

Individualized Varicose Vein Treatment

Varicose veins can be treated.
Get rid of the heaviness in your legs!



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Cardiovascular Surgeon

Venouse diseases

Varicose is a medical condition that occurs when veins enlarge and become visible on the skin's surface

Venous diseases impact up to half of the overall population and constitute a medical as well as cosmetic problem.

Venous diseases comprise a wide spectrum, ranging from issues impacting capillary vessels to large varicose veins; in extreme cases, the structure of the skin can be compromised. While varicose veins are often perceived as a cosmetic problem, they constitute a significant health risk.

Varicose veins are a circulatory problem

It must be kept in mind that, if untreated, these problems will progress over the years and seriously compromise the individual's overall health and wellbeing.



Varicose veins are caused by venous hypertension, or simply put, high pressure in the venous system.

Such hypertension can have various underlying causes.

As blood leaves the heart, it travels throughout the entire body through the arteries, aided by both the heart's pumping action, as well as gravity.

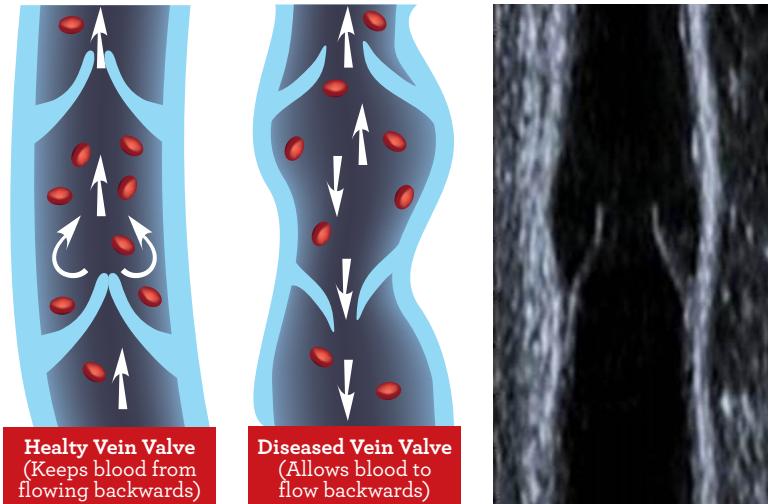
The collection of this blood back in the heart is a slightly greater challenge, as it must now fight against gravity. Such counter-gravitational movement is made possible by the muscles in the legs, as well as the one-way-valves in the arteries. When this system is compromised, blood cannot travel back up and begins to flow backwards, which then results in increased tension in the veins.



Main causes of varicose veins

Dysfunction of the valves

Functional problems of the valves within the veins constitute the most common problem in varicose veins, expressed by such terms as “reflux,” “insufficiency” and “leakage.”



Blockages within the veins

Blockages can be caused by a sudden clot or damage caused by a preexisting clot, as well as dysfunction of the valves.

Pressure on the veins from the exterior

Exterior pressure can be caused by a mass within the abdominal cavity, such as tumors, cysts or organ enlargement.

Constriction of veins within the abdominal cavity

In some individuals, structural developments can result in large arteries within the abdominal cavity, applying pressure on veins, thereby blocking blood flow.

Lack of muscular capability to pump the blood back

Some muscle and nervous problems result in the inability of muscles to perform sufficient work in order to pump back venous blood into the heart.

Everyone's varicose veins are unique

With these considerations in mind, it becomes evident that each case of varicose veins cannot be treated the same way.

With different causes underlying each case, the course of the disease takes on different paths in each individual.

To resolve varicose veins, an individualized treatment plan must be crafted



Individualized Venous Mapping



Treatment tailored according to the individual's venous map

Symptoms of varicose veins



- Visible veins
- Leg pain
- Sense of heaviness, pain
- Night pains
- Restless legs
- Swelling, edema
- Cramps
- Burning sensation, lack of heat tolerance
- Itchiness without an identifiable cause
- Dermatitis, eczema or shedding on the lower leg
- Color change around the ankles
- Formation of spider vein around the ankles
- Thinning of the skin, thickening and hardening of the skin's underlying layer
- Opening of wounds

All of the aforementioned symptoms tend to worsen towards the end of the day and as the individual spends more time on his or her feet. Varicose veins can result in clotting, small traumas and bleeding.

Key causes triggering the formation of varicose veins

- Genetic propensities
- Advanced age
- Long periods spent on the feet
- Sitting for extended periods
- Injury and trauma to the legs
- Blood clots
- High body weight

The incidence of varicose veins is higher in women, compared to men. Furthermore, such periods in the life of a woman as puberty, pregnancy, use of birth control pills and menopause bring forth hormonal changes and constitute a high risk for varicose vein formation.

Diagnosis and treatment

The first crucial task in diagnosing venous diseases is to obtain a “Venous Map”

The “venous map” constitutes the roadmap of the individualized treatment plan

In venous diseases “**Colored Doppler Ultrasonography**” constitutes the **Gold-Standard** for diagnosis. Doppler Ultrasonography is used to perform both a physical as well as a dynamic evaluation.

This information is then combined to produce a “venous map” of the individual. A highly detailed evaluation of the entire venous system, including intraabdominal (pelvic and abdominal veins) and both legs, must be performed and the procedure repeated both in a laying and standing position, before a useful “venous map” can be produced. This map and the accompanying information will reveal the blood flow throughout the entire venous system, radii of the veins, connections among the veins, as well as points of reflux and leakage.

With the individualized map and the findings obtained during the clinical evaluation of the patient, the physician decides on the best treatment technique for the patient.

In addition to the classical varicose veins, venous problems can include blockages due to clotting, dysfunction of valves within the deep venous system, changes in the venous structure and inherited syndromes impacting the venous structure. Such cases can require additional diagnostic techniques, such as:

- **Computerized Tomography**
- **Magnetic Resonance**
- **Conventional angiography**

Patient specific treatment

Patient specific treatment is one that is optimized for the patient and the specific ailment to be treated. Considerations used in crafting an individualized treatment plan include the bodily structure of the patient, previous and existing diseases, venous structure, radii of the veins and connection points of arteries.

In some cases, multiple treatment techniques must be utilized simultaneously.

There is no disease but the patient

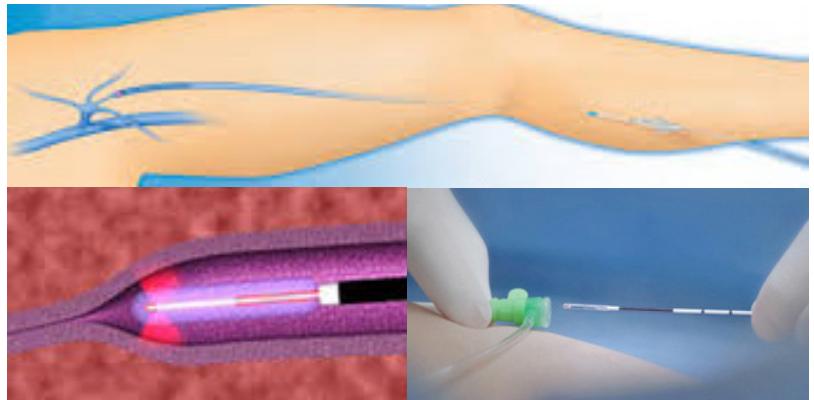
Therefore, the key to a successful treatment is a **Individualized Varicose Vein Treatment.**



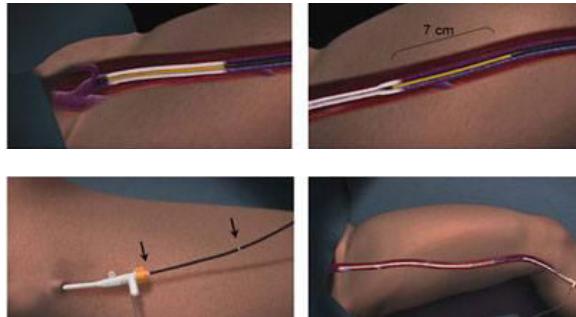
Operations

Thermal ablation Endovenous thermal ablation (Laser, Radiofrequency)

This is the most commonly recommended and utilized varicose vein operation technique around the globe and provides the best combination of patient comfort, risk and probability of recurrence. The procedure is performed under local anesthesia and patients can resume daily activities immediately following the operation. The patient is instructed to wear compression socks for two to three weeks.



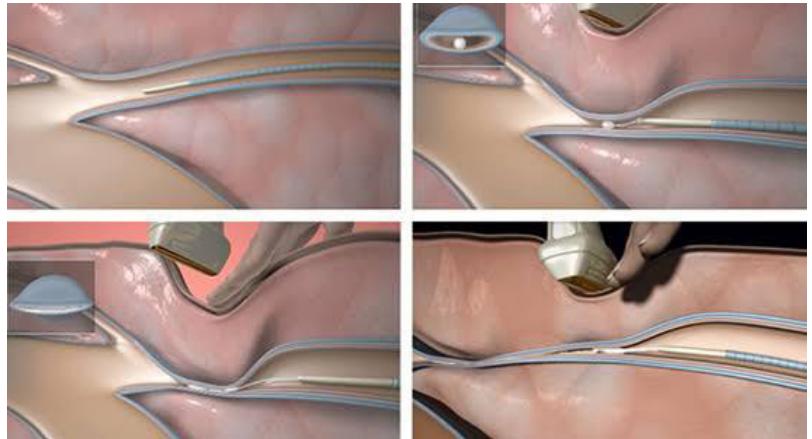
Laser Catheter (Biolitec)



*Radiofrequency
Catheter
(ClosureFAST)*

Non-thermal ablation Endovenous non-thermal ablation (involving an adhesive)

This is a technique that has gained popularity over the recent years and is performed under local anesthesia. Patients can resume daily activities immediately following the operation. A distinct advantage of this technique is that compression socks are not required following the operation.



Adhesive Venaseal

Open surgical procedures

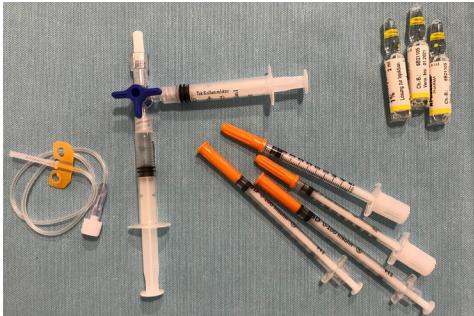
This is the oldest procedure used to treat varicose veins. While, today, this is not the first choice in most operations, it becomes the only viable choice in some instances. Such procedures require either general anesthesia or anesthetizing the patient below the waist (spinal anesthesia). The patient can resume daily activities within one to two days and is thereafter instructed to wear compression socks.

Sclerotherapy

**Sclerotherapy
is an art, as much
as it is a science**



**Sclerotherapy
is not magic**



This is a technique used for the treatment of side branches, fine varicose veins, as well as veins that have a “spider web” type of appearance. Cosmetic considerations are at the forefront when utilizing this technique, which involves the injection of a medical compound into the vein in order to close it. The medical compound can be injected as a liquid or foam.

This is a very sensitive form of treatment, and while it appears deceptively simple, many details can make a big difference. How much of the medical compound is to be injected, which veins are to be treated in this fashion, how much compression is to be applied and for how long, are all key considerations and the experience of the treating physician is therefore critical in this technique.

Sclerotherapy is not a one-off procedure, but rather an ongoing process; it is spread out over several sessions. In each session, a tailored dose of medicine, fine-tuned according to the patient’s weight, physique and vein structure, is injected into the veins. The response of the patient to the treatment, will, likewise, differ across individuals. Therefore, the number of sessions required will also vary, depending on the aforementioned factors.

Treatment of spider veins by using dermal laser

Do not let the spider
veins upset you



Capillary vessels that are too small and thereby unsuited to sclerotherapy can be treated with skin laser and skin radiofrequency devices.

Our clinic utilizes the Cutera Xeo ND-Yag Laser device, featuring the most advanced technology in the field.



The Cutera Xeo ND-Yag Laser device is particularly suited to and produces the best cosmetic results in the following cases.

- Patients with needle phobia
- Capillary vessels that are too narrow to be accessed by way of sclerotherapy
- Patients who are allergic to the medicines used during sclerotherapy
- Capillary vessel structures that are formed following sclerotherapy
- On capillary vessels around the ankles
- On capillary hemangiomas



The treatment is applied in a series of sessions and there is no need for the use of compression socks following the treatment.

Compression and the medicines

Compression is a highly effective method for addressing patient complaints and as a preventative measure

Compression techniques

Compression is an indispensable tool at all stages of venous diseases.

It is an absolute necessity when addressing such complaints as fullness and pain, and is utilized in returning a swollen leg back to its normal condition.

- **Compression socks**

While the idea of wearing such a sock may sound burdensome at first, these socks will easily become part of the patient's life, provided that the correct sock for the individual can be identified.

- **Bandages**

- **Multi-layered bandages**

- **Pneumatic compression devices**

Compression methods can be elastic or non-elastic and, at various stages of the disease, a compression method identified by the physician will absolutely be required. The selection of the proper compression method will depend on the severity of the disease, the amount of swelling of the leg, the presence of wounds and whether compression is to be utilized as a treatment method or a preventative measure.

Medicines

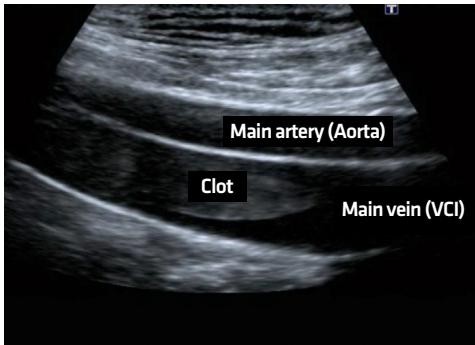
Medicines, just like compression socks, cannot eliminate varicose veins, repair valves or open blocked veins. Medicines, can, however, act on the tissues and thereby reduce venous hypertension. This will treat tissue degeneration and reduce the severity of symptoms.

The type, dose and duration of the medicine can only be determined by your physician.



Deep Vein Thrombosis (DVT)

Deep Vein Thrombosis is a disease that must be treated with utmost care and followed up closely, whether in early or late stages

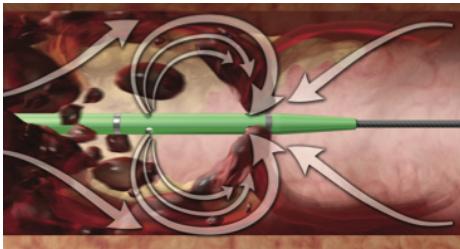


This is possibly the scariest of all venous system diseases. Deep Vein Thrombosis refers to the development of a blood clot in one of deep veins. The clot will block the vein, resulting in compromised circulation; the leg will, in turn, become swollen, warm, turn red-purple and pain will develop. Patients will often not be able to place any weight on the leg. A piece of the clot formed in the leg can tear off and travel up to the lungs or the heart, potentially resulting in the blockage of the veins in the lung. These complications can have very serious consequences, including death.

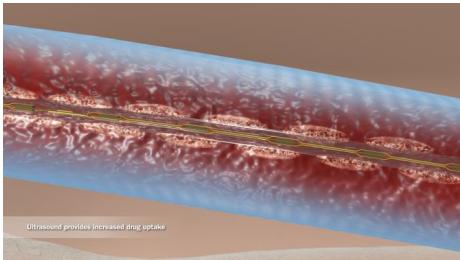
The clot will dissolve after some time. However, it will certainly leave behind a sequela while dissolving. This results in both local blockages in the veins of the leg and can also lead to damage to the valves of the veins. Such complications can last for a lifetime; varicose wounds are most frequently caused by these blockages.



Deep Vein Thrombosis treatments



ANGIOJET Anti-Clot System



EKOS Clot Melting System

- **Catheter treatments that remove the clot** (Applicable in cases where the clot is identified at an early stage. This treatment can be the difference between life and death in cases of widespread clotting)
- **Drugs used to dissolve the clot**
- **Drugs used to prevent the growth and advancement of the clot**
- **Compression treatments**
- **Drugs used to support circulation**
- **Incorporation of a stent** (to open blocked arteries in patients who had a DVT episode)
- **Operations on veins to open blocked areas within the veins**
- **Operations to repair valves within arteries and construct new valves**
- **Prevention of new clot formation**
- **Leg and foot care**

The selection of the right therapy, as well as its timing and duration, constitute extremely critical decisions and must involve a very thorough evaluation of the patient. The final decision must be made by a physician who is specialized and experienced in the field.

Varicose ulcers (Varicose wounds)

The development of a wound is the nightmare scenario for most patients

Varicose ulcers constitute the end-stage of the disease and result in the greatest hardship for patients

Wounds are not inescapable; they can be treated



Varicose ulcer initial stage



Advanced stage of varicose ulcer

Chronic venous insufficiency is a disease that can advance and, if left untreated, result in physical changes of the skin. At later stages, this can even result in the formation of open wounds.

In some cases, a wound can remain open for months or even years, due to improper or insufficient medical treatment. This process will leave the patient damaged, both physically and emotionally.

Wound treatment is a multi-step process

- **First, the root cause of the wound formation is identified. If at all possible, the operation that will eliminate the root cause is planned, which can be scheduled before or after wound treatment, depending on the case.**
- **A serious wound treatment is undertaken, involving the cleaning and support of the wound. Special wound pads and supporting care products may be needed. Close and continued care is a must.**
- **A serious wound treatment is undertaken, involving the cleaning and support of the wound. Special wound pads and supporting care products may be needed. Close**

and continued care is a must. The leg and the patient, compression may consist of ulcer socks, compression socks, special apparatus and compression devices may be utilized in isolation or applied in unison.

Foot health and fungal infections

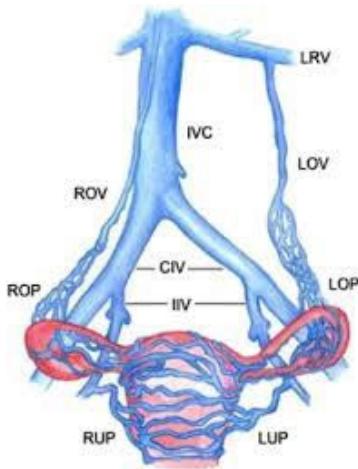
Healthy legs require healthy feet. Fungal infections on the feet and nails, hardening of the skin of the feet, callouses and cracked skin endanger the health and wellbeing of the legs.

This risk is significantly elevated in individuals with circulatory problems, such as varicose veins, lymphedema, venous blockages or diabetes. In these cases, the feet must be cared for and existing lesions and fungal infections cleared. This approach will prevent potential infectious attacks and protect the tissue.

During such care and treatment, both a heart & vascular surgery and dermatology expert must simultaneously attend to the patient, and, if required, supportive treatments from a podologist (foot specialist) planned.

Pelvic congestion syndrome

Undiagnosed abdominal pains could be caused by atypical varicose formations on the genital area, the femur or groin

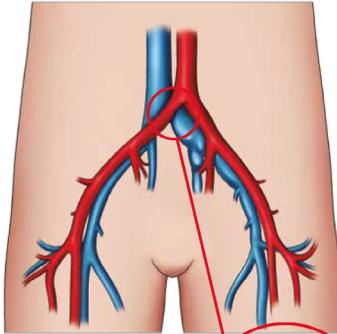


In women, Pelvic Congestion Syndrome is a major cause of undiagnosed abdominal pain.

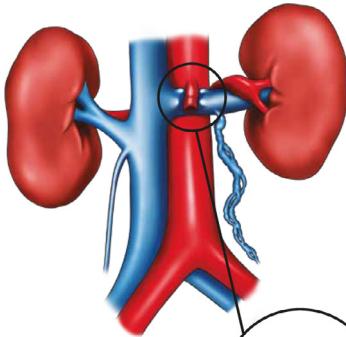
Some manifestations of this syndrome include:

- A constant sensation of fullness in the lower abdominal region
- Undiagnosed pain in the abdomen or groin
- Far greater levels of pain during menstruation than would be expected
- Pain during or following sexual intercourse
- Masked or directly manifested bleeding that shows up in urine tests, which cannot be traced back to a specific cause
- Varicose veins in the inner thighs close to or at the genital area
- Varicose veins that run from the back of the legs to the buttocks -especially if these are atypical varicose vein formations that are not connected to arteries and whose connections remain unexplained
- Formation of advanced varicose veins in the genital region during pregnancy

Since the symptoms of such patients are often subtle, they can be easily overlooked. A detailed and careful examination is therefore necessary. Usually there is varicose vein formation that covers the lower abdominal area around the uterus and the ovary. The extensions of these formations usually extend outwards and cause varicose veins in unusual places. In such instances, venous mapping by way of “Doppler Ultrasonography” is an absolute necessity.



May Thurner Syndrome



Nut-Cracker Syndrome



In order to visualize the connections of varicose formations and to identify if there are any inter-abdominal varicose veins, abdominal and leg ultrasonography may have to be accompanied by vaginal ultrasonography. Venography can be performed as well for more targeted diagnosis.

Underlying causes may be:

- **Classical varicose vein formations that exhibit an enlargement in branches extending into the genital region**
- **Previous episodes of Deep Vein Thrombosis and associated vein blockages**
- **Blockages in the intrabdominal veins**
- **Lack of certain veins in the intrabdominal region or their unusual structures**
- **May Thurner Syndrome** (Pressure on the Iliac Vein by the Iliac Artery)
- **Nut-Cracker Syndrome** (Insufficiency in the Ovarian Vein, as a result of pressure on the Renal Vein by the Mesenteric Artery)
- **Pressure on the intrabdominal veins, as a result of tumors or other masses in the abdominal region**
- **Endometriosis, “chocolate cysts” in the ovaries**
- **Numerous pregnancies**
- **Lifting excessive weights**

Once the underlying causes of the varicose formations are identified, the appropriate treatment cause will commence.

Aybanu Gökçen, MD Cardiovascular Surgeon



Dr. Gökçen began her medical training in 1986 at the İstanbul University İstanbul Medical Faculty and completed her formal training in 1992. Between 1992 and 2015, she spent 23 years as a heart and vascular surgeon at the Siyami Ersek Hospital “which, to this day, she refers to as her nest”. Having worked at a number of private hospitals thereafter, she presently serves patients at her private clinic.

She is a member of the Turkish Society of Cardiovascular Surgery, the National Vascular and Endovascular Surgery Society, the Phlebology Society, the European Venous Forum and the European Society for Vascular Surgery. In 2014, she has worked as an observer at the Maastrich University’s Vascular Surgery Department with the Department Head, Professor Cess Wittens, studying Deep Venous System Pathologies (including thrombolysis, stenting in deep venous systems, endovenectomy, venous valve repairs etc.). She has completed courses given by such world-renown experts in the field as Cees Wittens and Oscar Maletti.



Having performed all sorts of surgeries expected of a heart and vascular surgeon (bypass surgeries within the realm of open heart surgeries, valve surgeries etc.) she has spent the last 15 years specializing in venous surgeries (specifically, for varicose and related conditions), treating clots in the arteries and pathologies associated with such clotting as well as wound treatment.

Guided by her primary principle that **“There is no disease but the patient”** she continues to work around **“Individualized Varicose Vein Treatment and Execution.”** Dr. Gökçen serves as the Secretary General of the Phlebology Society and teaches various courses as a Member of the Board. Dedicated to advancing her craft, she continues to follow all advancements in her field and to attend training courses and seminars across the world.



Individualized Varicose Vein Treatment



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“Feel free to call us for your varicose veins problems.”