CONDITION

Tarsal tunnel syndrome

Tarsal tunnel syndrome is pressure on a nerve inside the ankle that can cause burning, tingling, or numbness in the foot.

WHAT IT IS
Compression of the tibial nerve inside the ankle tunnel

BODY SYSTEM
Nervous system and feet

MAIN SYMPTOMS
Burning foot pain, tingling, numbness, sometimes weakness

WHAT CAUSES IT
Injury, swelling, foot anatomy, or an unknown cause

HOW IT IS DIAGNOSED
Clinical examination, supported by nerve tests and imaging

MAIN TREATMENT
Pressure reduction, rehabilitation, medicines, injections, or surgery

CAN IT BE CURED?
Sometimes - pressure relief can end symptoms

IS IT AN EMERGENCY?
Sometimes - sudden weakness or numbness after major injury

LONG-TERM OUTLOOK
Many improve, but longstanding nerve damage may persist

Overview

Tarsal tunnel syndrome happens when the tibial nerve is squeezed or irritated as it passes through the tarsal tunnel. This is a narrow space behind the bony bump on the inside of your ankle. A strong band of tissue forms the tunnel's roof.

The tibial nerve and its branches carry feeling from much of the sole and heel. They also help control some foot muscles. Pressure on the nerve can cause burning pain, tingling, numbness, or, less often, muscle weakness.

Symptoms may stay around the ankle or spread into the arch, heel, toes, or lower leg. They often become more noticeable after standing, walking, or exercising.

Several other conditions can cause similar foot symptoms. These include plantar fasciitis,

nerve damage related to diabetes, and a pinched nerve in the lower back. A careful assessment is therefore important before symptoms are labelled as tarsal tunnel syndrome.

Symptoms

Symptoms often affect the inside of the ankle and the bottom of the foot. They may involve only one small area or spread along several branches of the nerve.

Common symptoms include:

Some people notice symptoms at night or when resting after activity. Others feel as though there is a lump or tight band under the foot even when nothing is there.

Weakness is less common. With more significant or prolonged nerve pressure, the small muscles of the foot may become weak. This can affect balance or toe movement.

Symptoms can begin gradually, but they may start after an ankle injury. Both feet can be affected, especially when swelling, foot shape, or a condition affecting nerves throughout the body is involved.

- Burning, shooting, or electric-shock-like pain
- Pins and needles or tingling in the sole
- Reduced feeling or numbness
- Pain spreading into the heel, arch, toes, or lower leg
- Symptoms that worsen with prolonged standing, walking, or running

Causes and risk factors

Anything that reduces space in the tarsal tunnel can put pressure on the tibial nerve. Sometimes no clear cause is found.

Possible causes include an ankle sprain, fracture, scar tissue, or swelling around nearby tendons. A cyst, enlarged vein, benign growth, or other lump can also take up space within the tunnel.

Flat feet or other differences in foot and ankle alignment may stretch or compress the nerve. Symptoms may become more noticeable during activities that repeatedly load the ankle, although exercise alone does not prove that tarsal tunnel syndrome is present.

Health conditions that cause swelling or affect nerves can contribute. Examples include diabetes, inflammatory arthritis, and an underactive thyroid. These conditions may also

produce foot symptoms through other mechanisms, so testing may be needed to separate the possible causes.

Risk can be higher when there is:

Having one of these factors does not mean you will develop the condition.

- A previous ankle injury
- Ongoing ankle or tendon swelling
- A lump or enlarged blood vessel in the tunnel
- Marked flat-foot alignment
- A condition that affects peripheral nerves

Diagnosis

There is no single test that identifies every case of tarsal tunnel syndrome. Diagnosis usually combines your symptom pattern, an examination, and tests chosen to look for nerve problems or a cause of compression.

During the examination, a healthcare professional may check feeling, muscle strength, ankle movement, and foot alignment. Tapping or pressing over the tibial nerve may reproduce tingling into the foot. This is sometimes called a Tinel sign, but it cannot confirm the condition by itself.

Nerve conduction studies measure how electrical signals travel through a nerve. Electromyography, or EMG, measures electrical activity in muscles. These tests can support the diagnosis and look for nerve damage elsewhere, but normal results do not always rule out tarsal tunnel syndrome.

Ultrasound can show the nerve, tendons, cysts, and some blood vessels while the ankle moves. Magnetic resonance imaging, or MRI, may be used to look for a mass, injury, inflammation, or another structural cause.

Blood tests are not used to confirm tarsal tunnel syndrome. They may be requested if symptoms suggest diabetes, thyroid disease, inflammatory disease, or another condition affecting nerves.

The assessment may also consider plantar fasciitis, a trapped nerve elsewhere in the foot, widespread peripheral nerve damage, and nerve irritation coming from the lower back.

Treatment and management

Treatment aims to reduce pressure on the nerve, control symptoms, and address any underlying cause. The best approach is influenced by how long symptoms have been present, whether weakness or loss of feeling is developing, and whether imaging shows something pressing on the nerve.

Early management may involve temporarily reducing activities that clearly trigger symptoms. This does not always mean complete rest. Changing training, taking shorter periods on your feet, or avoiding pressure from tight footwear may be enough to settle irritation.

Supportive footwear, insoles, or an ankle brace may help when foot alignment or ankle movement contributes to pressure. A physiotherapist or foot specialist may suggest exercises for flexibility, strength, balance, or controlled nerve movement. Exercises that sharply increase burning or numbness should be reviewed rather than pushed through.

Pain-relieving or anti-inflammatory medicines may help some people, particularly when nearby tissues are inflamed. Medicines used for nerve pain may be considered when burning or electric pain continues. These treatments can have side effects and do not remove a cyst, scar, or other source of compression.

An injection of local anaesthetic, sometimes combined with a corticosteroid like prednisone or hydrocortisone , may be used in selected cases. It may reduce inflammation or help identify where symptoms arise. The benefit may be temporary, and injections are not suitable for every cause.

Surgery releases the strong tissue forming the roof of the tunnel and may remove or treat a structure pressing on the nerve. It is generally considered when there is a clear source of compression, worsening nerve function, or persistent symptoms despite non-surgical care.

Surgery does not guarantee that sensation will return fully. Results tend to be less predictable when symptoms have been present for a long time or no specific source of pressure can be found. Possible problems include infection, scarring, continued pain, numbness, or renewed nerve compression.

Complications

Ongoing nerve compression can lead to persistent numbness, chronic nerve pain, or weakness in the small muscles of the foot. Reduced feeling may make it harder to notice blisters or minor injuries, particularly if another condition such as diabetes is also present.

Pain can change how you walk and limit work, exercise, or sleep. In some people, symptoms remain even after pressure is relieved because an injured nerve may recover slowly or

incompletely.

Prevention

Tarsal tunnel syndrome cannot always be prevented. This is especially true when it is caused by an unavoidable injury, a growth, natural foot anatomy, or an unknown factor.

Prompt care for ankle injuries and ongoing swelling may reduce pressure around the nerve. Well-fitting footwear can help avoid direct compression over the inside of the ankle. Gradually changing walking or running loads may also limit irritation when repeated activity is a trigger.

Managing diabetes, inflammatory arthritis, thyroid disease, or another contributing condition may support nerve health, but it cannot guarantee prevention.

Living with it and what to expect

Mild symptoms linked to temporary swelling or activity may improve with changes to footwear, load, and ankle support. Improvement can take weeks or months because irritated nerves often settle more slowly than muscles or skin.

If a cyst, scar, injury, or foot alignment problem keeps pressing on the nerve, symptoms may continue until that cause is addressed. Longstanding numbness or weakness is less likely to recover completely than brief, intermittent tingling.

You may need to adjust how long you stand, the surfaces you exercise on, or the shoes you wear. The aim is usually to remain active at a level that does not repeatedly cause a major flare.

Follow-up is useful if symptoms are not improving, are spreading, or begin to affect sleep, balance, or normal activity. If you have reduced feeling, check the skin of your foot regularly for rubbing, blisters, or wounds.

Many people continue their usual work and activities with suitable management. Others need longer-term changes or surgery. The course is influenced by the cause, the amount of nerve damage, and how quickly ongoing compression can be relieved.

When to get medical help

Arrange a routine appointment if burning, tingling, or numbness in your foot keeps returning, lasts more than a short period, or interferes with walking or sleep. Assessment is also appropriate if symptoms started after an ankle injury or you notice a lump near the inner ankle.

Seek prompt medical advice if numbness is spreading, foot muscles seem weaker, or you are starting to trip or lose balance. People with diabetes or reduced foot sensation should also have sores, blisters, or broken skin assessed promptly.

Get urgent or emergency help for:

These signs may point to a serious injury, reduced blood flow, severe pressure within the leg, or a spinal nerve emergency rather than routine tarsal tunnel syndrome.

- Sudden numbness or weakness after a major ankle or leg injury
- A severely swollen, tense, or rapidly worsening painful foot or ankle
- A foot that becomes cold, unusually pale, blue, or difficult to move
- Foot symptoms accompanied by new loss of bladder or bowel control

Common questions

Is tarsal tunnel syndrome the same as plantar fasciitis?

No. Plantar fasciitis affects a thick band of tissue under the foot and usually causes heel pain that is worst with the first steps after rest. Tarsal tunnel syndrome affects a nerve and is more likely to cause burning, tingling, electric pain, or numbness. The symptoms can overlap.

Can tarsal tunnel syndrome go away on its own?

It can improve if temporary swelling or a short-term activity change caused the nerve irritation. Symptoms are less likely to settle fully when a cyst, scar, enlarged vein, or continuing alignment problem keeps pressing on the nerve.

Does tarsal tunnel syndrome show up on an MRI?

MRI may show a cyst, injury, inflamed tissue, or another structure compressing the nerve. It does not always show nerve irritation, and a normal scan does not automatically exclude the condition. Ultrasound and electrical nerve tests may provide different information.

Can I keep walking or exercising?

Many people can remain active after adjusting duration, intensity, footwear, or terrain. Repeatedly exercising through increasing numbness, burning, or weakness may aggravate the nerve. Sudden weakness or symptoms after a significant injury need assessment rather than continued exercise.

Will I need surgery?

Most assessments begin with non-surgical options unless there is significant injury, progressive nerve loss, or a clear structure requiring treatment. Surgery may be considered

when symptoms continue despite other care or testing shows a specific source of compression.

How long does nerve recovery take?

Nerves recover slowly. Symptoms may improve over weeks or months after pressure is reduced, but there is no fixed timeline. Recovery may be incomplete when compression has been severe or longstanding.

Sources

- American Orthopaedic Foot & Ankle Society. "Tarsal Tunnel Syndrome." FootCareMD
- Johns Hopkins Medicine. "Tarsal Tunnel Syndrome."
- Rodríguez-Merchán EC, Moracia-Ochagavía I. "Tarsal tunnel syndrome: current rationale, indications and results." EFORT Open Reviews. 2021;6:1140-1147
- Patel AT, Gaines K, Malamut R, et al. "Usefulness of electrodiagnostic techniques in the evaluation of suspected tarsal tunnel syndrome: an evidence-based review." Muscle & Nerve. 2005;32:236-240
- Antoniadis G, Scheglmann K. "Posterior tarsal tunnel syndrome: diagnosis and treatment." Deutsches Ärzteblatt International. 2008;105:776-781