

## **Effect of gender and obesity on electrical current thresholds.**

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Introduction: In this study we investigated the influence of gender and obesity on electrical current thresholds in an attempt to optimize the application of skeletal muscle electrical stimulation (ES) in clinical practice.

Methods: Thirtytwo obese and 35 age-matched, non-obese men and women received graded ES to the quadriceps muscle for sensory (detection) and motor (contraction) threshold assessment. Concomitant pain and tolerance to ES were recorded.

Results: Sensory threshold was lower in women than in men ( $P < 0.001$ ), both obese and non-obese. Sensory and motor thresholds were higher in obese than in non-obese subjects ( $P < 0.05$ ), and body mass index was a strong predictor of motor excitability ( $r^2 = 0.56-0.61$ ). Current tolerance to motor stimulation was reduced in obese individuals, particularly in women, whereas pain was not influenced by gender or obesity.

Conclusions: We suggest that both gender and obesity factors should be carefully considered in the design of rational ES treatments.

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