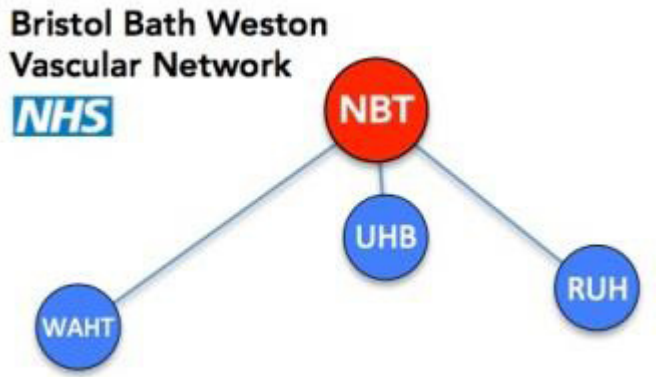
North Bristol NHS Trust

Intermittent Claudication



Exceptional healthcare, personally delivered

Ask 3 Questions

Preparation for your Appointments

We want you to be active in your healthcare. By telling us what is important to you and asking questions you can help with this. The three questions below may be useful:

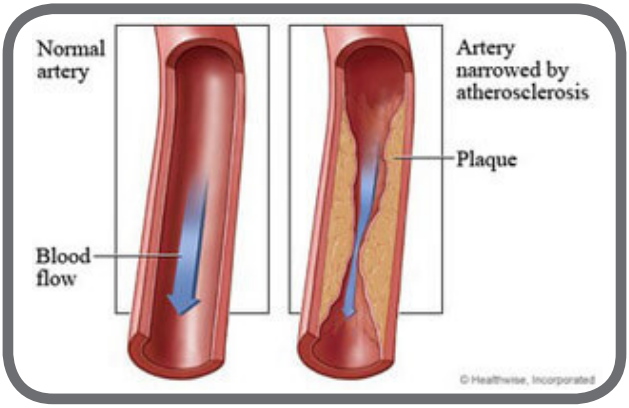
This leaflet provides information about a common cause of leg pain produced by exercise called "intermittent claudication".

What are the symptoms of intermittent claudication?

People suffering from intermittent claudication experience a cramping pain in their muscles when they walk or exercise. Pain is most common in the calves but people also get symptoms in their thighs and/or buttocks. The cramp and pain progressively gets worse as the exercise continues and it may require them to stop. Usually the pain and cramps get better after a few minutes of rest. It is very typical for patients to notice more symptoms if they are walking faster or walking up hills. Symptoms are often less typical in women.

What causes intermittent claudication?

Intermittent claudication is caused by the muscles not getting enough oxygen. This is usually due to narrowing or blockages in the arteries taking blood to your leg. In the vast majority of people the narrowing and blockages are caused by "atherosclerosis". This is essentially the result of damage and a process of "wear, tear and repair" in your arteries. The arteries are commonly damaged over time by smoking, high blood pressure, high cholesterol, and/or diabetes.



The function of your arteries is to carry blood, rich in oxygen, away from the heart and lungs to the rest of the body. The large muscles in your legs need this oxygen when the body requires them to do the work of walking or other exercise. At rest, the blood supply is usually sufficient, even if the main arteries are blocked. It is only when you start walking that the calf muscles cannot obtain enough blood flow. The muscle becomes starved of oxygen. , In this situation lactic acid builds up in the muscle, producing a burning pain similar to cramp.

Who gets intermittent claudication?

Claudication becomes more common in people over the age of 50; approximately 1 in 7 men, and slightly fewer women, aged 65 or over complain of symptoms.

Anything that increases your risk of "atherosclerosis" or arterial disease increases your chance of getting the symptoms of intermittent claudication.

Intermittent claudication is more common with:

- Smoking
- High blood pressure
- High cholesterol
- Diabetes
- Obesity

These problems are known as "risk factors" for arterial disease. They are the same conditions that increase the risk of having a heart attack and stroke.

How is the diagnosis made?

Most patients have a very typical pattern of symptoms that alert your doctor or nurse to the diagnosis. There are a number of tests that can help.

Ankle-brachial pressure index

We can measure the blood pressure at your ankle using a handheld ultrasound probe (Doppler) and a blood pressure cuff around your calf. We then compare this with the blood pressure measured in your arm to work out an "index" or "ratio" known as the ankle-brachial pressure index or ABPI. An APBI of between 0.85 and 1.2 is normal.

Exercise test (treadmill or tiptoe test)

Although the ABPI test is useful, it is carried out at rest. As the symptoms of intermittent claudication do not come on at rest, a good way of working out if leg symptoms are due to narrowings in the arteries is to measure the ABPI before and after exercise. Typically we ask you to walk on a treadmill set at slow speed or ask you to perform a number of exercises that stress the leg muscles.

If you have a significant narrowing in your arteries when you exercise we would expect the ABPI to drop by 20% or more.

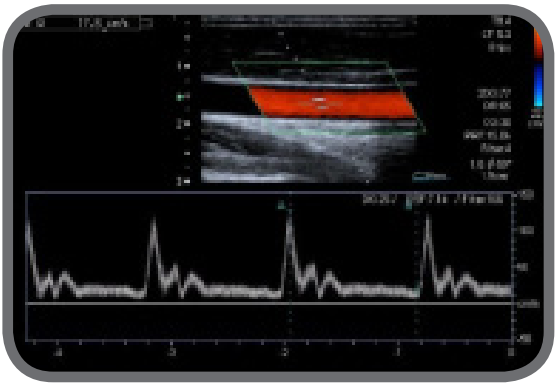
Scans of your arteries

There are a number of scans that can be done to determine the presence, location and severity of narrowings or blockages in your leg arteries.

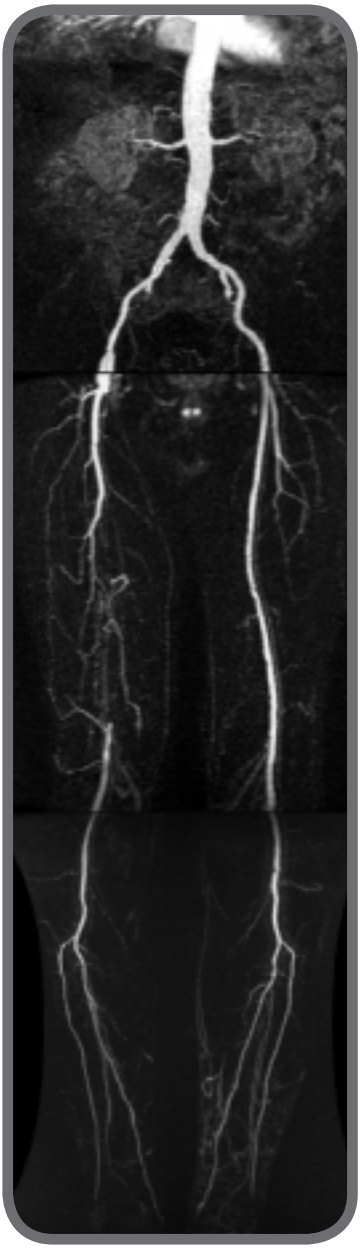
Generally you **do not** need a scan of your arteries unless

- The diagnosis is in doubt
- Interventional treatment is being considered

Ultrasound scanning (Duplex)



The first test is nearly always a safe, non-invasive test called a duplex scan. This is done by a specialist called a Vascular Scientist. The test uses ultrasound and is similar to the scans done on pregnant women to show a picture of their baby. In addition to the pictures of your arteries, the Vascular Scientist will assess the speed at which blood flows through your arteries (Doppler ultrasound). In this way they can work out the site and severity of arterial disease. It can sometimes be difficult to see the arteries higher up in the abdomen or tummy, due to gas in the bowel. It is also not always possible to clearly see the blood vessels below the knee if the arteries are hardened (calcified) or if the tissues are thickened.



CT Angiogram or MR Angiogram

If the duplex scan has not given enough information, or we want to know more detail about your arteries, so we can properly plan and assess the pros and cons of offering you a procedure, we will organise for you to have a CT angiogram or MR angiogram (MRI).

These scans involve giving you an injection into a vein in your arm of "contrast" or "dye", which lights up your arteries for the CT or MRI scanner.

The scans are performed in radiology departments and are then reported by specialist radiologists.

What happens in the long term?

The good news is that the vast majority of patients who develop pain in the legs on walking need no invasive treatment of their arteries.

The two things that are most effective at improving symptoms can be done by YOU:

1. EXERCISE
2. STOP SMOKING

If you do these things we know:

- 50% of people with symptoms get better within 5 years
- Less than 25% of people have symptoms that get worse
  - Only 5% of people go on to have a procedure to improve the blood supply to leg
  - Only 1-2% of people go on to lose their legs

If you have arterial narrowings in your legs it is likely that you have arterial disease **elsewhere** in the body.

When compared to people of a similar age, who do not have arterial disease, patients with intermittent claudication have an increased risk of:

- Heart attack
- Stroke
- Death

Do the blockages ever clear themselves?

Whilst the blockages causing claudication never clear themselves, the smaller arteries in the leg may enlarge to carry blood around the blockages. This is called the collateral circulation. It is thought that exercise can encourage the development of collateral circulation, causing smaller arteries to enlarge, allowing them to carry more blood, and therefore more oxygen to the muscles.

There is also evidence that regular exercise of the affected muscles can help them adapt to become less demanding of oxygen when you walk. This may take three to six months, so please be patient.

What are my options?

The treatment of patients with intermittent claudication has two aims:

1. Reduce the risk of heart attack, stroke and death
2. Improve walking

Your specialist and your doctor can make some recommendations and may suggest some regular tablets to reduce your risk of stroke and heart attack.

Pain in legs on walking

VASCULAR SPECIALIST REVIEW

- Confirm the diagnosis of intermittent claudication
- Make recommendations about "risk factors"

YOU AS THE PATIENT MUST MAKE CHANGES

- LIFESTYLE CHANGES e.g. STOP SMOKING
- EXERCISE

NICE National Institute for Health and Care Excellence **recommends EXERCISE as the first line treatment for claudication**

VASCULAR SPECIALIST REVIEW

OPTIONS:
Dependent on the degree of symptoms and the site/severity of arterial disease

- CONTINUED MEDICAL TREATMENT
- ANGIOGRAM/ ANGIOPLASTY/STENTS
  - Balloon angioplasty
  - Stents
- SURGERY (Bypass or endarterectomy)

Reducing the risk of heart attack, stroke or death

We know that managing your "risk factors" for arterial disease will reduce your risk of stroke, heart attack and death. Following discussion with your GP it may be recommended that you start two types of tablet.

"Antiplatelet medication"

We recommend you take a type of drug called an antiplatelet agent. Examples of these are Aspirin or Clopidogrel. These drugs make the blood less sticky and as such if the wear and tear in your arteries gets worse your arteries are less likely to block off suddenly, which may result in a heart attack or stroke. The disadvantage of these tablets is that they can make you more prone to bruising, and can be associated with an increased risk of bleeding.

Statin

Statins are good at reducing "bad" cholesterol, one of the causes of atherosclerosis. In addition to this they reduce the inflammation in the blood vessels which occurs in the "wear, tear and repair" process. **Studies have shown that statin tablets can reduce the risk of stroke and heart attack by nearly 25%**, regardless of whether you have a normal or raised cholesterol level.

All tablets have side-effects and statins are no exception. The most common problem is an upset tummy; but in a few patients they can themselves cause aches and pains, although different "brands" may be better tolerated than others. You should discuss any side effects with your GP.

Lifestyle - how can I help myself?

There are several things **you** can do that may help.

You can:

- **Stop smoking**
- Eat a varied and balanced diet low in fat, salt and added sugars to prevent becoming overweight
- If you have **diabetes**, ensure that it is well controlled
- Have your **blood pressure** and **cholesterol** levels checked by your GP. Managing these well in addition to an antiplatelet medication and a statin reduces your risk of heart attack and stroke.
- Exercise regularly: walk at a steady pace, walking a little further each time. It is safe to walk with the pain. More information is available in the leaflet "Exercise and intermittent claudication".
- Take good care of your feet; watch for any skin breakdown. Your GP can refer you to a podiatrist if appropriate.

Why does everyone keep telling me to stop smoking?

- Smoking speeds up the hardening of the arteries, which is the cause of the trouble
- Cigarette smoke prevents development of the collateral vessels which get blood past the blockage
- If an invasive treatment is used to help your walking, the effects will not last as long if you smoke

Invasive treatments

We will only discuss invasive treatment in patients who have **progressive or disabling symptoms despite exercise and lifestyle changes.** The appropriateness of the treatment is dependent on the site and severity of the arterial disease, general fitness and the impact reduced walking is having on your quality of life. Before we offer invasive treatment to patients we discuss each case in a multi-disciplinary team meeting (MDT). This involves all the specialists who may be involved in your care, including surgeons, interventional radiologists, vascular scientists, specialist nurses and vascular anaesthetists.

Any invasive treatment has limitations and carries with it risk. Whenever a procedure is done involving the arteries, there is always a small risk that the procedure can make the situation WORSE. For more information please read the information leaflets about "Angiograms, Angioplasty and Stents" and "Surgery for lower limb ischaemia".

Angiograms, Angioplasty and Stenting

There are two types of treatment to open up blocked or narrowed arteries that can be done under x-ray guidance. These are called "balloon angioplasty" or "stenting". These procedures are done without the need for surgical incisions and are usually performed with you awake, using local anaesthetic to numb the skin. The artery is punctured with a needle usually in the groin above or below the arteries that are diseased. Using fine wires and a combination of thin plastic tubes and devices (catheters/balloons/stents) the arteries are opened up.

The majority of angioplasties/stents are performed by Specialist Radiology Doctors (Interventional Radiologists) who are part of the multidisciplinary team treating patients with vascular disease. Unless you live alone, are frail or have certain medical problems you will usually be able to go home on the same day.

Many of these procedures are performed at the Major Arterial Centre at Southmead Hospital, but it in some cases it may be appropriate for an angioplasty or stent procedure to take place at the Royal United Hospital Bath or at the Bristol Royal Infirmary if closer to where you live.

Surgery

There are two types of surgery that can improve the blood supply to the leg; endarterectomy and bypass surgery.

All surgery is performed at the Major Arterial Centre (Southmead Hospital, Bristol) and requires a general or spinal anaesthetic.

Patients are admitted on the day of surgery and need to stay at least one night (endarterectomy), and often more (bypass 3-7 days).

Endarterectomy

Arteries are made up of a number of layers. Atherosclerosis or "arterial disease" affects only some of the layers of the artery. This means in some areas of the body we can remove the part of the wall of the artery that has the disease within it (the "plaque") and repair the artery afterwards.

Bypass surgery

Bypass surgery is more complicated and higher risk than endarterectomy.

The surgery involves 'bypassing' the blockage in the artery by attaching a bypass graft from the artery above the blockage to an artery below the blockage. Usually we can use your own vein for the bypass graft. Occasionally we may have to use several veins from the body (legs or arms) to create a long enough bypass graft. Sometimes when bypassing large arteries or when your vein is not suitable we will use a man-made bypass graft.

Ask 3 QUESTIONS: Summary

What are the options?

- Lifestyle changes
- Medication

Patients with claudication should always make changes to their lifestyle before considering any form of intervention. Only after this has been done do we think about:

- Angioplasty/Stenting
- Surgery

What are the pros and cons of the options?

Option	Life style changes Medication	Angioplasty or Stents	Surgery
Pros	Good long term relief of symptoms - only 1 in 5 patients worse over time Reduces your risk of heart attack or stroke Success entirely in your hands.	**"Quick fix"** Done with you awake No need for surgical incisions Most cases no need to stay in overnight Low risk of major complications	Best way of **measurably** improving blood supply to foot and calf in the long term – but usually reserved for very short walking distances or pain at night or gangrene
Cons	Not always easy to give up smoking and exercise more Walking through the pain is difficult Medication has side-effects	**Complications** Groin pain, leg swelling, infection or bleeding **Re-stenosis** Procedure can fail in the short term, and may need to be repeated Need for medication (antiplatelet agents) Increased risk of losing your leg compared to life style changes	Requires general anaesthetic Requires one or more incisions Requires at least one night in hospital New symptoms due to the operation (wound problems/ leg swelling) **Complications** Risk of losing your leg, nerve injury, heart attack or death. 1 in 5 patients have wound problems. **Restenosis** Bypass can fail (1 in 5 at 5 years)

What help do I need to make my decision?

The team involved in your healthcare want to help you become as involved as possible in making decisions by giving you information about your options. In giving you answers to these questions and therefore understanding what's important to you, the specialist team will then be in the best position to help you make any choices about treatment.

You have been provided with this leaflet to give you information about your condition and the treatment options. Before undergoing invasive treatment you should read more detailed leaflets including those on "Angiograms & Angioplasty" and "Surgery for lower limb ischaemia" in addition.

We are very happy to answer any queries you have having read these information leaflets.

There are always pros and cons for each choice, it is a good idea to think about what is important to you. Your specialist and the wider team may have a strong recommendation for you; however we always want to come to a shared decision for your treatment.

Where can I find out more about this condition?

We recommend the following websites for more information about vascular surgery conditions and treatments:

The Circulation Foundation

www.circulationfoundation.org.uk

The Vascular Society of Great Britain & Ireland

www.vascularsociety.org.uk

Society for Vascular Surgery (USA)

https://vascular.org/patient-resources

National Institute for Clinical Excellence (NICE)

www.nice.org.uk

Claudication

NHS Choices

http://www.nhs.uk/conditions/peripheralarterialdisease/pages/symptoms.aspx

Where can I find out more about my specialist?

North Bristol NHS Trust Website

www.nbt.nhs.uk/our-services/a-z-consultants

www.nbt.nhs.uk/our-services/a-z-services/vascular-surgery

Vascular Society of Great Britain & Ireland

www.vascularsociety.org.uk/patients/surgeons/default.aspx

Surgeon Outcomes

www.vsqip.org.uk/surgeon-outcomes/

PATIENT APPROVED

www.nbt.nhs.uk/vascularsurgery

If you or the individual you are caring for need support reading this leaflet please ask a member of staff for advice.

Southmead Hospital Charity

southmeadhospitalcharity.org.uk

Southmead Hospital Charity raises funds for departments and wards throughout the Trust, meaning you can support an area close to your heart