



**ARTICLE**

**Prevention of Varicose Veins**

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**ABSTRACT:**

Varicose veins are abnormal, dilated blood vessels caused by weakening in the vessel wall. Such conditions that increase pressure on the leg veins such as overweight, lack of exercises, hormonal fluctuations during pregnancy and menopause, smoking; constipation or people who are prolong standing or sedentary position or repeated heavy lifting make veins of legs very weak and develop into varicose veins. Researchers reports that "A mild care of varicose veins does not usually require a doctor's care, it can relief from the discomfort with at-home treatment and various alternative remedies, such as acupuncture and acupressure, aromatherapy, colour therapy, diet and supplements, herbal therapy, exercise, Yoga, homoeopathy, hydrotherapy etc". Other preventive measures are maintaining ideal weight and to avoid prolong standing and tight clothing that constricts waist, groin or legs; avoid crossing legs when sitting, avoid wearing high heels and eat low salt diet that is rich in high fibre food to reduce retention of water or swell. Superficial varicose veins normally do not require medical attention but to relieve the discomfort; the doctor may recommend elastic support stockings.

**KEY WORDS:** Varicose veins, hormonal fluctuations, acupuncture, acupressure, aromatherapy, Colour therapy, herbal therapy, homoeopathy, hydrotherapy, elastic support stockings.

**INTRODUCTION:**

Many research articles in vascular disease showed, 15-20% of the population in India is suffering from varicose veins. Women suffer this disease four times more than men(4). A lot of occupations have sprung up where people are required to either prolong standing or sitting for a considerable time are more prone to get varicose veins. The higher prevalence is due to the lack of preventive practice (5). Varicose veins are often primary (affecting only the superficial veins), often result from a congenital or familial predisposition that leads to the loss of elasticity of the vein wall. Secondary varicosities occur when trauma, obstruction, or inflammation that causes damage to the valves (which affect the deep veins). Varicose veins can appear anywhere in the body, but most often affect the legs and feet.

Although they can be painful and disfiguring, they are usually harmless. If varicose veins are not treated early, there can be complications such as chronic venous insufficiency. Patients with varicose veins are at increased risk of deep vein thrombosis because venous stasis and injury often cause superficial phlebitis that can pass through perforating vessels to involve the deep venous system(6).

**Definition:**

Varicose veins are twisted, enlarged veins near the surface of the skin and they mostly develop in the legs and ankles. When sitting or standing for a long time, the blood in the veins of the legs can pool and the pressure in the veins can increase and cause stretching. Stretching of veins can sometimes weaken the walls of the veins and damage the vein valves resulting in varicose vein (1-2). (Figure: 1)

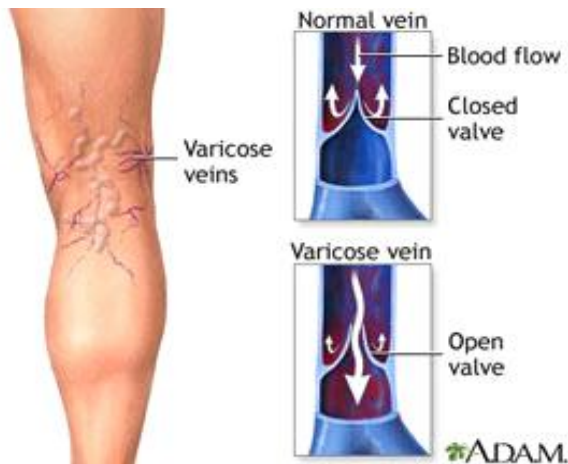


Figure 1: Varicose veins

#### Causes:

- o In 40 percent of the persons, varicose veins are due to hereditary factors, which run into families and generations in determining the susceptibility to primary valvular failure.
- o Prolonged standing and prolonged sitting with legs down leads to increased hydrostatic pressure that can cause chronic venous distension and secondary valvular incompetence anywhere within the superficial venous system.
- o Pregnancy is common cause of varicosities. During pregnancy, circulating hormonal factors increase the distensibility of vein walls and soften valve leaflets. Late in pregnancy, the enlarged uterus compresses the inferior vena cava, causing further venous hypertension and secondary distension of leg veins.
- o Varicose veins occur both in men and women, but are more frequent in women because vein walls and valves periodically become more distensible under the influence of cyclic increase in progesterone.
- o Due to lack of exercise and advanced overweight, veins become very weak and develop into varicose veins. Due to obesity a lot of fat gets deposited. This weakens the support system of the veins, resulting in the veins dilating and becoming tortuous.
- o Dietary deficiencies or the loss of skin elasticity due to ageing are the contributing factors.
- o High-heeled sandals and tight clothing are significant contributors to the development of varicose veins; they obstruct the normal flow of blood in the veins.
- o Constipation, which can contribute to varicose veins.
- o Repeated heavy lifting can interfere with normal circulation (to increase the likelihood that varicose veins will develop and can worsen existing varicosities).

Today a lot of occupations and professions have sprung up where people are required to either continuously stand for a long time or made to sit hanging down for a considerable time – computer professionals, security guards, traffic police, salesmen working at counters in departmental stores, teachers, nurses, paramedical workers working in various hospital set ups and persons doing desk jobs day in and day out are the sufferers of varicose veins (7).

#### Why do varicose veins usually appear in the legs?

The force of gravity, the pressure of body weight, and the task of carrying the blood from the bottom of the body to the heart make legs the primary location for varicose veins. Compared to other veins of the body, leg veins have the toughest job of carrying blood back to the heart. They endure the most pressure. This pressure can be stronger than the veins out way valves (7).

#### Signs and symptoms of varicose veins

- Prominent dark blue blood vessels, especially in the legs and feet.
- Aching pain or tenderness along the course of a vein.
- Easily tired legs.
- Leg heaviness.
- Swelling in the legs.
- Darkening of the skin (in severe cases).
- Numbness in the legs.
- Itching or irritating rash in the legs.
- Burning sensations.
- Night cramps.
- Pigmentation.
- Exercise intolerance.
- Bulging, rope-like, bluish veins indicate superficial varicose veins.
- Aching and heaviness in a limb, sometimes with swelling, but without any prominent or visible blue veins, may signal a deep varicose vein.
- Discoloured, peeling skin, skin ulcers, and constant rather than intermittent pain are signs of severe varicose veins.
- Subjective symptoms usually are more severe early in the progression of the disease, less severe in the middle phases, and worse again with advancing age.
- Common symptoms of telangiectasia include burning, swelling, throbbing, cramping, and leg fatigue. Pain associated with larger varicose veins usually is a dull ache that is worse after prolonged standing.
- Pain and other symptoms may worsen with the menstrual cycle, with pregnancy and in response to exogenous hormonal therapy (e.g., oral contraceptives) (5-7)

#### Diagnosis:

Varicose veins are usually diagnosed by inspection, but their extent can be determined only by palpation with the patient standing.

#### Inspection

Visible varicosity, skin changes, telangiectasis, swelling around ankles, ulceration, prominent varicose veins, eczematous lesions, scars form a previous surgical operation, stasis dermatitis (5).

#### Palpation

Palpable veins, hardness (thrombosis), tenderness.

### Techniques of test

- i. Trendelenberg test.
- ii. Perthes test.
- iii. Doppler auscultation.

**1. Trendelenberg test:** The Trendelenberg test can often be used to distinguish patients with superficial venous reflux from those with incompetent deep venous valves. (Figure 2)

- a. The leg is elevated until the congested superficial veins have all collapsed. An examining hand or tourniquet is used to occlude a varicose vein just below the sapheno-femoral junction (5 cm below and medial to the femoral pulse). The patient stands with the occlusion still in place (11).
- b. If the distal varicosity remains empty or fills very slowly, the principal entry point of high pressure into the superficial system has been identified. Rapid filling despite manual occlusion of the suspected high point of reflux that some other reflux is involved.

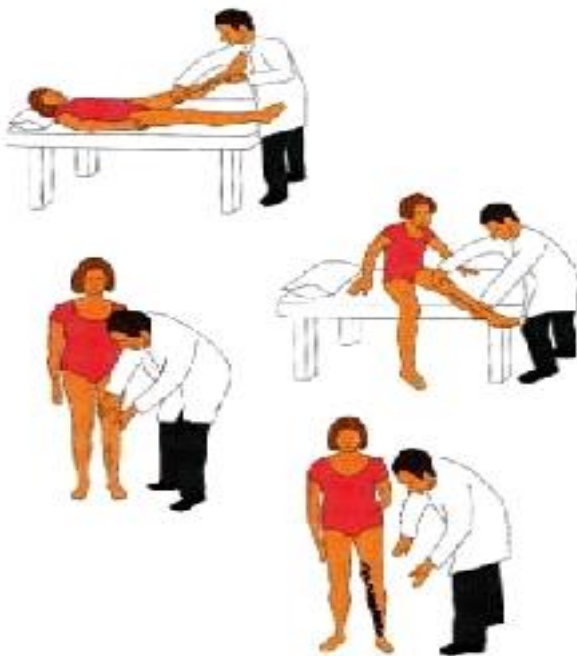


Fig.2: Trendelenberg test

**2. Perthes test:** The Perthes test is a traditional technique intended to distinguish antegrade flow from retrograde flow in superficial varices. To perform the test, a tourniquet is placed over the proximal part of the varicose leg in such a way as to compress superficial varicose veins, but not the deep veins. The patient walks or performs toe-stands to activate the calf muscle pump. The calf muscle pump normally causes varicose veins to be emptied, but if deep system obstruction exists, then the varicose veins paradoxically become more congested (12).

**3. Doppler auscultation:** Doppler examination is an adjunct to the physical examination that can directly show whether flow in a suspect vein is antegrade, retrograde or to-and-fro. (Figure 3)



Fig. 3: Doppler auscultation

### Treatment

A mild case of varicose veins does not usually require a doctor's care. You can find relief from the discomfort of varicose veins with basic at-home treatment and various alternative remedies (7).

### Prevention of varicose veins

Varicose veins may be prevented to some extent by:

#### 1. Exercise regularly

Try to walk 10 to 20 minutes every day or participate in other exercise, such as bicycling or jogging, swimming to strengthen leg muscles and improve blood circulation. Before beginning an exercise programme, check with your doctor, especially if you have health conditions such as heart disease, high blood pressure, arthritis, or breathing difficulties (10).

**2. Exercise your legs.** When you are sitting down, rotate your feet at the ankles in both directions, making small circles. Extend your legs, and point and flex your feet. Repeat for a minute or two once an hour.

**3. High-impact exercises** such as running may be uncomfortable for people with varicose veins.

**4. Avoid long periods of standing or sitting:** If you must stand for a long time, shift your weight from one leg to another every few minutes. Sit down frequently and elevate your legs. Bounce up and down on the tips of the toes several times an hour. Take a walk if you can. Some people use a small stool to prop up first one foot, then the other when standing at work (11). If you must sit for long periods of time, stand up and move around or take a short walk Every 30 minutes to let the legs pump blood back to the heart. Stop for a brief walk every 30-45 minutes during long car trips.

### 5. Regularly elevating legs

- Elevating the legs helps keep the blood from pooling in the lower legs and improves blood flow to the rest of the body.
- Keep the legs elevated when you sit or lie down, use a foot rest at work and a foot stool at home to elevate the feet.(Figure 4)



Fig. 4: Elevating legs

Lie down and raise the legs above the heart level at the end of the day. Try lying on the back on a bed with feet propped on the wall or on pillows to improve blood flow back to the heart.

### 6. Avoid crossing legs:

Try not crossing the legs at the knees when sitting. If you can't prop up the feet, set them flat on the floor or cross them at the ankles. Crossing legs at the knees squeezes veins and blocks blood flow. (Figure 5)



Fig.5: legs crossing

### 7. Wearing compression stockings:

Compression stockings help relieve symptoms and slow the progress of varicose veins. Compression stockings are elastic stockings that squeeze veins and prevent blood from flowing backwards. Put the stockings on before getting out of the bed every morning and wear all the day. (Figure 6)



Fig. 6: compression stocking

For many patients, compression stockings effectively treat varicose veins and may be all that are needed to relieve pain and swelling, and prevent future problems. Compression stockings also can help heal skin sores and prevent them from returning. Usage of compression stockings will not be beneficial if the person is lying down. For very mild symptoms, start with using regular support panty hose, knee socks (which end just above the calf, below the knee).For more serious symptoms, use special compression stockings from a medical supply store (with a doctor's prescription). These stockings are tighter at the feet and get looser as they go up Replace the compression stockings when they lose elasticity. For serious varicose veins symptoms, be sure not to buy stockings that are too tight and uncomfortable to wear. Compression stockings may help the problem from getting worse and may help avoid surgery (11).

### 8. Maintaining ideal weight:

Too much body fat, particularly in the mid section, can put pressure on the thighs and groin, weakening the walls and valves of the veins in the legs and groin.

### 9. Avoid tight clothing:

Clothing that restricts blood flow in the waist, groin or legs increases the risk of developing varicose veins.

### 10. Avoid wearing high-heeled shoes:

They can restrict ankle movement and thereby affect the pumping mechanism of the large veins in the feet and calves. High-heeled shoes make use of the muscles of buttocks, rather than calf muscles to walk. Low-heeled or athletic shoes help strengthen the calf muscles and improve circulation (6).

### 11. Eat a low salt, high fibre diet food:

Eating fibre reduces the chance of constipation which can contribute to varicose veins. Eating too much salt can retain water or swell.

**Preferred foods:** Whole food diet with emphasis on the following foods: fresh fruits, including berries and cherries, and citrus fruits, whole grains especially buckwheat, and millet, garlic, onion, ginger and cayenne pepper. Eat plenty of fish and cut down on red meat as much as possible. Moderately restrict fats and refined carbohydrates in the diet.

**Foods to avoid:** Sugar, salt, fried foods, processed and refined foods, animal protein, cheeses and ice cream (8).

### 12. Alternative remedies:

To cope with varicose veins, try a two-pronged strategy of natural remedies to ease the discomfort and preventive maintenance to keep your body fit and strong.

### 13. Acupuncture and acupressure:

Legs may be pressed for ten minutes daily. Cannot help aesthetically; only prevent the situation from worsening. (Figure 7)



Fig. 7: Acupuncture and acupressure

**11. Colour therapy:** Use red and yellow colour all over the affected area for thirty minutes once per day. In cases of ulcers in the legs use blue light radiation for thirty minutes followed by ultraviolet for forty-five minutes, everyday for ten to sixty days.

### Aromatherapy:

Diet of rosemary (*Rosmarinus officinalis*) massaged gently into the affected area may help stimulate circulation by causing capillaries to dilate. Oils of cypress and chamomile (*Matticaria recutita*) may soothe swelling and inflammation and help relieve pain.

### 12. Herbal therapies

- **Witch hazel:** Application of this ointment three or more times is necessary for 2 or more weeks before results can be expected (may cause minor skin irritation in some people and is not recommended for internal use).
- **Horse chestnut:** Used both internally and external application for problems of venous circulation, including varicose veins (should be avoided by anyone with liver or kidney disease and internal use is contraindicated during pregnancy and lactation).
- **Gotu kola, Ginkgo and hawthorn:** Strengthen blood vessels and improves peripheral circulation.
- **Bilberries:** Supports normal formation of connective tissue and strengthens capillaries in the body and in this way help prevent varicose veins (9).

### 13. Homoeopathy

- **Hamamelis:** Tincture or lotion may be applied locally at night. Hamamelis 3X every three hours when veins are affected.
- **Carbo vegetabilis:** When constipation and with poor circulation. In cases of ulcers of varicose veins.
- **Ferrum metallicum:** If legs look pale, but redden easily and walking slowly relieves the weak, achy feeling.

### 14. Hydrotherapy:

It is beneficial to alternate between hot and cold baths to stimulate circulation in the legs. Take 2 buckets or plastic waste buckets tall enough to submerge the legs up to the knees. Fill one container with hot water to cover the lower legs and the other container with the same amount of cold water. Add 2 tablespoons of Epsom salts per quart of water or can add aromatherapy oil to the water. Soak feet and legs in the hot water for about 3 minutes. Then immerse them in the cold water for about 30 seconds. Repeat three times, finishing with cold soak. Perform this treatment once a day for at least one month to see the results (for diabetes use warm water). Sponging or spraying legs with cold water can relieve aches and pain from superficial varicose veins.

### 15. Juice therapies:

Fresh fruit juices can be very helpful for those with varicose veins. Dark coloured berries such as cherries, blackberries and blueberries contain anthocyanins and proanthocyanidins, pigments that tone and strengthen the walls of veins. Pineapples are rich in the enzyme bromelain, which helps prevent blood clots (uncommon but serious complication of varicose veins). One or two glasses of fresh fruit or vegetable juices – especially any combination of apple, beet, carrot, celery, citrus, parsley or pineapple – and dietary may be helpful in preventing and treating varicosities (5).

### 16. Yoga:

Yoga's stretching and relaxation techniques can be particularly beneficial for varicose veins. The deep breathing exercise in yoga may further alleviate discomfort

by getting more oxygen into the bloodstream (start by lying on the back on the floor, arms at sides with your feet resting above you on a chair. Breathe deeply through nose and gravity helps pull blood from legs. The deep breathing creates a pull in chest cavity that also draws blood from the legs. Fresh blood then enters the legs, easing the pain. The exercise should be done once a day for about ten minutes (9- 11)

### Surgical or minimally invasive treatment

These treatments include sclerotherapy, ablation, and vein stripping and laser treatment.

#### 1. Sclerotherapy:

Sclerosant is injected directly into the veins using a very fine needle. The solution irritates the veins, causing the veins to swell, stick together and seal shut, thus closing it off and preventing any blood flow and the vein turns into scar tissue. In a few weeks, the vein should fade, by the body's natural healing process. It may need to be treated more than once. (Figure. 8)

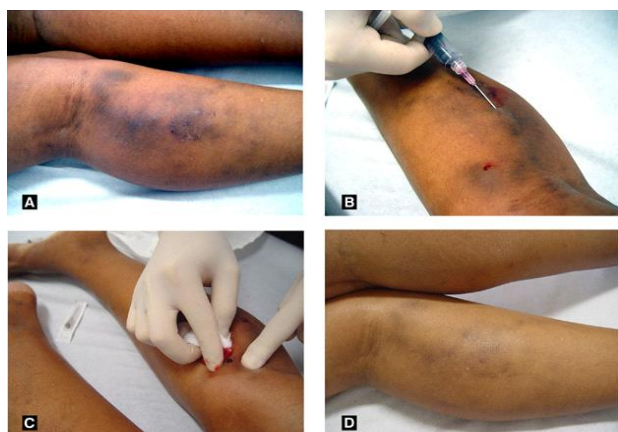


Fig. 8: Sclerotherapy

#### 2. Ablation:

Use a thin, flexible tube (catheter) inserted into a varicose vein. Tiny electrode at the tip of the catheter heats the walls of varicose vein and destroys the vein tissue. As with chemical sclerotherapy, vein is then no longer able to carry blood, breaks up naturally, and is absorbed by the body.

#### 3. Laser treatment:

Inserts a tiny fibre into a varicose vein through a catheter. The fibre sends out laser energy that kills the diseased portion of the varicose vein. The vein closes and the body eventually absorbs it.

#### 4. Vein stripping:

With this treatment, problematic veins are tied shut and completely removed from the leg. Removing the veins does not affect the circulation of the blood in the leg. Veins deeper in the leg take care of the larger volumes of blood. Most varicose veins removed by surgery are surface veins and collect blood only from the skin (12).

### Complications of untreated varicose veins

1. Phlebitis (inflammation)
2. Blood clots (actually in very rare complications)
3. Varicose eczema
4. Bleeding and venous ulcers
5. Deep vein thrombosis

### CONCLUSION:

The prevention of varicose veins begins by knowing the risk factors and working on ones that can be controlled (such as obesity and prolonged standing). Improving circulation and muscle tone, especially in the lower legs, will also help in preventing varicose veins.

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