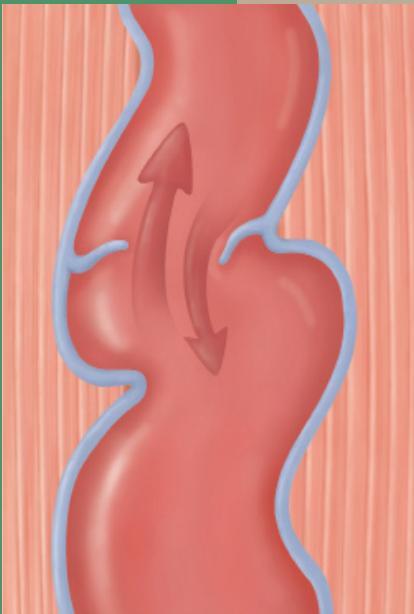


Chronic Venous Insufficiency



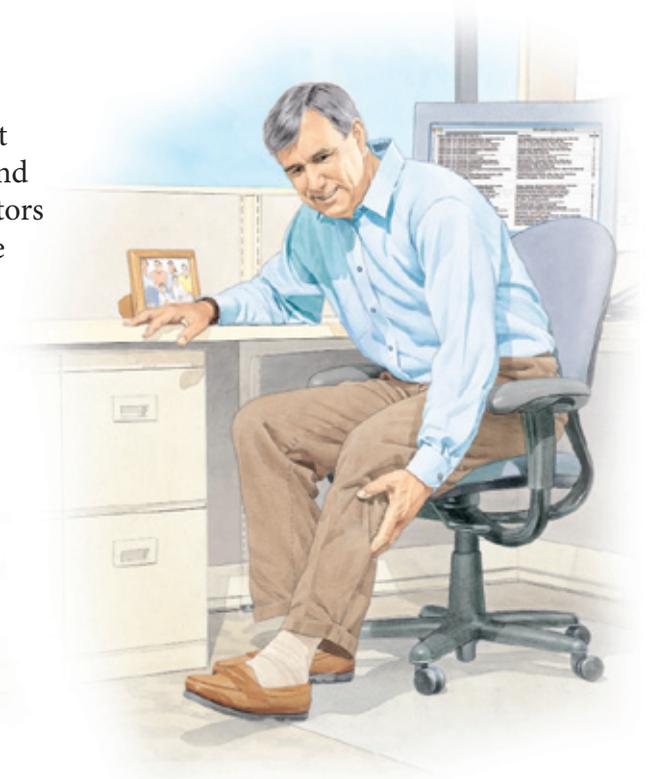
Is a Vein Problem Harming Your Legs?

Have you noticed pain or swelling in your legs? Do your symptoms worsen when you're sitting or standing in one position? If so, you may have **chronic venous insufficiency (CVI)**. This vein problem can damage tissue or even cause blood clots. In some cases, treatment is needed right away. If you think you have a vein problem, contact your doctor. He or she can determine the severity of your problem and recommend treatment.

Knowing If You're At Risk

CVI occurs more often than you might think. Vein problems can affect men and women of any age. But certain risk factors make them more likely to occur. These include:

- Family history of vein problems
- Age over 30
- Being a woman
- Being pregnant more than once
- Sitting or standing for long periods
- Injury to a vein
- Recent surgery
- Being overweight



CVI can cause legs to sting or ache.

Treatment Can Improve Your Condition

Your doctor will work with you to develop a treatment plan. Your ongoing commitment to self-care is a mainstay of treatment. Treatment might also include a procedure, medications, or both. Read on to learn more about your vein problem and the treatment options you have.

Diagnosing CVI

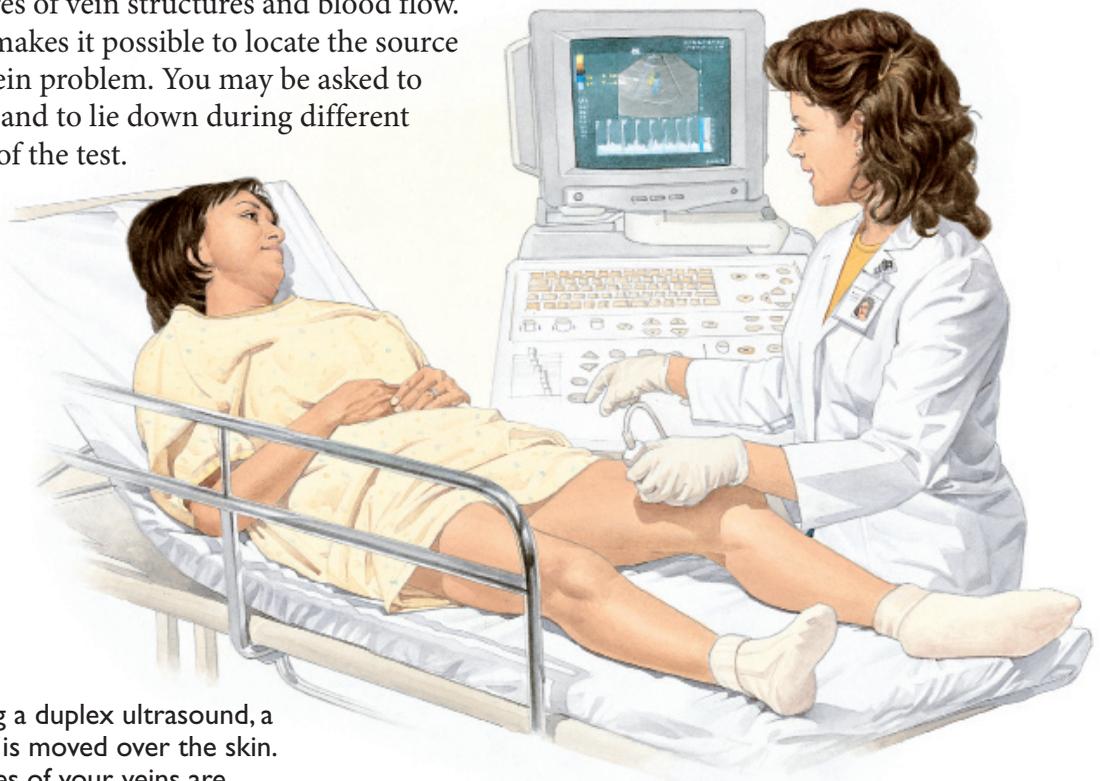
Your doctor will evaluate your leg veins. The evaluation includes a health history and a physical exam. Tests are also done to check the health of your veins. After reviewing your evaluation and test results, your doctor will discuss treatment options with you.

Health History and Physical Exam

Your doctor will ask about your symptoms. These can include leg fatigue, aching, or swelling, especially when you sit or stand for long periods. You'll also be asked about your risk factors. Tell the doctor if your family has a history of vein problems. Also mention if you have had a blood clot, a leg injury, a recent medical procedure or surgery, or a pregnancy. During the exam, the doctor will check your legs for abnormal veins, swollen or tender areas, and skin color changes.

Duplex Ultrasound

Duplex ultrasound is a noninvasive imaging test. It uses sound waves to create pictures of vein structures and blood flow. This makes it possible to locate the source of a vein problem. You may be asked to stand and to lie down during different parts of the test.



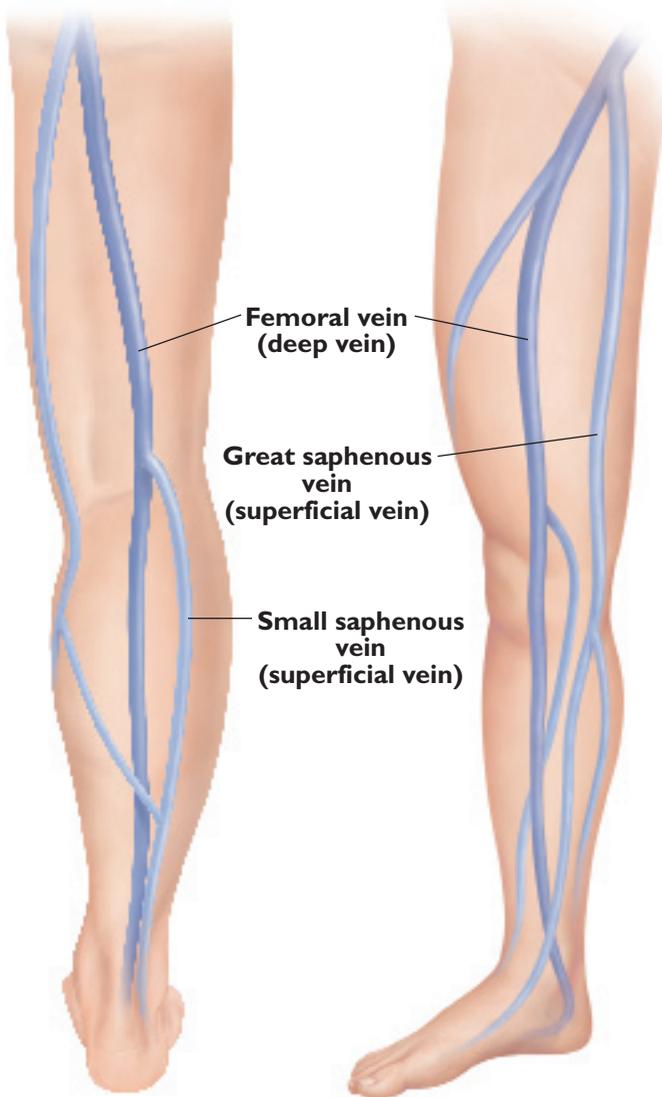
During a duplex ultrasound, a probe is moved over the skin. Pictures of your veins are then viewed on a screen.

How Blood Circulates

With every heartbeat, blood flows from the heart to the rest of the body and back to the heart again. This process, called **circulation**, is made possible by a vast system of blood vessels. Arteries carry blood away from the heart. Veins return blood to the heart. But when damaged, veins have trouble moving blood from the legs toward the heart. This can cause vein problems, a group of conditions that range from mild to severe.

Back View

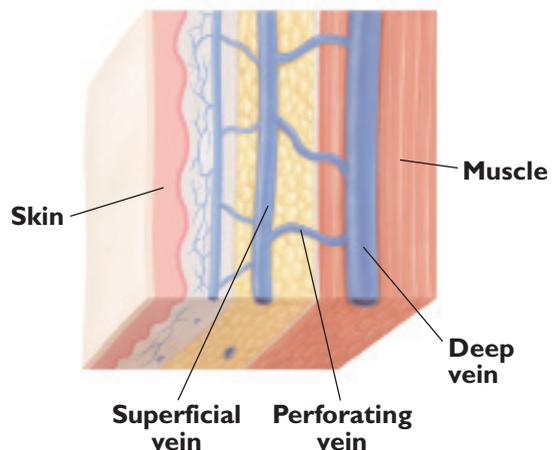
Side View



The **great** and **small saphenous veins** are the main superficial leg veins.

Types of Veins

The body's large network of veins works like a system of pipes to carry blood from the body back to the heart. **Superficial veins** lie just below the skin. They carry blood from skin and surface tissues and drain into the deep veins, which lie in the muscles of the legs. The **deep veins** carry blood back to the heart, by way of the inferior vena cava. This is the body's largest vein. **Perforating veins** help carry blood from the superficial veins to the deep veins.



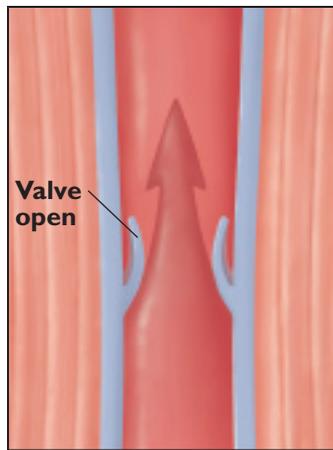
Blood drains from superficial veins near the skin into larger, deep veins that lie in the leg muscles.

How Leg Veins Work

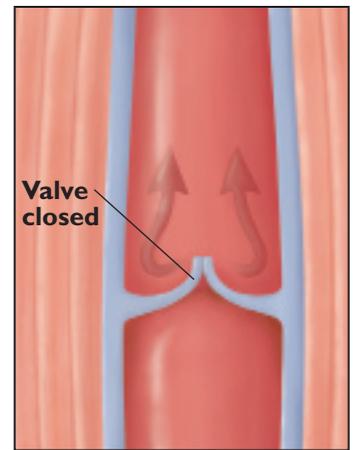
Veins and muscles must work together against gravity to move blood up the legs and toward the heart. When leg muscles contract and relax, they squeeze blood up the veins. Veins have special cuplike flaps called **valves** along their inside walls. These valves act as one-way doors. They open and close to keep blood flowing in the right direction—toward the heart. Veins with damaged walls or valves can't move blood efficiently.

A Healthy Vein

A healthy vein has strong walls and valves. When leg muscles contract, the valves open. This allows blood to be squeezed up the vein. When leg muscles relax, the valves close. This prevents blood from leaking backward in the vein. Valves are strong enough to hold blood in place until the muscles contract again.



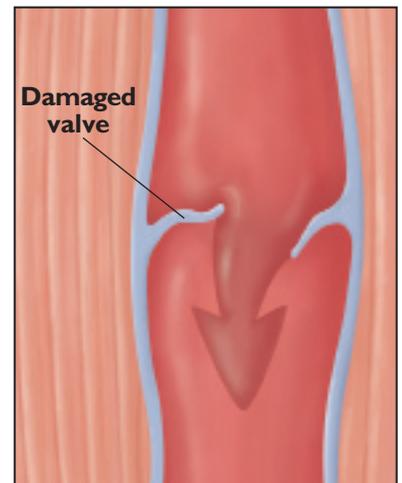
When a muscle contracts, the valve opens. Blood is squeezed up the vein.



When a muscle relaxes, the valve closes. This holds the blood in place.

A Damaged Vein

A damaged vein has walls that are weak and **dilated** (stretched). If the vein walls near a valve stretch and begin to sag, the valve can no longer close fully. This allows blood to leak back through the valve when leg muscles relax. If a valve can't close at all, blood flows backward (reflux) to the nearest healthy valve. This increases pressure on the healthy valve. Over time, the extra pressure weakens the valve and those below it. Blood begins to pool in the vein instead of moving up toward the heart. **Varicose veins** can result. Swelling (edema) can develop in the leg. And blood clots can form in areas of the vein where blood moves too slowly or not at all.



When a damaged valve can't close, blood moves in the wrong direction. This causes blood to pool lower in the vein.

Damage to Your Veins

CVI is an ongoing condition. It develops when varicose veins worsen or when a blood clot keeps valves from functioning. CVI causes leg swelling and can damage skin, leading to open wounds (**venous skin ulcers**). Though CVI can't be cured, you can take steps to limit how much it harms your health. Learn to manage symptoms to reduce your risk of ulcers.

Common Symptoms of CVI

With CVI, blood leaks backward through damaged valves and pools in the veins. This causes abnormally high pressure in the veins. Swelling results and commonly occurs in the lower legs and ankles. High pressure also causes fluid to leak out of the veins into surrounding tissue. As a result, the tissue becomes inflamed. The skin can then become dry, itchy and take on a red or brownish tinge.



With CVI, blood pools in the lower legs and ankles. Swelling results and can damage skin.

Dry, itchy, discolored skin

Take Steps to Reduce Symptoms

To manage symptoms and limit the effects of CVI, your doctor will ask you to commit to a daily program of self-care. This includes wearing elastic compression stockings and elevating the legs above heart level. These actions lower the pressure in the legs, which in turn reduces swelling and helps prevent ulcers. Along with self-care, the doctor may also suggest that you have a procedure. You'll be told more about this, if needed.

Elevate your legs a few times a day to reduce swelling and improve blood flow back to the heart.



CVI Can Cause Ulcers

Ulcers are a serious complication that can result from CVI. When high pressure and swelling are not controlled, CVI can worsen. Skin and surface tissues eventually break down, making it more likely that an ulcer will form. Ulcers vary in size and shape and occur more often on the lower legs and ankles. They are usually watery and seep fluid. Due to swelling and lack of fresh blood flow, damaged skin is slow to heal. Ulcers often require ongoing care.



Treating an Ulcer

If you think you have an ulcer, visit your doctor right away. Then follow all home care instructions given by your doctor. To treat an ulcer, the following may be done:

- Various types of dressings may be applied to the ulcer. These are usually moist and contain medications to improve healing. Dressings may need to be changed every 1 to 2 weeks.
- You'll be told to elevate your legs and to wear elastic bandages or compression stockings to help reduce swelling.
- Antibiotics may be prescribed to treat infection.
- You may be referred to a wound clinic that specializes in ulcer care.



An Unna boot is a common dressing used to treat an ulcer. An elastic bandage is often wrapped over the boot for added compression. This may help the ulcer heal faster.

Committing to Self-Care

You can take steps to reduce your risk from chronic venous insufficiency. Your doctor will instruct you about self-care. Do what you're told to today, tomorrow, and every day after. Self-care is the simplest form of treatment you can do to protect your health. It's also a key part of home care after any procedure. Follow the suggestions in the next few pages and ask your doctor for help if you have questions.

Compression Stockings

Elastic compression stockings are prescribed to treat all vein problems. Wearing them may be the most important thing you do to manage your symptoms. The stockings fit tightly around the ankle, gradually reducing in pressure as they go up the legs. This helps keep blood flowing toward the heart, so it is less likely to pool in the legs. As a result, swelling is reduced and so is the risk of ulcers. Your doctor will prescribe stockings at a safe pressure for you. Do not buy them without first seeing your doctor. For best results, wear the stockings for as long as directed. Also, be sure to remove them as often as directed.

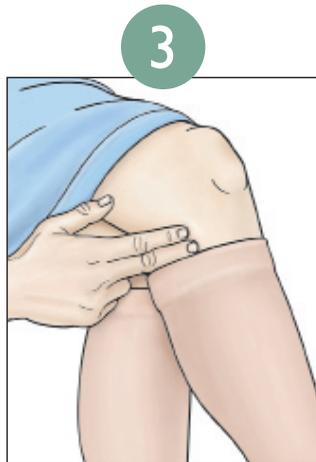
How to Put On Compression Stockings



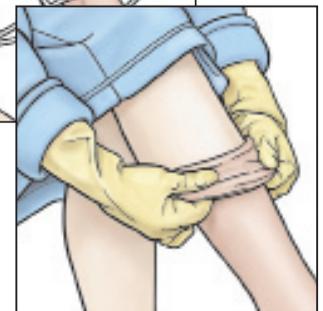
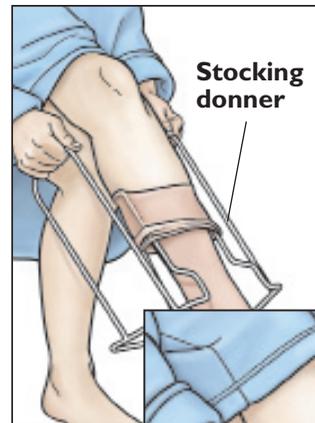
Turn the stocking inside-out, then fit it over your toes and heel.



Roll the stocking up your leg.



Once stockings are on, make sure the top of the stocking is about two fingers' width below the crease of the knee (or the groin if you wear thigh-high stockings).



Use equipment, such as a stocking donner, or wear rubber gloves to make it easier to put on compression stockings.

Tips for Wear and Care

To wear stockings safely and to get the most benefit:

- Wear the stocking length prescribed by your doctor.
- Pull stockings to the designated height and no farther. Don't let them bunch at the top. This can restrict blood flow and increase swelling.
- Remove the stockings at least once a day. Check your skin for changes in color, bruising, or sores. If you see skin changes, call your healthcare provider.
- Replace stockings when they start to feel loose. This is likely to be every 3 to 6 months.
- Wash stockings as instructed. They may need to be handwashed.



You can buy compression stockings at your doctor's office, a pharmacy, online, or at a medical or surgery supply store.

Exercise Improves Blood Flow

Exercise helps promote blood flow from your legs back toward your heart. To get the most benefit:

- Spend time each day doing exercises that work the leg muscles. Walking, swimming, and cycling are great choices.
- If you're new to exercise, start out gradually and build up to 30 minutes on most days.
- If you have a health problem that keeps you from being active, ask your doctor for help. He or she can recommend appropriate exercises for you.



Elevation Reduces Swelling

Elevation keeps blood from pooling in the leg veins. This lowers the pressure in the legs and reduces swelling.

- Raise your feet above heart level. This works best if you lie flat on your back. You may want to use a few blankets or pillows to prop up your legs. Do this 3 to 4 times a day for about 20 to 30 minutes.
- Put your feet up while you do sit-down tasks. Elevating at hip level doesn't reduce swelling, but it may help keep it from getting worse.



At work, elevate your legs during breaks.

When Sitting or Standing

Sitting or standing for long periods can worsen symptoms and increase your risk of blood clots. To keep blood moving in these situations, do the following:

- Wear your compression stockings as instructed by your doctor.
- Do foot or leg exercises every half hour to improve blood flow. Write the letters of the alphabet in the air with your toes or do heel raises. Even a simple action such as wiggling your toes or changing positions can help.



When sitting for long periods, such as during a plane flight, lift your heels up and down to work your leg muscles.



Limiting Skin Problems

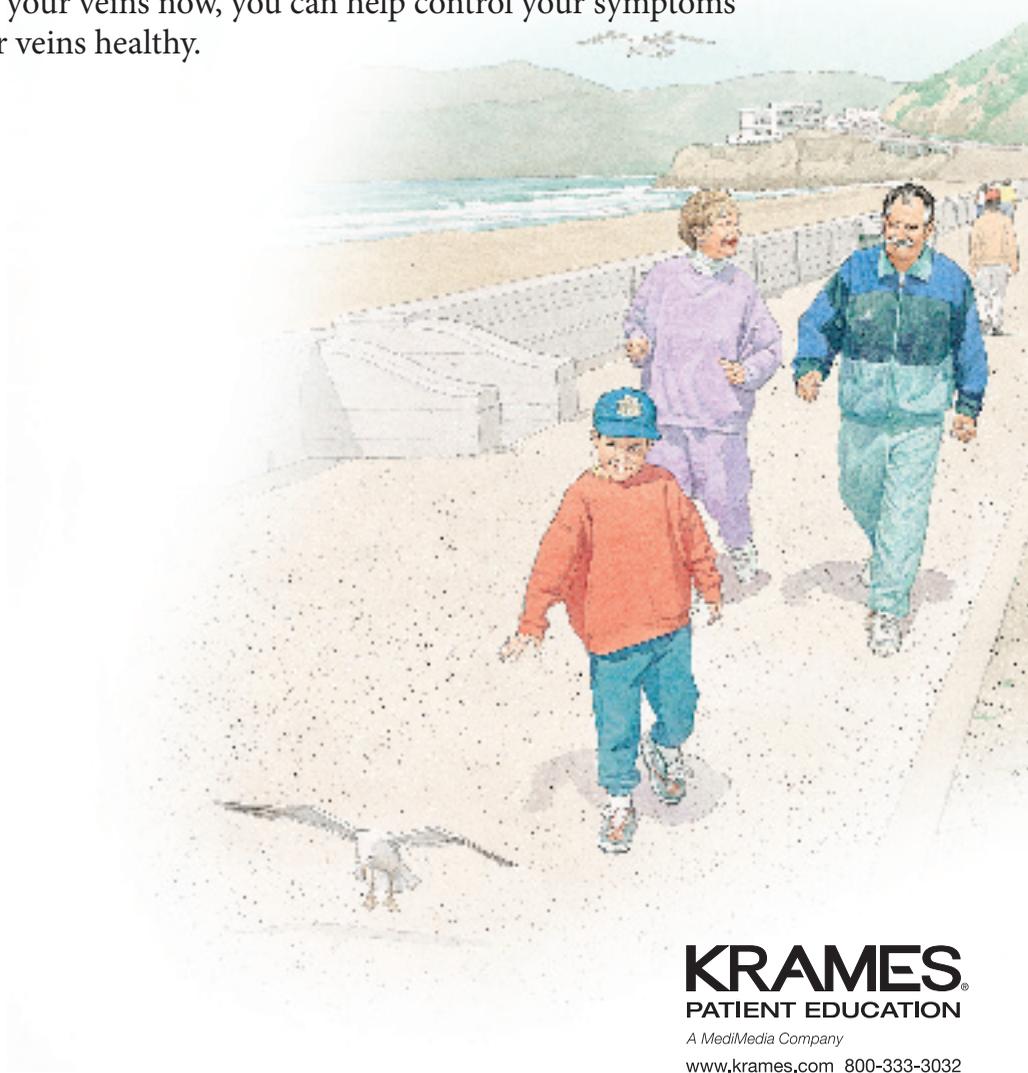
Keeping skin moist helps prevent dryness and itching. Proper skin care also makes ulcers less likely to form. Your doctor may advise you to apply special lotions (emollients) to your skin daily. This works best right after you bathe or shower.

Maintaining a Healthy Weight and Diet

Being overweight puts extra pressure on your veins. To maintain a healthy weight and improve symptoms, you may need to adjust your diet. Follow any diet instructions you receive from your doctor. Limit salty or processed and canned foods since they're likely to be high in sodium. Too much sodium causes your body to retain water and increases swelling.

Keeping Your Veins Healthy

CVI can improve with proper treatment and self-care. You can work together with your doctor so that your legs look and feel better. By taking care of your veins now, you can help control your symptoms and keep your veins healthy.



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