CONDITION

Peripheral artery disease - legs

Peripheral artery disease is narrowing of the arteries that carry blood to the legs and feet.

WHAT IT IS
Reduced blood flow through narrowed leg arteries

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Walking pain, rest pain, slow-healing sores, cold foot

WHAT CAUSES IT
Usually fatty plaque narrowing leg arteries

HOW IT IS DIAGNOSED
Ankle-brachial index, vascular imaging when needed

MAIN TREATMENT
Risk reduction, walking therapy, medicines, blood-flow procedures

CAN IT BE CURED?
No - treatment controls symptoms and cardiovascular risk

IS IT AN EMERGENCY?
Sometimes - sudden cold, painful, numb leg

LONG-TERM OUTLOOK
Often manageable, but cardiovascular and limb risks remain

Overview

Peripheral artery disease, or PAD, is a condition in which arteries carrying blood to the legs or feet become narrowed or blocked. It is also called peripheral vascular disease, or PVD, although PVD is a broader term that can include other blood vessel conditions.

PAD is usually caused by atherosclerosis. This means fatty material, called plaque, has built up inside an artery. The artery becomes narrower, so less oxygen-rich blood reaches the leg muscles and skin.

Some people have no obvious symptoms. Others develop pain when walking because their muscles need more blood during activity. More advanced PAD can reduce blood flow even while you are resting and can make wounds difficult to heal.

PAD matters beyond the legs. Atherosclerosis can also affect arteries supplying the heart and

brain, so having PAD is linked with a higher risk of heart attack and stroke. Treatment aims to protect your overall circulation as well as improve leg symptoms.

Symptoms

A common symptom is an aching, cramping, heaviness, or tired feeling in the calf, thigh, hip, or buttock during walking. This is called intermittent claudication. It usually starts after a similar amount of activity and improves after a few minutes of rest.

PAD can affect one or both legs. The location of discomfort often relates to where the artery is narrowed.

Other possible symptoms include:

Rest pain may feel better when the foot is lowered over the side of the bed. This happens because gravity helps some blood reach the foot. Persistent rest pain, dead tissue, or a non-healing wound can be signs of severely reduced blood flow.

Leg pain has many possible causes, including joint, nerve, muscle, and vein problems. Symptoms alone cannot confirm PAD.

- One foot feeling colder than the other
- Weak or difficult-to-feel pulses in the feet
- Smooth, shiny skin or reduced hair growth on the legs
- Slow-growing or thickened toenails
- Sores on the toes, feet, or legs that heal slowly
- Pain in the foot or toes while resting, especially at night
- Pale, reddish, bluish, or darkened skin on the foot

Causes and risk factors

Most PAD develops because of atherosclerosis. Plaque gradually collects in artery walls and restricts blood flow. A blood clot can sometimes form on an already narrowed area and cause a sudden blockage.

Smoking or using tobacco is a major preventable risk factor. Diabetes can damage blood vessels and nerves, increasing the chance of PAD and making foot injuries harder to notice.

Other factors linked with PAD include:

Less commonly, a leg artery may be affected by inflammation, an injury, radiation treatment, or pressure from nearby muscles or ligaments. These causes are more likely to be considered when symptoms occur in a younger person without the usual atherosclerosis risk factors.

- Increasing age
- High blood pressure
- High cholesterol
- Chronic kidney disease
- A history of heart attack, stroke, or coronary artery disease
- A family history of atherosclerotic cardiovascular conditions
- Limited physical activity

Diagnosis

A healthcare professional will ask where the discomfort occurs, what brings it on, and how quickly it settles. They may examine the skin and feet, feel the pulses, and listen for unusual blood-flow sounds over the arteries.

The main initial test is the ankle-brachial index, or ABI. Blood pressure is measured at the ankle and arm, then the readings are compared. A lower ankle pressure can show reduced blood flow to the leg.

If a resting ABI does not explain activity-related symptoms, it may be repeated after walking on a treadmill. A toe-brachial index, which compares toe and arm pressures, can be useful when ankle arteries are unusually stiff. This is more common in people with diabetes or chronic kidney disease.

A duplex ultrasound uses sound waves to show blood flow and locate narrowed areas. CT angiography or MR angiography can provide more detailed pictures of the arteries. Catheter angiography, in which dye is placed directly into an artery, is usually reserved for situations where a procedure is being considered or other tests are unclear.

Treatment and management

Treatment is based on your symptoms, test results, other health conditions, and how PAD affects your daily life. The goals are to reduce heart and stroke risk, improve walking, protect the feet, and prevent severe loss of blood flow.

Stopping tobacco use is one of the most important steps for people who smoke. Support may include counselling and medicines for nicotine dependence. Avoiding second-hand smoke is also helpful.

Structured walking exercise can improve how far many people with stable claudication can walk. A typical program alternates walking with rest when moderate discomfort develops. Supervised exercise programs offer guidance and monitoring, but structured home or community programs may also be used.

Medicines may be recommended to:

These medicines are not suitable for everyone. For example, some medicines used for claudication should not be taken by people with certain forms of heart failure. Treatment should be chosen after reviewing your medical history and other medicines.

Foot care is especially important if you have reduced sensation or diabetes. Check your feet regularly for blisters, cracks, colour changes, and sores. Wear well-fitting shoes and avoid walking barefoot. A foot injury that is not healing needs medical assessment.

A procedure to improve blood flow may be considered when symptoms seriously limit daily life despite exercise and medicines, or when blood flow is too low to support healing. Options include angioplasty, sometimes with a stent, to open an artery from inside. Bypass surgery creates a new route around a blockage using a vein or artificial blood vessel.

A procedure can improve circulation, but it does not remove the underlying tendency to atherosclerosis. Risk-reduction treatment usually continues afterward.

- Reduce the risk of blood clots, heart attack, and stroke
- Lower cholesterol and slow plaque-related artery damage
- Manage high blood pressure or diabetes
- Improve walking symptoms in selected people

Complications

Because PAD is often part of widespread atherosclerosis, an important complication is heart attack or stroke. Managing tobacco use, cholesterol, blood pressure, diabetes, and physical activity helps address this risk.

Severely reduced blood flow can cause chronic limb-threatening ischemia. This means a foot has persistent rest pain, a non-healing wound, or tissue death because it is not receiving enough blood. Infection can develop in a poorly healing wound.

In advanced cases, tissue may become too damaged to recover and amputation may be

necessary. Amputation is not inevitable, and early assessment of rest pain or wounds can create more options for protecting the limb.

A clot can also suddenly block an artery. This is called acute limb ischemia and is an emergency.

Prevention

PAD cannot always be prevented. Age, family history, and some less common causes cannot be changed. However, the risk of atherosclerotic PAD can often be reduced.

Not smoking is particularly important. Regular physical activity, a heart-healthy eating pattern, and management of cholesterol, blood pressure, diabetes, and kidney disease can also lower cardiovascular risk.

If you already have PAD, these measures cannot reliably remove existing plaque. They can help slow further artery damage and reduce the chance of complications.

Routine foot care does not prevent the artery narrowing itself. It can help prevent small injuries from becoming serious, especially when circulation or sensation is reduced.

Living with it and what to expect

PAD often continues over years. It may remain stable for long periods, or symptoms may gradually become more limiting. A sudden change is not part of routine progression and needs prompt assessment.

Walking discomfort can improve over several months with structured exercise and risk-factor treatment. Improvement does not necessarily mean the narrowed artery has disappeared. The muscles may be using oxygen more efficiently, and small blood vessels may be helping carry blood around the narrowed area.

Some people continue to have no symptoms. Others adjust their pace, take planned rests, or use a walking aid. If pain prevents work, shopping, or other important activities despite treatment, blood-flow imaging and a procedure may be considered.

Routine follow-up may include reviewing walking ability, checking the feet and pulses, and monitoring blood pressure, cholesterol, diabetes, tobacco use, and medicines. New wounds, rest pain, or a marked reduction in walking distance should be reported rather than saved for a routine visit.

When to get medical help

Arrange a routine appointment if you repeatedly develop calf, thigh, hip, or buttock discomfort when walking that settles with rest. You should also seek assessment for one foot that is persistently colder, unexplained colour changes, or reduced walking ability.

Get prompt medical advice if you have:

Call emergency services if a leg or foot suddenly becomes severely painful, cold, pale, numb, or weak. Sudden loss of movement or sensation can mean an artery has become blocked. Treatment is time-sensitive.

Chest pressure, sudden shortness of breath, facial drooping, arm weakness, or difficulty speaking may indicate a heart attack or stroke and also require emergency help.

- New pain in the foot while resting
- A blister, cut, or sore that is not healing
- Increasing redness, swelling, drainage, or bad smell around a wound
- A toe or area of skin becoming blue, purple, or black
- A rapid worsening of your usual walking symptoms

Common questions

Can peripheral artery disease be reversed?

The plaque causing PAD usually cannot be completely reversed. Treatment can slow further narrowing, reduce cardiovascular risk, and improve symptoms. Angioplasty or bypass surgery can restore blood flow around a blockage, but neither removes the underlying risk of future plaque build-up.

Does PAD always cause leg pain?

No. Some people have no noticeable symptoms, while others reduce their activity without realizing that walking brings on discomfort. PAD may instead be found during a circulation examination, an ankle-brachial index test, or assessment of a foot wound.

Is walking safe if walking makes my legs hurt?

Structured walking is an important treatment for stable intermittent claudication. It commonly involves walking until moderate discomfort develops, resting until it settles, and then walking again.

Do not push through sudden severe pain. Seek medical guidance before starting a program if

you have pain at rest, an open foot wound, unstable heart symptoms, or a recent major change in your condition.

Will I need an amputation?

Amputation is not an expected outcome for everyone with PAD. It is mainly a concern when blood flow becomes too low to heal wounds, tissue dies, or serious infection cannot be controlled. Prompt care for rest pain, colour changes, and foot wounds can improve the chance of preserving the limb.

Do compression socks help PAD?

Compression socks treat some vein and swelling problems, but they do not open narrowed arteries. Strong compression may be unsafe when arterial blood flow is severely reduced. If you have PAD or possible PAD, have your circulation assessed before using medical compression garments.

How is PAD different from a blood clot in a vein?

PAD affects arteries carrying blood toward the leg and usually develops gradually. A deep vein thrombosis affects a vein carrying blood back toward the heart and often causes one-sided swelling, warmth, and tenderness. Either condition needs medical assessment, and sudden symptoms should not be self-diagnosed.

Sources

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