

Information for Our Vascular Surgery Patients

About for your varicose vein appointment



UMassMemorial

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Normal and Abnormal Leg Veins

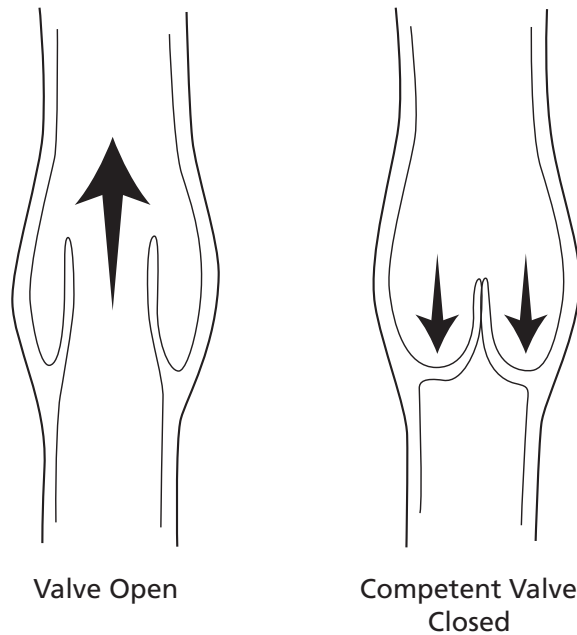
The Circulatory System

The circulatory system moves blood throughout the body. It is made up of the heart, arteries and veins. The heart pumps blood through the arteries delivering oxygen and nutrients to all of the tissues and muscles of the body. The veins carry blood back to the heart with a pressure much lower than that found in the arteries.

The venous system consists of deep veins, which are deep within the body, and superficial veins, which lie close to the skin. The superficial veins help to return blood back to the heart, but deep veins do most of the work.

How Do the Veins Work?

Veins are thin-walled blood vessels that have one way valves in them. These valves allow blood to flow toward the heart. The valves open to move blood toward the heart and close to prevent back flow of blood.

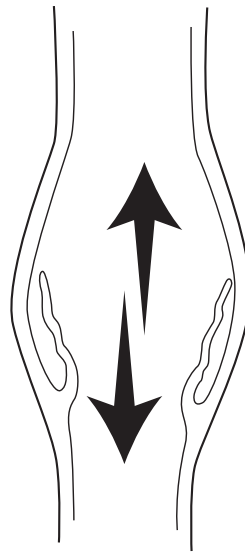


An example of normal veins and vein valves is pictured above. Valves that close normally will only allow blood to flow up towards the heart.

Venous Insufficiency

When the valves in the veins do not work properly, blood flows backward. This backward flow is called venous insufficiency, or reflux. Reflux occurs when vein valves break and blood moves down the vein towards the foot under the force of gravity. Reflux causes increased pressure in the veins that can lead to formation of varicose veins, leg swelling, skin discoloration, aching leg pain and venous ulcers.

The picture below shows damaged valves. When valve failure occurs, pressure builds in the superficial veins. The blood now flows backwards away from the heart and down towards the feet. Venous reflux causes veins to gradually become enlarged.



Incompetent
Valve

We use ultrasound to look for the broken vein valves and make a venous map. Once we have a map of the veins, we can make a plan to correct the problem.

Varicose Vein Patterns

The most common cause of varicose veins is reflux in the greater and lesser saphenous veins (GSV and LSV). These big veins run from the ankle to the groin. Usually it is the vein valve at the top of the leg which becomes damaged first. Blood moves down the vein under pressure to the next valve. As more pressure is forced from above, the valves below will fail. This causes veins to dilate and become varicose veins. Vein clusters can form anywhere along the GSV and LSV.

There are different patterns of vein problems. Veins that become enlarged or dilated can be seen in many sizes, shapes and colors. Large varicose veins, small veins and spider veins can occur as a result of pressure buildup in the venous system. Each pattern tells the doctor where the most likely site of venous reflux exists. Treating varicose vein problems early prevents the patterns of venous disease from getting worse.

Diagnosis of Vein Disorders

Ultrasound gives us a detailed picture of your venous system, and can show the abnormal blood flow (reflux) in diseased veins. Careful mapping of the leg venous system with duplex ultrasound before treatment is important for a positive result. While many patients have large, bulging varicose veins, others may have “silent” large vein disease (reflux), which can only be found with duplex ultrasound vein mapping. In order for treatment of varicose veins to be successful, the abnormal large veins, even if silent, must be treated first. After this, the smaller “cosmetic veins” are treated.

Your duplex ultrasound exam is completely painless and will take about 30 minutes to perform. Your provider will then explain the results and outline a treatment plan that will give you the best outcome. An ultrasound exam may be repeated at the time of a vein treatments and after your treatment is completed.

Treatment Options for Venous Reflux

Successful vein treatment depends on the elimination of larger refluxing varicose veins first, followed by foam microsclerotherapy or laser treatment of smaller cosmetic veins.

Surgery

There are several surgical options for the treatment of varicose veins, traditional ligation and stripping, and phlebectomy. Physicians decide to perform vein stripping if a complete duplex ultrasound evaluation of the veins shows that the veins are diseased and malfunctioning.

Traditional ligation and stripping of the greater saphenous vein is usually performed in a hospital operating room or outpatient surgical center under general anesthesia. Your physician makes a small incision near the groin to reach the upper end of the greater saphenous vein, then disconnects and ties off the main vein branches and disconnects the saphenous vein from the femoral vein. A stiff but flexible wire is then placed into the free end of the saphenous vein and moved down its length and out through a second incision made near the knee.

The end of the vein nearest the groin is tied tightly, and then the knot is tied to the end of the wire. Smaller veins connected to the saphenous vein along the leg may be cut away with tiny incisions, and then the physician pulls the wire downward. As the wire travels down the length of the vein it pulls the vein with it, turning the vein inside out. The vein is then removed through the incision near the knee, although sometimes the doctor may strip the vein all the way to the ankle. The incisions are closed with stitches and compression bandages are applied along the length of the leg.

Possible complications of vein stripping are damage to a surrounding nerve leading to numbness along the vein, bruising and damage to lymphatic tissue leading to chronic leg swelling. There will be small incision scars. Reaction to general anesthesia or an infection are additional risks.

Phlebectomy is usually performed in the operating room at the same time vein stripping and ligation is performed. The area surrounding the varicose vein clusters is flooded with anesthetic fluid. A needle is then used to make a puncture next to the varicose vein, a small hook is inserted into the needle hole and the varicose vein is grasped and removed.

Endovenous Procedures

There are two types of endovenous procedures: laser treatment and radio frequency ablation. At UMass Memorial we perform endovenous laser treatment, also called EVLT.

EVLT is a minimally invasive, same day procedure and is a treatment alternative to surgical stripping of the greater saphenous vein. Instead of removing the saphenous vein, it is sealed in place. Local anesthetic is applied and a thin laser fiber is inserted through a tiny entry point, usually near the knee. As the fiber is withdrawn, laser energy is delivered causing the vein to collapse and seal shut. Following the procedure, a compression bandage or stocking is worn for 5 to 10 days. Patients are able to walk immediately after the procedure and most are able to return to work in one to seven days. EVLT is FDA approved.

Possible complications of ELVT include skin burns, temporary numbness, bruising, pain, swelling, infection, allergic reaction and/or blood clot (deep vein thrombosis).

You will need follow-up appointments for ELVT at one week, three months and six months with ultrasound exam done at the same time.

Other Treatment Options for Leg Veins

Lower extremity veins may be divided into two types. Large bulging blue vessels are called varicose veins. Smaller blue to red vessels are known as spider veins. It is important that a detailed examination be done for all patients, since the treatment for leg veins must be from top to bottom and treatment of large varicose veins before the treatment of smaller spider veins. If large varicose veins showing reflux are not treated first, the treatment of spider veins will be unsuccessful and may result in staining or discoloration of the skin.

Sclerotherapy

Sclerotherapy treatment of varicose veins and spider veins has been used for 60 years and has proven successful in thousands of patients. Sclerotherapy involves the injection of small amounts of solutions into veins which causes their closure. Very thin gauge needles are used so the injections are almost painless. Two or three treatment sessions may be necessary to close these small veins.

Very small spider veins will not respond to sclerotherapy and are usually treated using a specialized leg vein laser. Sclerotherapy treatment can provide a positive cosmetic outcome and may also be associated with improvement of lower extremity circulation.

How Does Sclerotherapy Work?

A very small needle is used to inject a sclerosing solution or foam into a varicose or spider vein. Different strengths of the solution are used based on the size of the vein. Once injected, the cells that line the vein wall will become irritated, inflamed and damaged. Compression is applied to the leg after the injections using Ace wraps and/or support hose. The compression causes the vein walls to seal together so the vein no longer can transport blood. Over time, your body will break down and absorb the damaged vein. When healing is complete the vein is no longer visible. Spider veins do not have any useful function and eliminating them will not affect your circulation. Reducing or eliminating varicose veins can actually improve your circulation and alleviate symptoms of heaviness, aching and fatigue.

How Many Treatments Are Needed?

The number of treatments needed varies from patient to patient depending on the type, size and number of veins to be treated. Varicose veins and spider veins usually require several injection sessions. Treatments are scheduled every four to six weeks to allow time for the body to respond to the treatment. It is important to follow the instructions after your treatments to get the best result. Your body will continue to heal and "fade" the injection sites for months after treatment. After your first appointment you will be given an estimate as to the number of treatments that may be required. You may end up needing fewer or more treatments than were estimated. It is important to discuss your expectations with your provider.

What to Expect

Photographs will be taken before treatment begins. This helps monitor your progress. Your legs will look worse before they look better. Most people notice a significant improvement approximately four weeks after their initial treatment. Maximal improvement often takes several months and treatments. There is no guarantee sclerotherapy will be effective in every case. Some veins will need to be retreated. New varicose veins or spider veins may form requiring treatment at a later date. Periodic reevaluations are encouraged so that new veins that develop can be injected before they become too large or numerous.

Common Side Effects of Sclerotherapy

Itching – You may experience itching around the area injected. If this occurs, it is usually mild and lasts from a few hours up to 24 hours.

Hyperpigmentation – A light brown discoloration of the skin may develop along the vein in the area injected. Approximately 20 percent of patients who are treated note the discoloration, which is usually lighter and less obvious than the vein being treated. This fades in a couple of weeks, but may take several months to a year to completely go away. There is a small chance of permanent discoloration after one year.

A tiny amount of blood commonly becomes trapped and hardened in the vein when injecting varicose veins or some spider vein complexes. This may feel like a knot or cord and it may look dark blue or bruised. You may need to return before your next treatment so that this area can be drained to remove the trapped blood. This will reduce the discoloration that can occur. Using your compression hose after treatment helps prevent this.

Matting – This formation of new, fine spider veins in the area injected occurs in approximately five percent of patients injected. The exact reason for this is unknown. If untreated, the matting usually resolves in three to twelve months, but very rarely it can be permanent. If the matting does not fade it can be re-injected or treated with a laser. In some instances, matting may be permanent.

Pain – It is normal to have some minor tenderness at the injected site. Injection of the sclerosing agent itself is almost painless and usually well tolerated by most patients. Acetaminophen (Tylenol) can be used if needed, according to product directions.

Bruising – This may occur at the injection site. Bruising may be minimized by avoiding Aspirin and Ibuprofen products for seven days before and after each treatment session.

Rare Side Effects

Ulceration at Injection Site – Very rarely a small wound will occur at the spot where the vein is injected. This type of wound can take four to six weeks to completely heal. A small scar may result.

Allergic Reaction – In very rare incidences an allergic reaction to the solution injected can occur. You will be observed for such reactions and treated appropriately should it occur. Please inform us of any allergic history.

Pulmonary Embolus/Deep Vein Thrombosis – A blood clot in the deep veins of the leg or a blood clot to the lungs is extremely rare following varicose vein treatment. This complication is not seen when treating only superficial veins.

Transdermal Laser for Spider Veins

At the present time, lasers are available to treat spider veins. Small pink spider veins are best treated using pulsed green or yellow light lasers. Larger blue vessels are best treated using longer wavelength Alexandrite, Diode or Neodymium-YAG lasers. Combinations of laser and sclerotherapy are usually used for best results.

Nonsurgical Treatments

Nonsurgical treatments include compression stockings and herbal treatments.

Graduated compression stockings are the mainstay of initial management of venous disease. Graduated compression stockings are tighter around the foot and ankle and the pressure decreases as it goes up the leg. This helps the normal flow of blood up the leg.

Using graduated compression stockings is safe unless they are not fitted properly or if you have undiagnosed peripheral vascular disease. In these instances, obstruction of venous or arterial blood flow may occur. To avoid problems, our patients are given prescription compression hose and will be appointed for a fitting by a professional medical supplier.

Herbal remedies are sometimes used, although there is no scientific evidence that they work. Horse chestnut extract is the most commonly recommended herbal preparation for venous disease. There are many anecdotal reports of beneficial effects on the symptoms of vein disease with use of this product, but no medical studies.

You may choose to have no therapy. Your existing varicose and spider veins may progress and new veins may form. You may choose to have periodic medical evaluation to monitor your condition for changes.

Prevention of Varicose Vein Disease

What Can I Do To Prevent Varicose Veins?

Many of the things that seem to cause varicose veins are difficult to avoid such as a family history or a sedentary lifestyle.

Whenever possible, avoid standing for prolonged periods of time. Walking is much better for the veins and helps blood return to the heart more efficiently. This prevents the blood from pooling in the legs.

In professions that require extended periods of standing, a few steps should be taken at regular intervals to help the venous circulation. Support stockings help keep the veins from bulging and aching. There are no supplements or drugs that help prevent the formation of varicose veins.

Elevating the Legs

You can elevate the legs while sitting or lying down. If the legs are elevated at or near the level of the heart, leg pain and swelling can be reduced.

Other things that you can do:

- Shower with cold water if at all possible
- Use compression stockings
- Lose weight, as this is shown to reduce venous reflux
- Avoid prolonged standing or sitting

Resources

Compression Stocking Vendors

Towne Medical Supply
258 Boston Turnpike (Route 9)
Shrewsbury, MA 01545
Tel: 508-757-7048

Byram Health Care
943 Main Street
Worcester MA 01610
Tel: 508-756-8300

Hanger Prosthetics and Orthotics
255 Park Avenue, Suite 2000
Worcester, MA 01609
Tel: 508-756-8689

Tucker Allen
26 Main Street
Lemonister, MA 01453
Tel: 978-534-3111

Web Sites

To order compression stockings:

www.ameswalker.com

www.foryourlegs.com

Varicose Vein Information:

Vein Disease Foundation: www.vdf.org/diseaseinfo

Venous Disease Coalition: www.venousdiseasecoalition.org

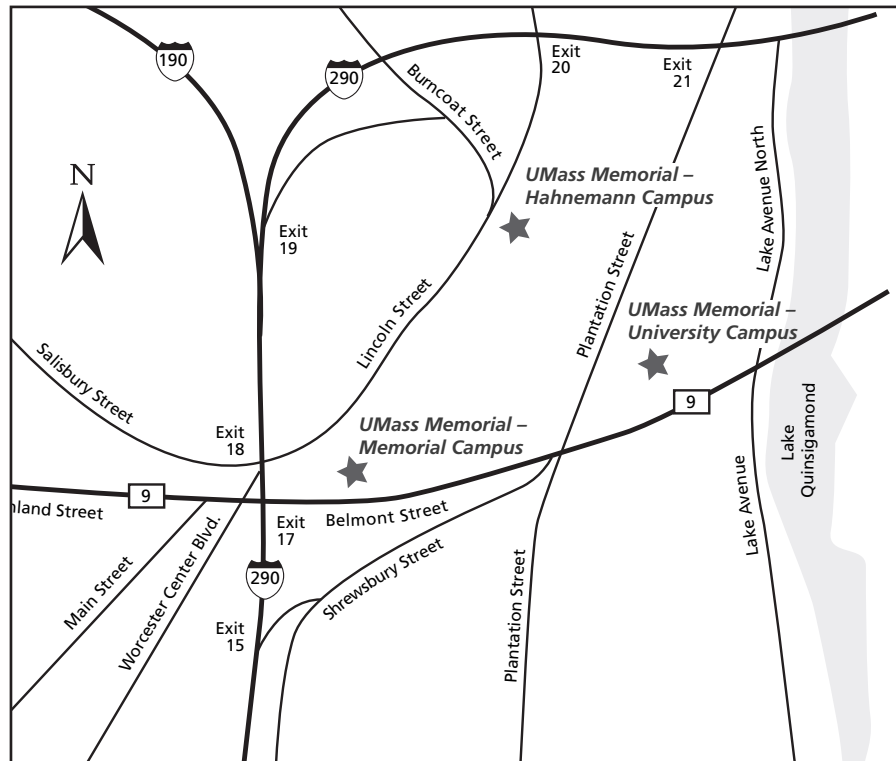
Society of Vascular Surgery: www.vascularsociety.org

UMass Memorial Medical Center – University Campus

55 Lake Avenue North

Worcester, MA 01655

Directions



University Campus

55 Lake Avenue North, Worcester 01655

Telephone connecting all campuses: 508-334-1000

From the east: Take the Mass. Pike (Route 90) West to Exit 11 (Route 122). Take a left off the exit ramp onto Route 122 North (Grafton Street). At the intersection with Sunderland Road, take a right. At the first set of lights on Sunderland Road, take a left onto Lake Avenue and proceed for 2.5 miles. Get into the left lane at the intersection of Route 9 (Mr. Tux will be on left) and turn left. Get into the right lane. Turn right at the traffic light onto Plantation Street. University Campus is on the right.

Or: Take the Mass. Pike (Route 90) West to Exit 10. Take I-290 East to Exit 21. Turn right off exit onto Plantation Street. Go to second traffic light. University Campus is on the left.

From the west: Take Mass. Turnpike East to Exit 10 (I-290 East). Take I-290 to Exit 21. Turn right off exit onto Plantation Street. Go to third traffic light. University Campus is on the left.

From the north: Take I-495 South to Exit 25B (I-290 West). From I-290 West, take Exit 22 and turn right off exit. At second traffic light, turn left onto Plantation Street. Go to fourth traffic light. University Campus is on the left.

Or: Take I-190 South, follow signs for I-290 East to Exit 21. Turn right off exit onto Plantation Street. Go to second traffic light. University Campus is on the left.

From the south: Take I-495 North to Exit 25B (I-290 West). From I-290 West, take Exit 22 and turn right off exit. At second traffic light, turn left onto Plantation Street. Go to fourth traffic light. University Campus is on the left.

Or: Take I-395 North to where it becomes I-290 East. Take I-290 to Exit 21. Turn right off exit onto Plantation Street. Go to second traffic light. University Campus is on the left.

Or: Take Route 146 North to I-290 East to Exit 21. Turn right off exit onto Plantation Street. Go to third traffic light. The University Campus is on the left.

Memorial Campus

119 Belmont Street, Worcester 01605

Telephone connecting all campuses: 508-334-1000

From the east: Take Mass. Turnpike West to I-495 North. Take Exit 25B to I-290 West. Follow I-290 to Exit 18. Turn right off exit onto Lincoln Street. Bear left and proceed to Lincoln Square (intersection of Route 9/Belmont Street). Take left onto Belmont Street. Memorial Campus is 1/2 mile on the left.

From the west: Take Mass. Turnpike East to Exit 10 (I-290 East). Take I-290 East to Exit 17. Turn right off exit onto Route 9/Belmont Street. Memorial Campus is on the left.

From the north: Take I-495 South to Exit 25B (I-290 West). Follow I-290 to Exit 18. Turn right off exit onto Lincoln Street. Bear left and proceed to Lincoln Square (intersection of Route 9/Belmont Street). Take left onto Belmont Street. Memorial Campus is 1/2 mile on the left.

Or: Take I-190 South to I-290 West toward Auburn. Follow I-290 to Exit 18. Turn right off exit onto Lincoln Street. Bear left and proceed to Lincoln Square (intersection of Route 9/Belmont Street). Take left onto Belmont Street. Memorial Campus is 1/2 mile on the left.

From the south: Take I-495 North to Exit 25B (I-290 West). Follow I-290 to Exit 18. Turn right off exit onto Lincoln Street. Bear left and proceed to Lincoln Square (intersection of Route 9/Belmont Street). Take left onto Belmont Street. Memorial Campus is 1/2 mile on the left.

Or: Take I-395 North to where it becomes I-290 East. Take I-290 to Exit 17. Turn right off exit onto Route 9/ Belmont Street. Memorial Campus is on the left.

Or: Take Route 146 North to I-290 East to Exit 17. Turn right off exit onto Belmont Street/Route 9. The Memorial Campus is on the left.

UMass Memorial Health Care is the largest not-for-profit health care system in Central Massachusetts with 1,500 physicians and more than 12,000 employees. Our comprehensive network of care includes teaching hospitals, affiliated community hospitals, outpatient clinics, community-based physician practices, and home health, hospice, rehabilitation and mental health services. UMass Memorial is dedicated to promoting health and wellness in the community, and is proud to be the clinical partner of the University of Massachusetts Medical School.

Contributions and memorial gifts to UMass Memorial Health Care are deeply appreciated. For information, call the UMass Memorial Foundation at 508-856-5520 or e-mail to giving@umassmed.edu.

Department of Surgery – Division of Vascular and Endovascular Surgery
UMass Memorial – University Campus
55 Lake Avenue North, Worcester, MA 01655

