

Evaluation of the effects of a mechanical massage technique on lipolysis and gene expression using respectively microdialysis and DNA microarray technologies

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Abstract

Background: The effect of mechanical stimuli on different cell types has been largely studied in vitro. A mechanical massage technique, with circulatory and dermotrophic properties, has been shown recently to have an impact on the lipolytic responsiveness of femoral adipose tissue in women with cellulite. Nevertheless, a complementary study was necessary in order to confirm those preliminary results and to complete them with the study of gene expression modifications in femoral adipose tissue after such treatment.

Objective: The objective of the study was to enter more deeply into further mechanistic consideration on the incidence of this mechanical massage technique on lipid mobilization and gene expression.

Materials and methods: Twelve healthy women volunteers with cellulite (grade ≥ 2) were included and treated with 12 sessions of mechanical massage technique (Endermologie). 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). In addition, DNA microarray has been carried out from adipose tissue biopsies. All evaluations were performed before and after treatment.

Results: Results confirm previous data and show that the specific stimulation induced by Endermologie has an impact on gene expression.

Conclusion: This basic research allows for a better knowledge of Endermologie mechanism of action and reveals new perspectives of treatments.