



## **Low Level Laser Therapy & Arthritis - Knee testimonials followed by clinical research**

### **Knee Injury**

#### ***Adrian Dahlheimer, Dayton, MN***

I injured my right knee in 1961. 47 years later, I missed a step and slipped on ice ... all the old pain returned. At a Healing Light seminar in Minneapolis, I had a QLaser demonstration on my knee, and was impressed enough with the results to purchase my own Q1000. Thanks to Dr. Lytle for designing and manufacturing the Q1000 - I don't know what I would do without it!

#### ***Audrey Miller***

I must say that you have a great product. I have used it on several different pains & problems and I have had great results with all of them. These include wasp stings, poison ivy, joint stiffness, fatigue, a very bad sinus infection, and I also walked on a long rusty nail.

The most recent problem was when my husband had a dry cough after he had been laid up in the hospital for a whole week. He could not get it loosened up, even after he was given several breathing treatments several times a day. I brought the LLT unit (Q10) to the hospital and just a few hours after I used it on his lung area, front and back, he coughed up a mouthful, the next morning he coughed up some more. After that second time his lungs cleared up and he no longer had the dry cough.

Another thing, my son Pat had surgery several years ago for a knee injury. He put his bad knee down on a piece of metal and it caused him to limp in pain. After one treatment he had relief right away.

Thank again for such a helpful product.

***David Winn, Colorado Springs Colorado***

Two years ago I was house boating on Lake Powell when a chance wave rocked the houseboat. It was an awkward position, straddling a railing and my left knee was dislocated. I clearly heard the knee pop out of joint, and immediately a lost the ability to walk or support my own weight. I was assisted into a sitting position and immediately began using the Q 1000 laser above, below, and all around my knee. Since we are out in the middle of the desert, the only therapy that was available was ice, anti-inflammatory, and the laser. Over the course of the next several days I continued to use the laser anywhere from two to five times a day. By the second day I was able to walk unaided, although I did have some pain and considerable limitation of movement. After the return to civilization, I had three appointments with a chiropractor, the few acupuncture appointments, and I continued to use the laser on a daily basis. This régime, when combined with some nutritional supplements, resulted in the complete relief of symptoms, and my ability to return to normal function and exercise. As far as I can tell my knee is completely recovered except for occasional twinges. I believe the laser eliminated the need for surgical reconstruction of my knee, and I will be forever grateful that I had the laser with me and available for immediate treatment. It's little wonder I carry the laser everywhere I go now.

***Doug Phillips, Rapid City, SD***

45 years old and have played multiple sports all my life. In 1990 I ruptured the Anterior Cruciate Ligament (ACL) in my right knee, and was told by two different orthopedic surgeons that I would need total knee replacement. I didn't have the surgery, and continued as best I could an active lifestyle while fighting the pain with a combination of anti-inflammatory drugs and prescribed pain killers - neither of which worked very well at all. I started lasering for about 3 minutes before and after playing that first day. The results were amazing! I was able to play a full hour and a half of racquetball and go back to work without any pain or inflammation! I continued to use the laser approximately 3 times per week for the next 3 weeks, and continue to be amazed by what low level laser therapy has done for me. My right knee is pretty much back to normal, with no pain and no inflammation. Thank you Dr. Lytle for introducing me to this

incredible equipment!

## **THE EFFECT OF LOW POWER LASER THERAPY ON OSTEOARTHRITIS OF THE KNEE**

Basirnia A., Sadeghipoor G., Esmaeeli Djavid G. et al. Treatment was performed on 20 patients, aging from 42 to 60 years. All patients had received conservative treatment with poor results. Laser device used for this treatment was pulsed IR diode laser; 810 nm wavelength once per day for 5 consecutive days, followed by a 2-day interval. The total number of applications was 12 sessions. Irradiation was performed on 5 periarticular tender points, each for 2 min. The treatment outcome (pain relief and functional ability) was observed and measured according to the following methods: 1) Numerical rating scales (NRS), 2) Self assessment by the patient, 3) Index of severity for osteoarthritis of the knee (ISK), 4) Analgesic requirements. We achieved significant improvement in pain relief and quality of life in 70% of patients, comparing to their previous status ( $p < 0.05$ ). There was no significant change in range of motion of the knee.

## **Improvement of pain and disability in elderly patients with degenerative osteoarthritis of the knee treated with narrow-band light therapy.**

**Stelian J, Gil I, Habot B et al.** J Am Geriatr Soc. 1992; 40: 23-26.

In an Israeli study the effect of laser therapy in degenerative osteoarthritis (DOA) of the knee was investigated in a double blind study among 50 patients. One group received infrared (GaAlAs) and one red (HeNe) laser. Only the first group could be blinded, while the latter was open. Patients were treated twice daily, 15 minutes each time, for 10 days. The patients treated themselves after instruction. Total dose for each session was 10.3 J for red and 11.1 for infrared. Continuous mode was used for 7.5 minutes, pulsed for 7.5 minutes, rationale not stated. There was a significant pain reduction in the laser groups as compared to the placebo groups. There was no significant difference between the red and the infrared group. The Disability Index Questionnaire also revealed an improvement in the laser groups. All patients in the placebo group required analgesics within two months after laser therapy while the patients in the laser group were pain free ranging from 2 months to 1 year.

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## **In vivo Study of the Inflammatory Modulating Effects of Low Level Laser Therapy on iNOS Expression Using Bioluminescence Imaging.**

**Moriyama Y, Moriyama EH, Blackmore K, Akens MK, Lilge L.** Ontario Cancer Institute Princess Margaret Hospital.

This study was designed to demonstrate that bioluminescence imaging (BLI) can be used as a new tool to evaluate the effects of low level laser therapy (LLLT) during in vivo inflammatory process. Here, the efficacy of LLLT in modulating inducible nitric oxide synthase (iNOS) expression using different therapeutic wavelengths was determined using transgenic animals with the luciferase gene under control of the iNOS gene expression. Thirty transgenic mice (FVB/N-Tg(iNOS-luc)Xen) were allocated randomly to one of four experimental groups treated with different wavelengths ( $\lambda=635, 785, 808$  and  $905\text{nm}$ ) or a control group (non-treated). Inflammation was induced by intraarticular injection of Zymosan A in both knee joints. Laser treatment ( $25\text{mW}\cdot\text{cm}^{-2}$ ,  $200\text{ s}$ ,  $5\text{ J}\cdot\text{cm}^{-2}$ ) was applied to the knees 15 minutes (or min) after inflammation induction. Measurements of iNOS expression were performed at various times ( $0, 3, 5, 7, 9$  and  $24\text{h}$ ) by measuring the bioluminescence signal using a highly sensitive charge-coupled device (CCD) camera. The results showed a significant increase in BLI signals after irradiation with  $635\text{nm}$  laser when compared to both the non-irradiated animals and the other LLLT treated groups indicating wavelength-dependence of LLLT effects on iNOS expression during the inflammatory process. Histological analysis was also performed and demonstrated the presence of fewer inflammatory cells in the synovial joints of mice irradiated with  $635\text{nm}$  compared to non-irradiated knee joints. BLI demonstrated an action spectrum of iNOS gene expression following LLLT in vivo.

Qlaser Wellness Solutions  
Michael F. Lagana, President  
708 Route 35 N., Neptune, NJ 07753  
732 866-4226  
Michael@Qlaserws.com