

Effect of Diode Laser in the Treatment of Patients with Nonspecific Chronic Low Back Pain: A Randomized Controlled Trial

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Abstract

Background data: Low back pain is a common, highly debilitating condition, whose severity is variable. This study evaluated the efficacy of treatment with Ga-Al-As diode laser (980 nm) with a large diameter spot (32 cm²), in association with exercise therapy, in reducing pain. **Objective:** The present study aimed to evaluate the pain reduction efficacy of treatment with the Ga-Al-As diode laser (980 nm) in combination with exercise therapy, in patients with chronic low back pain (CLBP).

Methods: This study evaluated 100 patients with CLBP (mean age 60 years) who were randomly assigned to two groups. The laser plus exercises group (Laser + EX: 50 patients) received low-level laser therapy (LLLT) with a diode laser, 980 nm, with a specific handpiece [32 cm² irradiation spot size, power 20W in continuous wave (CW), fluence 37.5J/cm², total energy per point 1200 J] thrice weekly, and followed a daily exercise schedule for 3 weeks (5 days/week). The exercises group (EX: 50 patients) received placebo laser therapy plus daily exercises. The outcome was evaluated on the visual analogue pain scale (VAS), before and after treatment.

Results: At the end of the 3 week period, the Laser +EX group showed a significantly greater decrease in pain than did the EX group. There was a significant difference between the two groups, with average D VAS scores of 3.96 (Laser +EX group) and 2.23 (EX group). The Student's t test demonstrated a statistically significant difference between the two groups, at $p < 0.001$.

Conclusions: This study demonstrated that the use of diode laser (980 nm) with large diameter spot size, in association with exercise therapy, appears to be effective. Such treatment might be considered a valid therapeutic option within rehabilitation programs for nonspecific CLBP.