MAYO CLINIC

Ataxia

Overview

Ataxia describes poor muscle control that causes clumsy movements. It can affect walking and balance, hand coordination, speech and swallowing, and eye movements.

Ataxia usually results from damage to the part of the brain called the cerebellum or its connections. The cerebellum controls muscle coordination. Many conditions can cause ataxia, including genetic conditions, stroke, tumors, multiple sclerosis, degenerative diseases and alcohol misuse. Certain medicines also can cause ataxia.

Treatment for ataxia depends on the cause. Devices such as walkers and canes might help maintain independence. These also are called adaptive devices. Physical therapy, occupational therapy, speech therapy and regular exercise also might help.

Symptoms

Ataxia symptoms can develop over time or start suddenly. Ataxia can be a symptom of several nervous system conditions. Symptoms may include:

- Poor coordination.
- Walking unsteadily or with the feet set wide apart.
- Poor balance.
- Trouble with fine motor tasks such as eating, writing or buttoning a shirt.
- Changes in speech.
- Back-and-forth eye movements that can't be controlled.
- Trouble swallowing.

When to see a doctor

If you don't already have a condition that causes ataxia, such as multiple sclerosis, see your healthcare professional as soon as possible if you:

- Lose balance.
- Lose muscle coordination in a hand, arm or leg.
- Have trouble walking.
- Slur your speech.
- Have trouble swallowing.

Causes

Ataxia is caused by damage to the part of the brain called the cerebellum or its connections. The cerebellum is located at the base of the brain and connects to the brainstem. The cerebellum helps control balance, eye movements, swallowing and speech.

There are three major groups of ataxia causes: acquired, degenerative and hereditary.

Acquired causes

- **Alcohol.** Long-term excess alcohol use may cause persistent ataxia. Ataxia may improve by staying away from alcohol completely.
- **Medicines.** Ataxia is a potential side effect of certain medicines. It can be caused by sedatives such as phenobarbital and benzodiazepines. It also may be caused by anti-seizure medicines, especially phenytoin. Some types of chemotherapy also can cause ataxia.
- **Toxins.** Heavy metal poisoning, such as from lead or mercury, and solvent poisoning, such as from paint thinner, also can cause ataxia.
- **Too little or too much of certain vitamins.** Ataxia may be caused by not getting enough vitamin E, vitamin B-12 or vitamin B-1, also known as thiamine. Too little or too much vitamin B-6 also may cause ataxia. Not getting enough of a certain vitamin is known as a vitamin deficiency. When a vitamin deficiency is the cause of ataxia, it often can be reversed.
- **Thyroid conditions.** Hypothyroidism and hypoparathyroidism can cause ataxia.
- **Stroke.** Sudden onset of ataxia occurs with a stroke. This may be either due to a blood vessel blockage or bleeding on the brain.
- **Multiple sclerosis.** This condition may cause ataxia.
- **Autoimmune diseases.** Several diseases in which the immune system attacks healthy cells, known as autoimmune diseases, can cause ataxia. They can include a disease that causes inflammatory cells to collect in parts of the body, known as sarcoidosis. Or they may include an illness

caused by an immune reaction to eating gluten, known as celiac disease. Ataxia also can be caused by certain types of a condition that results in swelling in the brain and spinal cord, called encephalomyelitis.

- **Infections.** Rarely, ataxia may be a symptom of chickenpox in childhood and other viral infections such as HIV and Lyme disease. It might appear in the healing stages of the infection and last for days or weeks. The symptom usually gets better over time.
- **COVID-19.** Ataxia can result from a serious infection with the virus that causes COVID-19.
- **Paraneoplastic syndromes.** These are rare degenerative conditions triggered by an immune system response to a cancerous tumor, known as a neoplasm. Paraneoplastic syndromes most often occur from lung, ovarian or breast cancer or lymphoma. Ataxia can appear months or years before the cancer is diagnosed.
- **Changes in the brain.** An infected area in the brain, known as an abscess, may cause ataxia. And a growth on the brain, such as a cancerous or noncancerous tumor, can damage the cerebellum.
- **Head trauma.** Brain damage may cause ataxia.
- **Cerebral palsy.** This is a general term for a group of conditions caused by damage to a child's brain. The damage may happen before, during or shortly after birth. It affects the child's ability to coordinate body movements.

Degenerative causes

- **Multiple system atrophy.** This rare condition affects movements and functions such as blood pressure. It can cause ataxia and other symptoms, including lack of bladder control, fainting after standing up and a sleep behavior condition in which a person acts out dreams.

Hereditary causes

Some types of ataxia and some conditions that cause ataxia are passed down in families. These conditions also are called hereditary. If you have one of these conditions, you may have been born with a genetic change that causes the body to make irregular proteins.

The irregular proteins affect the function of nerve cells, primarily in the cerebellum and spinal cord. They cause the nerve cells to break down and die, known as degeneration. As the disease progresses, coordination problems worsen.

People with a genetic ataxia may have inherited a dominant gene from one parent, known as an autosomal dominant inheritance pattern. Or they may have inherited a recessive gene from both parents, known as an autosomal recessive inheritance pattern. In a recessive condition, the parents are not affected but siblings may be affected.

Different gene changes cause different types of ataxia. Most types get worse over time. Each type causes poor coordination but also has other specific symptoms.

Autosomal dominant ataxias

- **Spinocerebellar ataxias.** Researchers have identified more than 40 spinocerebellar ataxia genes, and the number continues to grow. Ataxia and cerebellar degeneration are common to all types, and there may be other symptoms.
- **Episodic ataxia (EA).** There are eight recognized types of episodic ataxia. The types EA1 and EA2 are the most common. EA1 involves brief bouts of ataxia that may last seconds or minutes. The bouts are triggered by stress, sudden movement or being startled. They're often associated with muscle twitching.

  EA2 involves longer bouts of ataxia, usually lasting from 30 minutes to six hours. These bouts also are triggered by stress. Dizziness and muscle weakness may occur. People with EA2 may feel very tired. Sometimes symptoms resolve later in life. Episodic ataxia doesn't shorten life span, and symptoms may respond to medicine.

Autosomal recessive ataxias

- **Friedreich ataxia.** This is the most common hereditary ataxia. It involves damage to the cerebellum, spinal cord and peripheral nerves. Peripheral nerves carry signals from the arms and legs to the brain and spinal cord. Symptoms typically appear well before age 25. A brain scan usually doesn't show changes to the cerebellum with this type of ataxia.

  The first symptom of Friedreich ataxia often is trouble walking. The condition typically goes on to affect the arms and trunk. This type of ataxia can cause changes to the feet, such as high arches. It also can cause a curve of the spine, known as scoliosis.

  Other symptoms that might develop include slurred speech, fatigue, irregular eye movements and hearing loss. Friedreich ataxia also may lead to heart enlargement, known as cardiomyopathy. Heart failure and diabetes also can occur. Early treatment of heart conditions can improve quality of life and survival.
- **RFC1-associated ataxia.** This is the most common cause of ataxia that happens later in life. The ataxia symptoms usually occur with dizziness and numbness or tingling in the body. Sometimes this type of ataxia causes a cough.
- **Ataxia-telangiectasia.** This rare childhood disease causes degeneration in the brain and immune system. This increases the risk of other diseases, including infections and tumors.

  Telangiectasia is the formation of tiny red "spider" veins that might appear in the corners of a child's eyes or on the ears and cheeks. Delayed motor skill development, poor balance and slurred speech are often the first symptoms. Frequent sinus and respiratory infections are common.

  Children with ataxia-telangiectasia are at high risk of developing cancer, particularly leukemia or lymphoma.
- **Congenital cerebellar ataxia.** This type of ataxia results from damage to the cerebellum that's present at birth.
- **Wilson's disease.** In people with this condition, copper builds up in the brain, liver and other organs. This can cause ataxia and other symptoms.

Risk factors

There are several risk factors for ataxia. People who have a family history of ataxia are at a higher risk of having ataxia themselves.

Other risk factors include:

- Drinking too much alcohol over a long period.
- Having hypothyroidism or hypoparathyroidism.
- Having multiple sclerosis.
- Having an illness caused by an immune reaction to eating gluten, known as celiac disease.
- Having a disease that causes inflammatory cells to build up in parts of the body, known as sarcoidosis.
- Having a degenerative disease called multiple system atrophy.
- Having a paraneoplastic syndrome triggered by cancer.
- Taking medicines that increase the risk of ataxia, such as anti-seizure medicines and sedatives.
- Being exposed to heavy metals, such as lead or mercury, or solvents, such as from paint thinner.
- Not getting enough vitamin E, vitamin B-6, vitamin B-12 or vitamin B-1, also known as thiamine. Getting too much vitamin B-6 also is a risk factor.

By Mayo Clinic Staff

Any use of this site constitutes your agreement to the Terms and Conditions and Privacy Policy linked below.

Terms and Conditions
Privacy Policy
Notice of Privacy Practices
Notice of Nondiscrimination
Manage Cookies

Mayo Clinic is a nonprofit organization and proceeds from Web advertising help support our mission. Mayo Clinic does not endorse any of the third party products and services advertised.

Advertising and sponsorship policy
Advertising and sponsorship opportunities

A single copy of these materials may be reprinted for noncommercial personal use only. "Mayo," "Mayo Clinic," "MayoClinic.org," "Mayo Clinic Healthy Living," and the triple-shield Mayo Clinic logo are trademarks of Mayo Foundation for Medical Education and Research.

© 1998-2026 Mayo Foundation for Medical Education and Research (MFMER). All rights reserved.