

Low level laser therapy reduces inflammation in activated Achilles tendinitis

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(published online Feb. 28, 2006)

Objective: Low level laser therapy (LLLT) has been forwarded as therapy for osteoarthritis and tendinopathy. Results in animal and cell studies suggest that LLLT may act through a biological mechanism of inflammatory modulation. The current study was designed to investigate if LLLT has an anti-inflammatory effect on activated tendinitis of the Achilles tendon. **Methods:** Seven patients with bilateral Achilles tendonitis (14 tendons) who had aggravated symptoms by pain-inducing activity immediately prior to the study. LLLT (1.8 Joules for each of three points along the Achilles tendon with 904nm infrared laser) and placebo LLLT were administered to either Achilles tendons in a random order to which patients and therapist were blinded. Inflammation was examined by 1) mini-invasive microdialysis for measuring the concentration of inflammatory marker PGE₂ in the peritendinous tissue, 2) ultrasound with Doppler measurement of peri- and intratendinous blood flow, 3) pressure pain algometry and 4) single hop test. **Results:** PGE₂ levels were significantly reduced at 75, 90 and 105 minutes after active LLLT compared both to pre-treatment levels (p=0.026) and to placebo LLLT (p=0.009). Changes in pressure pain threshold (PPT) were significantly different (P=0.012) between groups. PPT increased by a mean value of 0.19 kg/cm² [95%CI:0.04 to 0.34] after treatment in the active LLLT group, while pressure pain threshold was reduced by -0.20 kg/cm² [95%CI:-0.45 to 0.05] after placebo LLLT. **Conclusion:** LLLT can be used to reduce inflammatory musculoskeletal pain as it reduces inflammation and increases pressure pain threshold levels in activity-induced pain episodes of Achilles tendinopathy.

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