyloid on the outside of brain cells is a prime suspect.
- **Tangles.** Brain cells depend on an internal support and transport system to carry nutrients and other essential materials throughout their long extensions. This system requires the normal structure and functioning of a protein called tau.

In Alzheimer's, threads of tau protein twist into abnormal tangles inside brain cells, leading to failure of the transport system. This failure is also strongly implicated in the decline and death of brain cells.

Treatments and drugs

Drugs

Current Alzheimer's medications can help for a time with memory symptoms and other cognitive changes. Two types of drugs are currently used to treat cognitive symptoms:

- **Cholinesterase inhibitors.** These drugs work by boosting levels of a cell-to-cell communication chemical depleted in the brain by Alzheimer's disease. Most people can expect to keep their current symptoms at bay for a time.

Less than half of those taking these drugs can expect to have any improvement. Commonly prescribed cholinesterase inhibitors include donepezil (Aricept),

galantamine (Razadyne) and rivastigmine (Exelon). The main side effects of these drugs include diarrhea, nausea and sleep disturbances.

- **Memantine (Namenda).** This drug works in another brain cell communication network and slows the progression of symptoms with moderate to severe Alzheimer's disease. It's sometimes used in combination with a cholinesterase inhibitor.

Creating a safe and supportive environment

Adapting the living situation to the needs of a person with Alzheimer's is an important part of any treatment plan. For someone with Alzheimer's, establishing and strengthening routine habits and minimizing memory-demanding tasks can make life much easier.

You can take these steps to support a person's sense of well-being and continued ability to function:

- Always keep keys, wallets, mobile phones and other valuables in the same place at home, so they don't become lost.
- See if your doctor can simplify your medication regimen to once-daily dosing, and arrange for your finances to be on automatic payment and automatic deposit.
- Develop the habit of carrying a mobile phone with location capability so that you can call in case you are lost or confused and people can track your location via the phone. Also, program important phone numbers into your phone, so you don't have to try to recall them.
- Make sure regular appointments are on the same day at the same time as much as possible.
- Use a calendar or white board in the home to track daily schedules. Build the habit of checking off completed items so that you can be sure they were completed.
- Remove excess furniture, clutter and throw rugs.
- Install sturdy handrails on stairways and in bathrooms.
- Ensure that shoes and slippers are comfortable and provide good traction.
- Reduce the number of mirrors. People with Alzheimer's may find images in mirrors confusing or frightening.

Exercise

Regular exercise is an important part of everybody's wellness plan — and those with Alzheimer's are no exception. Activities such as a daily 30-minute walk can help improve mood and maintain the health of your joints, muscles and heart.

Exercise can also promote restful sleep and prevent constipation. Make sure that the person with Alzheimer's carries identification if she or he walks unaccompanied.

People with Alzheimer's who develop trouble walking may still be able to use a stationary bike or participate in chair exercises. You may be able to find exercise programs geared to older adults on TV or on DVDs.

Nutrition

People with Alzheimer's may forget to eat, lose interest in preparing meals or not eat a healthy combination of foods. They may also forget to drink enough, leading to dehydration and constipation.

Offer:

- **High-calorie, healthy shakes and smoothies.** You can supplement milkshakes with protein powders (available at grocery stores, drugstores and discount retailers) or use your blender to make smoothies featuring your favorite ingredients.
- **Water, juice and other healthy beverages.** Try to ensure that a person with Alzheimer's drinks at least several full glasses of liquids every day. Avoid beverages with caffeine, which can increase restlessness, interfere with sleep and trigger frequent need to urinate.

Certain nutritional supplements are marketed as "medical foods" specifically to treat Alzheimer's disease. The Food and Drug Administration (FDA) does not approve products marketed as medical foods. Despite marketing claims, there's no definitive data showing that any of these supplements is beneficial or safe.

Prevention

Right now, there's no proven way to prevent Alzheimer's disease. Research into prevention strategies is ongoing. The strongest evidence so far suggests that you may be able to lower your risk of Alzheimer's disease by reducing your risk of heart disease.

Many of the same factors that increase your risk of heart disease can also increase your risk of Alzheimer's disease and vascular dementia. Important factors that may be involved include high blood pressure, high blood cholesterol, excess weight and diabetes.

New programs targeted to people at high risk of dementia are being developed. These multicomponent programs encourage physical activity, cognitive stimulation, social engagement and a healthy diet.

They also teach memory compensation strategies that help optimize daily function even if brain changes progress. Keeping active — physically, mentally and socially — may make your life more enjoyable and may also help reduce the risk of Alzheimer's disease.