

## **Efficacy of low level laser therapy and Intramuscular electrical stimulation on myofascial pain syndrome.**

**Sumen A1, Sarsan A1, Alkan H1, Y?id?z N1, Ardic F1.**

### **Author information**

- 1Department of Physical Medicine and Rehabilitation, Pamukkale University Faculty of Medicine, Denizli, Turkey.

### **Abstract**

#### **BACKGROUND:**

Myofascial pain syndrome (MPS) which is an important cause of musculoskeletal pain has shown a dramatic increase in recent years.

#### **OBJECTIVES:**

We aimed to evaluate the efficacy of intramuscular electrical stimulation therapy (IMS) and low-level-laser-therapy (LLLT) in patients with MPS.

#### **METHODS:**

Patients were randomly divided into three groups. First group were treated with LLLT and stretching exercise. Second group were treated with IMS and stretching exercise. Third group were treated with only stretching exercise. The patients were evaluated through the pain intensity, painthreshold, cervical joint movement range and the neck disability index parameters.

#### **RESULTS:**

An improvement was found in all parameters for all groups, except for the pain threshold within the control group at the end of the treatment and one month after the treatment. It was found that pain score was significantly lower in Group 1 and 2 at one month after the treatment compared to Group 3. Similarly, it was found that pain threshold score was significantly higher in Group 2 at one month after the treatment compared to Group 3.

#### **CONCLUSIONS:**

In this study we observed that both LLLT and IMS treatments added on to stretching are effective in improving pain parameters in patients with MPS.

## Low level laser therapy for patients with cervical disk hernia.

Takahashi H1, Okuni I2, Ushigome N2, Harada T2, Tsuruoka H2, Ohshiro T3, Sekiguchi M1, Musya Y4.

### Author information



#### **Low level laser therapy for patients with cervical disk hernia - PubMed**

The present study demonstrates that LLLT was an effective form of treatment for neck and back pain caused by cer...

- 1Department of Orthopaedic Surgery Toho University School of Medicine.
- 2Department of Rehabilitation Medicine Toho University School of Medicine.
- 3Japan Medical Laser Laboratory, Shinjuku-ku Tokyo Japan.
- 4Department of Orthopaedic Surgery Ohashi Hospital Toho University School of Medicine.

### **Abstract**

#### **BACKGROUND AND AIMS:**

In previous studies we have reported the benefits of low level laser therapy (LLLT) for chronic shoulder joint pain, elbow, hand and finger pain, and low back pain. The present study is a report on the effects of LLLT for chronic neck pain.

#### **MATERIALS AND METHODS:**

Over a 3 year period, 26 rehabilitation department outpatients with chronic neck pain, diagnosed as being caused by cervical disk hernia, underwent treatment applied to the painful area with a 1000 mW semi-conductor laser device

delivering at 830 nm in continuous wave, 20.1 J/cm(2)/point, and three shots were given per session (1 treatment) with twice a week for 4 weeks.

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### **RESULTS:**

1. A visual analogue scale (VAS) was used to determine the effects of LLLT for chronic pain and after the end of the treatment regimen a significant improvement was observed ( $p < 0.001$ ). 2. After treatment, no significant differences in cervical spine range of motion were observed. 3. Discussions with the patients revealed that in order to receive continued benefits from treatment, it was important for them to be taught how to avoid postures that would cause them neck pain in everyday life.

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### **CONCLUSION:**

The present study demonstrates that LLLT was an effective form of treatment for neck and back pain caused by cervical diskhernia, reinforced by postural training.

Pain Med. 2010 Aug;11(8):1169-78.

## **Low-level laser therapy for acute neck pain with radiculopathy: a double blind placebo-controlled randomized study.**

Konstantinovic LM, Cutovic MR, Milovanovic AN, Jovic SJ, Dragin AS, Letic MDj, Miler VM. Clinic for Rehabilitation, Medical School, University of Belgrade, Sokobanjska 13, Belgrade, Serbia.

### **Abstract**

**Objective.** The objective of the study was to investigate clinical effects of low-level laser therapy (LLLT) in patients with acute neck pain with radiculopathy. **Design.** Double-blind, randomized, placebo-controlled study. **Setting.** The study was carried out between January 2005 and September 2007 at the Clinic for Rehabilitation at the Medical School, University of Belgrade, Serbia. **Patients and Intervention.** Sixty subjects received a course of 15 treatments over 3 weeks with active or an inactivated laser as a placebo procedure. LLLT was applied to the skin projection at the anatomical site of the spinal segment involved with the following parameters: wavelength 905 nm, frequency 5,000 Hz, power density of 12 mW/cm(2), and dose of 2 J/cm(2), treatment time 120 seconds, at whole doses 12 J/cm(2). **Outcome measures.** The primary outcome measure was pain intensity as measured by a visual analog scale. Secondary outcome measures were neck movement, neck disability index, and quality of life. Measurements were taken before treatment and at the end of the 3-week treatment period. **Results.** Statistically significant differences between groups were found for intensity

of arm pain ( $P = 0.003$ , with high effect size  $d = 0.92$ ) and for neck extension ( $P = 0.003$  with high effect size  $d = 0.94$ ). Conclusion. LLLT gave more effective short-term relief of arm pain and increased range of neck extension in patients with acute neck pain with radiculopathy in comparison to the placebo procedure.

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## **Efficacy of low-level laser therapy in the management of neck pain: a systematic review and meta-analysis of randomised placebo or active-treatment controlled trials.**

Original Text

Dr Roberta T Chow MBBS a , Prof Mark I Johnson PhD b, Prof Rodrigo AB Lopes-Martins PhD c, Prof Jan M Bjordal PT d e

### **Summary**

#### **Background**

Neck pain is a common and costly condition for which pharmacological management has limited evidence of efficacy and side-effects. Low-level laser therapy (LLLT) is a relatively uncommon, non-invasive treatment for neck pain, in which non-thermal laser irradiation is applied to sites of pain. We did a systematic review and meta-analysis of randomised controlled trials to assess the efficacy of LLLT in neck pain.

#### **Methods**

We searched computerised databases comparing efficacy of LLLT using any wavelength with placebo or with active control in acute or chronic neck pain. Effect size for the primary outcome, pain intensity, was defined as a pooled estimate of mean difference in change in mm on 100 mm visual analogue scale.

#### **Findings**

We identified 16 randomised controlled trials including a total of 820 patients. In acute neck pain, results of two trials showed a relative risk (RR) of 1.69 (95% CI 1.22—2.33) for pain improvement of LLLT versus placebo. Five trials of chronic neck pain reporting categorical data showed an RR for pain improvement of 4.05 (2.74—5.98) of LLLT. Patients in 11 trials

reporting changes in visual analogue scale had pain intensity reduced by 19.86 mm (10.04—29.68). Seven trials provided follow-up data for 1—22 weeks after completion of treatment, with short-term pain relief persisting in the medium term with a reduction of 22.07 mm (17.42—26.72). Side-effects from LLLT were mild and not different from those of placebo.

### **Interpretation**

We show that LLLT reduces pain immediately after treatment in acute neck pain and up to 22 weeks after completion of treatment in patients with chronic neck pain.

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### **Settings**