

Do your legs hurt
when you walk?

Information about
leg pain from poor circulation

Action

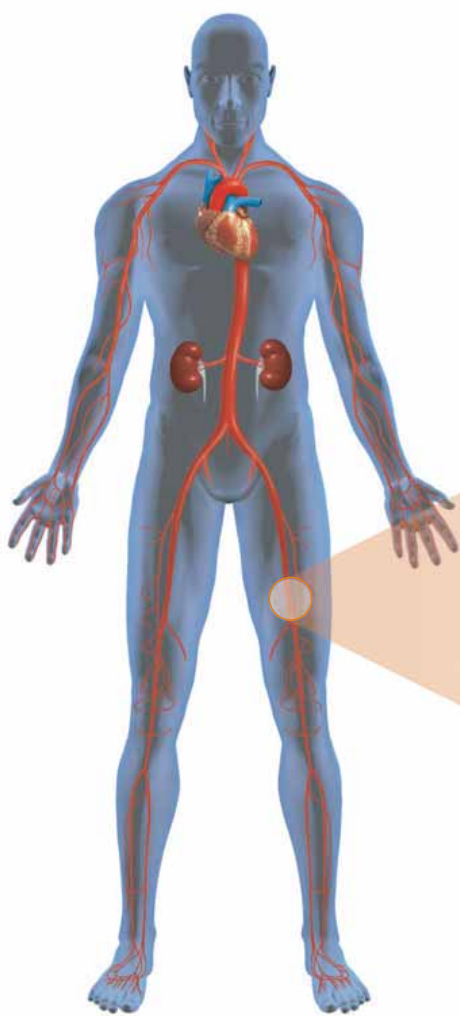




Leg pain and peripheral vascular disease

*Leg pain that comes and goes but really never goes away is a problem that affects many people as they get older. A common cause of chronic leg pain is **poor circulation**. The medical name for this condition is **Peripheral Vascular Disease (PVD)**. PVD is the **narrowing of the arteries** (blood vessels) that supply blood to various parts of the body. It often affects the arteries that supply blood to the legs, leading to a circulation disorder in the lower limbs which is commonly experienced as pains or cramping in the leg. If not treated, PVD can seriously impair a person's ability to walk.*

Circulatory system and fatty deposit build up



PVD is caused by a build-up of fatty deposits

- The **narrowing of the arteries** (stenosis) is caused by **atherosclerosis**, the build-up of fatty deposits – sometimes called plaques or lesions – on the inside walls (linings) of the blood vessels. As these deposits build up, they cause narrowing of the vessel.
- When the arteries that carry blood to your legs become too narrow, **blood flow is reduced and your leg muscles don't get enough oxygen** to support physical activity and you will experience pain. This is called ischaemia.

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■ What are the symptoms of PVD in the lower limbs?

- The most common symptoms are pain, aching or cramps in the legs when walking or exercising; it occurs most often in the calf but you may also develop pain in your foot, thigh, hip or buttocks. The symptoms normally disappear when you rest, but may return after you walk the same distance again. Pain in the legs that comes and goes is called **intermittent claudication**. Intermittent claudication occurs more quickly if you walk uphill or up a flight of stairs.
- Other symptoms are: weakness in the legs, numbness, tingling, coldness and change in skin colour of the feet. The skin on the lower legs may also be dry and scaly with poor toenail and hair growth.
- If the arteries become too narrow, you may feel pain even when you are resting, particularly at night when you are lying down in bed, which eases if you dangle your legs over the side of the bed.





What are the risks associated with lower limb Peripheral Vascular Disease?

- If PVD continues to progress, symptoms may get worse and if it is not treated it can seriously impair your ability to walk and live independently. If PVD is not treated and the blood flow to the lower legs and feet is very restricted, **it can lead to poor healing of wounds and cause infections.**
- People with lower limb PVD may also have fatty build-up in other parts of the body such as in the arteries of the heart (coronary artery disease), brain (cerebrovascular disease) and kidney (renal artery disease). Because of this, if not treated early, people with PVD may have a higher risk of heart attack, stroke or kidney failure.

■ How can my doctor diagnose lower limb PVD?

Physical examination

- The first thing your doctor will do is **ask you about your medical history** and give you a thorough physical examination. He/she will look carefully at your feet to see if they are drained of colour when you raise them and redden in colour when you lower them. Any signs of sores that are slow to heal will also be noted.

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- Your doctor will check for a weak pulse in your legs and measure the temperature of your lower leg or foot.
- Your doctor will consider if your symptoms are combined with any of the following risk factors which can be related to the development of PVD:
 - Older age
 - Family history of heart or vascular disease
 - Past or current smokers
 - High blood pressure
 - Diabetes
 - High cholesterol levels
 - Obesity
 - Too little exercise or physical activity



ABI test

Diagnostic tests

- Your doctor can diagnose lower limb PVD by taking blood pressure measurements, using a treadmill test, blood tests or imaging techniques.

Blood pressure measure – the ankle-brachial index (ABI)

- The ankle–brachial (arm) index is a painless examination that compares the blood pressure in your feet to the blood pressure in your arms to determine how well your blood is circulating.





Your doctor can also diagnose lower limb PVD by using one of the following tests:

Doppler Ultrasound (Duplex) imaging

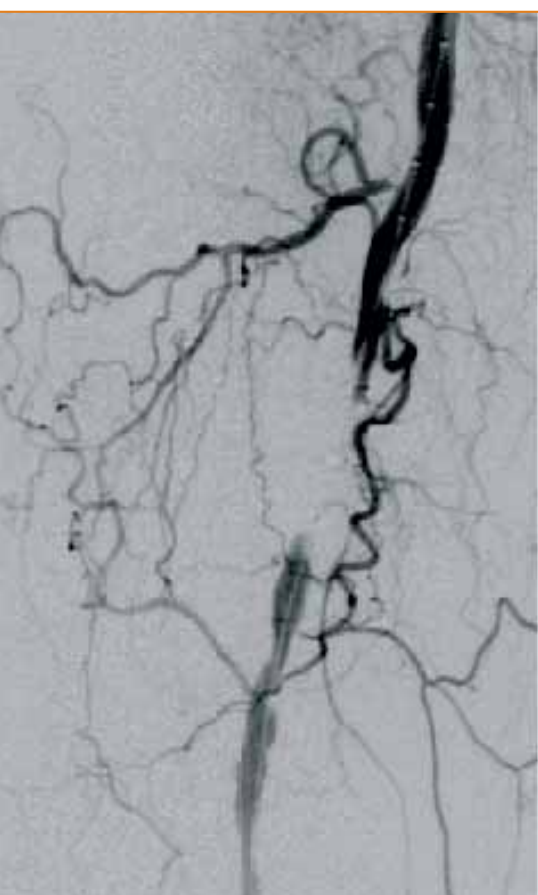
- This method uses sound waves to look at your arteries and measure the blood flow.

Blood tests

- Your doctor will arrange for a set of routine blood tests to screen you for any associated conditions that you may have such as high cholesterol levels or diabetes.

Angiography

- You may be referred to a hospital to undergo more specialised tests, such as angiography. This is an x-ray picture of your blood vessels which is obtained by putting a dye into your arteries (contrast agent) that shows up on x-ray. The dye is injected through a small tube (catheter) that is inserted through the groin into one of the blood vessels. This will give your doctor a more detailed picture of the location and size of any narrowing in your arteries.



Angiography

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How is lower limb PVD treated?

Lifestyle changes

- It is not possible to totally prevent the occurrence of lower limb PVD or alter the part family history plays in its development. However, the following changes to your lifestyle may relieve your symptoms or stop them worsening.

- **Smoking**

If you can, stop smoking. If you are finding it difficult, try counselling or using products for smoking cessation. Stopping smoking increases the distance you can walk and reduces your risk of having a heart attack, stroke or lung cancer.

- **Regular exercise**

Walking is the best exercise to improve your symptoms. Carry on walking until you feel pain. Rest for a few minutes until the pain stops, and then carry on walking. If you do this regularly, you should be able to walk a little further each day before you feel any pain.

- **Diet**

Following a low-fat diet and maintaining a healthy weight reduces the risks of PVD.





- Foot care

Care of your feet is especially important. Ask your doctor for advice. Do not wear tight socks or shoes and try not to injure your feet.

- Hypertension and diabetes

It is important that you have regular check-ups with your doctor for high blood pressure and diabetes, especially if any of your family suffers from these diseases.

Medication

- Your doctor may decide to prescribe medications to treat your lower limb PVD. These might include:

- Medicine to help improve walking distance
- Medication to prevent blood clots
- Cholesterol-lowering treatments

- If changing your lifestyle and medication is not enough to treat PVD, *your doctor may recommend a procedure to treat the narrowed artery.*

- A number of procedures are available for treating lower limb PVD, including **surgery** and **non-surgical treatments**. Most people with PVD do not need surgery. Only your doctor can determine the treatment that is right for you.

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Vascular surgery

- In the past, surgery was the only procedure available to treat severe PVD and, in some cases, reconstructive surgery may still be needed. When surgery is required, the surgeon implants a new vessel (a natural or artificial vascular bypass) that allows the blood to bypass the obstruction.

Non-surgical treatment options

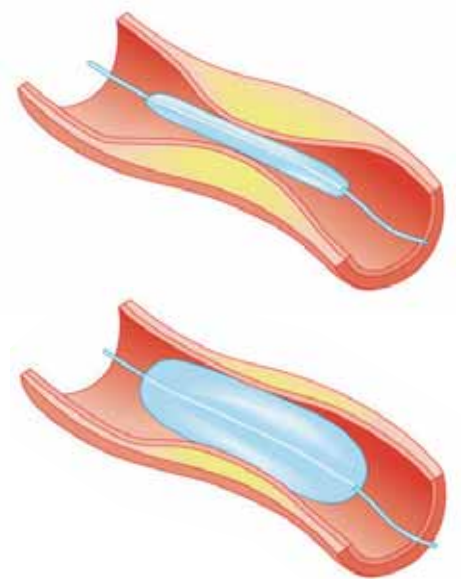
Balloon angioplasty

- Angioplasty is a **less invasive, non-surgical procedure** that can be used to dilate (widen) narrowed or obstructed peripheral arteries. A specially trained doctor inflates a **tiny medical balloon** inside the artery, compressing the plaque against the blood vessel walls. The balloon is then deflated and is withdrawn. This procedure is performed entirely within the artery through a small puncture in the groin.

Stenting

- Your doctor may recommend angioplasty together with the placement of an intravascular stent in the artery. An intravascular **stent is a fine wire mesh tube** that is introduced into the artery with the help of a catheter. The stent is then gently expanded to open the vessel, restore blood flow, and relieve symptoms. The stent will slowly become part of the artery. The lining of the artery will slowly grow over the stent, permanently incorporating it into the artery wall.

Balloon angioplasty



Stenting





- Stent implantation is performed in a hospital suite equipped with x-ray imaging (catheter laboratory) to enable the doctor to see where to place the stent in the artery.
- Following a stent procedure, in **most cases the patient can leave the same day** or the day after the procedure as it is not an invasive treatment like surgery that requires longer recovery.



Catheter laboratory

■ Living with PVD

- Many people as they get older will experience symptoms of PVD. The good news is that advances in medicine mean that this condition can be effectively treated.
- It is very important that you make and maintain your lifestyle changes that can slow the risk of the condition worsening, and your doctor may prescribe medications to also reduce this risk or address specific symptoms. With the development of angioplasty and stenting in the lower limbs, many people can also now be treated without the need for surgery, and allow a quick return to normal activities that were enjoyed before the symptoms of PVD appeared.

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GLOSSARY

Angioplasty - A procedure to open an obstruction or narrowing of a blood vessel using a medical balloon catheter.

Angiogram - An x-ray of the arteries after a special contrast dye has been injected into the body.

Atherosclerosis - A disease process in which fatty substances, such as cholesterol, are deposited on the inner lining of blood vessels which can lead to blockage or reduction of blood supply to vital organs.

Catheter - A tube used for gaining access to one of the body's cavities. In angioplasty, a catheter is inserted through the groin providing access to the arteries.

Cholesterol - A type of fat found in the blood that has a major role in hardening of the arteries. Foods that are rich in animal fats also contain high levels of cholesterol.

Collateral circulation - Circulation of blood through alternate vessels.

Femoral artery - The artery that supplies blood to the legs.

Gangrene - Death of tissue due to very poor blood supply.

Intermittent claudication - Pain in the legs that occurs with work, exercise or physical activity, but may also occur when

resting. It is due to a deficient blood supply in exercising muscles.

Ischaemic - Lacking in blood supply.

Medical balloon - A tube used for treating lesions (narrowing or obstructions) in the arteries, with a tiny balloon on its tip. The balloon is gently inflated after the catheter is in position.

Peripheral - Refers to the arteries supplying blood to the arms, legs, feet, kidneys and rest of the body.

Plaque - Fatty build-up of cholesterol or fatty substances on the inside of blood vessels that cause narrowing or blockage.

Stenosis - A narrowing or blocking of a passageway.

Stent - An expandable, fine wire mesh tube to hold open blood vessels.

Vascular bypass - An implant of a new vessel in the vascular system.

Vascular system - The heart, blood, and network of blood vessels that lead to and from the heart.



ACTION is a programme aimed at increasing the awareness and detection of peripheral vascular disease in clinical practice, as well as increasing the awareness of this condition amongst the general public.

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