

Varicose Veins

About 3 in 10 adults develop varicose veins at some time in their life. Most people with varicose veins do not have an underlying disease and they usually occur for no apparent reason. Varicose veins do not cause symptoms or complications in most cases, although some people find them unsightly. If treatment is advised, or wanted for cosmetic reasons, an operation to strip the varicose veins is a common treatment. Newer techniques to remove the veins have recently been introduced.

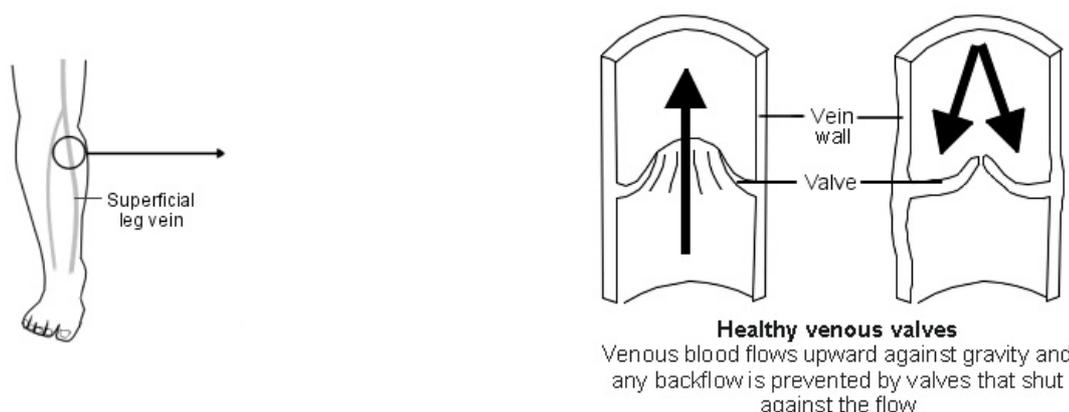
Understanding normal leg veins

Veins are blood vessels which take blood back to the heart. Blood flows up the leg veins, into larger veins, and towards the heart.

There are three types of veins in the legs:

- Superficial veins are the ones just below the skin surface. You can often see or feel the larger superficial veins. The superficial leg veins are the ones that may develop into varicose veins.
- Deep leg veins pass through the muscles. You cannot see or feel these.
- Many small communicating (perforator) veins take blood from the superficial veins into the deep veins.

There are one-way valves at intervals inside the larger veins. These valves prevent blood flowing back in the wrong direction. When we stand there is quite a height of blood between the heart and legs. Gravity tends to pull the blood back down, but is prevented from doing so by the vein valves, and by the normal flow of blood towards the heart.



What are varicose veins?

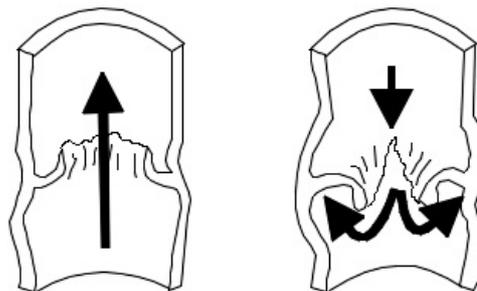
Varicose veins are dilated (enlarged) sections of veins which are located just under the surface of the skin - usually on the leg. They are often easy to see, as they look thick and knobbly. They may be less obvious if you are overweight, as they are hidden by fatty tissue under the skin.

Other, smaller types of veins, which can be noticeable, are: reticular veins - a closely grouped network of small veins; and thread veins or spider veins, which look like a kind of starburst pattern on an area of the leg. These are not true varicose veins.

What causes varicose veins?

It is thought that the wall of the vein becomes weak in some sections. These sections then widen and become more prominent.

If this occurs near a valve then the valve may become leaky and blood may flow backwards. Once this happens at one valve there is extra pressure on the vein, which can cause more widening and more leaky valves. Blood then pools (collects) in the enlarged vein and makes it stand out.



Varicose veins

The valves become damaged and do not function properly. Backflow of blood is not prevented and 'pooling' of blood stretches and balloons the vein walls.

Who develops varicose veins?

About 3 in 10 adults develop varicose veins at some time in their life. More women develop varicose veins than men. Most people with varicose veins do not have an underlying disease and they occur for no apparent reason. However, the chance of them developing is increased with:

- **Pregnancy.** This is partly due to the baby causing extra pressure on the veins, and partly because hormones you make during pregnancy tend to relax vein walls. The more babies you have, the more the risk of permanent varicose veins developing. Varicose veins tend to appear, or get worse, during pregnancy, but often improve after childbirth when the pressure on the veins eases.
- **Age.** They are more common with increasing age.
- **Being overweight,** which appears to increase the chance for women but not for men.
- **Standing lots.** Jobs which involve lots of standing are often said to cause varicose veins. However, there is little scientific evidence to support this theory.

Sometimes an underlying disease may cause varicose veins - for example:

- A previous blood clot (thrombosis) or injury in a deep leg vein.
- Rarely, a swelling or tumour in the pelvis (lower part of the tummy) which blocks flow in the veins at the top of the leg.
- Very rarely, varicose veins are due to abnormal blood vessels - if some of the veins or arteries have not formed in the normal way.

What are the symptoms of varicose veins?

Most people with varicose veins have no symptoms. Some people are concerned about the appearance of the veins. Larger varicose veins can ache, feel heavy or itch.

Are there any complications of varicose veins?

Most people with varicose veins do not develop complications. Complications develop in a small number of cases. Complications are due to the higher pressure in the varicose veins causing changes to the small blood vessels in nearby skin.

If complications do develop, it is typically several years after the varicose veins first appear. However, it is impossible to predict who will develop complications. The visible size of the varicose veins is not related to whether complications will develop.

Possible complications include:

- Inflammation of the vein (thrombophlebitis).
- Swelling of the foot or lower leg.

- Skin changes over the prominent veins. The possible skin changes are: discolouration, eczema, skin ulcers, or lipodermatosclerosis (hardening of the fat layer under the skin, causing areas of thickened, red skin). See separate leaflet called '*Venous Leg Ulcers*', which explains about skin ulcers caused by varicose veins.
- Rarely, varicose veins may bleed.

First aid for bleeding varicose veins: this happens only rarely, but if a varicose vein does bleed, then you need to stop the bleeding quickly by doing the following:

- Elevate the leg - lie down flat and raise the leg high, so that it is well above the rest of the body (for example, rest it on a chair, use lots of pillows or someone can hold the leg high).
- Pressure - put a clean cloth or dressing on to the bleeding area and put firm pressure on it, for at least 10 minutes.
- Call an ambulance if the bleeding is heavy, or does not quickly stop. See a doctor urgently, as you may need treatment to prevent the bleeding from happening again.

Do I need treatment or a referral for varicose veins?

Most people with varicose veins do not need any treatment. You may want to have treatment for one of the following reasons:

- **If complications develop** - which occur in a small number of cases. If leg swelling or skin changes develop over prominent veins, then treatment is usually advised to prevent a skin ulcer from developing. If a skin ulcer does occur then treatment of any varicose veins may help to cure the ulcer. If you have a varicose vein which has bled, then you should be referred urgently for treatment.
- **For symptoms** of itch or discomfort.
- **Cosmetic reasons.** You may feel that the veins look unsightly. Treatment which is purely for cosmetic reasons is not usually available on the NHS.
- If you have a combination of BOTH varicose veins which are problematic, AND arterial disease (poor circulation, or peripheral vascular disease) of the legs. Or if arterial disease is suspected. In this situation, you will need to have the leg circulation examined, before certain treatments such as compression stockings can be used (tests and treatments are explained below).

Which tests might I have?

If varicose veins are problematic, you will usually be referred for a specialist assessment. You may have a type of ultrasound scan called a Doppler or a duplex scan. This helps to show how the blood is flowing in the veins, and can show whether any of the valves are damaged - which is useful to know when planning treatment. Occasionally, other tests are needed if the veins are complex.

If you have arterial disease (poor circulation, or peripheral vascular disease) in your legs, or if arterial disease is suspected, then the arterial circulation needs to be measured before you have treatment which puts pressure on the leg, such as compression stockings (below). The arterial circulation is normally measured by using an ultrasound machine called a Doppler ultrasound, which is used to give a measurement called the ankle brachial pressure index. This test can be done in specialist clinics, and also by some nurses and GPs.

What are the treatment options for varicose veins?

There are several different options, plus a number of newer treatments.

Conventional (usual) treatments

Self-help methods Avoid prolonged standing or sitting still. Try to put your feet up frequently (sit or lie down and raise the feet above the level of your hips - for example, use extra pillows under your feet on a bed or footrest). This helps to reduce blood pooling in the veins. Use a moisturising cream or ointment to protect the skin if it is dry, flaky or itchy.

Support tights and compression stockings These counter the extra pressure in the veins. They may help to ease symptoms such as ache, though there is little proof as to how well they work. Support tights and compression stockings may also help to prevent early complications from getting worse. To work properly, they need to be correctly fitted. They come in different strengths and sizes. Most people find that the type of compression stockings called below-knee class 1 (light) or class 2 (medium) are suitable. Ideally, they should be put on first thing in the morning, before you get out of bed, and taken off when going to bed at night. Compression stockings are available on prescription or you can buy them.

Note: if you have arterial disease in the legs, you will need a medical assessment of your circulation to decide if compression stockings are suitable (see above).

Surgery Different techniques can be used to remove the veins, depending on their site and severity. A surgeon will advise. Usually, the communicating veins (explained above) are tied off (ligated). Then the large varicose veins are removed or stripped from the leg. Many people can be treated as day cases. One to three weeks off work may be needed afterwards, depending on your job.

Sclerotherapy This injects the vein with a chemical that can sclerose (close and seal) the vein. It is mainly used for smaller veins. The vein needs to be compressed afterwards, which involves wearing bandaging or compression stockings for a few days or weeks.

Newer treatments

Newer techniques have also been developed to treat varicose veins. Their aim is to reduce the need for traditional stripping of the veins, and to reduce bruising or other possible complications of surgery. The new treatments include:

Radiofrequency ablation and endovenous laser ablation These methods involve passing a probe into one of the longer varicose veins, using ultrasound to guide the position. The laser or radiofrequency energy makes the vein heat up, which seals it.

Transilluminated powered phlebectomy This is a new method of surgically removing the veins. A light is passed under the skin and the varicose veins are removed by a suction device. This reduces the number of cuts needed to remove the vein.

Foam sclerotherapy This uses a chemical mixed with air to make foam. The foam is injected into the veins, pushing the blood away and making the veins go into spasm. After treatment, compression stockings are needed, and the veins will be hard and swollen for a while before they shrink down. More than one treatment may be needed.

Which treatment?

All types of surgery or injection for varicose veins have a small risk of complications - for example, damage to nearby nerves or skin. Also, it is quite common to have side-effects such as pain and bruising for a while afterwards. There is also a chance that the varicose veins can recur (come back). Ask your surgeon about the pros and cons of different treatments in relation to your own particular veins.

The newer methods have not yet become routine or standard practice. They need to be further evaluated before we know their long-term success rates. Currently, they are not always available on the NHS, but may become more popular in the future.

Thread veins and spider veins

These do not cause the same problems as varicose veins, and do not need treating except for cosmetic reasons. They are not usually treated under the NHS. See the 'Further information' section (below) for more details about thread vein treatment.

Further information

DermNet NZ

Online information about skin conditions and their treatment - for patients and doctors, from the New Zealand Dermatological Society. Includes information and pictures about thread veins and venous eczema (gravitational eczema).

Website: www.dermnetnz.org

Further reading & references

- [Endovenous laser treatment of the long saphenous vein](#), NICE (2004)
- [Transilluminated powered phlebectomy for varicose veins](#), NICE (2004)
- [Radiofrequency ablation of varicose veins](#), NICE (2003)
- [Ultrasound-guided foam sclerotherapy for varicose veins](#), NICE Interventional Procedure Guideline (August 2009)
- [Lew WK et al, Varicose Vein Surgery](#), Medscape, Aug 2011
- [Kanwar A, Hansrani M, Lees T, et al; Trends in varicose vein therapy in England: radical changes in the last decade. Ann R Coll Surg Engl. 2010 May;92\(4\):341-6.](#)
- [Dindyal S, Woodburn KR; Changing practice from conventional surgery to endovenous treatments produces Ann R Coll Surg Engl. 2010 Jan;92\(1\):87.](#)

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