



Low Level Laser Therapy & lower back clinical research

[Djavid GE, Mehrdad R, Ghasemi M, Hasan-Zadeh H, Sotoodeh-Manesh A, Pouryaghoub G (2007)

In chronic low back pain, low level laser therapy combined with exercise is more beneficial than exercise alone in the long term: a randomised trial.

***Australian Journal of Physiotherapy* 52: 155–160]** (Gam et al 1993, Jacobsen et al 1997, Djavid et al 2003, Chow and Barnsley 2005).

It has been suggested that laser therapy may act by stimulating ligament repair (Reddy et al 1998), by anti-inflammatory effects (Sakurai et al 2000, Bjordal and Baxter 2006), and/or by reducing interstitial swelling by stimulating the motoricity of lymphatics (Carati et al 2003, Kaviani et al 2006). There is also *in vivo* and *in vitro* evidence that 830 nm laser inhibits A α and C fibre transmission (Tsuchiya et al 1993, Tsuchiya et al 1994). It is possible that laser-induced neural blockade may then lead to long-term altered nociception, analogous to the prolonged analgesia seen in some patients with local anaesthetics (Arner et al 1990). The repeated application of laser may reduce tonic peripheral nociceptive afferent input to the dorsal horn and facilitate reorganisation of synaptic connections in the central nervous system producing pain modulation (Coderre et al 1993, Mense 1993).

Low level laser therapy may also be an effective adjunctive or alternative treatment for chronic low back pain with avoidance of systemic drug use (Basford et al 1999, Gur et al 2003). Because of the significant placebo response rate in clinical trials, non pharmacologic treatments require careful investigation to ascertain effectiveness. However, even though laser therapy is available in many clinics, it has not yet received FDA approval and the efficacy of laser therapy is controversial. Limitations of previous human studies and the application of an inadequate dose in our own previous studies lead us to choose a higher dose. In addition, we were interested in laser therapy as an adjuvant therapy to a conventional modality. The specific research questions for this study were:

1. In chronic low back pain, is low level laser therapy more effective than placebo-laser therapy plus exercise at decreasing pain, increasing lumbar range of motion, and reducing disability? 2. In chronic low back pain, is low level laser therapy plus exercise more effective than placebo-laser therapy plus exercise at decreasing pain, increasing lumbar range of motion, and reducing disability?

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