**Evcik D, Kavuncu V, et al. Laser Therapy in the Treatment of Carpal Tunnel Syndrome: A Randomized Controlled Trial. Photomed Laser Surg 2007;25:34-39.**

PMID: 17352635

Design: Randomized clinical trial

Purpose of study: to investigate the efficacy of laser therapy for carpal tunnel syndrome

Population/sample size/setting:

* 81 patients (70 women, 11 men, mean age 49, 141 hands, bilateral in 60 patients) treated for carpal tunnel syndrome at a university physical medicine department in Turkey
* Inclusion criteria required a diagnosis of CTS by clinical findings and by electromyography (EMG)
* Exclusion criteria were severe head trauma, cervical radiculopathy, thoracic outlet syndrome, cognitive disorders, inflammatory conditions, or tumors

Interventions:

* Randomized to low level laser therapy (LLLT, n=41) or placebo LLLT (n=40), five times a week for two weeks (10 sessions)
* LLLT administered at wavelength of 830 nm at a power of 450 mW over carpal tunnel area
* Measurements were made at baseline and after 4 weeks and 12 weeks of hand grip, pinch grip, pain VAS, symptom severity scores, and nerve conduction
* Hand grip improved only in the LLLT group at 4 weeks
* Pinch grip improved in both groups without significant differences between groups
* Pain scores and symptom severity scores improved in both groups without significant differences between groups
* Only the LLLT group improved sensory and motor distal latency; both groups improved sensory nerve velocity
* At 12 weeks, there were no differences between groups for hand and pinch strength

Authors’ conclusions:

* LLLT had no advantage over placebo for pain relief
* LLLT had positive effects on hand and pinch grip strengths
* There is little data on the optimal dosage of laser for CTS

Comments:

* Description of some important information is not clear or lacking: the randomization appears to have been done by patient, and the reader must infer that the 60 patients with bilateral CTS had treatment to both wrists; it is not clear whether the follow-up scores were reported on the basis of patients or wrists
* If both wrists were treated and tested for follow-up, a key assumption of statistical analysis is violated: the outcome measurements are not independent but highly correlated
* If only one wrist was used for assessment of outcome, this is not explained
* When a large number of patients have bilateral CTS, an opportunity presents itself to apply LLLT to one wrist and placebo to the other wrist; this was not done
* The reported difference in hand grip does not appear to have been accompanied by a difference in symptom severity (scale of symptom severity is not clear)
* The groups have equal outcomes at 12 weeks, and the small advantage of LLLT over placebo at 4 weeks was transient
* CTS was diagnosed on the basis of Phalen, Tinel, flick test, and “Buda test;” the latter is presumably another clinical observation whose meaning is lost in translation; this does not affect the validity of the study but remains unclear

Assessment: Inadequate (set-up and analysis of data is unclear; no confidence can be placed in any conclusion that LLLT is more effective than placebo)