

Additive effects of low-level laser therapy with exercise on subacromial syndrome: a randomised, double-blind, controlled trial

Seyyed Mohammad Jalil Abrisham · Mohammad Kermani-Alghoraishi · Rahil Ghahramani · Latife Jabbari · Hossein Jomeh · Maryam Zare

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Abstract The subacromial syndrome is the most common source of shoulder pain. The mainstays of conservative treatment are non-steroidal anti-inflammatory drugs and exercise therapy. Recently, low-level laser therapy (LLLT) has been popularized in the treatment of various musculoskeletal disorders. The aim of this study is to evaluate the additive effects of LLLT with exercise in comparison with exercise therapy alone in treatment of the subacromial syndrome. We conducted a randomised clinical study of 80 patients who presented to clinic with subacromial syndrome (rotator cuff and biceps tendinitis). Patients were randomly allocated into two groups. In group I ($n=40$), patients were given laser treatment (pulsed infrared laser) and exercise therapy for ten sessions during a period of 2 weeks. In group II ($n=40$), placebo laser and the same exercise therapy were given for the same period. Patients were evaluated for the pain with visual

analogue scale (VAS) and shoulder range of motion (ROM) in an active and passive movement of flexion, abduction and external rotation before and after treatment. In both groups, significant post-treatment improvements were achieved in all parameters ($P=0.00$). In comparison between the two groups, a significant improvement was noted in all movements in group I ($P=0.00$). Also, there was a substantial difference between the groups in VAS scores ($P=0.00$) which showed significant pain reduction in group I. This study indicates that LLLT combined exercise is more effective than exercise therapy alone in relieving pain and in improving the shoulder ROM in patients with subacromial syndrome.

Keywords Exercise therapy · Low-level laser therapy · Shoulder pain · Subacromial syndrome