

**Bruno A, Cilluffo M. The role of helium plasma technology in liposuction for lipedema of the lower limbs: a stage-specific analysis. Aesthetic Plast Surg. 2025. doi:10.1007/s00266-025-05407-5**

## **Abstract**

**Background:** Lipedema is a chronic adipose tissue disorder characterized by abnormal fat accumulation, pain, often necessitating surgical intervention. While liposuction is the primary treatment to remove pathological fat, postoperative skin laxity poses a significant challenge, particularly in advanced stages.

**Objective:** This study evaluates the efficacy of helium plasma technology as an adjunct to liposuction of the lower limbs across the three clinical stages of lipedema, with a focus on its impact on skin tone, elasticity, and the necessity for dermolipectomy.

**Methods:** A prospective study was conducted on 90 female patients with lower limbs lipedema, divided equally across Stages I, II, and III. Helium plasma technology was applied post-liposuction to enhance skin tightening. Outcomes included postoperative skin elasticity, dermolipectomy incidence, and patient satisfaction **RESULTS:** In Stage I, skin tone and elasticity increased by 25%, though the already low need for dermolipectomy remained largely unchanged. In Stage II, skin elasticity improved by 40%, reducing the incidence of dermolipectomy from 30 to 10%. In Stage III, while the need for dermolipectomy was unaffected, helium plasma contributed to improved skin elasticity and patient satisfaction. No major adverse events were reported. This study is limited by the absence of a randomized control group and the lack of blinding in outcome assessments, which may introduce observer bias. These factors should be considered when interpreting the results and highlight the need for future controlled trials.

**Conclusions:** Helium plasma technology offers stage-specific benefits in liposuction for lipedema of the lower limbs. It enhances skin tone and elasticity in early stages, reduces dermolipectomy requirements in intermediate stages, and improves skin quality in advanced stages when combined with dermolipectomy. Further research is needed to validate these findings and optimize protocols for clinical use.

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