Patient information

Intermittent Claudication and Exercise Therapy

Vascular Department

What is intermittent claudication?

Intermittent claudication describes the pain in the legs from exercise caused by reduced circulation in the arteries. Claudication derives from the Latin word claudicare (to limp).

Intermittent claudication only occurs on exercise. Restricted circulation by narrowed or blocked arteries (ischaemia) is not usually associated with any symptoms at rest unless there is a severe blockage, or if this is in multiple areas.

When we exercise the demand for oxygen and nutrients to supply the muscles has to increase. If the circulation to a leg is restricted the muscles quickly use up the oxygen and glucose needed to power their contractions.

The muscles cramp up as lactic acid is produced and this makes us stop exercising. This is called ischaemic pain. The lactic acid is washed away by the flow of blood when we stop and rest and allows further exercise. Usually we can walk the same distance again.

Severe (or short distance) claudication is defined by ischaemic pain at less than 50 metres walking; mild claudication if you can walk 400 metres without pain and moderate claudication is anything in between. The symptoms will always be worse if you walk, run fast or walk uphill.

Claudication is a symptom not a disease by itself and is benign in that by itself it does not lead to a reduction in life span or give a risk of amputation. However, it is associated with atheroma (hardening of the arteries) in other parts of the body such as the heart and brain.

The risk factors that are associated with atheroma should be addressed to reduce risks of heart attack and stroke.

Atheroma and risk factors

Atheroma or atherosclerosis is hardening and narrowing of the arteries that causes most peripheral vascular disease, coronary (heart) and cerebral (brain) vascular disease. It starts early in adult life and progresses with age especially if risk factors are present.

Smoking is the important risk factor that can be modified by stopping – continued smoking is associated with progression of all vascular diseases and failure of attempts to deal with all types of vascular disease. The prognosis of angioplasty, stents and surgery are all badly affected by continued smoking.

High blood pressure (hypertension) should be treated and monitored for life as the risk of vascular disease can return if blood pressure is left to rise.

High cholesterol is also a risk for atheroma and should be treated and monitored.

Diabetes is a significant risk factor and should be very closely monitored and treated as a high glucose is associated with progression of many vascular disease and increased risks of heart attack, stroke, renal failure and amputation.

A strong family history of vascular disease and increasing age are also risk factors but these are risk factors that we cannot change.

You should concentrate on all factors in your lifestyle that will benefit your vascular health.

How is claudication diagnosed?

The doctor will talk to you and obtain the clinical history of your leg pain. Your pulses in the legs will be examined to see if they are present or missing and a pressure test with a Doppler ultrasound probe will compare the blood pressure in the legs with the pressure in your arm. This ratio is called the ankle/brachial pressure index (ABPI). You may also have a similar test to check the blood pressure in the toes (toe pressure or TBPI).

Claudication distances can be measured with a treadmill or corridor exercise test as can your walking speed and distance. The distance at which you first experience pain is called the intermittent claudication distance; the distance at which you have to stop is called the maximum walking distance.

Many patients will have a duplex ultrasound scan before they meet a vascular surgeon to image the leg arteries with ultrasound. In many cases this is enough to plan the next step.

Some patients will go on to have some form of angiography (imaging of the circulation) using a CT or MR scanner (CTA or MRA) or digital subtraction angiography (DSA) by direct access to the artery with an injection of contrast (X-ray dye).

What treatment is available for claudication?

The majority of patients will not require any hospital intervention but there are many things that you can do to help yourself. Exercise is the most important of these and often the most underestimated treatment.

For mild to moderate claudication exercise therapy is at least as good as an angioplasty (stretching an artery with a balloon) or a stent and can give a longer lasting improvement. Some exercise advice is given on the following page.

Unfortunately there is no simple medication that can significantly improve your walking distance although you will almost certainly be advised to take an antiplatelet such as low dose aspirin 75 mg dispersible or clopidogrel 75 mg tablets to reduce your risks of heart disease and stroke.

Even if your cholesterol is normal you will be offered a statin to take on a regular basis because this class of drugs can stabilize the lining of the blood vessels and reduce the chances of progression of vascular disease.

Balloon angioplasty can be used to reopen blocked or narrowed arteries – you will be admitted as a day case and have your procedure in the X-ray department.

Surgery for claudication is not common but may be necessary if your walking restriction is severe and the abdominal or iliac arteries are affected.

Exercise therapy

There are exercises that you can do yourself and exercises in a supervised class. The evidence shows that classroom exercises are better but they may not always be available through the NHS.

You should try to walk for 20 minutes every day even if this means stopping and starting and walking through the pain as much as you can. Walking like this makes the muscle adapt to a lower oxygen requirement and trains the muscle to use some of the lactic acid as a fuel.

If you keep this up for about three months you have a good chance of doubling your maximum walking distance. You must persevere and not give up too quickly in order to notice an improvement. If you take the same walk every day you will be able to set yourself a goal for improvement and attempt to walk a little further each time. Other exercises such as swimming, cycling, dancing and gentle jogging are also useful but walking is the best and fortunately the cheapest form of exercise.

At home you should exercise the leg muscles every day. Exercise until the pain builds up and then rest before exercising again. Start gently and warm up by stretching before undertaking any exercise.

Heel Raises:

Stand up straight and rise up on to your toes as high as possible then slowly return to the starting position. Repeat the exercise until the muscles are making you stop.

Alternate Heel Raises:

Stand up straight and rise up on to your toes as above. Lower the left heel keeping the weight on your toes. When it reaches the floor start raising it but at the same time lower the right heel and repeat alternating between the left and right heels until the muscles tell you to stop.

Toe and Heel Walking:

Start at one end of a room and walk across the room on your toes. Turn around and come back to the starting position back on your heels. Repeat the exercise for about five cycles if you can.

Do not do this if your balance is unstable.

Step-Ups:

Stand in front of a low step and starting with your worst leg step up onto the step then bring up the other foot.

Step down backwards with your worst leg and the other one. You are now back at the starting position. Try to increase your number of step ups each day.

After exercise take a few minutes to cool down, stretch and have a cool drink. Wear sensible clothes and shoes

Do not exercise:

- if you experience chest pain
- within one hour of a meal (exercise before meals)
- if you feel unwell or have a temperature
- if the outside temperature is very hot or very cold.

Stop exercising if:

You get chest pain, short of breath, palpitations, dizziness, light headed, nausea or sweating

What can I do to help myself?

Smoking

If you do smoke, you must make a sincere and determined effort to stop completely. This will also, of course, benefit your general health. The best way is to plan to stop completely rather than just trying to cut down. Advice and help is available, and you may want to try ‘stop smoking’ medication such as nicotine replacement or tablet medication.

General Health

Losing weight if you need to, drinking alcohol within the recommended weekly limits, adhering to a healthy low fat diet, and taking moderate exercise, will all help to keep your arteries healthy.

Feedback

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

LiVES Contact Numbers

During your contact with us, it is important that you are happy with your care and treatment. Please speak to a member of staff and/or the ward/department Sister/Charge Nurse if you have any questions or concerns.

Vascular Ward
Ward 3
Aintree University Hospital
Tel: 0151 529 2028/2262

Vascular Nurses:

Aintree via switchboard
Tel: 0151 525 5980 Bleep 5609/5594 or extensions 4691/4692

Royal Liverpool Hospital via switchboard
Tel: 0151 706 2000 Bleep 4212 or extension 4675
Text phone number: 18001 0151 706 2000 Bleep 4212

Southport via switchboard
Tel: 01704 705124

Whiston Hospital
0151 290 4508/ 430 4199

Secretaries:

Aintree University Hospital
Tel: 0151 706 3691/ 3523/3524/3481/3457/11813
0151 529 4950/4953

Southport/Ormskirk Tel: 01704 704665

Whiston Hospital
St. Helens and Knowsley NHS Trust
Tel: 0151 430 1499

NHS 111
Tel: 111

Circulation Foundation:
www.circulationfoundation.org.uk/vasculardisease/

Smoking cessation:

Liverpool	**Tel: 0800 061 4212/ 0151 374 2535**
Sefton	**Tel: 0300 100 1000**
West Lancashire	**Tel: 0800 328 6297**

Liverpool Vascular and Endovascular Service
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Participating Hospitals in LiVES are:

- **Liverpool University Hospitals NHS Foundation Trust**
- **Southport District General Hospital**
- **Ormskirk District General Hospital**
- **Whiston and St Helens Hospitals**

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