

# A Review: A Systematic-Review and Meta-Analysis of the Treatment of Varicose Veins

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**Abstract:** Varicose veins are a common manifestation of chronic venous insufficiency and can lead to pain, swelling, skin changes, and ulceration. This systematic review and meta-analysis evaluates the effectiveness and safety of major treatment modalities for varicose veins, including surgery (ligation and stripping), endovenous thermal ablation (laser and radiofrequency), foam and liquid sclerotherapy, and emerging minimally invasive procedures. A comprehensive search of published randomized controlled trials and observational studies was performed to compare outcomes such as symptom improvement, vein occlusion rates, recurrence, complications, and patient satisfaction. Results indicate that endovenous thermal ablation demonstrates high occlusion rates and faster recovery with fewer complications compared to conventional surgery. Foam sclerotherapy is effective for smaller veins but has higher recurrence rates over long-term follow-up. Surgical treatment remains useful for extensive or recurrent varicosities but is associated with longer recovery time.

**Keywords:** Varicose Veins, Chronic Venous Insufficiency, Endovenous Laser Ablation (EVLA), Radiofrequency Ablation (RFA), Sclerotherapy, Foam Sclerotherapy, Surgical Ligation and Stripping, Treatment Efficacy.