



ALZHEIMER'S DISEASE



WHAT IS IT?

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

It is the most common cause of *dementia* – a group of brain disorders that results in the loss of intellectual and social skills



THE ALZHEIMER'S BRAIN

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



SYMPTOMS

At first, increasing forgetfulness or mild confusion may be the only signs of AD 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.



HOW DO YOU KNOW?

If you have Alzheimer's, **you may be the first to notice** that you are 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.



MEMORY

Everyone has occasional memory lapses, such as forgetting where you put your keys or the name of an acquaintance. But the **memory loss associated with AD 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 AD may **lose their sense of what day it is, the season, where they are, or even their current life circumstances (married or have kids)**

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 AD 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

AD causes **difficulty concentrating and thinking**, especially about abstract concepts and 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 & DECISIONS AND PLANNING & PERFORMING FAMILIAR TASKS

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

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 & BEHAVIOR

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

Depression

Anxiety

Social Withdrawal

Mood Swings

Distrust in others
habits

Changes in sleeping

Irritability and aggressiveness

Wandering

Loss of inhibitions

Delusions, such as believing something has been stolen

SOME HOPE

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 hobbies and crafts, 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, AD results from a **combination of genetic, lifestyle, and environmental factors that affect the brain over time.**

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



EFFECTS ON THE BRAIN

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 AD 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.



PLAQUES

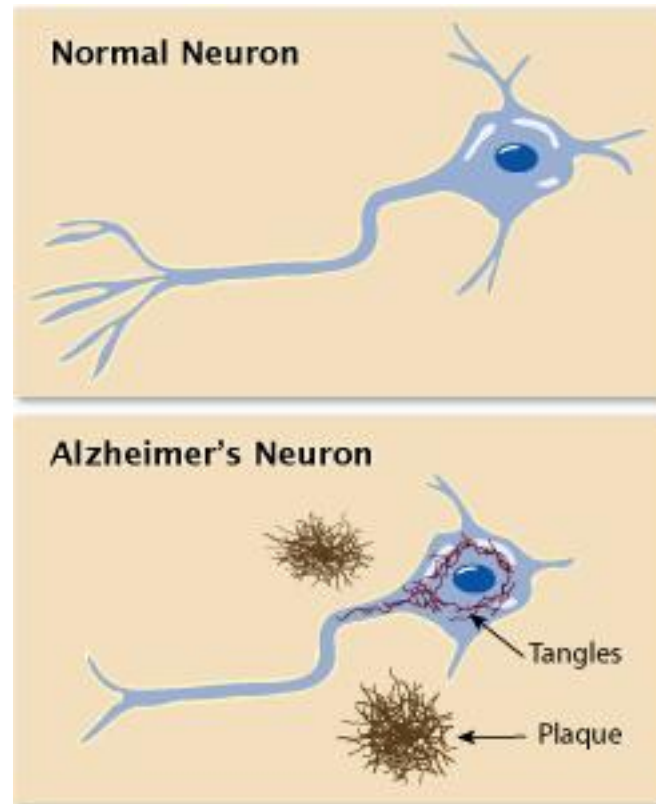
These clumps of a protein called **beta-amyloid** may damage and destroy brain cells in several ways, including interfering with cell-to-cell communication. Although the ultimate **cause of brain-cell death in Alzheimer's** isn't known, the collection of beta-amyloid on the outside of brain cells is a prime suspect



BRAIN ABNORMALITIES

When doctor's examine Alzheimer's brain tissue under the microscope, they see 2 types of abnormalities that are considered hallmarks of the disease:

- Plaques
- Tangles



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.



RISK FACTORS

Age

Family History and Genetics

Gender

Mild Cognitive Impairment

Past Head Trauma

Lifestyle and Heart Health

Lifelong Learning and Social Engagement

AGE

Increasing age is the greatest known risk factor for Alzheimer's. Alzheimer's is not a part of normal aging, but your risk increases greatly after you reach age 65. Nearly half of those older than age 85 have Alzheimer's.

People with rare genetic changes that virtually guarantee they'll develop Alzheimer's begin experiencing symptoms as early as their 30s (early-onset Alzheimer's).

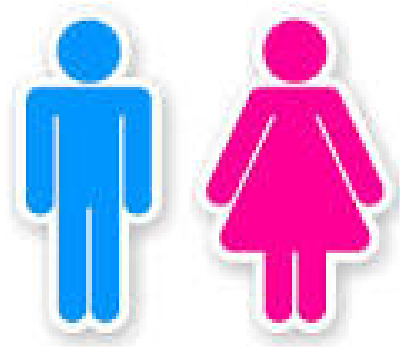
FAMILY HISTORY & GENETICS

Your risk of developing Alzheimer's appears to be somewhat higher *if a first-degree relative* — your parent or sibling — *has the disease*. Scientists have identified rare changes (mutations) in three genes that virtually guarantee a person who inherits them will develop Alzheimer's. But these mutations account for less than 5 percent of Alzheimer's disease.

Most genetic mechanisms of Alzheimer's among families remain largely unexplained. Risk genes have been identified but not conclusively confirmed.

GENDER

Women may be more likely than are men to develop Alzheimer's disease, in part because they live longer.



MILD COGNITIVE IMPAIRMENT

People with mild cognitive impairment (MCI) have memory problems or other symptoms of cognitive decline that are worse than might be expected for their age, but not severe enough to be diagnosed as dementia.

Those with MCI have an increased risk — but not a certainty — of later developing dementia. Taking action to develop a healthy lifestyle and strategies to compensate for memory loss at this stage may help delay or prevent the progression to dementia.

PAST HEAD TRAUMA

People who've had a severe head trauma or repeated head trauma appear to have a greater risk of Alzheimer's disease.



LIFESTYLE & HEART HEALTH

There's no lifestyle factor that's been conclusively shown to reduce your risk of Alzheimer's disease.

However, some evidence suggests that the **same factors that put you at risk of heart disease also may increase the chance that you'll develop Alzheimer's**. Examples include:

Lack of exercise

- High Cholesterol

Smoking

- Poorly controlled diabetes

High blood

- A diet lacking in fruits and vegetables

LIFELONG LEARNING & SOCIAL ENGAGEMENT

Studies have found an association between **lifelong involvement in mentally and socially stimulating activities and reduced risk of Alzheimer's disease.**

Factors that may reduce your risk of Alzheimer's include:

Higher levels of formal education

A stimulating job

Mentally challenging leisure activities, such as reading, playing games or playing a musical instrument

Frequent social interactions

Scientists can't yet explain this link. One theory is that using your brain develops more cell-to-cell connections, which protects your brain against the impact of Alzheimer-related changes.

COMPLICATIONS

As Alzheimer's disease progresses to its last stages, ***brain changes begin to affect physical functions***, such as swallowing, balance, and bowel and bladder control. These effects can increase vulnerability to additional health problems such as as:

Pneumonia and other infections. Difficulty swallowing may cause people with Alzheimer's to inhale (aspirate) food or liquid into their airways and lungs, which can lead to pneumonia.

Injuries from falls. People with Alzheimer's become increasingly vulnerable to falling. Falls can lead to fractures. In addition, falls are a common cause of serious head injuries.

TREATMENT

Current Alzheimer's medications can help for a time with memory symptoms and other cognitive changes.

Some of 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.**

Another type of drug **slows the progression of symptoms** with moderate to severe Alzheimer's disease.



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.





SOURCES

MayoClinic.org