

Laser Therapy in the Management of Fibromyalgia

Therapeutic low-level laser has good pain relieving and anti-inflammatory effects and has been shown to increase the quality of life in Fibromyalgia patients.



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Low Level Laser Therapy in fibromyalgia (FM) treatment offers healthcare professionals another option of care for this patient group. It has been shown to be effective in alleviating FM pain in several studies and the author gives precise information about the procedure in the following article. Low Level Laser therapy together with other modalities including medications suggests another positive multidisciplinary approach to FM treatment.

— Rae Marie Gleason
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Fibromyalgia is a mysterious and elusive rheumatic disease causing a wide variety of symptoms that vary greatly from patient to patient. Widespread, deep burning pain is perhaps the most frequent symptom. Fibromyalgia pain occurs more commonly in the trunk, low back, hips, and shoulders. It is rare in the hands and feet. Onset is usually gradual and can interfere with even simple daily activities.

Additional symptoms associated with fibromyalgia include fatigue, sleep disturbances, morning stiffness, headaches, irritable bowel-like symptoms, memory problems, anxiety and depression. Fibromyalgia can present with flu-like symptoms such as body aches, fatigue and digestive changes. Joint and muscle pain may increase at night, waking the patient from sleep as well as morning stiffness and soreness. Symptoms tend to be episodic and can last from days to months or years.¹

Researchers estimate that approximately 5 million Americans age 18 or older are afflicted with fibromyalgia syndrome. Eighty to ninety percent of those are female, although children and men can be also be affected. Most people are diagnosed during midlife. People with certain rheumatic diseases—such as rheumatoid arthritis, systemic lupus erythematosus (commonly called lupus),

or ankylosing spondylitis (spinal arthritis)—may be more likely to have fibromyalgia.

The exact cause of fibromyalgia is unknown but is probably multifactorial. Many people associate the development of symptoms with an unusually stressful or traumatic event such as an auto accident. It is also thought that a malfunction of how the brain and nervous system process pain may be involved.

A diagnosis is usually made based on criteria established by the American College of Rheumatology (ACR) and a history of widespread pain lasting more than three months and the presence of diffuse tenderness. Pain is considered to be widespread when it affects all four quadrants of the body, meaning it must be felt on both the left and right sides of the body as well as above and below the waist. ACR also has designated 18 sites on the body as possible tender points (see Figure 1). To meet the strict criteria for a fibromyalgia diagnosis, a person must have 11 or more tender points, but often patients with fibromyalgia will not always be noticeably tender, especially men.

Conventional treatment usually consists of analgesics of varying potencies covering the whole gamut from acetaminophen to tramadol, NSAIDs such as aspirin, ibuprofen and naproxen, as well as antidepressants such as tricyclic antidepressants

like amitriptyline and cyclobenzaprine.² More recent FDA-approved pharmaceuticals include the SNRI's (Cymbalta® and Savella®) and anticonvulsants, including Lyrica®.

Low Level Laser Therapy

Therapeutic laser has been shown to be a complementary procedure that can provide considerable pain relief and increase the patient's quality of life.³

There are several extraordinary effects that have been observed with therapeutic

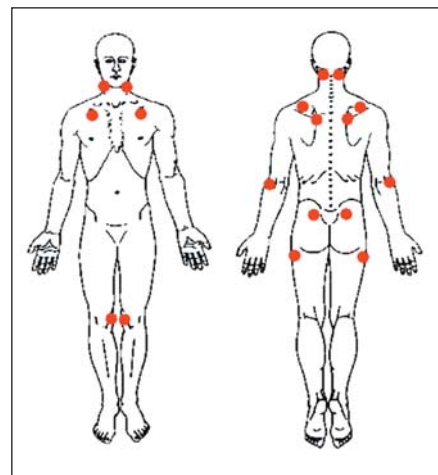


FIGURE 1. The location of the nine paired tender points (18 total) that make up the 1990 American College of Rheumatology criteria for fibromyalgia.



FIGURE 2. Treatment of low back area with a GaAs laser.



FIGURE 3. Close up of treatment of the low back with a GaAs laser.

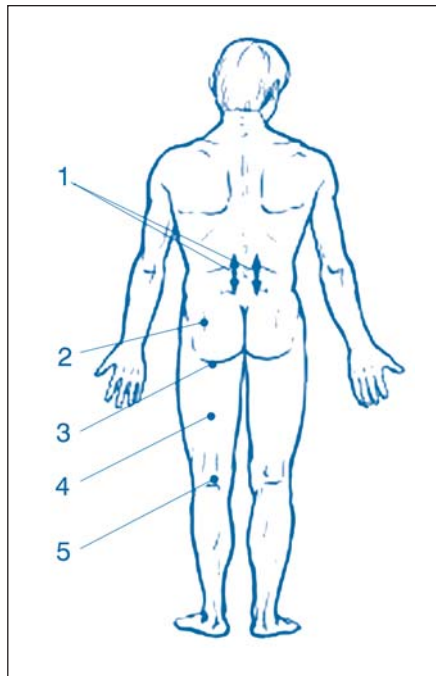


FIGURE 4. Acupuncture points that can be effectively stimulated with laser for the treatment of back pain.

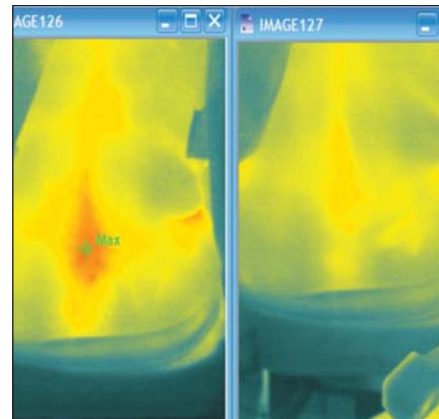


FIGURE 5. Pre- and post-treatment thermal imaging of lower back of fibromyalgia patient treated with GaAs low level laser on acupuncture points (photos from the author's patient files).

lasers, and phototherapy in general, that make laser therapy unique among the various healing modalities available today. Photobiomodulation produces changes in oxidation/reduction status of the mitochondria which lead to dramatic increases in ATP synthesis. Activation of the sodium/potassium pump alters the cell membrane permeability to calcium.

Phototherapy has been shown to effect cellular activity in the following ways:

- stimulates cell growth,
- increases cell metabolism,
- improves cell regeneration,
- invokes an anti-inflammatory response
- promotes edema reduction,
- reduces fibrous tissue formation,
- stimulates nerve function,
- reduces the production of substance P,
- stimulates long-term production of nitric oxide,
- decreases the formation of bradykinin, histamine, and acetylcholine, and
- stimulates the production of endorphins.⁴

Selected Studies

Following are descriptions of several applicable studies using low level laser therapy in treating fibromyalgia patients.

Ashendorf found consistent pain relief

in patients with fibromyalgia in a pilot study. Sleep was improved with some regularity due, in part, to the decrease in pain. Improvement in paresthesias of the limbs were fairly consistent.⁵

Longo treated 846 patients with fibromyalgia over a 15-year period with diode and CO2 lasers. Approximately 2/3 of the patients experienced reduced pain and increased mobility.⁶

Gur performed a single-blind placebo controlled study of 40 female patients with fibromyalgia utilizing a GaAs laser. Patients were treated daily for two weeks. The treatment group had considerably less pain, muscle spasm, morning stiffness and tender points.⁷

Gur performed another study examining the effectiveness of laser therapy and low dose amitriptyline therapy in fibromyalgia patients. Seventy five fibromyalgia patients were randomly assigned to placebo, laser, and amitriptyline groups (25 each). All patients were evaluated based on improvement of pain, number of tender points, skin fold tenderness, morning stiffness, sleep disturbance, muscle spasm and fatigue. Depression levels were determined and monitored via a psychiatrist utilizing a Hamilton Depression Rate Scale. Patients in the laser group were treated at each tender

point daily for two weeks. Patients in the amitriptyline group took 10mg nightly at bedtime. The study suggests that both laser and amitriptyline are effective on clinical fibromyalgia symptoms and quality of life. It also suggests that the GaAs laser is safe and effective as a stand alone modality or in combination with other treatments.⁸

Discussion

Clinical experience has shown that laser treatment of the fibromyalgia patient needs to be performed carefully—proceeding slowly with relatively short treatment times—especially in the early stages of treatment in order to avoid a healing crisis. Initially, treatment times might be as short as 20–30 seconds per point until patient tolerance is determined (see figure 2 and 3). Patients may experience either immediate relief or delayed relief so we need to allow enough time to pass after the treatment session to assess their response to laser therapy before repeating.

Laser therapy is applied to the previously-mentioned tender points and related acupoints in addition to the areas of pain such as the low back, upper back, etc. (see Figure 4).

One of the author's patients with chronic fibromyalgia of several years duration is treated with a GaAs low level laser for approximately 2–3 minutes per acupoint. She reports noticeable relief by the end of the treatment sessions. This is a palliative procedure in her case but gives her days to weeks of relief between visits.

Conclusion

Therapeutic laser can be a welcome adjunct to other therapies in the management of fibromyalgia. It is relatively economical and safe and, if a laser is acquired for home use, can be self-applied by the patient at home. ■

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References

1. <http://www.fmnetnews.com/basics-symptoms.php>. Accessed 1/28/10.
2. [http://www.niams.nih.gov/Health_Info/Fibromyal-](http://www.niams.nih.gov/Health_Info/Fibromyalgia/default.asp)

[gia/default.asp](http://www.niams.nih.gov/Health_Info/Fibromyalgia/default.asp). Accessed 1/28/10.

3. Tuner J and Hode L. The Laser Therapy Handbook. Prima Books AB, Sweden. 2007. p 147.
4. Kneebone WJ. Practical Applications of Low Level Laser Therapy. Pract Pain Manag. Nov 2006. 6(8): 34-40.
5. Ashendorf D. The Ability of Low Level Laser Therapy to Mitigate Fibromyalgic Pain. The CFIDS Chronicle Physician's Forum. Fall 1993.
6. Longo L et al. Laser Therapy for Fibromyositic Rheumatism. J Clin Las Med Surg. 1997. 15(5): 217-220.
7. Gur A, Karokok M, Nas K, et al. Efficiency of Low Power Laser Therapy in Fibromyalgia: A Single-Blind Placebo Controlled Trial. Lasers Med Sci. 2002. 17(1): 57-61.
8. Gur A, Karokok M, Nas K, et al. Effects of Low Power Laser and Low Dose Amitriptyline Therapy on Clinical Symptoms and Quality of Life in Fibromyalgia: A Single-Blind Placebo Controlled Trial. Rheumatol Int. 2002. 2(5): 188-193.