CONDITION

# Alzheimer's

Learn how Alzheimer's disease affects memory and thinking, how it is diagnosed, and which treatments, safety measures, and support options may help.

**WHAT IT IS**
Progressive brain disorder causing dementia

**BODY SYSTEM**
Nervous system

**MAIN SYMPTOMS**
Memory loss, language problems, confusion, impaired judgment

**WHAT CAUSES IT**
Often unknown, with aging and genetic factors

**HOW IT IS DIAGNOSED**
Cognitive testing, brain imaging, amyloid or tau biomarkers

**MAIN TREATMENT**
Medicines, practical support and safety planning

**CAN IT BE CURED?**
No, treatments may only slow decline

**IS IT AN EMERGENCY?**
Sometimes, with sudden confusion or stroke signs

**LONG-TERM OUTLOOK**
Progressive decline in cognition and independence

## Overview

Alzheimer's disease is a brain disorder that gradually damages memory, thinking, language, and the ability to manage daily activities. It is the most common cause of dementia. Dementia is a general term for a decline in mental abilities that is severe enough to interfere with independent living.

Alzheimer's is not a normal part of aging. Occasional trouble recalling a name or misplacing an item can happen with age. Alzheimer's causes changes that are persistent, become more noticeable over time, and affect daily life.

The disease involves abnormal changes in the brain. These include a buildup of beta-amyloid protein between nerve cells and changes in a protein called tau inside the cells. Nerve cells lose their connections and eventually die. The process often begins years before clear symptoms

appear.

Most people develop Alzheimer's after age 65, but younger adults can also be affected. When symptoms begin before age 65, the condition is called younger-onset Alzheimer's disease.

There is currently no cure. However, treatment may ease some symptoms, support independence, and help with planning. Certain treatments may also slow decline in selected people with early Alzheimer's disease.

## Symptoms

Early symptoms are often subtle. They may be noticed by the affected person, family members, friends, or coworkers. Memory problems are common, but Alzheimer's can also begin with changes in language, judgment, vision-related processing, or behavior.

Possible early symptoms include:

As the disease progresses, a person may need help choosing clothes, taking medicines, preparing food, or managing personal care. Confusion about time and place may increase. Sleep disruption, wandering, agitation, suspiciousness, hallucinations, or difficulty recognizing familiar people can occur.

In later stages, a person may lose the ability to communicate clearly, walk without help, control the bladder or bowels, or swallow safely. The pace of change varies widely. Symptoms may also seem worse during illness, pain, poor sleep, dehydration, or a change in surroundings.

Sudden confusion is not typical of the gradual course of Alzheimer's. A rapid change over hours or days may be caused by an infection, medicine effect, stroke, low blood sugar, or another medical problem and should be assessed promptly.

- Repeatedly asking the same question or telling the same story
- Forgetting recent conversations, appointments, or events
- Having trouble planning meals, paying bills, or following instructions
- Becoming lost in familiar places
- Struggling to find words or follow a conversation
- Misplacing items and being unable to retrace steps
- Showing poorer judgment with money, driving, or personal safety
- Withdrawing from work, hobbies, or social activities
- Developing changes in mood, personality, or initiative

## Causes and risk factors

The exact reason one person develops Alzheimer's while another does not is often unclear. The condition probably results from a combination of aging, genetics, health conditions, and environmental or lifestyle factors.

Age is the strongest known risk factor, but age does not directly cause Alzheimer's. Family history can also affect risk. Having a parent or sibling with the condition does not mean that a person will definitely develop it.

A form of the APOE gene called APOE-e4 raises the likelihood of developing Alzheimer's, but it cannot predict the future with certainty. Rare changes in genes such as APP , PSEN1 , or PSEN2 can directly cause Alzheimer's in some families, often at a younger age. Genetic counseling can help people understand the benefits and limits of testing, especially when several relatives developed symptoms early in life.

Other factors linked with a higher risk of dementia include:

These links do not mean that any one factor caused an individual's condition. Addressing hearing, cardiovascular health, physical activity, tobacco use, and social connection may support brain health, but no lifestyle change can guarantee prevention.

- High blood pressure, diabetes, or unhealthy cholesterol levels
- Smoking
- Physical inactivity
- Hearing loss that is not addressed
- Social isolation
- Traumatic brain injury
- Heavy alcohol use
- Depression
- Stroke and other blood vessel disease

## Diagnosis

There is no single routine office test that diagnoses every case of Alzheimer's. Evaluation usually begins with a detailed medical history. With permission, a family member or close friend may provide useful examples of changes in memory, behavior, and daily function.

A clinician may review:

Brief cognitive tests assess skills such as memory, attention, language, problem-solving, and awareness of time and place. More detailed testing by a neuropsychologist may help identify the pattern and severity of difficulties.

A physical and neurological examination can look for signs of stroke, Parkinson's disease, movement problems, or other conditions. Blood tests may check for treatable contributors such as thyroid disease or vitamin B12 deficiency. Other testing may be needed based on the person's symptoms.

Brain imaging with magnetic resonance imaging (MRI) or computed tomography (CT) can look for strokes, tumors, fluid buildup, bleeding, or patterns of brain shrinkage. Imaging findings alone do not always establish the diagnosis.

In some situations, specialists use biomarkers-measurable signs of disease-to look for amyloid or tau. Testing may involve cerebrospinal fluid collected through a lumbar puncture, a specialized positron emission tomography (PET) scan, or certain blood tests. Availability and insurance coverage vary. Biomarker results must be interpreted with the symptoms and other findings rather than used alone.

Doctors may describe mild cognitive impairment , or MCI, when thinking changes are greater than expected for age but most independent activities remain possible. Some, but not all, people with MCI later develop dementia. Alzheimer's can be one cause of MCI.

- When symptoms began and how they have changed
- The person's ability to work, drive, manage money, cook, and take medicines
- Medical and mental health conditions
- Prescription medicines, over-the-counter products, alcohol, and other substances
- Sleep, hearing, vision, nutrition, and recent illnesses
- Family history of dementia or neurological disease

## Treatment and management

Treatment depends on the person's symptoms, stage of disease, other health conditions, goals, and support system. A care plan may combine medicine, practical support, physical activity, safety planning, and treatment of other medical problems.

Cholinesterase inhibitors-including donepezil, rivastigmine, and galantamine-may temporarily improve or stabilize memory and thinking symptoms for some people. Memantine is another medicine used during moderate or severe stages. These medicines do not stop the underlying disease. Side effects and possible medicine interactions should be reviewed with a clinician.

Anti-amyloid medicines such as lecanemab and donanemab remove amyloid from the brain and may slow cognitive and functional decline in selected people with early symptomatic Alzheimer's. They are not used for all stages of dementia. Treatment generally requires confirmation of brain amyloid and access to regular intravenous infusions and MRI monitoring.

These medicines can cause amyloid-related imaging abnormalities, known as ARIA. ARIA may involve temporary brain swelling or small areas of bleeding. It often causes no symptoms, but it can sometimes be serious. Risk is higher in some people, including those with two copies of the APOE-e4 gene and those with certain bleeding risks. A specialist can explain genetic testing, MRI requirements, expected benefits, and treatment risks.

Behavior changes are often managed first by looking for triggers. Pain, constipation, infection, medication effects, hunger, noise, poor sleep, and an unfamiliar environment may worsen distress. A calm routine, simple instructions, regular activity, and meaningful social contact may help.

Medicines for agitation, anxiety, depression, hallucinations, or sleep problems are sometimes considered when symptoms cause severe distress or safety concerns. Antipsychotic medicines require particular caution in older adults with dementia because they are associated with serious risks, including an increased risk of death. Decisions should follow a careful review of possible causes, alternatives, and treatment goals.

Practical management may include:

- Using pill organizers, calendars, labels, and written routines
- Reviewing driving and transportation needs
- Removing fall, fire, and wandering hazards
- Encouraging regular meals, hydration, movement, and sleep
- Checking hearing and vision
- Preparing advance directives and financial plans while the person can participate
- Connecting caregivers with training, respite care, and community services

## Complications

Alzheimer's gradually affects more than memory. Impaired judgment can contribute to medication errors, financial exploitation, unsafe driving, falls, burns, or becoming lost. A home safety assessment may identify risks before an injury occurs.

Eating and swallowing may become difficult later in the disease. This can lead to weight loss,

dehydration, or aspiration, which means food or liquid enters the airway. Reduced movement can contribute to weakness, pressure injuries, blood clots, constipation, and infections.

Depression, anxiety, agitation, sleep changes, and psychosis can affect quality of life for both the person and caregivers. Caregiver strain is also an important health concern. Caregivers may experience exhaustion, depression, financial stress, and worsening of their own medical conditions. Respite services and shared caregiving are parts of medical care, not signs of failure.

As the disease advances, discussions about comfort, preferred care settings, hospitalization, and end-of-life wishes can help families make decisions that reflect the person's values.

## Follow up

Routine follow-up is used to review memory and daily function, medicines, mood, sleep, nutrition, mobility, driving, and caregiver needs. Visits may also address legal planning, home support, and whether the current living setting remains safe. The timing of visits depends on the person's stage and how quickly needs are changing.

Contact the healthcare team promptly for a sudden or marked change in confusion, new hallucinations, repeated falls, fever, refusal of food or fluids, new difficulty swallowing, or a major change in behavior. These symptoms may have a treatable cause.

People receiving anti-amyloid treatment should follow their treatment center's instructions about symptoms that require urgent assessment. New headache, confusion, dizziness, vision change, weakness, numbness, trouble speaking, seizure, or difficulty walking may need prompt evaluation.

Call emergency services for signs of stroke, a seizure lasting several minutes or repeated seizures, severe trouble breathing, inability to wake the person, serious injury, or immediate risk of harm. If a person with dementia is missing or wandering in unsafe conditions, contact emergency services rather than searching alone.

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