

Clinical trials are now underway to identify ways to prevent and treat Alzheimer's disease, such as through drugs, vaccines, and addressing heart health and lifestyle factors.

Research shows that the quality of life of people with Alzheimer's disease is significantly improved by being involved in meaningful activities that emphasize their strengths and abilities, such as exercise and music.

What is our current understanding of risk factors?

Risk factors are characteristics of a person's lifestyle, environment, and genetic background that contribute to the likelihood of getting a disease. Risk factors on their own are not causes of a disease. Risk factors represent an increased chance, but not a certainty, that Alzheimer's disease will develop. Similarly, having little or no exposure to known risk factors does not necessarily protect a person from developing the disease. Some risk factors are modifiable, which means they can be changed (e.g. smoking, high blood pressure); other risk factors are non-modifiable, which means they cannot be changed (e.g. age, genetic makeup). It has been estimated up to 40% of dementias may be prevented or delayed by modifying twelve risk factors: diabetes, air pollution, physical inactivity, social isolation, depression, smoking, obesity, alcohol misuse, hypertension, traumatic brain injury and hearing loss.

Living with Alzheimer's disease

Living with Alzheimer's disease can be challenging. It is important to take steps to be as healthy as possible. Research shows that there are many things that can make health and quality of life better when living with Alzheimer's disease. Lifestyle choices such as healthy eating, stress management, and physical and mental activity, can improve quality of life, and make it easier to manage the changes that the disease brings.

The Alzheimer Society is here to help

Please contact your local Alzheimer Society at 1-800-616-8816 or visit alzheimer.ca to get more information.

1. Livingston et al., 2020. Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. The Lancet (British Edition), 396(10248), 413–446. https://doi.org/10.1016/S0140-6736(20)30367-6

The Alzheimer Society Canada's leading nationwide health charity for people living with Alzheimer's disease and other dementias. Active in communities across Canada, the Society

- Offers information, support and education programs for people with dementia, their families and caregivers
- Funds research to find a cure and improve the care of people with dementia
- Promotes public education and awareness of Alzheimer's disease and other dementias to ensure people know where to turn for help
- Influences policy and decision-making to address the needs of people with dementia and their caregivers.

For more information, contact your local Alzheimer Society or visit our website at alzheimer.ca.

Help for Today. *Hope for Tomorrow…*®

Cover: The scan on the top shows a brain with Alzheimer's disease and the scan on the bottom shows a healthy brain. ECD, SPECT scans were provided by Masanori Ichise, MD FRCPC (Mount Sinai Hospital Toronto/NIH Bethesda MD).

Inside panel: MRI images courtesy of Sunnybrook and Women's College Health Sciences Centre.

Alzheimer Society

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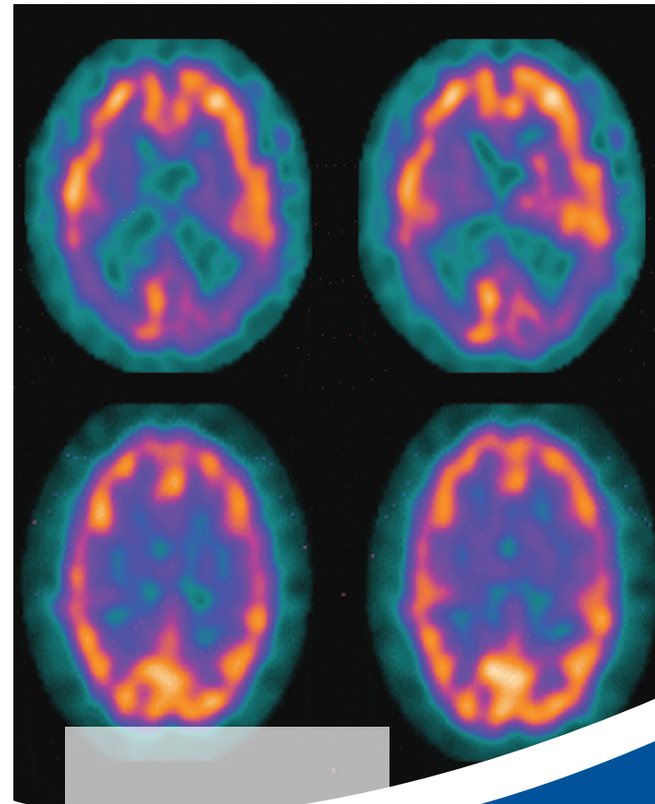
Last reviewed: 2024.
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B300-02E 2026

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Alzheimer's disease

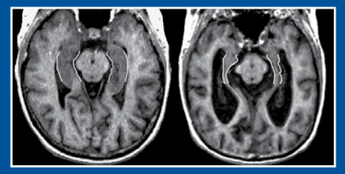
What is Alzheimer's disease?



Forget Me Not
Ne m'oubliez pas

What do we know about dementia and Alzheimer's disease?

Alzheimer's disease is the most common type of dementia. Alzheimer's disease causes symptoms of dementia such as memory loss, difficulty performing daily activities, and changes in judgement, reasoning, behaviour and emotions. These dementia symptoms are irreversible, which means that any loss of abilities cannot come back.



This image is a cross section of two brains, one of a person with Alzheimer's disease (right) and one without (left). It shows a person with Alzheimer's disease has less brain tissue (right) than the person who does not have the disease (left).

The disease was first identified by Dr. Alois Alzheimer in 1906. He described the two main changes in the brain that lead to the disease:

- **"Plaques"** are deposits of a protein called "beta amyloid," or A-beta. When A-beta molecules clump together in the brain, they form plaques which prevent signals from being transferred between nerve cells in the brain, ultimately causing the cells to die.
- **"Tangles"** are fiber clumps of a protein called tau. Tau proteins can be seen as parallel railroad tracks within the brain. Nutrients and other important materials are transported along those tracks, keeping brain cells alive. In healthy brain areas, tau proteins make sure that nutrients can reach their destination. In unhealthy brain areas, the tau protein collapses and twists, forming tangles which prevent nutrients from reaching brain cells, resulting in cell death.

Memory decline, personality changes, problems carrying out daily activities and other symptoms of Alzheimer's disease are caused by the destruction and death of nerve cells.

As Alzheimer's disease progresses and affects different areas of the brain, various abilities and behaviours become impaired. Once an ability is lost, it is not known to return.

Forms of Alzheimer's disease

Sporadic Alzheimer's disease
The most common form of Alzheimer's disease is called sporadic Alzheimer's disease; it has no specific family link. Sporadic Alzheimer's disease is due to a complex combination of our genes, our environment and our lifestyle. Sporadic Alzheimer's disease usually does not run in families. Age is the greatest risk factor for developing sporadic Alzheimer's disease. Most sporadic Alzheimer's disease begins after age 60-65.

Familial Alzheimer's disease
Families with this rare form of Alzheimer's disease have a very strong family history of Alzheimer's disease (many family members over many generations). Familial Alzheimer's disease runs in families and accounts for less than 5% of all cases.

Familial Alzheimer's disease is due to changes in specific genes that can be directly passed on from parent to child. If a person has familial Alzheimer's disease, their children have a 50% chance of inheriting the disease causing gene and developing Alzheimer's disease. Familial Alzheimer's disease has the same symptoms as sporadic Alzheimer's disease and can develop at any age.

The effects of Alzheimer's disease

Alzheimer's disease is a fatal disease that eventually affects all aspects of a person's life: how they think, feel and act. Each person is affected differently. It is difficult to predict which symptoms will happen, the order in which they will appear or the speed of their progression. The following are some of the changes that may happen as the disease progresses.

Cognitive and functional abilities
A person's ability to understand, think, remember and communicate will be affected over time. The ability to make decisions will be reduced. Simple tasks that have been performed for years will become more difficult or be forgotten. Confusion and memory loss, initially for recent events and eventually for long-term events, will occur. The ability to find the right words and follow a conversation will be affected. Sometimes people lose their way, even when walking in familiar surroundings. The first cognitive changes often happen a few years before the disease is actually diagnosed.

Emotions and moods
A person may appear to lose interest in favourite hobbies. While some people may become less expressive and withdrawn, it is still possible to reach people with Alzheimer's disease even in the very late stages. It is important to remember that a person may still feel joy, anger, fear, love and sadness.

Behaviour
Changes will develop in the way the person reacts to what is happening around them. These reactions may seem out of character. At times, some common reactions include repeating the same actions or words, hiding possessions, physical outbursts and restlessness. Such behaviours can be distressing or challenging for the person and their caregivers.

Physical abilities
The person will eventually experience a gradual physical decline affecting their coordination and mobility. This will change their ability to independently perform day-to-day tasks such as eating, bathing and getting dressed.

Is there treatment?

There is currently no cure for Alzheimer's disease, nor is there a treatment that will stop its progression. Several medications are available that can help with symptoms such as declines in memory, language, thinking abilities and motor skills. People who respond to medication can experience improvements in their quality of life that may last for several years. However, medications can affect people differently and not everyone will respond to these medications.

An earlier diagnosis can mean that these treatments are started in the early stages and have a greater chance of being helpful.