# Pathophysiology of the venous system: Mechanisms and modeling

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**Abstract**

Aim of the talk is to review some of the main mechanisms leading to the most common diseases associated with venous insufficiency, in particular in the inferior limbs, and to present modeling approaches for the related haemodynamic pictures. In particular, we discuss the fluid dynamics of the sapheno-femoral junction before and after surgery and the mechanical action of compression therapy. In both cases, we report on comparison between models? outcomes and clinical observations [1], [2].

**Keywords:** Mathematical modeling, Venous system, Free iron, Compression therapy.

## References

[1] V. Coscia, V. Gasbarro, M. Izzo. Hemodynamics of the sapheno-femoral junction. Mathematical modeling and clinical implications in chronic venous diseases. Acta Phlebologica, to appear.

[2] M. Izzo, V. Gasbarro, V. Coscia. The role of free iron in cardiovascular diseases - Part I. J. Theor. Appl. Vascular Research 2(1):21-25, 2017.