

# Low-Level Laser Treatment Can Reduce Edema in Second Degree Ankle Sprains

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## ABSTRACT

**Objective:** Low-level laser therapy (LLLT) has been used for the last few years to treat sports injuries. The purpose of this study was to compare three therapeutic protocols in treating edema in second degree ankle sprains that did not require immobilization with a splint, under placebo-controlled conditions. **Materials and Methods:** Forty-seven soccer players with second degree ankle sprains, selected at random, were divided into the following groups: The first group ( $n = 16$ ) was treated with the conventional initial treatment (RICE, rest, ice, compression, elevation), the second group ( $n = 16$ ) was treated with the RICE method plus placebo laser, and the third group ( $n = 15$ ) was treated with the RICE method plus an 820-nm GaAlAs diode laser with a radiant power output of 40 mW at 16 Hz. Before the treatment, and 24, 48, and 72 h later, the volume of the edema was measured. **Results:** A three by three repeated measures ANOVA with a follow up post hoc test revealed that the group treated with the RICE and an 820-nm GaAlAs diode laser presented a statistically significant reduction in the volume of the edema after 24 h ( $40.3 \pm 2.4$  mL,  $p < 0.01$ ), 48 h ( $56.4 \pm 3.1$  mL,  $p < 0.002$ ), and 72 h ( $65.1 \pm 4.4$  mL,  $p < 0.001$ ). **Conclusions:** LLLT combined with RICE can reduce edema in second-degree ankle sprains.

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