

## Effects of Aerobic Exercise Associated with Abdominal Microcurrent: A Preliminary Study

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### ABSTRACT

**Objective:** To analyze the short- and long-term effects of microcurrent used with aerobic exercise on abdominal fat (visceral and subcutaneous).

**Methods:** Forty-two female students from a university population were randomly assigned into five groups: intervention group (IG) 1 ( $n=9$ ), IG2 ( $n=9$ ), IG3 ( $n=7$ ), IG4 ( $n=8$ ), and placebo group (PG) ( $n=9$ ). An intervention program of 10 sessions encompassing microcurrent and aerobic exercise (performed with a cycloergometer) was applied in all groups, with slight differences between them. In IG1 and IG2, microcurrent with transcutaneous electrodes was applied, with different frequency values; 30-minute exercise on the cycloergometer was subsequently performed. IG3 used the same protocol as IG1 but with different electrodes (percutaneous), while in IG4 the microcurrent was applied simultaneously with the cycloergometer exercise. Finally, the PG used the IG1 protocol but with the microcurrent device switched off. All groups were evaluated through ultrasound and abdominal perimeter measurement for visceral and subcutaneous abdominal fat assessment; through calipers for skinfolds measurement; through bioimpedance to evaluate weight, fat mass percentage, and muscular mass; and through blood analyses to measure cholesterol, triglyceride, and glucose levels.

**Results:** After intervention sessions, visceral fat decreased significantly in IG1 compared with the PG. Subcutaneous fat was reduced significantly in all groups compared with the PG. After 4 weeks, almost all results were maintained.

**Conclusion:** The addition of microcurrent to aerobic exercise may reduce fat more than does aerobic exercise alone.