

ENDERMOLOGIE®: IMPROVEMENT OF IN SITU LIPOLYTIC RESPONSIVENESS OF SUBCUTANEOUS ADIPOSE TISSUE TO ISOPROTERENOL IN WOMEN WITH CELLULITE

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Introduction: Gynoid lipodystrophy (cellulite) is an extremely common female clinical condition affecting 85 – 89% of post – pubertal females of all races. This frequent feature manifests as orange peel aspect of the skin seen most commonly in gluteo femoral area, abdomen, breast and buttocks although cellulite can be located in any area of the body that contains subcutaneous adipose tissue and can be classified in different ways¹. Despite its high prevalence, there have been few scientific investigations into the physiology of cellulite. Four leading hypotheses exist to describe this phenomenon: sexually dimorphic skin architecture, altered connective tissue septae, vascular changes and inflammatory factors.² Whatever the initial mechanism, this disorder is associated with adipocyte hypertrophy (herniation of the dermo hypodermal junction), fibrosis of connective tissue and circulatory deteriorations.³ Among the different treatments for cellulite described in literature, the LPG Technique (Endermologie®, Lipomassage®) has proven its efficacy in numerous studies^{4,5,6,7,8,9}. However, none of these studies explored what happens at the adipocyte level. Using a microdialysis technique in subcutaneous adipose tissue, a study was carried out to test the *in situ* incidence of the LPG Technique in terms of adipocyte responsiveness¹⁰.

Methods: Nine healthy women volunteers with cellulite (grade ≥ 2) were included and received 12 sessions of LPG Technique (1-month treatment). Microdialysis has been carried out in the femoral adipose tissue in order to assess lipolytic responsiveness via glycerol determination following perfusion of a lipolytic agent (0.1, 1 and 10 μ M isoproterenol). Clinical evaluations (measurements of waist, thighs, skinfold and cellulite grade) were carried out in parallel. All evaluations were performed before and after LPG treatment.

Results: LPG Technique lowered resting dialysate glycerol levels in femoral adipose tissue. The lipid-mobilizing effect of isoproterenol was enhanced after one month of treatment. In addition, a manifest clinical improvement of cellulite is observed after one month of treatment with a clear decrease of morphometric measurements (Mean decrease on thighs: 3.1 to 3.3 cm) and cellulite grade (-31.8%, $p < 0.01$).

Conclusion: These results suggest an increase in the lipolytic responsiveness of femoral adipose tissue (known to be metabolically “silent”) in women with cellulite having undergone the LPG Technique, possibly by the stimulation of the adipocytes metabolism via a mechanical force-induced signal transduction.

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