



Vein & Body Specialists at The Bellevue Hospital Spider Vein and Varicose Vein Treatments

What are spider veins?

Spider veins are dilated, small blood vessels that have a red or bluish color. They appear mostly on the legs and occasionally on the face.

What are varicose veins?

Larger, dilated blood vessels called varicose veins may be raised above the skin surface.

What is the cause of spider and varicose veins?

The only cause of spider and varicose veins is genetics. A gene was passed to you, which caused you to be susceptible to developing spider and/or varicose veins.

Contrary to popular belief, spider/varicose veins are not caused by being overweight, pregnancy or standing on your feet for long periods. Think about it – not everyone who is overweight, pregnant or stands on their feet for long periods develop spider/varicose veins.

However, if you have the genetic predisposition for varicose and spider veins, pregnancy and being overweight do cause extra pressure on the pelvic/groin veins and cause all the leg veins to become more apparent and enlarged.

How can I prevent varicose/spider veins?

You cannot prevent varicose/spider veins.

Support hose, compression stockings, elevating your legs, avoiding prolonged standing/sitting, avoiding crossing your legs and not being overweight **do not** prevent varicose veins from occurring, but **DO** decrease the symptoms of varicose veins and **DO** prevent them from dilating during prolonged standing and sitting. No research has proven that wearing stockings prevent varicose veins. Wearing stockings **DO** prevent varicose veins from spontaneously clotting.

What are the symptoms of varicose veins?

The symptoms of varicose veins are achiness, tenderness and/or burning over the varicose veins. “True vein pain” will occur over the visible, dilated veins only. People with “true vein pain” will point with one finger to the visible, dilated veins as the source of pain. Some people will experience worsening ‘true vein pain’ with menstruation (period).

Achiness, tenderness and/or burning of the leg in areas without varicose veins, is not “true vein pain.”

Occasionally, spider veins can cause achiness, tenderness and/or burning.

How can I prevent or decrease “true vein pain?”

“True vein pain” **can be** prevented or decreased by wearing support hose, compression stockings, elevating your legs, avoiding prolonged standing/sitting, avoiding crossing your legs and not being overweight. Walking is encouraged. Walking causes the calf muscle to pump blood from the lower leg and foot to the heart which reduces pressure within the veins. The reduced pressure within the veins during walking decreases “true vein pain.”

Prolonged standing and sitting are the worst activities for causing or increasing “true vein pain.” When you stand or sit for long periods, gravity is working against you, causing the veins to dilate and press against nerves which send a message to your brain that the legs are achy, tender and/or burning.

Mechanically, what causes the veins to dilate?

In order to understand the mechanics of abnormal veins you must understand the mechanics of normal veins.

First, you must understand that veins normally carry “used” blood back to the heart. While you are lying flat, gravity works for you and enhances this return of blood to the heart. However, during standing and sitting, gravity works against you and hinders this return of blood to the heart. But, normal functioning veins have one-way valves which open during muscle contractions (walking) and close during rest (standing/sitting) to prevent blood from moving backwards (due to gravity). The normal functioning valves protrude from each side of the vein walls and meet in the middle like saloon doors.

Veins become varicose (develop incompetent valves) when they become dilated and the valves are pulled apart allowing blood to move backward (reflux).

Why do most people seem to develop varicose veins on the inside thighs and lower legs?

Most varicose veins arise from the longest vein in our body, the Great Saphenous Vein (GSV).

The Great Saphenous Vein is a superficial vein. There is a Great Saphenous Vein of each leg. The Great Saphenous Vein is a superficial vein and courses from the groin, to inside the knee continuing to the ankle on the inside of the foot. There are many branches of the Great Saphenous Vein which can become varicose. Also, the Great Saphenous Vein itself can become varicose. As a matter of fact, the Great Saphenous Vein is usually the source of the veins becoming varicose.

Frequently, the great saphenous becomes varicose near the groin where it connects with the deep common femoral vein, this area is called the saphenofemoral junction. You see, there is a valve at the saphenofemoral junction that becomes incompetent and allows blood to move backward. Once one valve begins not working correctly, a “domino” effect occurs causing increased pressure on the valve below. Over time, the working valve below the non-working valve begins not working due to the extra pressure and the vein at that level dilates and pulls the valves apart allowing blood to move backward.

Do I need the Great Saphenous Vein?

The Great Saphenous Vein can be useful for heart bypass, leg bypass and patching material for carotid artery surgery. Vascular surgeons know the potential value of the Great Saphenous Vein. The Great Saphenous Vein is like a “spare tire.” While treating varicose veins, the vascular surgeon attempts to preserve this natural “spare tire.” But, if the Great Saphenous Vein has to be sacrificed due to its severe dilatation, your body will easily adjust. Additionally, if you need heart bypass surgery and the Great Saphenous Vein has been removed, there are other veins and even arteries we can use.

Remember, everyday several people undergo heart bypass or leg bypass surgery and the Great Saphenous Vein is removed for use as a tube for bypass. You will definitely not lose your leg or life from the removal of the Great Saphenous Vein.

Describe in detail, the methods of treating varicose and spider veins?

There are three types of treatments for varicose veins. There is only one treatment for spider veins.

One method of treating varicose veins is called **injection sclerotherapy**. Injection sclerotherapy consists of a sclerosing solution, a 3cc syringe and a 30 gauge needle. Injection sclerotherapy is the only legitimate method for treating spider veins.

In our opinion, lasers are **NOT** effective for treating spider veins. You are more likely to be burned with a laser than “cured” of spider veins.

Let’s begin by defining sclerosing. Sclerosing means to “irritate and clot.” We call the clots “chemically-induced superficial phlebitis.” The sclerosing solution we prefer is Polidocanol. In our opinion, Polidocanol is least painful (no burning sensation during injection), most effective, safest, and FDA-approved solution for sclerotherapy.

Injection sclerotherapy is performed using the smallest needle available, which is a 30 gauge needle. Most people do not experience pain during injection sclerotherapy. The veins that are injected are very superficial and do not require deep penetration of the needle. We just barely have to break the skin to get the needle into the vein.

A side effect of injection sclerotherapy that EVERYONE experiences, is redness and puffiness over the injected areas. This redness and puffiness is normal irritation of skin around the areas injected. The redness and puffiness will disappear in approx 1-3 days with or without icing the areas. Icing the injected areas will cause the redness and puffiness to disappear sooner.

After undergoing injection sclerotherapy, we encourage you to immediately resume your normal activities.

There are two potential complications with injection sclerotherapy.

The most common complication with injection sclerotherapy is brown streaking over the veins that were injected. This brown streak can form when the blood inside the successfully treated varicose vein clots and releases an iron pigment, called hemosiderin, into the skin. We all have hemosiderin in our blood. But, in our experience, dark-skinned people are more likely to get this hemosiderin staining. We are not sure why dark-skinned people are more likely to get this hemosiderin staining. About 6% of all people undergoing injection sclerotherapy for spider veins and small varicose veins will get hemosiderin staining if they wear compression stocking(s) for 2 weeks after treatment. About 28% of all people

undergoing injection sclerotherapy for large varicose veins will get hemosiderin staining if they wear compression stocking(s) for 2 weeks after treatment. If you get hemosiderin staining after injection sclerotherapy it will usually completely disappear in 6 to 12 months. However, these brown streaks can remain permanently. The good news is: the veins are gone, along with any symptoms they may have caused. The bad news is: brown streaks are left directly over the eliminated veins. Cosmetically, the brown streaks look like a barely noticeable light brown “age spot” and are much less noticeable than the varicose vein.

The other potential complication from injection sclerotherapy is an open area that forms over the veins that were injected. An ulcer or open area can form over previously injected varicose/spider veins due to the Polidocanol not being directly injected into the veins. If the Polidocanol is injected outside the vein and beneath the skin, it is irritating to the skin and can cause the skin to breakdown and open, like falling and scraping your skin. Like falling and scraping your skin, the area will open, then form a scab and eventually heal. Once healed, this previously open area may form a permanent scar, however, you will not require plastic surgery to hide the scar. If you get an injection sclerotherapy-related open area, it will not cause a limb or life-threatening problem. Polidocanol is the least likely solution to cause open areas of skin.

After injection sclerotherapy, you will be instructed to ice the injected areas of SPIDER VEINS twice daily for two days (NOT required for varicose veins). We recommend taking a wash cloth and getting it slightly wet and placing ice cubes inside the cloth and rubbing it over the injected areas for 5 to 10 minutes.

You may require limited, localized compression over the injected veins following sclerotherapy. Compression following injection sclerotherapy assists in compressing the irritated veins and causing the veins to “stick” together and scar shut. We require everyone to wear support or compression hose after injection sclerotherapy. We will ask you to wear the compression stocking(s) 96 hours (4 days) and wear for a total of 2 weeks.

If you are extremely anxious about the potential complications of injection sclerotherapy, we advise you to not pursue injection sclerotherapy. Small varicose and spider veins will never be limb or life-threatening.

The other methods of treating varicose veins is office-based, minimally-invasive procedures called Endovenous Laser Treatment (EVLT), microfoam chemical ablation (Varithena) ***which is similar to injection sclerotherapy***, and microphlebectomy.

Endovenous Laser Treatment (EVLT) is frequently required to scar shut with heat, the Great Saphenous Vein (GSV) and/or the Small Saphenous Vein (SSV). The Great Saphenous Vein is the longest vein in your body and begins on the inside of your ankle and travels on the inside of your leg to the groin. The Small Saphenous Vein begins at the ankle near the back of your leg/foot and travels on the back of your leg to the knee crease (behind your knee).

The Great Saphenous and Small Saphenous Veins are usually the cause of many of the varicose veins that you see on your leg(s).

We DO NOT remove the Great or Small Saphenous Veins with laser, we scar them shut with laser heat. The scarred GSV and SSV will eventually become so small that we will not be able to see them with ultrasound after EVLT.

The potential complications of EVLT of the GSV and/or SSV are infection (much less than 1%) or extension of a small amount of Heat-Induced Thrombus (HIT) into the deep veins (less than 1%). If you develop some extension of clot into the deep veins after EVLT, we will diagnose it quickly with ultrasound because we perform an ultrasound exam 1-2 weeks after EVLT treatment. We can decide to perform a few ultrasound exams to be sure the clot retracts and gets smaller, or we can put you on temporary oral medication to thin your blood).

EVLT is performed in the office WITHOUT sedation.

Now, let's explain microphlebectomy for the treatment of varicose veins. Microphlebectomy is the removal of varicose veins (instead of heat or chemical scarring) and is performed in the office.

Microphlebectomy is performed in the office WITHOUT sedation. We use Lidocaine or Xylocaine at the sites where we make small punctures with a scalpel or needle. You will not feel pain during microphlebectomy because the local anesthesia (Lidocaine or Xylocaine) numbs the site. You may feel a pulling sensation when we remove the veins from beneath the skin, but, again, not pain.

The potential complications of microphlebectomy of varicose veins are: infection (less than 1%) and DVT (much less than 1%).

Side effects of varicose vein microphlebectomy can be: swelling, tenderness, bruising and rarely, numbness over the punctures/incisions. These side effects are not permanent and will eventually resolve.

EVLT, microfoam chemical ablation (Varithena) and microphlebectomy DO NOT require time off from work, you could be treated during your lunch and return to work if you want. We encourage walking after all varicose and spider vein treatments. Additionally, we do not use sedation for any treatments of varicose and spider veins, therefore, you can drive yourself for the procedures.

Varicose and spider veins are not limb or life-threatening. Therefore, treatments for varicose and spider veins should be no worse than the disorder itself. We will not cause a limb or life-threatening problem for the average patient by treating varicose and spider veins.

Remember, we are not trying to "sell" you on a surgery or injections for treatment of varicose veins. Only you know how much the veins physically and/or cosmetically bother you.

What size veins can be treated with injections?

It depends on the size and location of the varicose veins.

Varicose veins that are small ($\frac{1}{4}$ inch or less) and not directly communicating with the greater saphenous vein, can be injected with Polidocanol solution.

Varicose veins that are large (greater than $\frac{1}{4}$ inch) and/or directly communicating with the great saphenous vein, may require endovenous ablation and microfoam chemical ablation with a product called Varithena. If we attempt to inject the large veins, it may not work because the veins have large amounts of blood, which will dilute the Polidocanol and render

it ineffective. If the varicose veins directly communicate with the COMPETENT/NORMAL great saphenous vein, by injecting the large varicose veins, the solution could travel into the great saphenous vein and cause damage to it. Also, some large varicose veins directly communicate with the very important deep veins, which could clot when Polidocanol is injected into them. Polidocanol injected into the deep veins could cause DVT (deep vein clot) which can permanently cause damage to the deep veins and/or clots to the lungs, which is life-threatening. We use ultrasound to guide us to avoid injecting Polidocanol into the deep veins.

Will I need any testing before injections and/or surgery for treatment of my varicose veins?

The only test you may require before undergoing treatment of your varicose veins is ultrasound.

We may need to perform an ultrasound of the legs to determine the valve competency of both the deep veins and superficial veins.

The deep veins are the largest and most important veins of the legs. The deep veins lie next to the bones and arteries. The deep veins are evaluated for evidence of old blood clots and/or problems with the valves.

The superficial veins include the Great Saphenous Vein (GSV) and its branches. Also, the superficial veins include the varicose veins that are not direct branches of the GSV. Everyone has a unique and different pattern of varicose veins. When evaluating the superficial veins, the **Registered Vascular Ultrasound Technologist (RVT)** must put your varicose vein puzzle together in order to assist the physician in planning of varicose vein treatments.

What can happen if I decide NOT to have my varicose/spider veins treated?

Varicose/spider veins are not limb or life-threatening.

If you decide you do not want to undergo treatment of your varicose/spider veins, most will **NOT** develop a limb or life-threatening problem.

A problem that can develop from untreated varicose veins is that the vein could clot on its own, this is called spontaneous superficial thrombophlebitis. If spontaneous superficial thrombophlebitis occurs, it is typically not life-threatening. However, superficial thrombophlebitis is usually very painful. The severe pain is due to the vein clot being close to nerves near the skin, which causes inflammation and a sensation of pain. We treat superficial thrombophlebitis with the application of warm, moist compresses and Aspirin. Spontaneous superficial thrombophlebitis and the related pain usually resolves in 3 to 6 weeks.

Another problem that can occur from both varicose and spider veins is hemorrhage. Hemorrhage of varicose and/or spider veins occur when the veins are very superficial and very high pressure and begin leaking blood. Often, the very superficial, high pressure veins rupture and begin bleeding during or just after a hot shower. While in a hot shower, the veins dilate which thins the vein and skin tissue and, if under high pressure, can cause the veins to develop a leak through the skin. If the high-pressure veins begin hemorrhaging, do not worry, just lie down and apply pressure to stop the bleeding. You will not bleed to death

from a hemorrhaging varicose/spider vein. Rarely, people need to go to the emergency room to have a stitch placed in the vein to stop the hemorrhaging.

In our opinion, the worst problem that can occur from untreated varicose veins is a difficult to heal open area called a venous ulcer. A venous ulcer usually occurs at the inside ankle (where the gravitational pull is strongest and pressure is greatest). Frequently, the open area is treated with the application of an Unna boot **and leg elevation**. An Unna boot is a zinc-coated gauze bandage, which is placed over the open area. The Unna boot is covered with a disposable ACE-type bandage called COBAN, which compresses the leg and decreases the fluid from the leg. Vein-related open areas form when pressure inside the veins, near the skin's surface, is greater than the pressure outside the veins, allowing the veins to leak harmful by-products of our bodies just below the skin's surface. When these harmful by-products of our bodies leak out of the veins and accumulate just below the skin's surface, the skin becomes irritated and breaks open.

Normally, veins carry harmful by-products of our bodies to the heart, and eventually the liver and kidneys, to be processed and eliminated through urine and/or sweating. Severe high-pressure varicose veins, typically occurring inside the ankle, cannot effectively return blood and its byproducts to the heart.

Most patients with varicose vein-related open areas require varicose vein treatments to permanently prevent the open area from recurring.