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The effect of low-level laser therapy in the management of plantar fasciitis: a systematic review and meta-analysis

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ABSTRACT

Introduction: Plantar fasciitis (PF) is one of the common reasons for foot pain and is associated with substantial health and economic burden. PF often responds to a wide range of therapies that are predominantly conservative. We performed a meta-analysis to investigate the effects of low-level laser therapy on pain and disability in patients with PF.

Methods: Studies were comprehensively searched in Pubmed MEDLINE, the PEDro database, the Scientific Electronic Library Online, and the Cochrane Central Register of Controlled Trials, from the earliest date available to January 2019. Randomized controlled trials that evaluated the effects of low-level laser therapy versus control or another intervention for patients with PF were included. Mean differences (MD) and 95% confidence intervals (CIs) were calculated, and heterogeneity was assessed using the I^2 test. Calculations were performed using a random effects model, with two comparisons: low-level laser therapy compared with the control (no intervention); low-level laser therapy compared with extracorporeal shock wave therapy.

Results: Eight trials met the study criteria, including 473 PF patients. The main outcomes included changes from baseline in the Visual Analogue Scale Score (pain) and Foot Function Index (disability). Low-level laser therapy resulted in improvement in pain MD (-2.27 95% CI: -2.72 to -1.82 N=184) compared with the control. No significant difference in disability MD (-1.81 95% CI: -7.4 to 3.8 N=110) was found in participants in the low-level laser therapy group compared with the control group. Compared with extracorporeal shock wave therapy, low-level laser therapy did not achieve a significant reduction in pain intensity MD (0.45 95% CI: -2.4 to 3.3 N=141). In addition, no serious adverse events were reported.

Conclusion: Low-level laser therapy may improve pain and should be considered as a component of care for PF patients. However, this superiority disappeared when it was compared to extracorporeal shock wave therapy.

Keywords: Low-level light therapy/methods; Fasciitis, Plantar/ radiotherapy; Meta-analysis; Systematic review.

