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Peripheral neuropathy

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Overview

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

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.

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Symptoms

Every nerve in your peripheral system has a specific function, so symptoms depend on the type of nerves affected. Nerves are classified into:

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- 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, freezing or burning pain
- Extreme sensitivity to touch
- Lack of coordination and falling
- Muscle weakness or paralysis if motor nerves are affected

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

- Heat intolerance and altered sweating
- 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.

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Causes

Not a single disease, peripheral neuropathy is nerve damage caused by a number of conditions. Causes of neuropathies include:

- **Alcoholism.** Poor dietary choices made by people with alcoholism can lead to vitamin deficiencies.
- **Autoimmune diseases.** These include Sjogren's syndrome, lupus, rheumatoid arthritis, Guillain-Barre syndrome, chronic inflammatory demyelinating polyneuropathy and necrotizing vasculitis.
- **Diabetes.** More than half the people with diabetes develop some type of neuropathy.
- **Exposure to poisons.** Toxic substances include heavy metals or chemicals.
- **Medications.** Certain medications, especially those used to treat cancer (chemotherapy), can cause peripheral neuropathy.
- **Infections.** These include certain viral or bacterial infections, including Lyme disease, shingles, Epstein-Barr virus, hepatitis C, leprosy, diphtheria and HIV.
- **Inherited disorders.** Disorders such as Charcot-Marie-Tooth disease are hereditary types of 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.
- **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 paraneoplastic syndrome.
- **Vitamin deficiencies.** B vitamins — including B-1, B-6

and B-12 — vitamin E and niacin are crucial to nerve health.

- **Bone marrow disorders.** These include abnormal protein in the blood (monoclonal gammopathies), a form of bone cancer (osteosclerotic myeloma), lymphoma and amyloidosis.
- **Other diseases.** These include kidney disease, liver disease, connective tissue disorders and an underactive thyroid (hypothyroidism).

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

Risk factors

Peripheral neuropathy risk factors include:

- Diabetes mellitus, 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 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 mellitus.
- **Falls.** Weakness and loss of sensation may be associated with lack of balance and falling.

Prevention

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

For example:

- **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, exposure to toxic chemicals, smoking and overindulging in alcohol.

By Mayo Clinic Staff

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