CONDITION

Diabetes and nerve damage

Diabetic neuropathy is nerve damage linked to diabetes that can affect sensation, movement, and automatic body functions.

WHAT IT IS
Nerve damage linked to diabetes

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Numbness, tingling, burning pain, weakness

WHAT CAUSES IT
High blood sugar and related metabolic changes

HOW IT IS DIAGNOSED
History, nerve examination, and sometimes electrical nerve tests

MAIN TREATMENT
Diabetes management, foot care, and symptom relief

CAN IT BE CURED?
No, but progression and symptoms can improve

IS IT AN EMERGENCY?
Sometimes, with an infected or blackened foot wound

LONG-TERM OUTLOOK
Often manageable, but established nerve damage may persist

Overview

Diabetes can damage nerves throughout the body. This is called diabetic neuropathy . It is more likely after years of diabetes, but the timing and severity differ from person to person.

The most common form is peripheral neuropathy. It usually begins in the toes and feet, and sometimes later affects the hands. It can cause pain, altered sensation, or numbness.

Other forms affect nerves that control automatic functions such as digestion, blood pressure, sweating, bladder control, and sexual function. Diabetes can also damage individual nerves or groups of nerves, causing weakness or pain in a specific area.

Nerve damage matters even when it is not painful. Reduced feeling in the feet can allow a blister, cut, or pressure injury to go unnoticed. Early recognition, regular foot care, and diabetes

management can reduce the chance of further problems.

Symptoms

Peripheral neuropathy usually affects both feet in a similar pattern. Symptoms may include:

Symptoms often begin gradually. Some people have significant loss of sensation without pain.

Autonomic neuropathy affects nerves that manage body functions you do not consciously control. It can cause dizziness when standing, an unusually fast resting heartbeat, constipation, diarrhoea, difficulty swallowing, or slow stomach emptying. It may also affect sweating, bladder emptying, erections, vaginal lubrication, or awareness of low blood sugar.

Less common patterns include sudden pain or weakness in one thigh or hip, double vision, facial weakness, or numbness caused by a trapped nerve such as carpal tunnel syndrome. These symptoms can have other causes and need medical assessment rather than being assumed to be diabetes-related.

- Numbness or reduced ability to feel pain, heat, or cold
- Tingling, burning, shooting, or electric-like pain
- Unusual sensitivity to light touch, including bedsheets
- Poor balance, muscle weakness, or changes in walking

Causes and risk factors

Long-term exposure to high blood sugar can disrupt how nerves work. It can also damage the small blood vessels that supply nerves with oxygen and nutrients. Inflammation, blood fats, and other metabolic changes linked to diabetes may contribute.

The risk tends to increase with:

Nerve symptoms in someone with diabetes are not always caused by diabetes. Vitamin B12 deficiency, thyroid problems, kidney disease, alcohol, certain medicines, infections, and pressure on a nerve can produce similar symptoms.

- Longer duration of diabetes
- Blood sugar levels that remain above the agreed target
- Kidney disease, high blood pressure, or unhealthy cholesterol levels
- Smoking

- Heavy alcohol use
- Older age

Diagnosis

There is no single blood test that confirms every form of diabetic neuropathy. Diagnosis usually begins with your symptoms, health history, medicines, alcohol use, and a physical examination.

During a foot and nerve examination, a healthcare professional may check:

A thin nylon fibre called a monofilament is often used to test whether you can feel protective pressure on the foot. Reduced protective sensation raises the risk of an unnoticed injury.

Blood tests may look for other causes, such as vitamin B12 deficiency, thyroid disease, or kidney problems. Nerve conduction studies measure how quickly electrical signals travel through nerves. Electromyography, or EMG, measures electrical activity in muscles. These tests are more likely when symptoms are unusual, mainly affect one side, progress quickly, or do not fit the typical pattern.

Tests of heart rate, blood pressure, digestion, or bladder function may be used when autonomic neuropathy is suspected.

- Light touch and pressure sensation
- Vibration using a tuning fork
- Temperature or pinprick sensation
- Reflexes, muscle strength, balance, and walking
- Foot shape, skin condition, circulation, and footwear

Treatment and management

Treatment aims to slow further nerve damage, relieve symptoms, maintain movement, and protect areas with reduced sensation. Existing nerve damage does not always reverse.

Managing blood sugar within an agreed personal range is central to care. Blood pressure, cholesterol, kidney health, smoking, and alcohol use may also need attention. Targets should be chosen with your diabetes care team because overly intensive treatment can increase the risk of low blood sugar in some people.

Painful neuropathy may be treated with medicines that change how pain signals are

processed. Options can include certain antidepressant medicines, anti-seizure medicines, or treatments applied to the skin. These medicines do not repair the nerve. Benefits and side effects differ, so treatment may need to be reviewed or changed.

Opioid painkillers like oxycodone or morphine are generally not preferred for long-term diabetic nerve pain because of limited lasting benefit and risks such as dependence, drowsiness, and constipation.

Foot protection is important when sensation is reduced:

A podiatrist may help with footwear, pressure relief, nail care, wounds, or changes in foot shape. Physiotherapy can support strength, balance, and safer movement.

Autonomic symptoms need treatment tailored to the body function involved. This may include changes to meal patterns for digestive symptoms, measures to reduce dizziness on standing, bladder treatment, or treatment for sexual difficulties. These symptoms should be discussed openly because they are common medical problems, not personal failings.

- Check your feet each day, including between the toes
- Look for blisters, cuts, redness, swelling, cracks, or drainage
- Wear well-fitting shoes and clean socks
- Avoid walking barefoot
- Have corns, calluses, and nail problems treated safely

Complications

Loss of sensation can lead to pressure injuries, ulcers, infection, and, in severe cases, amputation. A warm, swollen, or changing foot can also be a sign of Charcot foot , in which weakened bones and joints become damaged.

Weakness and poor balance can increase the risk of falls. Autonomic nerve damage may interfere with digestion, bladder control, sexual function, blood pressure, or recognition of low blood sugar.

Regular foot checks and early treatment of injuries can prevent many complications from becoming more serious.

Prevention

Diabetic neuropathy cannot always be prevented. Some people develop it despite careful

diabetes management.

Keeping blood sugar within your agreed range can reduce risk or slow progression. Managing blood pressure and cholesterol, not smoking, limiting alcohol, staying active, and caring for your feet also support nerve and blood vessel health.

Routine nerve and foot screening can find reduced sensation before you notice symptoms. Screening is generally recommended from diagnosis for type 2 diabetes and beginning five years after diagnosis for type 1 diabetes, then at least yearly. More frequent checks may be needed if you have loss of sensation, foot changes, or a previous ulcer.

Living with it and what to expect

Diabetic neuropathy is usually a long-term condition. Symptoms may remain stable, progress slowly, or change over time. Pain can improve with treatment even when numbness remains. Better diabetes management may slow further damage, but established loss of sensation may not recover.

Daily foot care becomes an ongoing safety habit. You may need different shoes, insoles, walking aids, or help from a podiatrist. A foot ulcer may require reduced weight-bearing and regular wound care while it heals.

Exercise is often still possible and beneficial. The safest activity depends on foot sensation, balance, circulation, and whether there is an active wound. Activities such as swimming, cycling, or seated exercise may reduce pressure on the feet when needed.

Nerve pain can disturb sleep, mood, work, and concentration. Tell your healthcare team if treatment is not helping enough or side effects are difficult. Routine reviews can focus on function and quality of life as well as pain scores.

When to get medical help

Arrange a routine appointment if you develop persistent numbness, tingling, burning pain, balance problems, digestive changes, bladder symptoms, or sexual difficulties. New symptoms deserve assessment because diabetes may not be the only possible cause.

Seek urgent, same-day medical care for:

Seek emergency help for black or blue skin on the foot, rapidly spreading redness, severe infection symptoms, or confusion with fever.

Sudden facial drooping, one-sided weakness, trouble speaking, severe chest discomfort, or

sudden loss of coordination may be caused by an emergency such as a stroke or heart problem. Do not assume these symptoms are diabetic neuropathy.

- A blister, cut, ulcer, or puncture wound on a numb foot
- New redness, warmth, swelling, drainage, or a bad smell
- A hot, swollen, or misshapen foot, even without pain
- Rapidly worsening weakness or difficulty walking
- Repeated dizziness, fainting, or inability to empty your bladder

Common questions

Can diabetic nerve damage be reversed?

Established nerve damage is not reliably reversible. Improved blood sugar management and treatment of other contributing problems may slow progression. Pain and some other symptoms can improve, even if reduced sensation remains.

If another condition is contributing, such as vitamin B12 deficiency or pressure on a nerve, treating it may improve the related symptoms.

What does diabetic neuropathy feel like?

People often describe tingling, burning, pins and needles, electric shocks, stabbing pain, or numbness. Light touch may feel painful. Others notice balance problems or do not feel a foot injury that would normally hurt.

Does neuropathy mean my diabetes has been badly controlled?

Not necessarily. Higher blood sugar over time increases the risk, but duration of diabetes, age, blood pressure, cholesterol, kidney health, smoking, and individual susceptibility also matter. Neuropathy can occur even when someone has made sustained efforts to manage diabetes.

Why is diabetic nerve pain worse at night?

Pain may feel more noticeable when the surroundings are quiet and there are fewer distractions. Warmth, lying still, or contact with bedding can also trigger sensitive nerves. A change in pain does not always mean that nerve damage is suddenly progressing.

Can I exercise if my feet are numb?

Many people can remain active, but reduced sensation requires extra care. Check your feet before and after activity, use supportive footwear, and avoid exercise that repeatedly injures the skin.

Do not continue weight-bearing exercise on a foot with an ulcer or unexplained warmth and

swelling until it has been assessed.

Can diabetic neuropathy cause dizziness or stomach problems?

Yes. Autonomic neuropathy can cause a fall in blood pressure when you stand, leading to dizziness or faintness. It can also affect stomach emptying, bowel function, sweating, bladder control, and sexual function. Other conditions can cause the same symptoms, so an assessment is important.

Sources

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