

The logo consists of the letters 'S' and 'V' stacked vertically, with a diagonal slash through the 'V', followed by the letter 'T' to the right.

PATIENT  
GUIDE

The background of the entire page is a photograph of a person's legs from the knees down to the feet. The person is wearing red and white striped socks and brown shoes. The image is slightly blurred and has a soft, warm color palette.

# Venous Disease

**People take better care of their health when they know what's going on in their bodies. For those with venous disease, this means understanding how the veins work and what happens when disease affects or damages them. This booklet has been written so that you may better understand one of the most common types of circulation problems.**

# How the Venous System Works

The veins return blood to the heart. There are two main sets of veins in the legs; the **deep veins**, which lie well within the tissue and the **superficial veins**, which are close to the skin. A third set, perforator veins, connect the superficial and deep veins. The veins of the leg are easily collapsible; blood flows under low pressure and against gravity.

Two mechanisms allow for the efficient return of blood in the legs; the **calf muscle pump** and **venous valves**. As you walk, calf muscle movement propels blood upward while the one way valves prevent blood from flowing backward.



**Muscle contracts, propelling blood upward with open valve**



**Valves close preventing backward flow of blood**

**Testing for venous reflux and incompetent valves which cause varicose veins** ►

# Varicose Veins

The superficial veins of the leg are poorly supported beneath the skin. Normally, the venous valves serve to protect the veins from the increased pressure caused by the upright position. When the valves break down, or are absent, blood can flow backward. This causes the veins to stretch and enlarge. They are seen bulging and twisted beneath the skin. The more common symptoms of varicose veins are:

- ▶ aching and pain, particularly after standing
- ▶ swelling
- ▶ alteration in physical appearance

Treatment of varicose veins will depend upon the nature and extent of the problem. Your physician will select the most appropriate method for you. Prolonged standing should be avoided. Elevating the legs whenever possible will be of some help. Also, your physician may recommend an elastic stocking.



# Superficial Thrombophlebitis

Superficial thrombophlebitis refers to a clot and inflammation which has formed in the veins near the surface of the skin. These veins are called the superficial veins. Clotting may occur spontaneously after injury or in previous varicose veins. Superficial thrombophlebitis is usually self limiting and responds well to local treatment. The physical signs of superficial thrombophlebitis may be localized pain, swelling, and redness in the area of a superficial vein.



**Pregnancy can enhance the likelihood of venous diseases**

# Deep Venous Thrombosis

Deep venous thrombosis (sometimes called DVT, venous thrombosis, or phlebitis) refers to the development of a blood clot within a deep vein, resulting in partial or total blockage of blood flow. While the physical signs are often vague and can occur in other conditions, they are frequently found in deep venous thrombosis.

- ▶ pain
- ▶ swelling
- ▶ redness

## Complications

Unlike superficial thrombophlebitis, a blood clot within the deep veins, (venous thrombosis) is of major concern.

There is always the possibility that it might break off and travel to the lungs. This is called pulmonary embolism. The risk of pulmonary embolism is reduced by prompt recognition and treatment of deep venous thrombosis.

## Risk Factors

Why venous thrombosis occurs is not completely understood, but some individuals are more likely to develop it than others. The following situations enhance the likelihood of clots forming in the deep veins:

- ▶ Surgery or trauma
- ▶ Prolonged immobilization



### **Deep venous thrombosis may require hospitalization to prevent further clotting**

- ▶ Malignancy (cancer)
- ▶ Changes in the blood
- ▶ Past history of venous thrombosis
- ▶ Smoking
- ▶ Pregnancy
- ▶ Obesity

### **Treatment**

If you have deep venous thrombosis, your doctor may advise hospitalization and begin a course of medication to prevent further clotting. If you are a suitable candidate, a type of anticoagulant called low molecular heparin may allow initial outpatient management or shorter hospitaliza-

tion. During this time, the clot becomes attached to the vein wall and the chances of it breaking away are reduced. After the initial therapy, you will continue to take medicine orally for three to six months. The exact therapy depends upon the location of the blood clot and whether a pulmonary embolism has occurred. Your doctor will choose a plan of care best suited to your needs.

## Reducing Risk Factors

We cannot totally prevent the occurrence of DVT. However, many risk factors can be controlled by re-evaluating your lifestyle and making necessary changes.

- ▶ **Smoking**—Tobacco causes constriction of the blood vessels, thus decreasing the flow of blood. Therefore, all attempts should be made to stop smoking.



- ▶ **Diet**—Obesity increases the risk of DVT so reducing fats in the diet and maintaining normal weight is important.

- ▶ **Avoid immobilization**—If you are travelling or recovering from an illness requiring extensive bed rest, try to walk at least once an



hour, massage legs to increase blood flow, drink plenty of fluids, and wear loose clothing

# Post-Phlebitic Syndrome

In the process of healing after deep venous thrombosis, as well as superficial thrombophlebitis, the valves within the veins may become damaged. These valves no longer work properly and blood collects in the lower leg causing swelling. The stagnant blood products breaks down and eventually may cause skin discoloration or ulceration. These consequences can be avoided or reduced in severity by following the suggestions listed below. The best treatment for post-phlebitic syndrome is prevention.

- ▶ Avoid prolonged sitting or standing. If you must sit for long periods, walking for a few minutes every hour will help the blood flow.
- ▶ Do not wear tight or constricting clothing.
- ▶ Elevate your legs whenever possible.
- ▶ Follow your doctor's advice about the wearing of a special type of support stocking.

## Diagnosis

If your physician suspects you may have a venous disorder, he/she may order diagnostic studies to determine the nature and extent of the problem. Diagnostic procedures can be noninvasive or invasive.



**A venous duplex scan (or ultrasound) is performed to determine the presence or absence of a deep vein thrombosis.**

**NONINVASIVE METHODS** Noninvasive procedures are those that are performed on the outside of the body and do not require the use of needles, catheters or dye. There is no use of x-ray and the tests are painless and without side effects. There are a variety of noninvasive methods which can be performed on an inpatient or outpatient basis. Many of the noninvasive studies use ultrasound to audibly and visually detect a blood clot.

**INVASIVE METHOD** A venogram is an x-ray picture of the vein. It is obtained by putting a contrast material (dye that shows up on x-ray) and then taking x-ray pictures. The dye is injected via a small tube (catheter) which is inserted into the vein.