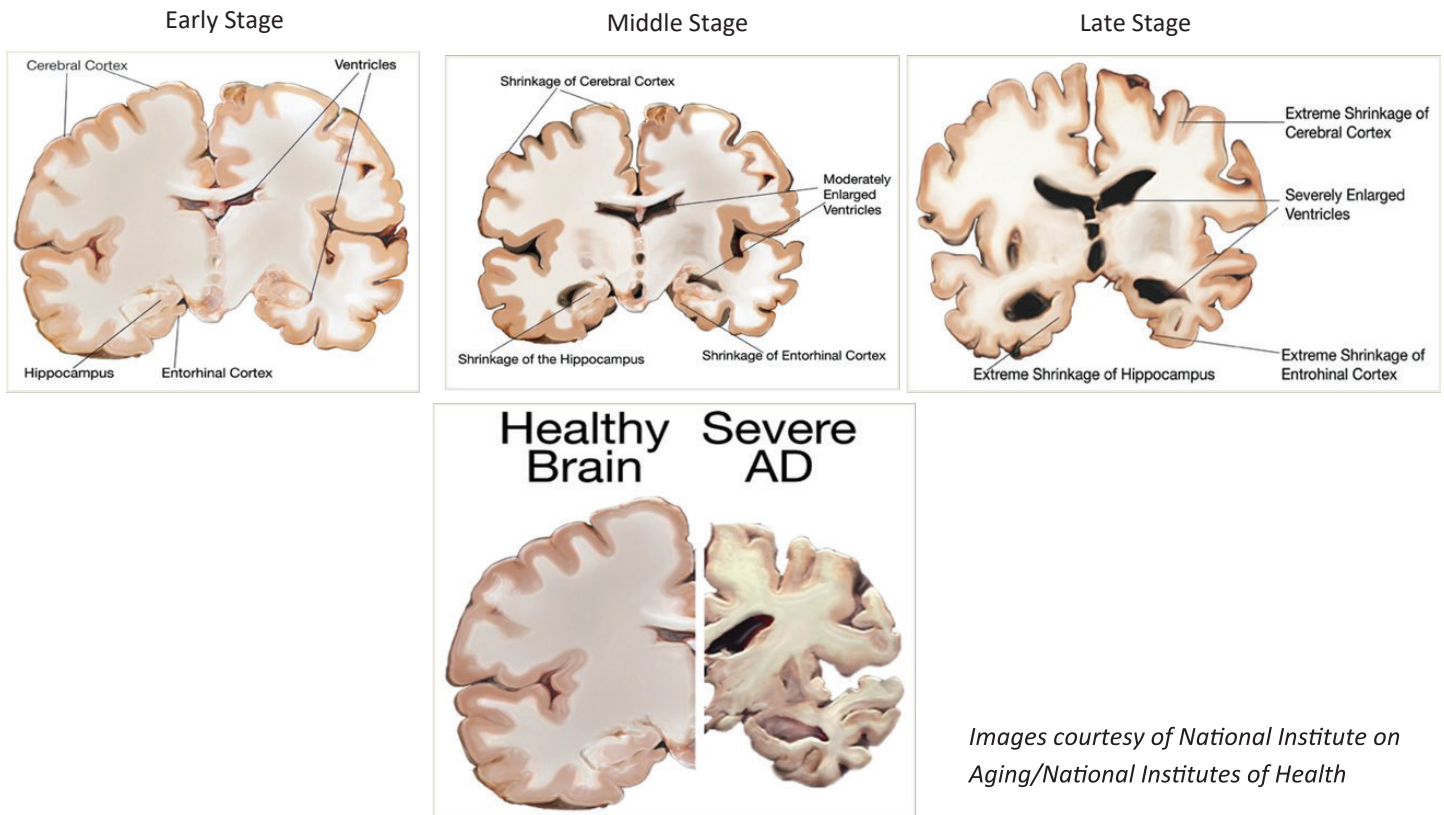


Alzheimer's Disease Overview

Alzheimer's disease is not a normal part of aging.

Alzheimer's disease is a progressive brain disease that destroys memory and thinking skills and eventually, the ability to carry out the simplest tasks of daily living. It is the most common cause of dementia.

Alzheimer's disease is named after Dr. Alois Alzheimer, a German physician. In 1906, Dr. Alzheimer described changes in the brain tissue of a woman who died of an unusual illness that robbed her of her memories and caused personality changes. After her death, he found in her brain abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary tangles). These plaques and tangles are now considered the hallmarks of Alzheimer's disease. The images below show how the progression of Alzheimer's disease affects the brain.



Images courtesy of National Institute on Aging/National Institutes of Health

Alzheimer's usually starts in a region of the brain that affects recent memory, then gradually spreads to other parts of the brain. While current treatments may temporarily delay the appearance of symptoms in some people with Alzheimer's, there is currently no medication that cures this devastating disease. A good support system is important for individuals with Alzheimer's disease and their caregivers.

What Causes Alzheimer's Disease?

Scientists don't yet fully understand what causes Alzheimer's disease in most people. There is a genetic component to some cases of early-onset Alzheimer's disease. Late-onset Alzheimer's arises from a complex series of brain changes that occur over decades. The causes probably include a combination of genetic, environmental, and lifestyle factors. The importance of any one of these factors in increasing or decreasing the risk of developing Alzheimer's may differ from person to person.

One of the great mysteries of Alzheimer's disease is why it largely strikes older adults. Research on normal brain aging is shedding light on this question. For example, scientists are learning how age-related changes in the brain may harm neurons and contribute to Alzheimer's damage.

Genetics

Most people with Alzheimer's have the late-onset form of the disease, in which symptoms become apparent in their mid-60s. The apolipoprotein E (APOE) gene is involved in late-onset Alzheimer's. This gene has several forms. One of them, APOE ε4, increases a person's risk of developing the disease and is also associated with an earlier age of disease onset. However, carrying the APOE ε4 form of the gene does not mean that a person will definitely develop Alzheimer's disease, and some people with no APOE ε4 may also develop the disease.

Also, scientists have identified a number of regions of interest in the genome (an organism's complete set of DNA) that may increase a person's risk for late-onset Alzheimer's to varying degrees.

Early-onset Alzheimer's disease occurs between a person's 30s to mid-60s and represents less than 10 percent of all people with Alzheimer's. Some cases are caused by an inherited change in one of three genes, resulting in a type known as early-onset familial Alzheimer's disease, or FAD. For other cases of early-onset Alzheimer's, research suggests there may be a genetic component related to factors other than these three genes.

Health, Environmental, and Lifestyle Factors

Research suggests that a host of factors beyond genetics may play a role in the development and course of Alzheimer's disease. There is a great deal of interest, for example, in the relationship between cognitive decline and vascular conditions such as heart disease, stroke, and high blood pressure, as well as metabolic conditions such as diabetes and obesity. Ongoing research will help us understand whether and how reducing risk factors for these conditions may also reduce the risk of Alzheimer's.

A nutritious diet, physical activity, social engagement, and mentally stimulating pursuits have all been associated with helping people stay healthy as they age. These factors might also help reduce the risk of cognitive decline and Alzheimer's disease. Clinical trials are testing some of these possibilities.

Source: www.nia.nih.gov/health/alzheimers-disease-fact-sheet#causes