

Alzheimer's Disease

How is AD diagnosed?

The only definite way to diagnose AD is with an autopsy, which is an examination of the body done after a person dies. However, doctors can determine fairly accurately whether a person who is having memory problems has “possible AD” (the symptoms may be due to another cause) or “probable AD” (no other cause for the symptoms can be found). To diagnose AD, doctors:

- ask questions about a person's overall health, past medical problems, ability to carry out daily activities, and changes in behavior and personality
- conduct tests of memory, problem solving, attention, counting, and language skills
- carry out medical tests, such as tests of blood, urine, or spinal fluid
- perform brain scans, such as a computed tomography (CT) scan or magnetic resonance imaging (MRI) test

These tests may be repeated to give doctors information about how the person's memory is changing over time. Sometimes these tests help doctors find other possible causes of the person's symptoms. For example, thyroid problems, drug reactions, depression, brain tumors, and blood-vessel disease in the brain can cause AD-like symptoms. Some of these other conditions can be treated successfully.

Why is early diagnosis important?

Early diagnosis is beneficial for several reasons. Having an early diagnosis and starting treatment in the early stages of AD can help preserve function for months to years, even though the underlying AD process cannot be changed. Having an early diagnosis also helps patients and their families:

- plan for the future
- make living arrangements
- take care of financial and legal matters
- develop support networks

Finally, an early diagnosis can provide greater opportunity for people with AD to get involved in clinical trials. Clinical trials are research studies in which scientists test the safety, side effects, or effectiveness of a medication or other intervention.

What new methods for diagnosing AD are being studied?

Scientists are exploring ways to help physicians diagnose AD earlier and more accurately. The ultimate goal is a reliable, valid, inexpensive, and early diagnostic test that can be used in any doctor's office.

Some studies focus on changes in personality and mental functioning, measured through memory and recall tests that might point to early AD or predict which individuals are at higher risk of developing AD in the future. Other studies are examining the relationship between early damage to brain tissue and outward clinical signs. Still others are looking at changes in blood and cerebrospinal fluid that may indicate the progression of AD.

One of the most exciting areas of ongoing diagnostic research is neuroimaging. Scientists have developed sophisticated imaging systems that may help measure the earliest changes in brain function or structure to identify people in the very first stages of AD—well before they develop apparent signs or symptoms.

The National Institute on Aging's AD Neuroimaging Initiative is a large study that uses MRI and positron emission tomography (PET) scans to learn when and where in the brain changes occur as memory problems develop. These types of neuroimaging scans are still primarily research tools, but one day they may be used more commonly to help physicians diagnose AD at very early stages.