

# Scientific Perspectives on Lifestyle Modifications in Chronic Venous Insufficiency

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## DESCRIPTION

One of the most consistently supported lifestyle modifications in managing venous insufficiency is regular physical activity. Exercise has been shown to enhance the efficiency of the calf muscle pump, a key mechanism in venous return. Activities such as walking, cycling, swimming and low-impact aerobics help to engage the calf muscles, which contract to push blood upwards through the veins, reducing venous stasis and alleviating symptoms. A review of studies has found that regular physical activity can lead to significant improvements in symptoms of venous insufficiency, including reduced swelling, pain and fatigue in the legs.

Furthermore, exercise helps improve overall cardiovascular health, which is essential for maintaining healthy circulation. In patients with venous insufficiency, exercise can lead to improved endothelial function, reduced inflammation and increased blood flow to the affected limbs. The positive effects of exercise extend beyond symptom management and can also help prevent the development of more severe complications, such as chronic venous ulcers. Obesity is a well-established risk factor for the development and progression of venous insufficiency. Excess body weight increases pressure on the veins in the lower legs, impairing blood flow and contributing to venous stasis. Studies have shown that individuals with a Body Mass Index (BMI) over 30 are at a higher risk of developing varicose veins and chronic venous insufficiency compared to those with a healthy weight. Weight loss through diet and exercise can reduce the burden on the venous system and alleviate symptoms in individuals with existing venous insufficiency.

A systematic review of weight loss interventions for venous insufficiency highlighted the benefits of even modest weight reduction in improving symptoms. In particular, a reduction in waist circumference and overall fat mass was associated with decreased leg swelling, improved blood circulation and a reduction in the severity of varicose veins. Furthermore, maintaining a healthy weight prevents the worsening of venous insufficiency, reduces the risk of recurrence after treatment and contributes to better overall vascular health.

Diet plays a significant role in the prevention and management of venous insufficiency, particularly through its effects on weight and vascular health. A diet rich in fruits, vegetables, whole grains and lean proteins provides essential nutrients that support healthy blood vessels and circulation. Certain nutrients, such as flavonoids (found in berries, citrus fruits and dark chocolate), have been shown to improve venous tone and reduce symptoms of venous insufficiency. Flavonoids are antioxidants that help reduce inflammation and strengthen the walls of blood vessels, potentially preventing further damage to veins.

Moreover, reducing the intake of sodium is important for managing venous insufficiency. High salt intake can lead to fluid retention, which exacerbates swelling and increases the pressure on the veins. Studies suggest that a low-sodium diet can help reduce edema and improve circulation in individuals with venous insufficiency. Additionally, adequate hydration is important, as dehydration can lead to thickened blood and poor circulation, further exacerbating symptoms.

A significant environmental risk factor for venous insufficiency is prolonged periods of sitting or standing. Jobs or activities that require individuals to remain in one position for extended periods—such as office work, retail and healthcare can impair blood flow and contribute to the development of venous insufficiency. The lack of muscle contractions in the calf reduces the efficiency of venous return, leading to blood pooling in the legs and increased venous pressure.

A systematic review of workplace interventions found that regular movement breaks, standing desks and elevating the legs can significantly reduce the risk of venous insufficiency in at-risk populations. The review emphasized the importance of changing posture every 30 minutes, walking around for a few minutes, or performing simple calf raises to stimulate circulation. In patients already diagnosed with venous insufficiency, elevating the legs at regular intervals helps reduce swelling and improves venous return. These lifestyle changes are simple yet effective in preventing the progression of venous insufficiency and alleviating symptoms.

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While not a direct lifestyle modification, the use of compression stockings is an adjunctive intervention that can be combined with other lifestyle changes. Compression stockings apply graduated pressure to the legs, helping to improve venous return and reduce swelling. Studies have shown that compression therapy, when combined with regular physical activity and weight management, significantly improves the symptoms of venous insufficiency, including leg pain, swelling and fatigue. In addition to compression, elevating the legs above heart level for 15 to 30 minutes each day can also help alleviate symptoms. Elevation aids in the passive return of blood from the lower extremities, reducing venous pressure and improving circulation.

## CONCLUSION

This systematic review confirms that lifestyle modifications play a pivotal role in both the prevention and management of venous

insufficiency. Regular physical activity, weight management, dietary changes and avoidance of prolonged sitting or standing are all integral components of an effective management strategy. While these changes may not eliminate the need for medical or surgical interventions in more advanced cases, they can significantly improve symptoms, slow disease progression and reduce the risk of complications. As such, healthcare providers should encourage patients with venous insufficiency to adopt these lifestyle modifications as part of a comprehensive treatment plan. By combining lifestyle interventions with appropriate medical management, individuals with venous insufficiency can experience improved quality of life and better long-term outcomes.