

# Lower limb peripheral arterial disease

Information for the public

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[nice.org.uk](http://nice.org.uk)

## About this information

NICE clinical guidelines advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive. The information applies to people using the NHS in England and Wales.

This information explains the advice about the care and treatment of people with lower limb peripheral arterial disease that is set out in NICE clinical guideline 147.

## *Does this information apply to me?*

Yes, if you are:

- an adult (18 years or older) and have discomfort, pain or skin changes that suggest lower limb peripheral arterial disease.
- an adult and do not have pain, but have other signs of problems with the blood flow to your legs and feet.

No, if you have a condition called 'acute limb ischaemia', which is when the blood flow to a limb stops suddenly – for example because of a blood clot in an artery.

## Your care

If you think that your care does not match what is described in this information, please talk to a member of your healthcare team in the first instance.

In the NHS, patients and healthcare professionals have rights and responsibilities as set out in the NHS Constitution ([www.dh.gov.uk/en/DH\\_132961](http://www.dh.gov.uk/en/DH_132961)). All NICE guidance is written to reflect these. You have the right to be involved in discussions and make informed decisions about your treatment and care with your healthcare team. Your choices are important and healthcare professionals should support these wherever possible. You should be treated with dignity and respect.

To help you make decisions, healthcare professionals should explain peripheral arterial disease and the possible treatments for it. They should cover possible benefits and risks related to your personal circumstances. You should be given relevant information that is suitable for you and reflects any religious, ethnic, or cultural needs you have. It should also take into account whether you have any physical or learning disability, sight or hearing problem or language difficulties. You should have access to an interpreter or advocate (someone who helps you put your views across) if needed.

Your family and carers should be given their own information and support. If you agree, they should also have the chance to be involved in decisions about your care.

You should be able to discuss or review your care as your treatment progresses, or your circumstances change. This may include changing your mind about your treatment or care. If you have made an 'advance decision' (known as a 'living will' in the past) in which you have already given instructions about any treatments that you do not wish to have, your healthcare professionals have a legal obligation to take this into account.

All treatment and care should be given with your informed consent. If, during the course of your illness, you are not able to make decisions about your care, your healthcare professionals have a duty to talk to your family or carers unless you have specifically asked them not to. Healthcare professionals should follow the Department of Health's advice on consent ([www.dh.gov.uk/en/DH\\_103643](http://www.dh.gov.uk/en/DH_103643)) and the code of practice for the Mental Capacity Act. Information about the Act and consent issues is available from [www.nhs.uk/CarersDirect/moneyandlegal/legal](http://www.nhs.uk/CarersDirect/moneyandlegal/legal). In Wales healthcare professionals should follow advice on consent from the Welsh Government ([www.wales.nhs.uk/consent](http://www.wales.nhs.uk/consent)).

## Lower limb peripheral arterial disease

In people with lower limb peripheral arterial disease, the blood vessels (arteries) that carry blood to the legs and feet are hardened and narrowed or blocked by a build up of fatty deposits (called atheroma). Peripheral arterial disease is often shortened to PAD, and is also sometimes called peripheral vascular disease.

Because peripheral arterial disease affects the arteries, it is a type of cardiovascular disease. If you have peripheral arterial disease, this indicates that you are also at risk of other cardiovascular problems, such as angina or a heart attack (if the flow of blood to the heart is restricted) or a stroke (if the flow of blood to the brain is restricted). This is because if arteries in your legs and feet are narrowed or blocked by fatty deposits, blood vessels elsewhere in your body are likely to be affected too.

The most common symptom of peripheral arterial disease is cramp-like pain in the legs and/or buttocks during walking or exercising, which stops after resting for a while. This is called intermittent claudication.

Some people with peripheral arterial disease develop critical limb ischaemia, which is a serious condition that can be life threatening. It happens if the blood flow is severely restricted, resulting in pain in the toes, feet and legs even when resting. In severe cases foot ulcers or gangrene may develop, and sometimes amputation may be needed.

Treatments for peripheral arterial disease are aimed at relieving the symptoms and reducing the risk of further cardiovascular disease. They include lifestyle changes (such as increasing the amount of exercise you do), drugs and surgery.

## Diagnosing peripheral arterial disease

If your healthcare professional suspects that you may have peripheral arterial disease, they should carry out an assessment (see list below). This could happen, for example, if you have symptoms that are suggestive of the condition, or if you have diabetes, wounds on your legs or feet that aren't healing, or unexplained pain in your legs. They should also check for peripheral arterial disease if you are having surgery or other treatment involving your legs or feet, or need to wear compression hosiery (socks, stockings or tights that may be used for treating some leg problems such as varicose veins and leg ulcers).

In the assessment, your healthcare professional should do the following:

- Ask you about any symptoms that might indicate that you have peripheral arterial disease.
- Examine your legs and feet for any signs of blood flow problems (such as a foot ulcer).
- Take the pulses in your groin, behind your knees and in your feet.
- Compare the blood pressure in your ankles with that in your arms to find out whether there are blood flow problems in your legs. This comparison is called an 'ankle brachial pressure index', or ABPI.

## Information and support

If you have peripheral arterial disease, your healthcare professional should talk with you about your condition and give you written information about it. This should help you to understand the condition and what you can do to help prevent it getting worse. Information should be available when you are first diagnosed and then whenever you need it, so that you can make informed decisions about your care.

The information about peripheral arterial disease should include:

- The causes of any symptoms you are experiencing, and how severely the blood flow to your legs and feet is restricted.
- The risks that can be associated with having peripheral arterial disease. These include other cardiovascular problems, and even losing a limb.
- Lifestyle changes you can make. These include taking plenty of exercise, stopping smoking, eating healthily, losing weight if you need to, taking steps to lower the level of cholesterol in your blood, and managing diabetes if you have it.
- How to manage pain associated with peripheral arterial disease.
- What to do and who to contact if you are feeling depressed or anxious.
- The treatment options available and their benefits and risks.

NICE has produced separate guidance about making sure that people using adult NHS services in England and Wales have the best possible experience of care. This includes advice for healthcare professionals on communication, providing information and involving people in decisions about their care. Information for the public explaining this guidance is available at <http://publications.nice.org.uk/IFP138>.

## Lifestyle changes and treatments to lower the risk of other cardiovascular problems

You should be offered information, advice and support about the lifestyle changes you can make to reduce your risk of other cardiovascular problems. You should also be offered any appropriate treatments to help prevent these problems. NICE has produced separate guidance about the following topics:

- Stopping smoking.
- Taking more exercise, eating a healthy diet and controlling your weight.
- Controlling your cholesterol levels, including treatment with cholesterol-lowering drugs called statins.
- Preventing, diagnosing and managing diabetes.
- Preventing, diagnosing and managing high blood pressure.
- Treatment with antiplatelet drugs (which make your blood less 'sticky' and less likely to form blood clots).

See the [Other NICE guidance](#) section for further details.

### Questions you might like to ask

- What information and support is available to help me make changes to my lifestyle?
- What could happen if I don't change my lifestyle?
- How much exercise should I do?
- What type of exercise is best?
- Is walking good for me even though I find it painful?
- What sort of improvements might I expect if I change my lifestyle, and how long will it take to see an improvement?
- What are the possible long-term effects of peripheral arterial disease?

- Are there any support organisations for people with peripheral arterial disease in my local area?

## Treating intermittent claudication

Some treatments may not be suitable for you, depending on your exact circumstances. If you have questions about specific treatments and options covered in this information, please talk to a member of your healthcare team.

### *Supervised exercise programme*

Most people with intermittent claudication can manage their pain with exercise and treatments that reduce the risk of other cardiovascular problems.

People with intermittent claudication should be offered a group-based supervised exercise programme. The programme aims to help people build up their strength gradually, and typically should involve 2 hours of supervised exercise a week for 3 months. In these sessions you should be encouraged to exercise until you feel pain in your legs, rest, then exercise again.

### *Revascularisation*

If the supervised exercise programme does not help to relieve your symptoms sufficiently, another option is 'revascularisation' (procedures on the arteries that increase the amount of blood that can get to your legs). See the box below for information about revascularisation procedures and imaging tests.

## Information about revascularisation

Revascularisation is a term for any procedure that is used to restore the blood flow to an area of the body that is supplied by narrowed or blocked arteries.

This can be done either by making the narrowed arteries wider (angioplasty), or by using another blood vessel to bypass the blocked or narrowed artery (bypass surgery).

**Angioplasty** is a procedure in which a small balloon is inserted into the narrowed artery and inflated to widen the artery. An expandable mesh tube (called a stent) may be needed in the widened section of artery to keep it open.

In **bypass surgery**, the blood flow is redirected from the section of artery above the blocked or narrowed area to rejoin the artery below the blocked section. This is done using a vein taken from somewhere else in the body or a synthetic tube and 'grafting' it into place above and below the blockage. NICE says that bypass surgery for treating peripheral arterial disease should use a vein from elsewhere in the body whenever possible.

Depending on the location of the artery that needs to be widened, revascularisation can be done as 'keyhole' surgery or 'open surgery'. Keyhole surgery is less invasive and is done either while you are awake (using sedation and a local anaesthetic) or under a general anaesthetic. Open surgery is more invasive, and may involve a general anaesthetic and a longer recovery time. Your healthcare team will be able to give you more information.

If you have peripheral arterial disease and your healthcare professional thinks that revascularisation could be a possible treatment for you, they should offer you **imaging tests** to see whether it would be suitable. The first of the tests should be an ultrasound scan. If further imaging is needed, you should be offered a magnetic resonance (MR) scan. If an MR scan is not suitable for you (for example, if you have a pacemaker), you should be offered a different type of scan called computed tomography (CT).

## Angioplasty and stenting

If changes to your lifestyle and the supervised exercise programme have not improved your intermittent claudication symptoms sufficiently, you should be offered angioplasty (with or without a stent) if it is suitable for you. This will depend on the results of the imaging tests and the blood flow problems that you have.

## Bypass surgery

If intermittent claudication is severely limiting your lifestyle and affecting your quality of life, your healthcare team may offer bypass surgery. This will be an option for you only if previous angioplasty surgery was unsuccessful or if angioplasty is unsuitable for you, and the results of the imaging tests show that bypass surgery is an appropriate treatment.

## *Drug treatment*

If a supervised exercise programme has not improved your symptoms sufficiently and you prefer not to have angioplasty or bypass surgery, your healthcare team may offer you treatment with a drug called naftidrofuryl oxalate, which works by widening the blood vessels. Your symptoms should be checked after 3–6 months, and the drug treatment should be stopped if your symptoms are not improving.

## **Treating critical limb ischaemia**

Only 1 in 5 people who have symptoms of peripheral arterial disease go on to develop critical limb ischaemia. If you do develop symptoms of critical limb ischaemia, your care should be reviewed by a team of specialist healthcare professionals who are skilled in treating patients with blood circulation problems (a 'vascular multidisciplinary team').

## *Revascularisation*

You may be offered revascularisation to help restore your blood flow (see [Information about revascularisation](#)).

When deciding on whether angioplasty (with or without a stent) or bypass surgery is the most appropriate revascularisation procedure, your healthcare team should take into account any other health problems you may have, whether your condition is getting worse, your own preference, the blood flow problems you have, and whether you have a vein that can be used in bypass surgery.

## *Pain relief*

You should be offered pain relief with paracetamol and either weak or strong opioids, depending on the severity of the pain. Patients taking strong opioids often have problems with constipation and nausea (feeling sick), so you should also be offered treatments such as laxatives and anti-sickness medication.

If revascularisation is unsuitable for you and these drug treatments do not relieve your pain sufficiently, or you need high doses of opioids for more than a few days, your doctor should refer you to a specialist pain management service. You should also be referred if you have had revascularisation or amputation but are still in pain.

Your healthcare team can give you more information about pain relief.



NICE has said that a procedure called 'chemical sympathectomy' should not be offered to people with pain resulting from critical limb ischaemia unless as part of a research study (also called a clinical trial). This is because there is not enough evidence to say whether it works well enough to be used in the NHS.

## *Amputation*

For some people with severe critical limb ischaemia, the blood flow cannot be restored and amputation is the only option option to reduce severe pain or the risk of serious infection and improve quality of life. NICE has said that amputation above the ankle should only be considered for patients with critical limb ischaemia after the vascular multidisciplinary team has ruled out all other possible treatment options.

### Questions you might like to ask about treatment

- Can you tell me about the risks and benefits of all of the treatment options?
- What will a supervised exercise programme involve, and how many sessions will there be?
- Why have you offered me this particular scan?
- How long will the scan take and what does it involve?
- Can you tell me more about the different types of revascularisation?
- Might bypass surgery be suitable for me?
- What options are there if I prefer not to have surgery?
- What different types of pain relief are available?

## More information

The organisations below can provide more information and support for people with peripheral arterial disease. NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- Action on Smoking and Health (ASH) [www.ash.org.uk](http://www.ash.org.uk)

- HEART UK – the Cholesterol Charity, 0845 450 5988 [www.heartuk.org.uk](http://www.heartuk.org.uk)
- South Asian Health Foundation, 020 3313 0677 [www.sahf.org.uk](http://www.sahf.org.uk)
- The Circulation Foundation, 020 7304 4779 [www.circulationfoundation.org.uk](http://www.circulationfoundation.org.uk)

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more.

## Other NICE guidance

To find information for the public on the following topics, you can search the NICE website using the terms below.

- Preventing and treating cardiovascular disease, including eating a healthy diet and treatment with antiplatelet drugs (search term 'vascular disease').
- Stopping smoking (search term 'smoking').
- Taking more exercise and controlling your weight (search terms 'physical activity' and 'obesity').
- Controlling your cholesterol levels (search term 'lipid modification').
- Preventing, diagnosing and managing diabetes (search term 'diabetes').
- Preventing, diagnosing and managing high blood pressure (search term 'hypertension').

## Accreditation

