

Trigger Points

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Electrophysiologic effects of a therapeutic laser on myofascial trigger spots of rabbit skeletal muscles.

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OBJECTIVE: To better understand the mechanisms of therapeutic lasers for treating human myofascial trigger points, we designed a blinded controlled study of the effects of a therapeutic laser on the prevalence of endplate noise (EPN) recorded from the myofascial trigger spot (MTrS) of rabbit skeletal muscle. **DESIGN:** In eight rabbits, one MTrS in each biceps femoris muscle was irradiated with a 660-nm, continuous-wave, gallium-aluminum-arsenate (GaAlAs) laser, at 9 J/cm². The contralateral side of muscle was treated with a sham laser. Each rabbit received six treatments. The immediate and cumulative effects were assessed by the prevalence of EPN with electromyographic (EMG) recordings after the first and last treatments. **RESULTS:** Compared with pretreatment values, the percentages of EPN prevalence in the experimental side after the first and last treatments were significantly reduced ($P < 0.01$ for both). The change in EPN prevalence in the experimental side was significantly greater than in the control side immediately after the first and last treatments ($P < 0.05$). However, no significant differences were noted between the first and last treatments ($P > 0.05$). **CONCLUSIONS:** In our study, immediate and cumulative effects of a GaAlAs laser applied on MTrS were demonstrated on the basis of the assessment of EPN prevalence. It seems that laser irradiation may inhibit the irritability of an MTrS in rabbit skeletal muscle. This effect may be a possible mechanism for myofascial pain relief with laser therapy.

[Clin Laser Med Surg.](#) 1996 Aug;14(4):163-7.

Low level laser therapy with trigger points technique: a clinical study on 243 patients.

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Among the various methods of application techniques in low level laser therapy (LLLT) (HeNe 632.8 nm visible red or infrared 820-830 nm continuous wave and 904 nm pulsed emission)

there are very promising "trigger points" (TPs), i.e., myofascial zones of particular sensibility and of highest projection of focal pain points, due to ischemic conditions. The effect of LLLT and the results obtained after clinical treatment of more than 200 patients (headaches and facial pain, skeletomuscular ailments, myogenic neck pain, shoulder and arm pain, epicondylitis humery, tenosynovitis, low back and radicular pain, Achilles tendinitis) to whom the "trigger points" were applied were better than we had ever expected. According to clinical parameters, it has been observed that the rigidity decreases, the mobility is restored (functional recovery), and the spontaneous or induced pain decreases or even disappears, by movement, too. LLLT improves local microcirculation and it can also improve oxygen supply to hypoxic cells in the TP areas and at the same time it can remove the collected waste products. The normalization of the microcirculation, obtained due to laser applications, interrupts the "circulus vitiosus" of the origin of the pain and its development (Melzak: muscular tension > pain > increased tension > increased pain, etc.). Results measured according to VAS/VRS/PTM: in acute pain, diminished more than 70%; in chronic pain more than 60%. Clinical effectiveness (success or failure) depends on the correctly applied energy dose-- over/underdosage produces opposite, negative effects on cellular metabolism. We did not observe any negative effects on the human body and the use of analgesic drugs could be reduced or completely excluded. LLLT suggests that the laser beam can be used as monotherapy or as a supplementary treatment to other therapeutic procedures for pain treatment.

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Comparison of laser, dry needling, and placebo laser treatments in myofascial pain syndrome.

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OBJECTIVE: We aimed to evaluate the effectiveness of laser therapy in myofascial pain syndrome treatment. **BACKGROUND DATA:** Myofascial pain syndrome is a disease that is characterized by hypersensitive points called trigger points found in one or more muscles and/or connective tissues. It can cause pain, muscle spasm, sensitivity, stiffness, weakness, limitation of range of motion and rarely autonomic dysfunction. Physical therapy modalities and exercise are used in the treatment of this frequently encountered disease. **METHODS:** The placebo controlled, prospective, long-term follow up study was planned with 60 patients who had trigger points in their upper trapezius muscles. The patients were divided into three groups randomly. Stretching exercises were taught to each group and they were asked to exercise at home. Treatment duration was 4 weeks. Placebo laser was applied to group 1, dry needling to group 2 and laser to group 3. He-Ne laser was applied to three trigger points in the upper trapezius muscles on both sides with 632.8 nm. The patients were assessed at before, post-treatment, and 6 months after-treatment for pain, cervical range of motion and functional status. **RESULTS:** We observed a significant decrease in pain at rest, at activity, and increase in pain threshold in the laser group compared to other groups. Improvement

according to Nottingham Health Profile gave the superiority of the laser treatment. However, those differences among the groups were not observed at 6-month follow up. CONCLUSIONS: Laser therapy could be useful as a treatment modality in myofascial pain syndrome because of its noninvasiveness, ease, and short-term application.