



# Peripheral neuropathy

## Overview

Peripheral neuropathy, a result of damage to the nerves outside of the brain and spinal cord (peripheral nerves), often causes weakness, numbness and pain, usually in your hands and feet. It can also affect other areas of your body.

Your peripheral nervous system sends information from your brain and spinal cord (central nervous system) to the rest of your body. The peripheral nerves also send sensory information to the central nervous system.

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

People with peripheral neuropathy generally describe the pain as stabbing, burning or tingling. In many cases, symptoms improve, especially if caused by a treatable condition. Medications can reduce the pain of peripheral neuropathy.

## Symptoms

Every nerve in your peripheral system has a specific function, so symptoms depend on the type of nerves affected. Nerves are classified 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, heart rate, digestion and bladder

Signs and symptoms of peripheral neuropathy might include:

- Gradual onset of numbness, prickling or tingling in your feet or hands, which 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

- Feeling as if you're wearing gloves or socks when you're not
- Paralysis if motor nerves are affected

If autonomic nerves are affected, signs and symptoms might include:

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

Peripheral neuropathy can affect one nerve (mononeuropathy), two or more nerves in different areas (multiple mononeuropathy) or many nerves (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 offer the best chance for controlling your symptoms and preventing further damage to your peripheral nerves.

## Causes

Not a single disease, peripheral neuropathy is nerve damage caused by a number of 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.
- **Diabetes.** More than half the people with diabetes develop some type of neuropathy.
- **Infections.** These include certain viral or bacterial infections, including Lyme disease, shingles, Epstein-Barr virus, hepatitis B and C, leprosy, diphtheria, and HIV.
- **Inherited disorders.** Disorders such as Charcot-Marie-Tooth disease are hereditary types of neuropathy.
- **Tumors.** Growths, cancerous (malignant) and noncancerous (benign), can develop on the nerves or press nerves. Also, polyneuropathy can arise as a result of some cancers related to the body's immune response. These are a form of a degenerative disorder called paraneoplastic syndrome.
- **Bone marrow disorders.** These include an abnormal protein in the blood (monoclonal gammopathies), a form of bone cancer (myeloma), lymphoma and the rare disease amyloidosis.
- **Other diseases.** These include kidney disease, liver disease, connective tissue disorders and an underactive thyroid (hypothyroidism).

- deficiencies.
- **Exposure to poisons.** Toxic substances include industrial chemicals and heavy metals such as lead and mercury.
  - **Medications.** Certain medications, especially those used to treat cancer (chemotherapy), can cause peripheral neuropathy.
  - **Trauma or pressure on the nerve.** Traumas, 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.
  - **Vitamin deficiencies.** B vitamins — including B-1, B-6 and B-12 — vitamin E and niacin are crucial to nerve health.

In a number of cases, no cause can be identified (idiopathic).

## Risk factors

Peripheral neuropathy risk factors include:

- Diabetes, especially if your sugar levels are poorly controlled
- Alcohol abuse
- Vitamin deficiencies, particularly B vitamins
- Infections, such as Lyme disease, shingles, Epstein-Barr virus, hepatitis B and C, and HIV
- Autoimmune diseases, such as rheumatoid arthritis and lupus, in which your 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 and skin trauma.** You might not feel temperature changes or pain on parts of your body that are numb.
- **Infection.** Your feet and other areas lacking sensation can become injured without your knowing. Check these areas regularly 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.

## Manage underlying conditions

The best way to prevent peripheral neuropathy is to manage medical conditions that put you at risk, such as diabetes, alcoholism or rheumatoid arthritis.

## 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 vitamin B-12 deficiency 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 doctor about B-12 supplements.
- **Exercise regularly.** With your doctor'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,** including repetitive motions, cramped positions that put pressure on nerves, exposure to toxic chemicals, smoking and overindulging in alcohol.

By Mayo Clinic Staff

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