

# FACTORS CONTRIBUTING TO THE CHRONIC VENOUS INSUFFICIENCY

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## SUMMARY

Insufficiency - whether retrograde or anterograde - of the venous circulation in the lower extremities causes hemodynamic disturbances. These appear first in the large veins and thence spread to the venous capillaries. A high venous pressure that fails to decline or declines inadequately with muscular activity leads to anatomical and functional changes in the microcirculation: inflammation, edema, a low  $pO_2$ , stimulation of fibroblasts and collagen formation. Fibrinolytic activity is reduced, and elevated fibrinogen levels in blood result in the formation of fibrin cuffs. The concomitant involvement of the lymphatic system contributes to the development of lymphedema. All these changes are ultimately manifested in the clinical picture of chronic venous, or venous and lymphatic, insufficiency.

## KEY WORDS

*haemodynamics, "ambulatory" venous hypertension, changes of microcirculation.*

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A number of factors cooperate in the efficient pumping of blood from the periphery to the heart. In a recumbent person the post-capillary pressure is sufficient for a slow back-flow of venous blood to the heart (*vis a tergo*). Breathing which alters intrathoracic and intraabdominal pressure is also important (*vis a fronte*). The contraction of the heart is an additional factor; however, an effective muscle pump is the most important one. The following functions can be attributed to the venous system of human lower extremities:

1. back-flow of venous blood to the right part of the heart

2. functioning as a reservoir for a certain amount of blood

3. regulates the volume of blood reaching the heart  
4. depending on climatic conditions contributes to the thermoregulation.

In the case of venous insufficiency the pressure in the veins is not reduced by the activity of the muscles to the same degree as in normal venous circulation; on the contrary, it remains high or even increases. Such a condition is labeled by varicologists as "dynamic venous hypertension" or "ambulatory venous hypertension". This happens if the deep venous system becomes insufficient. Due to the

