

## **Carpal tunnel syndrome pain treated with low-level laser and microamperes transcutaneous electric nerve stimulation: A controlled study.**

**Naeser MA, Hahn KA, Lieberman BE, Branco KF.**

Department of Neurology, Boston University School of Medicine, Psychology Research Service, MA, USA. [mnaeser@bu.edu](mailto:mnaeser@bu.edu)

**OBJECTIVE:** To investigate whether real or sham low-level laser therapy (LLLT) plus microamperes transcutaneous electric nerve stimulation (TENS) applied to acupuncture points significantly reduces pain in carpal tunnel syndrome (CTS). **DESIGN:** Randomized, double-blind, placebo-control, crossover trial. Patients and staff administered outcome measures blinded. **SETTING:** Outpatient, university-affiliated Department of Veterans Affairs medical center. **PARTICIPANTS:** Eleven mild to moderate CTS cases (nerve conduction study, clinical examination) who failed standard medical or surgical treatment for 3 to 30 months. **INTERVENTION:** Patients received real and sham treatment series (each for 3-4wk), in a randomized order. Real treatments used red-beam laser (continuous wave, 15mW, 632.8nm) on shallow acupuncture points on the affected hand, infrared laser (pulsed, 9.4W, 904nm) on deeper points on upper extremity and cervical paraspinal areas, and microamps TENS on the affected wrist. Devices were painless, noninvasive, and produced no sensation whether they were real or sham. The hand was treated behind a hanging black curtain without the patient knowing if devices were on (real) or off (sham). **MAIN OUTCOME MEASURES:** McGill Pain Questionnaire (MPQ) score, sensory and motor latencies, and Phalen and Tinel signs. **RESULTS:** Significant decreases in MPQ score, median nerve sensory latency, and Phalen and Tinel signs after the real treatment series but not after the sham treatment series. Patients could perform their previous work (computer typist, handyman) and were stable for 1 to 3 years. **CONCLUSIONS:** This new, conservative treatment was effective in treating CTS pain; larger studies are recommended. Copyright 2002 by the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation