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[Start New Query](#)**EFFECT OF LOW LEVEL LASER THERAPY (830 NM) WITH DIFFERENT THERAPY REGIMES ON THE PROCESS OF TISSUE REPAIR IN PARTIAL LESION CALCANEUS TENDON.**

Oliveira FS1, Pinfildi CE, Parizoto NA, Liebano RE, Bossini PS, Garcia EB, Ferreira LM. - Lasers Surg Med. 2009 Apr;41(4):271-6. doi: 10.1002/lsm.20760. (Publication)

Double blind study shows that laser group had 99% recovery to pre-injured levels and the non-laser group showed extensive cellular damage under a microscope.

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There were 5 groups of rats in the study. Groups 2 through 5 were injured in a controlled operation. Groups 3 through 5 were given different dosage of laser therapy.

Group 1: No damage

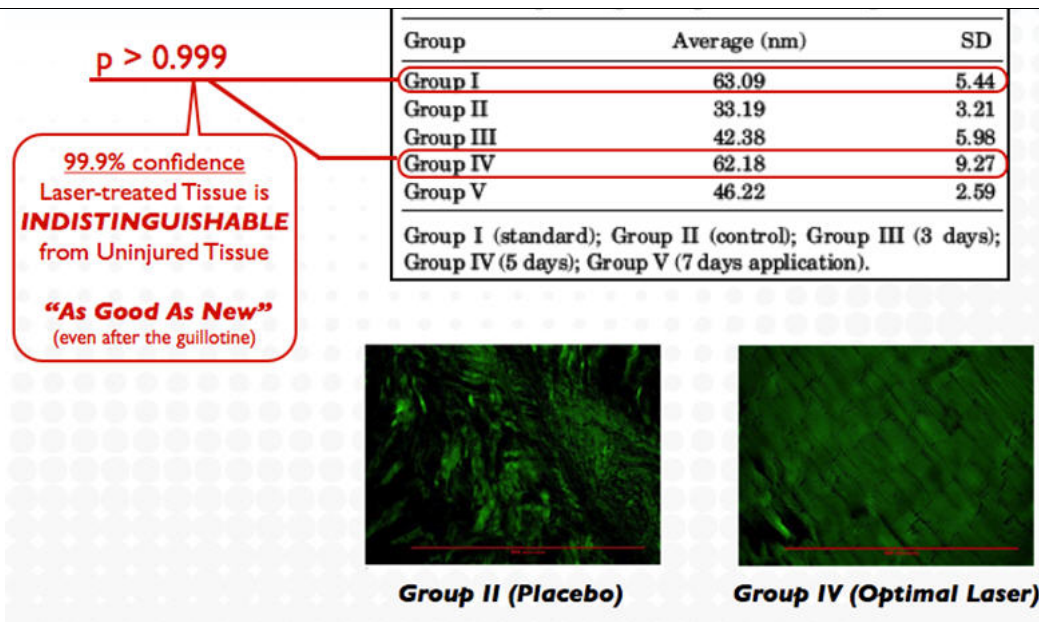
Group 2: Damaged and then area treated with placebo

Group 3: Damaged and given non-optimal therapy

Group 4: Damaged and optimal dosage

Group 5: Damaged and non-optimal therapy

Any laser therapy showed a significant improvement over no laser and the optimal laser (Group 4 with a total dosage of 4 j/cm²) showed no difference from the uninjured tissue. The image below show the group 2 and group 4 tissue under a polarization microscope.



Intro: Calcaneus tendon is one of the most damaged tendons, and its healing may last from weeks to months to be completed. In the search after speeding tendon repair, low intensity laser therapy has shown favorable effect. To assess the effect of low intensity laser therapy on the process of tissue repair in calcaneus tendon after undergoing a partial lesion.

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Abstract: Abstract BACKGROUND AND OBJECTIVE: Calcaneus tendon is one of the most damaged tendons, and its healing may last from weeks to months to be completed. In the search after speeding tendon repair, low intensity laser therapy has shown favorable effect. To assess the effect of low intensity laser therapy on the process of tissue repair in calcaneus tendon after undergoing a partial lesion. STUDY DESIGN/MATERIALS AND METHODS: Experimentally controlled randomized single blind study. Sixty male rats were used randomly and were assigned to five groups containing 12 animals each one; 42 out of 60 underwent lesion caused by dropping a 186 g weight over their Achilles tendon from a 20 cm height. In Group 1 (standard control), animals did not suffer the lesion nor underwent laser therapy; in Group 2 (control), animals suffered the lesion but did not undergo laser therapy; in Groups 3, 4, and 5, animals suffered lesion and underwent laser therapy for 3, 5, and 7 days, respectively. Animals which suffered lesion were sacrificed on the 8th day after the lesion and assessed by polarization microscopy to analyze the degree of collagen fibers organization. RESULTS: Both experimental and standard control Groups presented significant values when compared with the control Groups, and there was no significant difference when Groups 1 and 4 were compared; the same occurred between Groups 3 and 5. CONCLUSION: Low intensity laser therapy was effective in the improvement of collagen fibers organization of the calcaneus tendon after undergoing a partial lesion.

Methods: Experimentally controlled randomized single blind study. Sixty male rats were used randomly and were assigned to five groups containing 12 animals each one; 42 out of 60 underwent lesion caused by dropping a 186 g weight over their Achilles tendon from a 20 cm height. In Group 1 (standard control), animals did not suffer the lesion nor underwent laser therapy; in Group 2 (control), animals suffered the lesion but did not undergo laser therapy; in Groups 3, 4, and 5, animals suffered lesion and underwent laser therapy for 3, 5, and 7 days, respectively. Animals which suffered lesion were sacrificed on the 8th day after the lesion and assessed by polarization microscopy to analyze the degree of collagen fibers organization.

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Original Source: <http://www.ncbi.nlm.nih.gov/pubmed/19347936>

THE EFFECT OF LOW-LEVEL LASER IN KNEE OSTEOARTHRITIS: A DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED TRIAL.

Hegedus B1, Viharos L, Gervain M, Gálfi M. - Photomed Laser Surg. 2009 Aug;27(4):577-84. doi: 10.1089/pho.2008.2297. (Publication)

This double-blind study showed a significant improvement using LLLT. The dosage was relatively low at 6 J /point using a CW 50mW system at 830nm.

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Background: Low-level laser therapy (LLLT) is thought to have an analgesic effect as well as a biomodulatory effect on microcirculation. This study was designed to examine the pain-relieving effect of LLLT and possible microcirculatory changes measured by thermography in patients with knee osteoarthritis (KOA).

Abstract: Abstract INTRODUCTION: Low-level laser therapy (LLLT) is thought to have an analgesic effect as well as a biomodulatory effect on microcirculation. This study was designed to examine the pain-relieving effect of LLLT and possible microcirculatory changes measured by thermography in patients with knee osteoarthritis (KOA). MATERIALS AND METHODS: Patients with mild or moderate KOA were randomized to receive either LLLT or placebo LLLT. Treatments were delivered twice a week over a period of 4 wk with a diode laser (wavelength 830 nm, continuous wave, power 50 mW) in skin contact at a dose of 6 J/point. The placebo control group was treated with an ineffective probe (power 0.5 mW) of the same appearance. Before examinations and immediately, 2 wk, and 2 mo after completing the therapy, thermography was performed (bilateral comparative thermograph by AGA infrared camera); joint flexion, circumference, and pressure sensitivity were measured; and the visual analogue scale was recorded. RESULTS: In the group treated with active LLLT, a significant improvement was found in pain (before treatment [BT]: 5.75; 2 mo after treatment : 1.18); circumference (BT: 40.45; AT: 39.86); pressure sensitivity (BT: 2.33; AT: 0.77); and flexion (BT: 105.83; AT: 122.94). In the placebo group, changes in joint flexion and pain were not significant. Thermographic measurements showed at least a 0.5 degrees C increase in temperature--and thus an improvement in circulation compared to the initial values. In the placebo group, these changes did not occur. CONCLUSION: Our results show that LLLT reduces pain in KOA and improves microcirculation in the irradiated area.

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Conclusions: Our results show that LLLT reduces pain in KOA and improves microcirculation in the irradiated area.

Original Source: <http://www.ncbi.nlm.nih.gov/pubmed/19530911>

A RANDOMISED, PLACEBO CONTROLLED TRIAL OF LOW LEVEL LASER THERAPY FOR ACTIVATED ACHILLES TENDINITIS WITH MICRODIALYSIS MEASUREMENT OF PERITENDINOUS PROSTAGLANDIN E2 CONCENTRATIONS.

Bjordal JM1, Lopes-Martins RA, Iversen VV. - Br J Sports Med. 2006 Jan;40(1):76-80; discussion 76-80. (Publication)

This is a double blind study of LLLT on patients with bilateral Achilles tendinitis

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EFFECTS OF PRE- OR POST-EXERCISE LOW-LEVEL LASER THERAPY (830 NM) ON SKELETAL MUSCLE FATIGUE AND BIOCHEMICAL MARKERS OF RECOVERY IN HUMANS: DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL.

Dos Reis FA1, da Silva BA, Laraia EM, de Melo RM, Silva PH, Leal-Junior EC, de Carvalho Pde T. - Photomed Laser Surg. 2014 Feb;32(2):106-12. doi: 10.1089/pho.2013.3617. Epub 2014 Jan 23. (Publication)

This double blind study is based on the Microlight ML830, which has a total power of 90mW. In the results, we see that the total dosage was 50.0 joules, which many would consider low by today's standards.

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100 POSITIVE DOUBLE BLIND STUDIES - ENOUGH OR TOO LITTLE?

Jan Tunér DDS and Lars Hode - (Publication)

This published editorial directs people to their book that details many of the positive double blind studies.

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Ken Teegardin - (Video)

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