CONDITION

Peripheral neuropathy

Peripheral neuropathy is damage to nerves outside the brain and spinal cord.

WHAT IT IS
Damage to nerves outside the brain and spinal cord

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Numbness, tingling, burning pain, weakness

WHAT CAUSES IT
Diabetes, injury, medicines, toxins, immune or inherited conditions

HOW IT IS DIAGNOSED
Neurological examination, nerve studies, and cause-specific tests

MAIN TREATMENT
Treating the cause, symptom control, rehabilitation, and foot care

CAN IT BE CURED?
Sometimes - when a reversible cause is treated early

IS IT AN EMERGENCY?
Sometimes - rapidly worsening weakness or breathing trouble

LONG-TERM OUTLOOK
Many cases persist, but symptoms can often be managed

Overview

Peripheral neuropathy means that one or more peripheral nerves are damaged or not working properly. These nerves carry messages between your brain and spinal cord and the rest of your body.

Peripheral nerves have different jobs. Sensory nerves help you feel touch, pain, temperature, and body position. Motor nerves control muscles. Autonomic nerves manage automatic functions such as sweating, digestion, blood pressure, and bladder control.

Peripheral neuropathy may affect one nerve, several separate nerves, or many nerves throughout the body. A common pattern starts in the longest nerves, causing symptoms in the toes and feet before the hands. This is sometimes called a "stocking-and-glove" pattern.

The condition matters because reduced feeling can make injuries harder to notice. Weakness

and poor awareness of foot position can also affect walking and balance. However, the effects range widely. Some people have mild tingling, while others have persistent pain, weakness, or problems with automatic body functions.

Peripheral neuropathy is not one single disease. Finding the underlying cause helps guide treatment and provides information about what may happen over time.

Symptoms

Symptoms usually reflect the type of nerve affected. They may develop gradually over months or years, although some forms begin over days or weeks.

Sensory symptoms include:

Motor nerve damage may cause weakness, muscle cramps, twitching, or shrinking of muscles. You may find it harder to lift the front of a foot, climb stairs, grip objects, or use buttons.

Autonomic nerve symptoms can include unusual sweating, dizziness when standing, constipation or diarrhoea, bladder problems, sexual difficulties, or feeling full soon after eating. These symptoms have many possible causes and do not automatically mean that you have neuropathy.

Symptoms may be equal on both sides, but this is not always the case. Damage to one nerve can cause symptoms in a specific area, such as numbness and weakness in part of one hand.

- Numbness, reduced feeling, or a "dead" sensation
- Tingling, prickling, burning, or electric-shock pain
- Pain from light touch that would not normally hurt
- Reduced ability to feel heat, cold, or injuries
- Poor awareness of where your feet are, affecting balance

Causes and risk factors

Diabetes is a common cause of peripheral neuropathy. High blood glucose over time can damage nerves and the small blood vessels that supply them. Risk increases with longer exposure to high glucose and with other factors such as kidney disease or smoking.

Other possible causes include:

Cancer itself can sometimes affect nerves, although this is less common than many other causes.

Some people develop neuropathy after critical illness or intensive care. In others, no cause is found even after appropriate testing. This is called idiopathic peripheral neuropathy. "Idiopathic" means that the cause is unknown.

Having a risk factor does not mean that you will develop neuropathy. Several factors may also contribute at the same time.

- Low vitamin B12 or other nutritional deficiencies
- Heavy or prolonged alcohol use
- Kidney, liver, or thyroid conditions
- Autoimmune conditions in which the immune system attacks nerves
- Infections such as shingles, HIV, or Lyme disease
- Pressure on, or injury to, a nerve
- Certain cancer treatments and other medicines
- Exposure to some industrial chemicals or heavy metals
- Abnormal proteins in the blood
- Inherited nerve conditions

Diagnosis

There is no single test that identifies every type of peripheral neuropathy. Assessment usually begins with your symptoms, medical history, medicines, alcohol exposure, work exposures, and family history.

A neurological examination checks sensation, muscle strength, reflexes, coordination, and walking. The pattern of these findings can suggest which nerves are affected.

Blood tests may look for treatable causes. Depending on your situation, these may include blood glucose, vitamin B12, thyroid function, kidney and liver function, blood cell counts, or abnormal blood proteins. Testing is selected according to your history and examination rather than using every available test.

Nerve conduction studies measure how quickly and strongly electrical signals travel through nerves. Electromyography, often called EMG, measures electrical activity in muscles. These tests can help confirm damage to larger nerve fibres and show whether the main problem is in a nerve or muscle.

Small-fibre neuropathy affects the thin nerve fibres that carry pain, temperature, and some

automatic functions. Standard nerve conduction studies can be normal in this form. A skin biopsy to measure nerve endings, or tests of sweating and other autonomic functions, may sometimes be used.

Genetic testing, imaging, a spinal fluid test, or a nerve biopsy is reserved for selected situations. A nerve biopsy is rarely needed because it can cause lasting numbness or pain at the biopsy site.

Treatment and management

Treatment is based on the cause, the symptoms, and how the condition affects daily life. Some causes can be corrected, but established nerve damage may not fully reverse.

Examples of cause-based treatment include improving long-term glucose management in diabetes, replacing a confirmed vitamin deficiency, treating an infection, or reducing pressure on a trapped nerve. Immune-related neuropathies may require treatments that alter the immune response.

If a medicine or toxin may be involved, a clinician can review the risks and alternatives. Do not stop a prescribed medicine suddenly without medical advice.

Ordinary painkillers often have limited benefit for nerve pain. Medicines used for neuropathic pain include certain antidepressant or anti-seizure medicines. Their use does not mean that you have depression or epilepsy; these medicines also change how pain signals are processed. Topical treatments applied to the skin may help pain in a smaller area.

The best choice takes account of other health conditions, possible side effects, interactions, and how much symptoms affect sleep and activity. Finding a helpful option may take time. Strong opioid pain medicines are generally avoided for long-term neuropathic pain because benefits may fade while harms increase.

Physical therapy can support strength, flexibility, balance, and safer walking. An occupational therapist can suggest ways to manage work and household tasks. Braces, walking aids, or supportive footwear may help when weakness or poor balance is present.

If your feet are numb, check them regularly for blisters, cuts, redness, swelling, or broken skin. Wear well-fitting footwear and avoid testing bath water with a numb foot. A podiatrist can help with foot care, pressure points, or footwear problems.

Complications

Loss of feeling can allow burns, pressure injuries, or wounds to go unnoticed. Foot wounds may become infected, especially when diabetes or poor circulation is also present.

Weakness and reduced position sense can increase the risk of falls. Long-lasting pain may disturb sleep, activity, mood, and concentration.

Autonomic neuropathy can cause falls from low blood pressure, digestive problems, bladder difficulties, or reduced awareness of low blood glucose. Severe complications are not inevitable, and early attention to new problems can limit harm.

Prevention

Not every case of peripheral neuropathy can be prevented. Inherited neuropathies cannot currently be prevented, and there is no reliable way to prevent every autoimmune or unexplained form.

You may be able to reduce risk by managing conditions that can injure nerves. This includes working toward agreed blood glucose targets if you have diabetes, avoiding heavy alcohol use, eating a balanced diet, and using protective equipment around workplace toxins.

Have medicines and supplements reviewed if you are concerned about nerve symptoms. Taking large amounts of certain vitamins can itself damage nerves, so avoid high-dose supplements unless they have been recommended for a confirmed need.

Preventing injuries is also important when feeling is already reduced. Check numb areas, use properly fitting shoes, and keep feet away from direct heat sources.

Living with it and what to expect

The course depends mainly on the cause and how much nerve damage occurred before treatment. A trapped nerve or nutritional deficiency may improve when treated, although recovery can take months. Nerves heal slowly, and improvement may continue after the cause has been addressed.

Neuropathy linked to an ongoing condition may remain stable, progress gradually, or fluctuate. Inherited forms often change slowly over years. Some immune neuropathies have relapses or periods of recovery. When no cause is found, symptoms may stay mild and stable, but this cannot be predicted for an individual.

Pain can improve even when numbness remains. Weakness may respond to treatment and rehabilitation, but longstanding muscle loss may not fully recover.

Many people continue working, exercising, driving, and living independently. Adjustments may be needed for balance, hand control, pain, or reduced feeling. Regular follow-up is useful when symptoms are changing, treatment causes side effects, or an underlying condition needs monitoring.

When to get medical help

Arrange a routine medical appointment if you have persistent or recurring numbness, tingling, burning pain, unexplained weakness, or balance problems. Earlier assessment may identify a treatable cause and help protect numb areas from injury.

Seek urgent medical assessment if symptoms are spreading quickly, weakness is getting noticeably worse, you are falling, or you develop new bladder or bowel problems. A red, hot, swollen, infected, or open wound on a numb foot also needs prompt attention, particularly if you have diabetes.

Call emergency services for:

Sudden one-sided symptoms may be caused by a stroke rather than peripheral neuropathy. Emergency assessment should not be delayed.

- New difficulty breathing or swallowing
- Rapidly worsening weakness affecting several limbs
- Fainting with ongoing severe dizziness or an abnormal heartbeat
- Sudden one-sided weakness, facial drooping, or speech difficulty

Common questions

Can peripheral neuropathy go away?

Sometimes. Neuropathy caused by pressure on a nerve, a vitamin deficiency, an infection, or a medicine may improve when the cause is removed or treated. Recovery may be incomplete if damage is severe or longstanding. Other forms are managed rather than cured.

What does peripheral neuropathy feel like?

People often describe pins and needles, burning, stabbing, electric shocks, numbness, or unusual sensitivity to touch. It may feel as if you are wearing socks when your feet are bare. Weakness or poor balance can occur with or without pain.

Does neuropathy always start in the feet?

No. Many widespread neuropathies start in the toes because the longest nerves are affected first. A trapped or injured nerve may instead affect one hand, arm, leg, or a small patch of skin. Some immune-related forms cause weakness before much numbness appears.

Can I exercise with peripheral neuropathy?

Many people can exercise safely, and activity may help strength, balance, sleep, and glucose management. The type of exercise may need adjusting if you have numb feet, wounds, severe weakness, or poor balance. Supportive footwear and lower-impact activities can reduce injury risk.

Is peripheral neuropathy the same as poor circulation?

No. Neuropathy involves nerves, while poor circulation means reduced blood flow. Both can cause foot symptoms and can occur together, especially with diabetes. Feet that are unusually cold, pale, blue, or painful during walking need assessment for circulation problems.

Will nerve pain keep getting worse?

Not necessarily. Pain may improve, remain stable, fluctuate, or progress according to the cause. Changes in pain do not always match changes in nerve damage. New weakness, rapidly spreading numbness, or loss of function is more important than pain intensity alone and should be assessed.

Sources

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