

## EFFECTS OF PHOTOBIO-MODULATION ON THE FATIGUE LEVEL IN ELDERLY WOMEN: AN ISOKINETIC DYNAMOMETRY EVALUATION

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**Background and Objective.** Aging is responsible by a series of morphological and functional modifications that lead to a decline of muscle function, particularly in females. Muscle tissue in elderly people is more susceptible to fatigue and, consequently, to an increased inability to maintain strength and motor control. In this context, therapeutic approaches able of attenuating muscle fatigue have been investigated. Among these, the photobiomodulation demonstrate positive results to interacts with biological tissues, promoting the increase in cell energy production. Thus, the aim of this study was to investigate the effects of photobiomodulation (808 nm, 250 J/cm<sup>2</sup>, 100 mW, 7 J each point) in the fatigue level and muscle performance in elderly women.

**Materials and Methods.** Thirty subjects entered a crossover randomized double-blinded placebo-controlled trial. Photobiomodulation was delivered on the rectus femoris muscle of the dominant limb immediately before the fatigue protocol. In both sessions, peripheral muscle fatigue was analyzed by surface electromyography and blood lactate analysis. Muscle performance was evaluated using an isokinetic dynamometer.

**Results.** The results showed that photobiomodulation was able of reducing muscle fatigue by a significant increase of electromyographic fatigue index ( $P=0.047$ ) and decreasing significantly lactate concentration 6 min after the performance of the fatigue protocol ( $P=0.0006$ ) compared the placebo laser session. However, the photobiomodulation was not able of increasing muscle performance measured by the isokinetic dynamometer.

**Conclusions.** Thus, it can be conclude that the photobiomodulation was effective in reducing fatigue levels. However, no effects of photobiomodulation on muscle performance was observed.