

All about intermittent claudication

Information for patients

What is intermittent claudication?

Intermittent claudication is the name given to the pain caused by the narrowing or blockage of blood vessels (arteries) in your legs. Arteries transport blood containing oxygen and essential nutrients to every part of your body.

Normally the artery is a hollow tube, and the inside has a smooth surface, which allows the blood to flow freely. In many people the lining of the artery can become damaged. Fatty deposits stick to the walls and the arteries narrow and harden. This is known as atherosclerosis (the hardening of the arteries).

Atherosclerosis prevents enough blood from reaching your leg muscles as you exercise or walk. Without adequate blood flow the muscles are starved of oxygen, and this causes a variety of symptoms including heaviness, fatigue, tightening, cramping and pain. When you rest, your muscles are not working so hard and require less blood flow, and so the symptoms go away.

The causes of blocked arteries

Narrowing of the arteries tends to become more common as people get older, especially if there is a family history of the disease. Other factors which speed up the process and make it more likely to develop it are:

- Smoking
- Having untreated high cholesterol
- Having untreated high blood pressure
- Being physically inactive
- Eating an unhealthy diet
- Being overweight
- Type 2 diabetes

How is claudication detected?

- A blockage or narrowing in the arteries can be detected by:
- Feeling for pulses in the legs. A blockage will lead to the loss of one or more pulses.
- Comparing the blood pressure in the leg with the blood pressure in the arms. If the arteries are narrowed, the blood pressure in your legs is likely to be lower than the blood pressure in your arms. This test is called an ankle brachial pressure index or an ABPI. Sometimes this is carried out in conjunction with a treadmill walking test.

- A duplex ultrasound. This is a non-invasive investigation that uses a probe and jelly on the skin to view the blood vessels inside the legs. This can show exactly where the narrowed areas and blockages are.
- A CT angiogram or MR angiogram. These tests are done in the X-ray department where a dye is injected into your arm and then a CT or MRI scan is done. This is done to show where there are narrowings or blockages in your arteries.
- An angiogram. This is an invasive test that requires dye to be injected into your arteries, usually through the artery in your groin. Once the dye is in, x-rays are taken to view the flow of blood in the arteries as well as any narrowed areas or blockages.

Will it get worse?

For most people, the condition will remain stable or improve with regular exercise, lifestyle changes and treatment for any underlying conditions such as high blood pressure, high cholesterol, or diabetes. In a small number of patients, the condition can become more severe and require more invasive treatment.

What are the treatments for intermittent claudication?

If you have been diagnosed with narrowing of the arteries in the legs, it is possible that the process will be happening elsewhere in the body. Narrowing of the blood vessels in the neck and brain put you at risk of stroke. Narrowing of the arteries in the heart put you at risk of a heart attack. Your doctor will be concerned not only to treat the pain in your legs, but to keep the arteries throughout your body as healthy as possible.

Treatment aims to:

- Prevent the condition from getting any worse
- Reduce the pain of intermittent claudication
- Improve walking distances
- Reduce the risk of heart attack and stroke.

Most people with intermittent claudication are treated conservatively (non-surgically). This involves making sure that you are on the best medical therapy and lifestyle management to improve the health of your arteries. If these measures fail to help you or the condition gets worse, you can discuss the possibility of having an angioplasty or surgery with your doctor.

Best medical therapy and lifestyle change

Your doctors will focus on keeping your blood pressure and cholesterol level low. If you are diabetic, they will also help you to keep your blood sugars stable.

Medication

You may be prescribed some or of all the following:

1. An antiplatelet medication, such as aspirin or clopidogrel, to prevent clots from forming in your arteries and to reduce the risk of heart attack and stroke. Rivaroxaban may be prescribed as an alternative on the advice of your physician.

2. A statin, such as Atorvastatin, to lower your cholesterol levels and improve the health of your blood vessels.
3. A peripheral vasodilator such as Praxilene, which may be prescribed to help improve the blood supply to the blood vessels in the legs

Medication to reduce your blood pressure if it is higher than 140/90. For more information about peripheral arterial disease visit the NHS website at:

www.nhs.uk/conditions/peripheral-arterial-disease-pad

Lifestyle changes

There are many things you can do to stop the condition from getting worse.

Stop smoking

Smoking causes blood vessels to narrow and become blocked. It reduces the amount of oxygen in your blood and increases the risk of heart attack, stroke, cancer and lung disease.

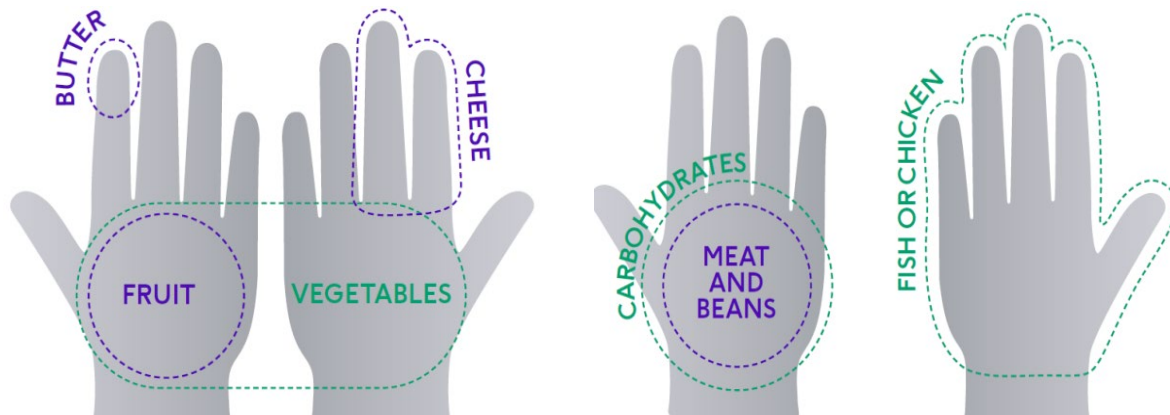
For many people stopping smoking reduces the pain in their legs. You may find it difficult to quit, but there are many products available and a range of support from health professionals. You can get help from the NHS stop smoking service by telephone 0300 123 1044 or visit their website www.nhs.uk/better-health/quit-smoking/

Eat a healthy diet

Having a healthy, balanced diet can reduce your risk of developing heart disease, high blood pressure, high cholesterol, and diabetes. It can also help you maintain a healthy weight. The way to improve your diet is to:

- Eat plenty of fruit and vegetables, at least five portions a day (see example of portion sizes in the hand infographics illustration).
- Base meals on potatoes, bread, rice, pasta or other starchy carbohydrates; choosing wholegrain versions where possible
- Have some dairy or dairy alternatives (such as soya, oat, etc), choosing lower fat and lower sugar options
- Eat some beans, pulses, fish, eggs, meat, and other proteins (including two portions of fish every week, one of which should be oily)
- Choose unsaturated oils and spreads and eat in small amounts
- Cut back on butter and use olive oil or sunflower oil spreads instead
- Reduce the amount of salt in your diet. Do not add it when cooking and avoid processed foods. The recommended salt intake per day is one teaspoon or six grams.
- Drink alcohol in moderation. Men and women are advised not to regularly drink more than 14 units a week.
- Drink six to eight glasses of water per day and limit fruit juices and/or smoothies to a total of 150ml per day.

- Reduce the amount of fruit juice you have each day and replace it with a piece of fresh fruit instead.



Images adapted from BHF

What about fat?

You need a small amount of fat in your diet to stay healthy, however they are high in calories so eating less of them can help you to lose weight.

There are two main types of fat: saturated and unsaturated:

- Saturated fat can increase your cholesterol levels so should be eaten cautiously. Foods high in saturated fat include:
 - Butter, hard cheese, fatty meat, biscuits, cakes, cream, lard, suet, ghee, coconut oil and palm oil. Eat less of these foods and buy the low-fat version when possible.
 - Unsaturated fat has a good effect on your cholesterol. Foods that are high in unsaturated fat include:
 - Rapeseed, sunflower and olive oil, sunflower and olive oil spreads, nuts, seeds, oily fish and avocado.
- Include small amounts of these foods in your diet and use them instead of their saturated fat equivalents.

Grilling, steaming, poaching, boiling, or microwaving your food instead of roasting or frying means you do not need to add fat when you are cooking. For more information about healthy eating visit the NHS Choices website at: www.nhs.uk/live-well/eat-well or you can ask your nurse for more information and a leaflet. Download the Eat Well guide (pdf format):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/528193/Eatwell_guide_colour.pdf .

Use the Eatwell plate to help you get a balanced, healthier diet:

- 1/3 of your daily food should come from fruit and veg.
- 1/3 should come from whole grain starchy foods.

- 1/3 should come from dairy foods and protein.

Only a tiny portion should come from fats and oils and sugary fatty foods should only be eaten as an occasional treat.

Look after your feet

Because of the reduced circulation to your feet, you may not heal as well as you used to. To prevent problems from occurring you should:

- Keep the skin healthy by moisturising your lower legs and feet every day with a simple moisturising lotion.
- Regularly check your feet and lower legs for any cuts, sores, or red areas. If there is any area that is slow to heal let your GP know.

Start exercising

A simple exercise programme is a very effective way of treating your condition. Exercise can:

- Improve walking distance
- Reduce pain
- Reduce the need for an operation
- Reduce blood pressure and cholesterol levels
- Help you to keep at a healthy weight
- Improve your mood.

What sort of exercise should I do?

You should do exercise that involves your lower body and makes your legs ache, for example:

- Walking
- Gym exercises: using the treadmill and cross trainer
- Nordic pole walking.

Other exercises which might help include:

- Cycling
- Swimming
- Dancing.

Research has found that attending a supervised exercise programme is one of the most effective ways to improve intermittent claudication. Ask your nurse about joining the programme at our Trust. You might also benefit from following a home exercise programme. For more information ask your nurse for a copy of our home exercise booklet or visit our website: www.royalfree.nhs.uk/vascular-surgery.

How often and for how long should I exercise?

You should exercise three to five times a week for 30-60 minutes. This may seem a little daunting at first and most people are not able to do this amount of exercise straight away. five to 10 minutes, three to five times a week is a good starting point, increasing to 30-60 minutes over time. The quicker you can build up to 30-60 minutes three to five times a week, the sooner you will begin to feel the benefits. Your nurse can help you to set some exercise targets.

How hard should I exercise? Do I keep going when my legs ache?

The pain you experience in your legs when you walk, or exercise stimulates your body to grow new blood vessels; this is called collateral circulation. Because of this you must try to exercise or walk at a pace that brings on the claudication pain within five to 10 minutes.

Once the pain has started you must **continue exercising until the pain is moderate to severe, 4 or 5 on the claudication pain scale**. At this point **stop and rest** until the pain has completely subsided before setting out again.

Claudication pain scale

No pain	1
Onset of pain	2
Mild pain	3
Moderate pain	4
Severe pain	5

This stop-start approach will really help to improve your circulation.

When not to exercise

If you feel unwell with any of the following, take a rest day and do not return to exercise until you feel better:

- A bad cold, flu, a high temperature, feeling very tired or generally unwell
- Any injury to a muscle or joint
- Acute episode of arthritis in ankles knees or hips.

Stop immediately and contact your GP if you experience any of the following while exercising:

- Chest pain
- Dizziness
- Extreme shortness of breath

Call an ambulance by ringing 999 if you feel very unwell and your symptoms do not go away when you stop exercising.

Walking as exercise

Most people find walking is the most convenient way to exercise. It can be built into your

daily routine, for instance walking to the shops or to work, or be done for pleasure, for example walking in the park or walking with friends.

- Always warm up by walking for the first five minutes at a slow pace. Try to avoid starting off uphill.
- Pick a route with plenty of resting places, such as bus stops, walls, or park benches.
- Keep a walking diary noting down how long you walk for and how many stops you make.

Other treatments

If these lifestyle and exercise measures fail to help you or your condition gets worse, you can discuss with your doctor other treatment options including angioplasty or surgery.

Angioplasty

An angioplasty may help to improve walking distance in some people. This is an invasive procedure where the narrowed artery is stretched with a small balloon. Overall, it is no more effective than exercise in the long-term. It is not always successful and there is a small risk that it might make the condition worse.

Surgery

Surgery is reserved for patients with very severe symptoms such as pain when resting or leg ulcers. It is never carried out routinely because it is not always successful and there is also a small risk that the procedure could make things worse.

Further information

For more information about healthy eating and exercising, visit the NHS website:

www.nhs.uk/live-well/eat-well

For information about the vascular surgery service at the Royal Free London, visit our website at: www.royalfree.nhs.uk/services/services-a-z/vascular-surgery

Your feedback

If have any feedback on this leaflet, or require a full list of references for it, please email: rf.communications@nhs.net.

Alternative formats

This leaflet is also available in large print. If you need this leaflet in another format – for example Braille, a language other than English or audio – please ask a member of staff.

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