

## Varicose Veins: Treatment Options

This handbook will help you understand varicose veins, the treatment plan, and care after either endovascular laser ablation or vein stripping surgery. This information will answer many of your questions. Please ask your doctor or nurse any other questions you may have. The following topics will be covered in this booklet.

*Deep veins, enclosed by muscle, lie deep in the legs and carry the most blood to the heart.*

Anatomy .....	1
Varicose Veins .....	2
What Causes Varicose Veins?.....	2
Symptoms of Varicose Veins .....	3
Diagnostic Tests.....	3
Treatment.....	4
Endovenous Laser Ablation.....	4
Vein Stripping.....	5
Preventive Measures.....	8
Medical Follow-up .....	9
Important Phone Numbers.....	9

### Anatomy

The circulatory system is made up of a network of blood vessels. Blood vessels are tube-like channels running throughout the body, which include arteries, veins and capillaries. Arteries bring oxygen rich blood to all parts of the body. The veins carry blood back to the heart.

There are three types of veins that are found in the legs.

- The deep veins, enclosed by muscle, lie deep in the legs and carry the most blood to the heart.
- The superficial veins lie near the surface of the skin. These have the least muscle support and are more likely to become enlarged and twisted.
- The deep and the superficial veins are connected by the perforator (or communicating) veins.

Since veins carry blood to the heart against the force of gravity, the veins have a system of one-way valves. This helps maintain the flow of blood to the heart. These cup-like valves are spaced at intervals along the inside walls of the vein. (Figure 1).

The valves:

- Open as blood flows toward the heart.
- Close to prevent blood flow back toward the feet.

The pumping action of the calf muscles against the veins helps push blood upward toward to the heart.

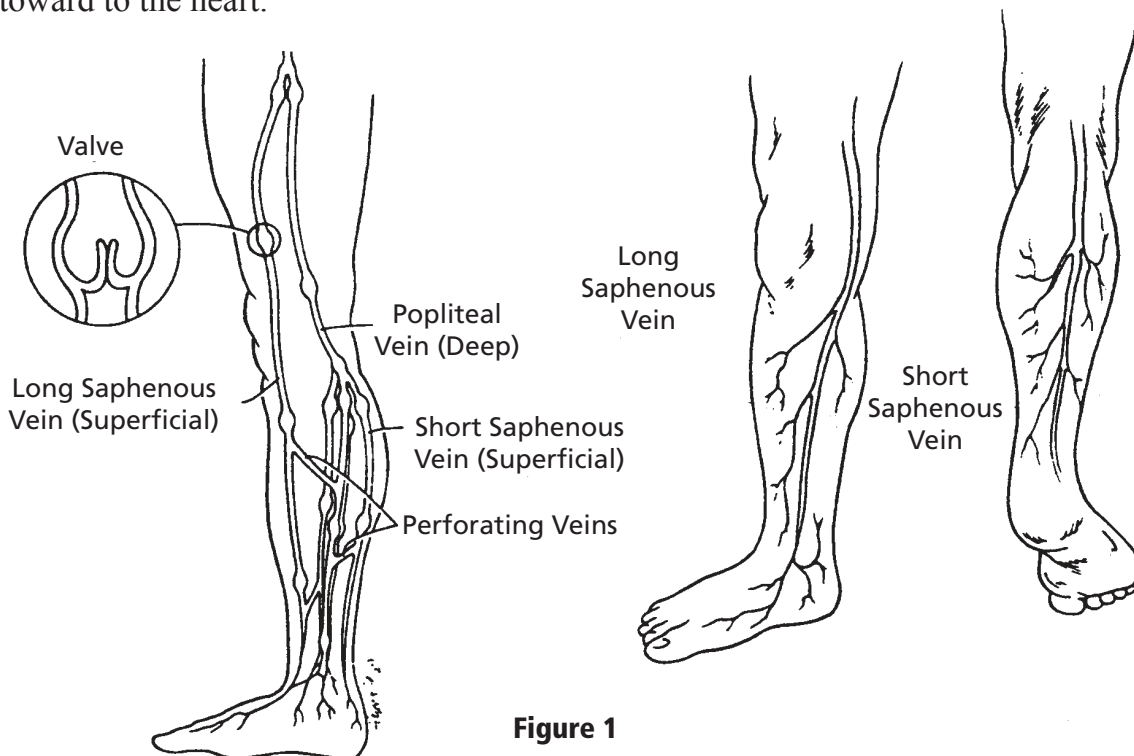


Figure 1

## Varicose Veins

Varicose veins are those superficial veins that have become stretched, dilated, and twisted. (Smaller, bluish veins just under the skin's surface are called spider veins.) Varicose veins are common and are almost never a serious problem. Blood clots rarely develop in varicose veins.

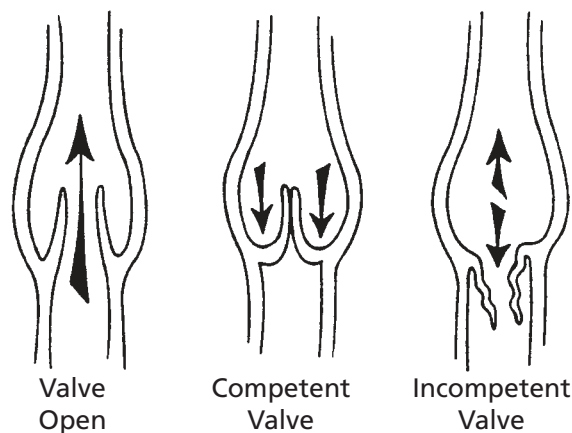
## What Causes Varicose Veins?

The exact cause of varicose veins is not known. Factors that may lead to their development include:

- Little muscle support in superficial veins.
- Weak vein walls.
- Faulty or absent venous valves (inherited or acquired).

- Hormonal factors in females.
- Family history.
- Obesity.
- Pregnancy.
- Occupations requiring long periods of standing.
- Deep vein thrombosis (blood clots).

If vein valves become stretched and do not close tightly (incompetent valve), blood can pool in the lower legs (Figure 2). Pooling of blood further increases the pressure against the vein walls. This increased pressure may also cause the veins to stretch further and to bulge.



**Figure 2**

## Symptoms of Varicose Veins

Symptoms of varicose veins depend on the type and size of the veins. They may include:

- Bulging, purplish or bluish veins near the surface of the skin.
- Heaviness or aching discomfort of legs when standing, relief with elevation.
- Leg swelling.
- Skin discoloration.
- Bleeding occasionally if leg is injured.

## Diagnostic Tests

Tests are done to identify treatment options and/or prepare for surgery if needed. The basic tests include blood work, urinalysis, chest X-ray, and electrocardiogram. Some added tests for selected patients may include the following:

**PPG (Photoplethysmography):** This test checks how well the valves in the leg work. It is done before and after surgery.

**Venous Flow Study:** The test is done to detect blockages in the deep veins. It also tests how well the veins are returning blood to the heart.

**Duplex scan:** This is a non-invasive, painless test used to see the veins and vein valves. It can detect blockages in the veins and assess valve function.

**Venography:** In some cases, this test is done prior to surgery. This exam checks for blockages in the veins and looks at vein valve function.

Written instructions may be available for these tests. If you have not received them, please ask.

## Treatment

By using the test results and a simple exam, the doctor can identify varicose veins and recommend treatment.

Treatment may include:

- Elastic bandages or support stockings.
- Leg elevation (periodically).
- Weight loss, if needed.
- Exercise daily.
- Avoidance of prolonged standing.
- Sclerotherapy (chemical injections into the vein to make it disappear).

If needed, two other treatments may be suggested:

- Endovenous laser ablation (heat produced by laser collapses and seals off the vein.).
- Vein stripping.

The purpose of these treatments is to:

- Relieve pain and discomfort.
- Improve the appearance of the leg.
- Prevent bleeding from varicose veins.

## Endovenous Laser Ablation

### *The Procedure*

Endovenous Laser Ablation is an outpatient procedure often done in the doctor's office. The procedure takes about 1 to 2 hours.

Before the procedure, you will be given some medicine to relax you. Numbing medicine is injected and a small incision is made in the skin near the knee. Guided by ultrasound, a thin tube or catheter is inserted through the incision into the vein. A laser device is then inserted into the catheter and threaded through the vein.

Once in place, the doctor activates the laser and slowly withdraws it over about 2 minutes. The heat generated by the laser causes the vein to close and seal off.

### ***Taking Care after Endovenous Laser Ablation***

#### *Activity*

During the first 24 hours, no:

- Intense aerobic activity.
- Heavy weight lifting.
- Long airplane/car trips.

After 24 hours, you may resume your normal activities. Exercise aids recovery because the movement of the leg muscles helps blood return to the heart. In most cases, patients are able to drive a car and continue working.

#### *Medications*

Take pain medicine as directed. Mild tenderness and bruising are normal the first week after the laser procedure. Patients also describe a sense of tightness and pulling in the treated leg for about 3 to 4 days after treatment. This is normal and will slowly pass.

Most often patients may resume all their routine medicines. Ask your doctor if you have questions or concerns about your medication.

#### *Bathing & Wound Care*

After the procedure, a compression stocking and dressings are applied. Do not remove them for 24 hours. Then the stocking and dressing may be removed for showering. To prevent infection, do not take a tub bath for 1 week. There may be small bandages placed directly on the incisions; allow these to fall off on their own.

#### *Compression Stockings*

To have the best outcome, it is important to wear the full-leg compression stockings for about 3 weeks after the procedure.

## **Vein Stripping**

Vein stripping surgery may be recommended. This surgery consists of tying off and removing the varicose veins just under the skin.

### ***Preoperative Concerns***

#### *Risk*

There is some risk with every operation. The risk varies with each person, and the type of surgery. After surgery, bruising, discoloration and swelling of the leg(s) may be present. Numbness of the inner part of the lower leg may occur. This numbness will disappear over time. This is rarely a serious problem. Your surgeon will discuss with you the benefits and risks involved in your surgery.

### *Postponement*

Surgery is sometimes postponed because of another patient needing emergency surgery, or if you develop a fever, sore throat or cold. You will be told of any delay as soon as possible. Surgery is postponed only when absolutely necessary.

### *Research Studies*

Northwestern Memorial Hospital is affiliated with Northwestern University Medical School, which is involved in a variety of research studies. If you are asked to take part in one of these studies, the decision is yours. Please ask your doctor if you have any questions.

### *Surgery*

This surgery may be done under general or spinal anesthesia usually on an outpatient basis. This depends upon the extent of varicose veins. During surgery, several short incisions are made along the leg to remove the veins. When the varicose veins are tied off and/or removed, blood flows through the deep veins and back to the heart.

### *Taking Care after Surgery*

#### *Activity*

Recovery from surgery varies with each person and the type of surgery. Avoid vigorous aerobic exercises for 2 weeks. Let your leg be your guide to your activity. Return to your normal life at a gradual but regular pace. You may climb stairs. Walking, cycling, and swimming are good because the movement of leg muscles helps blood return to the heart. Sitting with legs hanging down for long periods of time causes pooling of blood in the lower legs. Raise your legs on a footstool when sitting. You may cross your legs. Elevate your legs above the level of the heart when possible. There is no restriction on sexual activity after surgery.

#### *Driving*

You may drive a car when you are free of pain and are able to move your legs normally. Do not drive after taking narcotic pain medicine or sleeping pills.

#### *Work*

Depending on your job and its demands, you may return to work when you feel up to it.

#### *Medications*

Take any needed medicines as directed by your doctor. Your doctor, nurse or pharmacist will give you specific medication instructions. They will be happy to answer any questions you may have. Prescriptions can be filled either here at the hospital or at a pharmacy near your home. Tell the nurse before you leave the hospital, which you prefer.

#### *Bathing*

Showering is allowed two days after surgery. No tub baths are allowed for 1 week. Clean the incisions gently with mild soap and water and dry well.

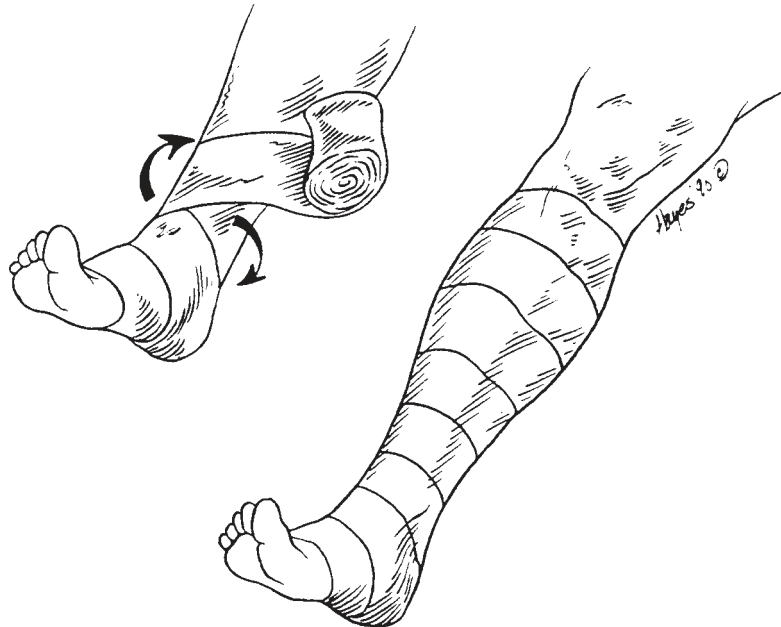
### *Wound Care*

No special incision care is required. If oozing from any incision occurs, cover the wound with a dry gauze pad or bandage. Bruising, discoloration, and lumpiness are normal and will disappear in time. Most stitches are internal and will be absorbed. They do not need to be removed. If stitches are external, your doctor will give you a date for their removal.

### *Elastic Support*

Leg swelling after surgery is normal. Firm support is needed to decrease such swelling. Pressure from an elastic bandage helps the leg muscles to propel blood toward the heart, thus decreasing fluid build-up in the legs. Wear a four-inch elastic bandage on the affected leg whenever you are out of bed.

Apply the elastic wrap before getting up to avoid leg swelling (see Figure 3). Wrap the bandage snugly from the toes to just below the knee. Overlap the edges of the bandages. The bandage may be removed at night. Your nurse will show you how to apply the bandage correctly before you are discharged from the hospital. Elastic bandages are to be worn about two weeks. If you continue to have swelling or discomfort, wear them for support. If you are in doubt, ask when you return for your medical check-up.



**Figure 3**

Elastic bandages can be washed with mild soap and water and can be reused. Extra bandages can be purchased at most drug stores.

You can also wear an elastic compression stocking. They can be purchased in most drug stores or in specialty stocking shops and may require a prescription.

Replace stockings or bandages when they become “stretched out” and do not provide needed support.

### *Diet*

Eating a balanced diet can help keep you healthy and even improve your health. A diet high in fiber aids regular bowel movements and avoids straining while defecating. Straining puts pressure on leg veins. Obesity or excess body weight can lead to varicose veins. If needed, a dietitian can help you plan a weight loss program. Dietary guidelines have been included in this folder.

### **Preventive Measures**

To help prevent varicose veins, follow these basic guidelines.

- Wear loose clothing. Avoid tight garters, tight knee-high boots, girdles, or tight panty hose. They decrease venous blood flow, increase pressure in the veins, and may increase the risk of additional varicose veins.
- Avoid standing or sitting in one place for more than two hours. When the legs are inactive, blood collects around the ankles and distends (stretches) the veins. If you must stand in one position for a long time, exercise your legs while standing. Raise up on your toes several times an hour. Shift your weight from one foot to another.
- Stop every two hours during car trips for brief walks to exercise your legs.
- Avoid bumping, cutting bruising, or scratching your legs.
- Maintain a healthy weight. Lose any excess pounds.

### *Smoking*

**No smoking!** Nicotine in cigarettes narrows the arteries, decreasing blood flow to the legs and contributes to blood clotting in the veins. Smoking increases blood pressure and heart rate. Northwestern Memorial Hospital offers smoking cessation programs. Call 1-877-926-4NMH (4664) for group classes or 312-926-2069 for individual counseling..

Northwestern Memorial Hospital provides brochures on risk reduction topics including:

*Heart Healthy Nutrition (discusses the Therapeutic Lifestyle Change, TLC, Guidelines)*  
*Risk Reduction for Heart & Vascular Disease*  
*Cardiac & Vascular Resources & Support Services*

Please ask your nurse for a copy of these brochures if you have not received them.

After discharge, consider visiting the Health Learning Center (3rd Floor of the Galter Pavilion). It has a wealth of both print and electronic health information resources.

The following is a list of some helpful videos that will assist in making needed lifestyle changes.

*Healthy Eating for Life*

*High Blood Pressure: An Introduction to Treatment*

*Beginning a Cardiac Rehabilitation*

*Smoking: Getting Ready to Quit*

*Rhythmic Medicine*  
*Relaxing Through the Seasons*

The staff can also assist by telephone (312-926-LINK) or e-mail (hlc@nmh.org). You may also visit us at [www.nmh.org](http://www.nmh.org).

Talk to your doctor about the American Heart Association (AHA) guidelines for coronary and vascular disease risk reduction. The following are some of the brochures that can be obtained from the American Heart Association (1-800-242-8721).

- A Guide to Losing Weight*
- Recipes for Low Fat, Low Cholesterol Meals*
- How to Read the New Food Label*
- High Blood Pressure*

## Medical Follow-up

Notify your doctor if any of the following occur:

- Increase in temperature, swelling, or inflammation (redness) around the incisions.
- Tenderness around the incisions.
- Bleeding or unusual drainage or change in color, odor, or amount of drainage from the incision.
- Increased swelling in one or both legs.
- Severe pain not controlled by your pain medicine.
- Chest pain or shortness of breath.
- Fever over 100° F.

Regular medical check-ups are suggested. Make an appointment to see your doctor within 2 or 3 weeks after discharge from the hospital. If you have any questions before that time, do not hesitate to call your doctor or nurse.

Physician: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Office location: \_\_\_\_\_

Vascular Nurse Practitioner: \_\_\_\_\_

Phone: \_\_\_\_\_

*Para asistencia en español, por favor llamar a el departamento de representantes para pacientes al 312-926-3112.*

Northwestern Memorial is an equal opportunity employer that welcomes, respects and serves with dignity all people and does not discriminate, including in hiring, or employment, or admission, or access to, or treatment in its programs or activities on the basis of race, color, gender, national origin, religion, disability, handicap, age, Vietnam or other veteran status, sexual orientation or any other status protected by relevant law. To arrange for TDD/TTY, auxiliary aids and foreign language interpretation services, call the Patient Representative department at 312-926-3112, TDD number 312-926-6363. Issues related to the Rehabilitation Act of 1973 should be directed to the director of Employee Relations or designee at 312-926-7297.

Developed by: Surgical Services and the Division of Vascular Surgery with Interventional Radiology