
PERIPHERAL NEUROPATHY AND YOUR FEET

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Peripheral neuropathy

Peripheral neuropathy refers to the many conditions that involve damage to the peripheral nervous system.

The peripheral nerves are like the cables that connect the different parts of a computer or connect the Internet.

Symptoms can range from mild to disabling, but are rarely life-threatening, and may develop over days, weeks, or years.

Peripheral neuropathy

Some forms of neuropathy involve damage to only one nerve (**mononeuropathy**).

Neuropathy affecting two or more nerves in different areas is called **multiple mononeuropathy** or **mononeuropathy multiplex**.

More often, many or most of the nerves are affected (**polyneuropathy**).

Peripheral neuropathy

More than **20 million** people in the United States have been estimated to have some form of peripheral neuropathy.

May be significantly higher—not all people with symptoms of neuropathy are tested for the disease and tests currently don't look for all forms of neuropathy.

Neuropathy is often misdiagnosed due to its complex array of symptoms.

Peripheral neuropathy

More than 100 types of peripheral neuropathy have been identified, each with its own symptoms and prognosis.

Symptoms vary depending on the type of nerves—motor, sensory, or autonomic—that are damaged.

Peripheral neuropathy

Motor nerves control the movement of all muscles under conscious control, such as those used for walking, grasping things, or talking.

Sensory nerves transmit information such as the feeling of a light touch, temperature, or the pain from a cut.

Autonomic nerves control organs to regulate activities that people do not control consciously, such as breathing, digesting food, and heart and gland functions.

Peripheral neuropathy

Motor nerve damage commonly associated with muscle weakness. Other symptoms include painful cramps, fasciculations (uncontrolled muscle twitching visible under the skin) and muscle shrinking.

Sensory nerve damage causes various symptoms because sensory nerves have a broad range of functions, i.e., feels as if you are wearing gloves and stockings even when you are not, loss of reflexes, loss of position sense, inability to feel pain or changes in temperature, neuropathic pain (can be worst at night)

Common symptoms of **Autonomic nerve damage** include excess sweating, heat intolerance, inability to expand and contract the small blood vessels that regulate blood pressure, and gastrointestinal symptoms.

Peripheral neuropathy

Diabetes is the leading cause of polyneuropathy in the United States.

About 60 - 70 percent of people with diabetes have mild to severe forms of damage to sensory, motor, and autonomic nerves

Symptoms can present as numb, tingling, or burning feet, one-sided bands or pain, and numbness and weakness on the trunk or pelvis.

Other causes of Peripheral neuropathy

Autoimmune diseases, i.e., Sjögren's syndrome, lupus, rheumatoid arthritis, Guillain-Barré syndrome

Nutritional or vitamin imbalances, alcoholism, and exposure to toxins

Certain cancers and benign tumors

Chemotherapy drugs

Infections

Trauma

Peripheral Neuropathy in the feet

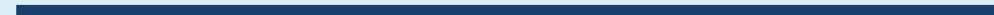
Lack/loss of
sensation

Burning

Tingling

Sharp,
shooting pain

*WHAT IS THE
“GIFT” OF PAIN?*



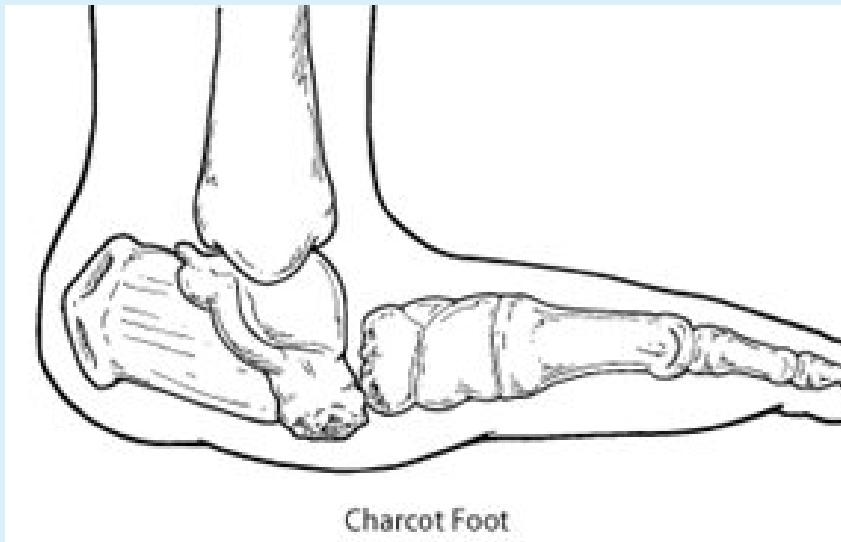
Foot deformities



Courtesy of David J. Freedman, DPM

- Bunion
- Hammertoe
- Charcot arthropathy

Charcot foot



- Occurs in people with significant nerve damage (neuropathy) due to diabetes or other disease
- Bones may fracture with even minor, repetitive trauma from walking
- The joints can eventually collapse, and the foot takes on an abnormal shape ("rocker-bottom")



Charcot foot

Severe deformity

Disability

Ulceration

Infection

Amputation

Dry skin



- Can easily crack or fissure
- Difficult to heal
- May lead to ulceration

Treatment

For *motor symptoms*, mechanical aids such as hand or foot braces can help reduce physical disability and pain.

Orthopedic shoes can improve gait disturbances and help prevent foot injuries.

Splints for carpal tunnel problems can help position the wrist to reduce pressure of the compressed nerve and allow it to heal.

Some people with severe weakness benefit from tendon transfers or bone fusions to hold their limbs in better position, or to release a nerve compression.

Treatment

Autonomic symptoms require detailed management depending on what they are.

For example, people with orthostatic hypotension (significant drop in blood pressure when standing quickly) can learn to prevent drops by standing up slowly and taking medications to improve blood pressure swings.

Treatment

Sensory symptoms, such as neuropathic pain or itching caused by injury to a nerve or nerves, are more difficult to control without medication.

Some people use behavioral strategies to cope with chronic pain as well as depression and anxiety that many may feel following nerve injury.

Treatment

Medications recommended for *chronic neuropathic pain* are also used for other medical conditions.

Among the most effective are a class of drugs first marketed to treat depression. Nortriptyline and newer serotonin-norepinephrine reuptake inhibitors such as duloxetine hydrochloride modulate pain by increasing the brain's ability to inhibit incoming pain signals.

Another class of medications that quiets nerve cell electrical signaling is also used for epilepsy. Common drugs include gabapentin, pregabalin.

Treatment

Medications put on the skin (topically administered) are generally appealing because they stay near the skin and have fewer unwanted side effects.

Lidocaine patches or creams applied to the skin can be helpful for small painful areas, such as localized chronic pain from mononeuropathies such as shingles.

Another topical cream is **capsaicin**, a substance found in hot peppers that can desensitize peripheral pain nerve endings.

Keeping Small Problems from Getting Worse

- Dos – to keep you proactive
- Don'ts – to avoid bad consequences



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Do . . .

- Check your feet every day
 - For cuts, blisters, redness, swelling, nail problems, etc.
- Check your blood sugar routinely
- Eat right and exercise, as your doctor advises



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Do . . .

- Wear the right shoes and socks
- Shake out your shoes before wearing them
- Moisturize your feet – but NOT between the toes
- Get periodic foot exams



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Don't . . .

- Don't ignore any abnormality or pain
- Don't perform “bathroom surgery”
- Don't use medicated pads without doctor's approval



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Don't . . .

- Don't walk around barefoot
- Don't wear tight shoes
- Don't go without socks
- Don't let socks bunch up



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Don't . . .

- Don't soak your feet in hot water
- Don't walk on hot sand
- Don't expose your feet to the cold



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Don't . . .

- Don't forget to check your levels
- Don't stop doing everything you can to control your diabetes
- Don't smoke



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Summing it Up

- These guidelines are proactive, preventive measures
- In many cases, diabetes can be controlled through
 - Good nutrition
 - Healthy weight
 - Physical activity
 - Regular check-ups with healthcare team
- Your foot and ankle surgeon is part of that team



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Shoes



- Wide toe box
- Toes should be able to move side-to-side and top-to-bottom
- Protect toes
- Supportive insole/outsole

*Thank you for
your attention!*

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