What are varicose veins?

Varicose veins are superficial (just underneath the skin) veins that are lumpy. They may appear purple or blue through the skin. Varicose veins are swollen, and they can look as though they are bulging out. They are most commonly found on the backs of the calves or the inside of the leg. The legs also have veins that run deeper under the surface, the deep veins. Their role is to send blood low in oxygen back up to the heart. The blood is transported to the heart by muscles in the legs. When you walk, the deep veins are squeezed which helps the blood move upwards against the force of gravity. There are valves in the veins that help stop the blood from flowing back down. The venous valves only allow the blood to flow in one direction – to the heart. It is the job of the superficial veins in the legs to transport blood from the skin, fat tissue and muscles to the deep veins. If the valves in the superficial veins do not work properly, blood remains in the veins. There are several reasons why this might happen. Some people simply have weaker vein walls and valves than others. Or it may be that surrounding tissue is not exerting enough pressure on the veins to allow them to transport blood – for example when the muscles do not get enough exercise as a result of someone having to stand or sit for longer periods of time. This increases the pressure in the veins, and they stretch and widen. This can result in the veins not being able to close anymore so that blood will pool up. A milder form of varicose veins can also happen on the face and other areas. People call that spider veins, because they can look like a spider’s web under the skin. Spider veins may not look good, but they do not cause any health problems.

What causes varicose veins and who is at a greater risk?

Some people have a genetic disposition to develop varicose veins. It is not known exactly why this is so. Varicose veins are more common in women than in men. Many women develop varicose veins while they are pregnant: changes in the body’s tissue caused by hormones as well as the additional weight make it more difficult for blood to flow from the veins. Being very overweight also increases pressure in the legs and veins, which can contribute to varicose veins, especially in women.

What symptoms can varicose veins cause?

Varicose veins can cause your legs to hurt, itch or feel heavy. Sometimes there will also be nighttime cramping of the calves, swollen legs, or brownish or hardened patches of skin around the lower shin. Symptoms usually become more intense in warm weather. There is not necessarily a connection between how bad varicose veins look and how serious the problem is. For example, varicose veins that look mild can cause a lot of symptoms, while some that look very large and bumpy might cause no discomfort whatsoever. Varicose veins usually do not cause any complications. Varicose veins can affect your wellbeing. Some people who have varicose veins feel uncomfortable about letting others see their legs so they avoid activities like swimming. Women may stop wearing any skirts or dresses. Some women go so far as to say that their varicose veins have an effect on their choice of employment: by
avoiding jobs where skirts or dresses are customary. This may also be one reason why women who feel very troubled by the appearance of their legs decide to get treatment.

**How can you tell how serious the problem is?**

Varicose veins do on occasion lead to complications. And swelling in the lower legs can sometimes be a sign of other health problems. The signs to watch for that need prompt medical attention include: skin ulcers or open sores near the ankle that are not the result of an injury or that do not appear to be healing even after several weeks major swelling in the leg reddened veins that feel warm and are painful bleeding from or near varicose veins Leg ulcers need medical attention. They could either be a complication of varicose veins, or a sign that you have a more serious condition. You can read more about these in our fact sheet “Chronic wounds”. Severe swelling of the leg may result from long-standing varicose veins, but they could just as well be caused by other conditions such as heart failure too. Reddened and warm veins that may also cause a sensation of burning pain are a sign of a complication: inflammation of a vein with or without clotting (phlebitis/thrombophlebitis). Bleeding is rare in varicose veins, but if it happens it could be dangerous, so immediate medical attention is vital. As first aid it is important to elevate the leg and to apply pressure to the bleeding area. Sometimes the first sign that ulcers are forming can be skin changes near the varicose veins like a rash or a condition called lipodermatosclerosis. Lipodermatosclerosis is a fairly rare condition that affects the skin inside of the ankles by making it brown, tight and more sensitive to pain.

**How are varicose veins diagnosed?**

Ultrasound is often done to try to see whether or not there is a problem with the deep veins. The test that is usually done is called duplex ultrasound. This test provides information on the condition of the deep veins and blood flow in the veins. An ultrasound machine works like the sonar system in a ship or submarine: it uses sound waves bouncing echoes back to create a picture of what is happening inside the leg and veins. This way, the doctor can find out where the blood flow problem is in the leg. If it is suspected that there is a problem with the deep veins, then an X-ray using contrast agents can be taken. This is called venography.

**What can I do on my own?**

Many people report that they can get relief from the aching when they sit down and put their feet up (elevate their legs). The veins might not work as well if you stand for very long periods of time in the same position. So moving around if you can and changing your position might help relieve the discomfort. The same might be true of sitting with your legs crossed in the same position for long periods: this makes it harder for the veins to do their job. Exercise and movement might be able to help the blood flow more freely in your legs. If people are overweight, losing weight could take some pressure off their legs.

**What are the treatment options?**

Compression or support socks or stockings is the first line and the most common treatment option. The idea behind this is that the hosiery helps the muscles squeeze on the veins to help push the blood along. There has not yet been enough research to tell whether and in which cases hosiery helps, or what kinds of socks are the most effective. This does not mean that wearing these types of socks has no benefit – just that more research is needed on this subject.
Varicose vein ablation is treatment option for people who have typically failed compression therapy or have advanced disease (open ulcer or prior ulcer). There are two main methods of ablation:

1. Radiofrequency ablation: Heat generated by electromagnetic waves (radio waves) is used to close off veins. A thin radiofrequency ablation (RFA) probe is placed in the vein through a small incision. The RFA probe contains a catheter that heats the vein until it is closed off.
2. Endovenous laser ablation: This treatment also involves heating the vein from the inside to close it off. The procedure is very similar to that of radiofrequency ablation, but laser beams are used to generate heat instead of radio waves.

Trials have indicated that there is not much difference between the results of either radiofrequency ablation or endovenous laser ablation. These treatments may also have side effects, such as pain, bruising and scarring. Complications like nerve damage or infection are less common than in conventional surgery, however. There has been very little research involving a direct comparison of these two techniques.

**What non-invasive treatments are available?**

One alternative to the other treatments described above is called sclerotherapy. This involves an injection of a liquid or foam to close off the affected vein. It appears to have fewer side effects and complications than surgery, although it can cause permanent discoloration on the skin where the injection is done. People can return to their normal activities much more quickly than they do after surgery. Sclerotherapy might also have better short-term results than surgery. However, ablation has better results in the long-term than sclerotherapy. Sclerotherapy has only been an option for small or medium-sized superficial varicose veins. It can also be used after ablation if varicose veins start to develop again. It is now also used for larger varicose veins, but this use has not yet been fully studied.