

Effectiveness of Class 4 Lasers for Achilles Tendinopathy

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Background: The combination of eccentric exercise and low-level laser therapy (LLLT) may be beneficial in treating Achilles tendinopathy. Controversy exists over LLLT parameters and dose, especially irradiance and the 100 mW/cm² limit set for Achilles tendons. The optimum dose has yet to be defined. The aim of this work was to assess the effectiveness of a class 4 laser device delivering an irradiance above 100 mW/cm² as an adjunct to an eccentric exercise regime for Achilles tendinopathy.

Study: A double blind randomized controlled trial utilizing 2 groups; 1 (Exercise + placebo LLLT), 2 (Exercise + active LLLT). The primary end-point was at 12 weeks, and the main outcome measure was the Victorian Institute of Sports Assessment-Achilles Questionnaire (VISA-A). Forty participants 18–65 years of age with a diagnosis of Achilles tendinopathy and who had not had treatment for the condition within the last 3 months, were randomized into the two groups. LLLT or placebo was administered twice per week for the first 4 weeks prior to a supervised exercise session with a physiotherapist. The laser parameters used for this application were; power output 10 W; pulsed 100 Hz; time 30s; energy 150 J, for a total time of 1:30 min and total energy delivered of 450 J. The exercise regime was continued unsupervised for a further 8 weeks. Data was analysed using ANCOVA with baseline scores as the covariate on an intention to treat basis. Missing data was replaced using the multiple imputation method.

Results: There was no difference between groups at baseline, and both groups significantly improved from baseline to 12 weeks. The between group difference on VISA-A at 12 weeks was statistically significant in favor of the LLLT group, (11.34; 95%CI, 3.03–19.64; p = 0.002).

Conclusion: Four weeks (8 treatments) of LLLT as an adjunct to an eccentric exercise regime of two sessions per week provide superior results compared to exercise alone.