Following articles prove that superficial venous insufficiency leads to deep venous insufficiency and treatment of superficial venous pathology improves and recovers the deep venous insufficiency.
In 27 of 29 limbs with preoperative femoral reflux, that reflux was abolished by greater saphenous stripping. In patients with popliteal reflux both femoral and popliteal reflux was abolished. Improvement of deep venous hemodynamics by ablation of superficial reflux supports the reflux circuit theory of venous overload.
Hemodynamic and clinical improvement after superficial vein ablation in primary combined venous insufficiency with ulceration.

Superficial and perforating vein incompetence accounts for a substantial and correctable component of venous insufficiency in limbs with combined deep and superficial vein reflux and venous ulceration. These data indicate that surgical correction of this component significantly improves clinical symptoms and venous hemodynamics. Superficial and perforator ablation is an appropriate initial step in the management of combined deep and superficial incompetence.
Correction of Lower Extremity Deep Venous Incompetence by Ablation of Superficial Venous Reflux

Postoperative interrogation of the venous system revealed that in 16 (94%) of 17 patients, coexistent femoral venous insufficiency completely resolved. Thus ablation of superficial venous reflux eliminated incompetence in the deep venous system in patients with combined disease. These preliminary results suggest that superficial venous incompetence may be a cause of deep venous insufficiency.
Improvement of deep venous hemodynamics by ablation of superficial reflux supports a reflux circuit theory of venous overload.

It would be logical to suppose that ablation of such a reflux by superficial vein removal would correct the deep venous volume overload and allow diminution of the diameter of veins, thus producing valvular competence.
Earlier study of Phlebograms had shown that deep venous diameter was greatest in limbs with superficial reflux. Deep veins in limbs with proven prior deep venous thrombosis were actually found to be thinner in diameter than normal and those limbs with superficial reflux [46]. Now Doppler ultrasonography has shown that deep venous reflux in limbs with varicose veins proven not to have been the site of previous thrombosis is a startling 20.6%. Such deep venous reflux correlates with the severity of superficial reflux [47].

Using indirect parameters of venous pathophysiology, hemodynamics of the deep venous system were observed to improve after treatment of superficial venous incompetence [44].
We have recently studied 58 limbs with class 3 venous reflux. Ten limbs (17%) exhibited only superficial reflux, and superficial reflux was a major contributor to chronic venous dysfunction in another 17 limbs. Of some importance is the fact that primary, nonthrombotic deep (superficial femoral and popliteal vein) incompetence may accompany superficial reflux. This is explained by reflux proceeding distally down the greater saphenous vein and overloading the deep venous system.(40) One would presume this causes dilatation and elongation of the deep vessels so that their valves become incompetent. Our own study of limbs following greater saphenous vein stripping in which superficial and popliteal venous incompetence was present has revealed correction of the deep reflux by superficial venous stripping in a vast majority of limbs.(41)
Investigations of venous pathophysiology in continental Europe are influenced by the observations of **Friederich Trendelenberg**, Professor of Surgery in Bonn in the 1880s. In his 1891 publication advocating greater saphenous vein ligation, he coined the term ‘private circulation’ to describe the gravitational reflux down the saphenous vein which returns proximally through perforating veins and the deep venous system. 43 Later observers have noted that this private circulation is associated with primary deep venous valvular incompetence and this is the most important consequence of saphenous reflux. 44
Prevalence of deep venous reflux in patients with primary superficial vein incompetence

The prevalence of deep venous insufficiency in patients with primary superficial venous reflux and without history of DVT is 22%.
This study has suggested the importance of superficial venous insufficiency in the development of advanced Chronic Venous Insufficiency (CVI). Superficial insufficiency is predominant in both early and advance CVI. These reports suggest that superficial incompetence produces an overflow of venous return through perforating veins into the deep system. Superficial venous insufficiency might play a major role in the development of advanced CVI.
Chronic venous insufficiency: Clinical and duplex correlations. The Edinburgh Vein Study of venous disorders in the general population.

The prevalence of CVI rises steeply with age. There is a strong correlation between venous symptoms and the presence and severity of CVI. **CVI is associated in approximately one third of the subjects with incompetence limited to the superficial system and in these a good therapeutic outcome could be expected from surgery to the superficial veins.** The severity of clinical features correlates significantly with prevalence of valvular reflux in the deep and superficial systems.
How often is deep venous reflux eliminated after saphenous vein ablation?

In patients with concomitant deep and superficial venous reflux, saphenous vein ablation results in resolution of deep reflux in about a third of patients.
Deep Venous Thrombosis and Superficial Venous Reflux

Superficial venous thrombosis frequently accompanies DVT and is associated with development of superficial reflux in most limbs. However, a substantial proportion of observed reflux is not directly associated with thrombosis and develops at a rate equivalent to that in uninvolved limbs.

It can, therefore, be concluded that deep venous reflux is the result of superficial venous reflux.
An important finding of this study was an unexpectedly high incidence of venous reflux in the apparently unaffected limb. Although these non-DVT limbs were not investigated at presentation, our data is consistent with the hypothesis that DVT may result in a more systemic disorder of venous function.

This study points out the fact that **deep venous insufficiency is usually the primary pathology that leads to deep venous thrombosis**; therefore, it is very important to treat superficial venous insufficiency aggressively, including the treatment of saphenous venous reflux and complete elimination of all the varicose and spider veins, in order to improve DVI.
Endoscopic perforator vein division with ablation of superficial reflux improves venous hemodynamics
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SEPS with ablation of superficial reflux improved calf muscle pump function, reduced venous incompetence, and produced excellent midterm clinical results. However, functional improvement directly related to SEPS requires further investigation. This study supports adding SEPS to ablation of superficial reflux in patients with advanced chronic venous insufficiency. (J Vasc Surg 1998;28:83947.)

This study shows that elimination of superficial venous reflux by treating perforator veins, with SEPS, reduces deep venous incompetence.