

Peripheral neuropathy

Overview

Peripheral neuropathy happens when the nerves that are located outside of the brain and spinal cord (peripheral nerves) are damaged. This condition often causes weakness, numbness and pain, usually in the hands and feet. It also can affect other areas and body functions including digestion and urination.

The peripheral nervous system sends information from the brain and spinal cord, also called the central nervous system, to the rest of the body through motor nerves. The peripheral nerves also send sensory information to the central nervous system through sensory nerves.

Peripheral neuropathy can result from traumatic injuries, infections, metabolic problems, inherited causes and exposure to toxins. One of the most common causes of neuropathy is diabetes.

People with peripheral neuropathy usually describe the pain as stabbing, burning or tingling. Sometimes symptoms get better, especially if caused by a condition that can be treated. Medicines can reduce the pain of peripheral neuropathy.

Symptoms

Every nerve in the peripheral system has a specific job. Symptoms depend on the type of nerves affected. Nerves are divided into:

- Sensory nerves that receive sensation, such as temperature, pain, vibration or touch, from the skin.
- Motor nerves that control muscle movement.
- Autonomic nerves that control functions such as blood pressure, sweating, heart rate, digestion and bladder function.

Symptoms of peripheral neuropathy might include:

- Gradual onset of numbness, prickling, or tingling in your feet or hands. These sensations can spread upward into your legs and arms.
- Sharp, jabbing, throbbing or burning pain.
- Extreme sensitivity to touch.
- Pain during activities that shouldn't cause pain, such as pain in your feet when putting weight on them or when they're under a blanket.

- Lack of coordination and falling.
- Muscle weakness.
- Feeling as if you're wearing gloves or socks when you're not.
- Inability to move if motor nerves are affected.

If autonomic nerves are affected, symptoms might include:

- Heat intolerance.
- Excessive sweating or not being able to sweat.
- Bowel, bladder or digestive problems.
- Drops in blood pressure, causing dizziness or lightheadedness.

Peripheral neuropathy can affect one nerve, called mononeuropathy. If it affects two or more nerves in different areas, it's called multiple mononeuropathy, and if it affects many nerves, it's called polyneuropathy. Carpal tunnel syndrome is an example of mononeuropathy. Most people with peripheral neuropathy have polyneuropathy.

When to see a doctor

Seek medical care right away if you notice unusual tingling, weakness, or pain in your hands or feet. Early diagnosis and treatment give you the best chance for controlling your symptoms and preventing further damage to your peripheral nerves.

Causes

Peripheral neuropathy is nerve damage caused by several different conditions. Health conditions that can cause peripheral neuropathy include:

- **Autoimmune diseases.** These include Sjogren's syndrome, lupus, rheumatoid arthritis, Guillain-Barre syndrome, chronic inflammatory demyelinating polyneuropathy and vasculitis. Also, some cancers related to the body's immune system can cause polyneuropathy. These are a form of autoimmune disorder called paraneoplastic syndrome.
- **Diabetes and metabolic syndrome.** This is the most common cause. Among people with diabetes, more than half will develop some type of neuropathy.
- **Infections.** These include certain viral or bacterial infections, including Lyme disease, shingles, hepatitis B and C, leprosy, diphtheria, and HIV.
- **Inherited disorders.** Disorders such as Charcot-Marie-Tooth disease are hereditary types of neuropathy that run in families.
- **Tumors.** Cancerous growths, also called malignant, and noncancerous growths, also called benign, can grow on or press on nerves.
- **Bone marrow disorders.** These include a protein in the blood that isn't usually there, called monoclonal gammopathies, a rare form of myeloma that affects the bones, lymphoma and the rare disease amyloidosis.
- **Other diseases.** These include metabolic conditions such as kidney disease or liver disease, and an underactive thyroid, also known as hypothyroidism.

Other causes of neuropathies include:

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- **Alcohol use disorder.** Unhealthy dietary choices made by people with alcohol use disorder, also known as alcoholism, and poor absorption of vitamins can lead to low amounts of essential vitamins in the body.
- **Exposure to poisons.** Toxic substances include industrial chemicals and heavy metals such as lead and mercury.
- **Medicines.** Certain medicines, especially chemotherapy used to treat cancer, can cause peripheral neuropathy.
- **Injury or pressure on the nerve.** Injuries, such as from motor vehicle accidents, falls or sports injuries, can sever or damage peripheral nerves. Nerve pressure can result from having a cast or using crutches or repeating a motion such as typing many times.
- **Low vitamin levels.** B vitamins, including B-1, B-6 and B-12, as well as copper and vitamin E are crucial to nerve health.

In some cases, no cause can be identified. This is called idiopathic peripheral neuropathy.

Risk factors

Peripheral neuropathy risk factors include:

- Diabetes, especially if your sugar levels are not controlled well.
- Alcohol misuse.
- Low levels of vitamins in the body, especially vitamin B-12.
- Infections, such as Lyme disease, shingles, hepatitis B and C, and HIV.
- Autoimmune diseases, such as rheumatoid arthritis and lupus, in which the immune system attacks your own tissues.
- Kidney, liver or thyroid disorders.
- Exposure to toxins.
- Repetitive motion, such as those performed for certain jobs.
- Family history of neuropathy.

Complications

Complications of peripheral neuropathy can include:

- **Burns, skin injuries and wounds on the feet.** You might not feel temperature changes or pain on parts of your body that are numb.
- **Infection.** Your feet and other areas that lack sensation can become injured without your knowing. Check these areas regularly, wear close-toed, well-fitting shoes and treat minor injuries before they become infected, especially if you have diabetes.
- **Falls.** Weakness and loss of sensation may be associated with lack of balance and falling. Installing handrails in the bathroom, using canes or walkers when needed, and ensuring that you are walking only in well-lit rooms can decrease fall risk.

Prevention

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Manage underlying conditions

The best way to prevent peripheral neuropathy is to manage medical conditions that put you at risk.

Make healthy lifestyle choices

These habits support your nerve health:

- **Eat a diet rich in fruits, vegetables, whole grains and lean protein to keep nerves healthy.** Protect against low levels of vitamin B-12 by eating meats, fish, eggs, low-fat dairy foods and fortified cereals. If you're vegetarian or vegan, fortified cereals are a good source of vitamin B-12, but talk to your health care professional about B-12 supplements.
- **Exercise regularly.** With a health care professional's OK, try to get at least 30 minutes to one hour of exercise at least three times a week.
- **Avoid factors that may cause nerve damage.** These factors can include repetitive motions, exposure to toxic chemicals, smoking and drinking too much alcohol.

By Mayo Clinic Staff

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