Stand taller. Walk longer. Shop easier. Run better.





Only at the Center for Vein Care

If you suffer from vein disease, you're not alone.

More than 80 million American men and women do, too. And while it seems like there are countless healthcare providers offering treatment options, it takes a vein specialist to properly diagnose and recommend the treatment that's right for you. At each of our Center for Vein Care locations — which are part of Stony Brook Medicine — we offer a unique combination of accreditation, expertise, experience, innovation, individualized options and convenience.



L to R: David Landau, MD, FACS; Antonios Gasparis, MD, FACS, Director of Center for Vein Care;

George Koullias, MD, PhD; Angela Kokkosis, MD; Apostolos Tassiopoulos, MD, FACS;

Nicos Labropoulos, PhD; Shang Loh, MD, FACS; Nicholas Sikalas, MD

- Accreditation We are one of a select few centers nationally and the first center on Long Island to receive full accreditation by the Intersocietal Accreditation Commission.
- Expertise Our highly knowledgeable, vascular surgeons teach new techniques and technologies to colleagues, make presentations across the U.S. and internationally, and serve on the faculty at Stony Brook University School of Medicine.
- **Experience** Over the past decade we have evaluated and successfully treated thousands of patients with minimally invasive therapies.
- Innovation As active researchers, we lead the field in making clinical advances available to patients. The Center for Vein Care has been involved with numerous clinical trials for new therapies. Most recently, we were one of the leading centers to offer Varithena® that led to the FDA approval of this revolutionary nonsurgical treatment in 2013.
- Individualized Using sophisticated ultrasound technology, we determine the most effective, least invasive treatment options. Your care is tailored specifically to your needs, and all of our treatment options are performed right in our office.
- **Convenience** We have multiple convenient locations throughout Long Island.



The Center for Vein Care can help make shopping fun again.

We understand how it feels to live with vein disease

Our work with thousands of patients has taught us that vein disease can affect not only your appearance, but also your activity level and quality of life.

At the Center for Vein Care, our goal is twofold: to help restore your legs to their healthy good looks and help you quickly get back into the swing of things, whatever your thing is.

The Center for Vein Care uses the most advanced, least invasive surgical and nonsurgical techniques to treat vein disease. Minimally invasive procedures are performed in our office, using local anesthesia or mild sedation offering a truly pain-free experience. Patients walk out of the office with minimal discomfort and can typically return to normal activity within a few days.

Venous System and Vein Anatomy

Blood is carried through arteries from the heart to the rest of the body, and returned to the heart through the body's veins, which are collectively known as the venous system.



There are three types of veins: superficial, deep and perforator veins. The superficial veins are found above the muscles close to the skin. The deep veins are near the major arteries in the muscles. And the perforator veins connect the superficial and deep veins. Most of the blood is carried by the deep veins; very little is carried by the superficial veins.

Within the superficial venous system there are saphenous veins and tributaries. Think of it as a main river and its tributaries — the main river is the saphenous vein and its tributaries are the varicose veins. There are two saphenous veins in each lower extremity — the great saphenous vein (GSV) and small saphenous vein (SSV). There are also additional saphenous veins that run parallel to the GSV. While the saphenous veins usually are not visible, the tributaries (varicose veins) are much closer to the skin and often easily visible.

The most common disease in the superficial venous system is varicose veins. The most common problem in the deep veins is the development of blood clots also known as deep vein thrombosis (DVT). Previous DVT can lead to scarring and future blockages in the deep veins.

Superficial veins - saphenous
Superficial veins - tributaries (varicose veins)
Perforator veins
Deep veins

Understanding Vein Disease

What are varicose veins and spider veins?

Varicose veins are enlarged, rope-like blood vessels that are swollen and raised above the surface of the skin. They can be flesh-colored, dark purple or blue, and often look like a cluster of grapes. They can form anywhere on the legs, but are commonly found in the inner thigh and/or calves.



Varicose veins

Spider veins look different from varicose veins. They are much smaller and closer to the surface of the skin. They may look like red/blue very fine spider webs but they usually don't push up the surface of the skin like varicose veins. However, they are often more noticeable. They can occur anywhere on the legs and can cover either a very small or very large area of skin.



Spider veins

What causes varicose veins?

Veins have valves that act as one-way flaps. Blood is pushed out of the leg veins by the surrounding muscles and returns back to the heart through these valves. The valves close to prevent blood from backing up and pooling. When these valves don't close properly, blood may flow backwards and pool in the veins. The medical term for the condition that causes this is venous reflux or venous insufficiency. Over time, venous reflux can lead to the enlargement of the veins into varicose veins and may cause symptoms. *(See page 9 for symptoms.)*

Venous reflux may occur in the saphenous veins or its tributaries. A non-invasive ultrasound test is used to understand where the source of the reflux is, which will determine which veins need to be addressed.





Venous reflux







Leg swelling



Darkening of the skin



Skin ulcers

How common are varicose and spider veins?

About 50 to 55 percent of women and 40 to 45 percent of men in the United States suffer from some form of vein problem. Varicose veins affect one out of every two people over the age of 50.

What are the risk factors for varicose veins and spider veins?

Family history

• Pregnancy and hormonal changes

• Prior deep vein thrombosis

- Increasing age (over 50)
- Obesity
- Prolonged standing or sitting
- Smoking

What are the signs and symptoms of varicose veins?

Varicose and spider veins are easily visible, and appearance alone may lead one to seek treatment. If no symptoms are present, this is considered a cosmetic problem and not covered by insurance.

Many people with varicose veins experience leg pain or discomfort that tends to worsen with prolonged sitting or standing and is worse at the end of the day. Performing daily activities may become a challenge, requiring frequent leg elevation for relief. When this is the case, varicose veins are considered a medical condition and treatment is often covered by insurance.

Insurance coverage for varicose and spider vein treatment

Not covered for cosmetic reasons

• No symptoms are present; appearance alone leads one to seek treatment

Typically covered for medical conditions

- Worsening leg pain; discomfort; challenging to perform daily activities
- Failure of conservative treatment with compression stockings

Symptoms may include:

- Aching or burning
- Easily tired legs
- Itching over the varicose veins
- Leg heaviness or pain

- Leg swelling
- Rash on the legs
- Darkening of the skin
- Skin ulcers near the ankle

Some patients with advanced vein disease (swelling, skin discoloration or skin ulcers) may have a combination of superficial and deep vein disease. Without a thorough evaluation this may not be recognized and adversely affect treatment results. Only a few vein centers can adequately diagnose and offer comprehensive treatment for the full spectrum of vein disease.

What disease can occur in the deep veins?

Most patients with signs and symptoms of venous disease may have superficial vein problems, but some patients may have deep vein problems or a combination.

Deep vein disease is usually found in patients with extensive symptoms and may include backflow (reflux) alone or in combination with blockage. This can occur in the veins below the groin or above the groin in the pelvic area. There are limited treatment options for diseased veins below the groin. However, there are options available for disease in the pelvic veins. Careful evaluation of both the superficial and deep venous system is important for forming an appropriate treatment plan.



Normal veins in the pelvis



Blockage in veins after blood clot

Treatment Options for Superficial (Saphenous) Veins

When self-help measures such as exercise, elevating your legs or wearing compression stockings have failed, there are many options available for the management of diseased, superficial (saphenous) veins.

It takes a vein specialist to recognize which saphenous veins have an underlying problem. After a consultation with one of our board-certified vascular surgeons and an ultrasound evaluation, we'll recommend a personalized treatment plan that's right for you.

Endovenous thermal ablation techniques

Thermal ablation is an advanced, minimally invasive method with excellent results for treating the saphenous veins. It has been available for over 15 years and has replaced traditional vein stripping surgery for the vast majority of patients. With the help of ultrasound for guidance, a small catheter (thin, flexible tube) is placed in the vein. A local anesthetic (lidocaine) is released around the vein to provide comfort during the procedure. Then the catheter is slowly pulled back to deliver heat to injure the vein wall and close (ablate) the vein. Once the diseased vein is treated and closed, blood flow is restored to the normal surrounding veins and symptoms improve. Another option, which is offered to patients at the Center for Vein Care, is mild sedation for a truly pain-free experience.

Endovenous Laser Ablation: With this technique, a small fiber is placed into the damaged vein. The fiber delivers laser energy to heat the venous wall to close the vein. Similar to the Venefit[™] procedure, ultrasound guidance is critical.

Radiofrequency Ablation (RFA): Known as the Venefit[™] procedure, his type of ablation delivers heat in the form of radiofrequency energy to the vein wall to seal it shut. Over time, the vein scars down and is absorbed by the body.



Endovenous nonthermal ablation techniques

Recently approved by the FDA, nonthermal ablation techniques treat the abnormal saphenous vein without using heat. Nonthermal ablation is even less invasive than endovenous thermal therapies since there is no need for injection of local anesthesia and no thermal injury. No anesthesia or sedation is required. Patients can typically return to normal activities and work immediately following the treatment.

Varithena®: This nonsurgical approach uses an injectable, medicated foam that is inserted through a small needle into the abnormal veins under ultrasound guidance. The foam pushes the blood out of the vein, damages the vein wall and causes it to close and scar down over time.

VenaSealTM: This minimally invasive treatment uses a safe, medical "super glue" to seal the superficial vein. The glue is slowly placed in the vein through a small catheter under ultrasound guidance and seals the vein shut.

Mechano-chemical Ablation (MOCA)™:

A small, flexible wire is inserted with ultrasound guidance into the diseased saphenous vein. The wire is then slowly pulled back while it is rotating and a sclerosant (liquid solution that injures the vein) is injected. This causes the vein to collapse and close.



Mechano-chemical ablation (MOCA)™

Catheter Heating inserted vein wall w into vein

ing Catheter wall withdrawn, closing vein

Treatment Options for Tributaries – Varicose Veins

Endovenous ablation is used to treat the saphenous veins but cannot be used to treat varicose veins. For some patients, closing the saphenous vein may lead to less visible varicose veins. Based on our experience, we've found that most patients need additional procedures to address their varicose veins. For this reason, we usually treat all of the diseased veins at the same time. Options for eliminating varicose veins include:



Mini-phlebectomy: Using a local anesthetic and tiny 1-2 mm needle holes, this technique removes bulging veins on the surface of the skin. There may be bruising after the procedure and small lumps, which subside over time. No stitches are required, and there is minimal scarring.

Mini-phlebectomy



A hook is inserted into a tiny incision

A section of the The vein is removed



Ultrasound-guided Sclerotherapy:

This procedure involves injecting a liquid solution (sclerosant) via ultrasound guidance to injure the varicose vein wall. The vein is shut closed and slowly absorbed by the body over time. Multiple treatment sessions may be required.

vein is hooked

Ultrasound-quided sclerotherapy

Treatment Options for Spider Veins

Sclerotherapy: Small spider veins on the surface of the skin can't be removed but are treated with injections. Sclerotherapy involves injecting a solution into the vein that causes the vein wall to swell, stick together and seal shut. Patients typically require multiple sessions to obtain the best cosmetic results which can range from 60 to 90 percent improvement. Because this is considered cosmetic, it is not covered by insurance.



Sclerotherapy

Laser: Surface laser can also be used in some types of spider veins. Similar to sclerotherapy, multiple sessions may be required for a similar success rate.

Individualized Approach

Before proceeding with any of the options mentioned here, your Center for Vein Care vascular team will perform a complete evaluation of the superficial and deep veins with ultrasound, and then offer you an individualized treatment plan. Often patients may require more than one of the above treatments depending on the severity of the disease.

Success Rates

Many published clinical studies document the success of endovenous therapy at over 95 percent. The risk of complications associated with endovenous therapy is minimal — less than 1 percent. Complications include but are not limited to: blood clots, nerve injury, skin discoloration and failure of therapy. It should be noted, however, that patients with varicose veins are prone to develop new varicose veins over time.

Deep Vein Disease and Treatment Options

Disease in the deep veins is either due to reflux (backflow) or obstruction (blockage) or a combination of the two. Reflux is a chronic problem while obstruction can either be sudden (acute) and/or long term (chronic).

Deep Vein Thrombosis (DVT): The most common cause of obstruction is a blood clot (DVT) and there are many risk factors for developing DVT. The strongest risk factor is having a history of previous DVT. Other risk factors include: recent surgery, being laid up in bed, long travel and cancer. Symptoms include: sudden onset of leg swelling, pain and/or redness.



Clot trapped

in IVC filter

cannot be placed on blood thinners may be offered placement of a filter (umbrella) to catch the clot and prevent it from moving to the lungs, which can be fatal. The filter is positioned in the main deep vein that returns blood to the heart, which is known as the inferior vena cava (IVC). In some patients, these filters may be removed if no longer needed.

Treatment: Blood thinners and compression stockings

are used to treat DVT Patients with blood clots who

Some patients with extensive clotting and significant symptoms may be candidates to undergo thrombolysis. This involves the use of mechanical devices with clot busting medication to dissolve the fresh clot and prevent damage to the deep veins.



Chronic Venous Obstruction: Following treatment with blood thinner alone, a clot in the deep veins may resolve over time or, it may turn into scar tissue. The blockage from the scar tissue may result in symptoms of venous disease — it may cause your legs to feel heavy, swell or it may cause skin damage. This is called chronic venous obstruction.



Treatment: There are no good treatment options for long-term blockages in the veins below the groin.

However, if a previous blood clot or compression of a vein in the pelvic area causes blockage in the pelvic veins and symptoms of venous disease are present, it can be treated using a minimally invasive technique that places a metal tube (stent) inside the vein to open the blockage.

A - Blockage in veins after blood clot B - Stent to open blockage

Chronic venous obstruction

Pelvic Congestion Syndrome: Pelvic vein reflux (backflow) is another problem that can occur. This is more common in women due to multiple pregnancies and may include symptoms of chronic pelvic pain, varicose veins in the legs, or both. This condition with pelvic pain is known as pelvic congestion syndrome.

Treatment: A sclerosant (liquid) is injected and metal coils are placed in the ovarian veins to stop the backflow of blood into the pelvis. The varicose veins in the legs are then treated with either a miniphlebectomy or sclerotherapy if necessary.



Pelvic vein reflux can lead to pelvic congestion syndrome

When should I seek medical advice?

Self-help measures such as exercise, elevating the legs or wearing compression stockings may ease the signs and symptoms of vein disease but will not eliminate them or prevent progression of venous disease. If you are diagnosed with superficial or deep vein disease and have symptoms, you may be a candidate for treatment. If the way your legs look and feel becomes a concern, or if self-help measures are not successful, consider a consultation with a Center for Vein Care vascular surgeon.

Does my insurance cover treatment?

Most insurance companies will cover vein treatments that are medically necessary and when conservative therapy with compression stockings has failed. Any treatment for cosmetic reasons, including sclerotherapy, is not covered.

How can I get more information?

Make an appointment for a consultation or a free vein screening with one of our vascular surgeons at (800) 345-VEIN. For more information, visit: **vein.stonybrookmedicine.edu**.

Center for Vein Care Locations:

Centereach	23 South Howell Avenue, Suite G
Commack	500 Commack Road, Suite 102A
Hampton Bays	225 West Montauk Highway
Sayville	160 Middle Road, Suite 3
Smithtown	222 Middle Country Road, Suite 209
Southampton	676 Country Road, Route 39A 240 Meeting House Lane



(800) 345-VEIN vein.stonybrookmedicine.edu

