

Integrating Low-Level Laser Therapy and Oriental Medicine, Part One



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This is the first in a series of articles on low-level laser therapy (LLLT) and how it may be integrated within the practice of Oriental medicine.

LLLT is energetic medicine. However, almost all investigations into its nature thus far have come from a biochemical model. Those who are and will be looking into it from an energetic model are exploring virgin territory.

Over 2,500 studies have already been performed using LLLT, and it is used throughout Europe and Asia to treat a wide variety of conditions. Therapeutic applications of LLLT which have shown promising results include:

- acne
- arthritis
- back pain
- carpal tunnel syndrome
- cerebral palsy
- dental applications
- fibromyalgia
- headaches
- hearing disorders
- herpes
- maxillofacial disorders
- musculoskeletal disorders

- myofascial pain
- lymphedema
- migraines
- nerve regeneration
- neuralgia
- neuropathy
- Peyronie's disease
- prostatitis
- sinusitis
- scars
- skin disorders
- Sjogren's syndrome
- sports injuries
- tendonitis
- wound healing

Laser FAQ

What is a laser?

A laser is an amplifier of light. The letters LASER are an acronym, signifying "light amplification by stimulated emission of radiation."

What are the properties of laser light?

There are two properties:

1. Monochromatic. Laser light has a very narrow bandwidth.
2. Coherent. The light is well ordered and synchronous.

Like a musical instrument holding a single note, a laser emits pure light at a specific wavelength rather than over the wide spectral distribution of most light sources. Laser light is extremely well-organized. Photons emitted from a laser source have been compared to soldiers marching in precise order. We call this coherence; it is an exclusive property of lasers.

Two common misconceptions about lasers are that 1. beams are always parallel and 2. all lasers are high-powered. Therapeutic lasers are often designed with divergent beams as a safety precaution, and they may operate at very low levels of power.

What is low-level laser therapy, and who can use it?

LLLT is the therapeutic application of laser light at low intensity. It is commonly performed using lasers in the near infrared or visible, red portions of the spectrum. As a contrast to surgical lasers which usually have outputs greater than 30 watts, therapeutic lasers have a maximum power output of 500 milliwatts or less and are classified by the FDA as nonsignificant risk devices.

Although low-level lasers are considered a nonsignificant risk, the FDA also classifies them as investigational. In order for a practitioner to use therapeutic lasers in the U.S., they must be within one's scope of practice, and they must be used in research according to specific guidelines.

Research with LLLT must be overseen by an independent investigational review board (IIRB). The primary purpose of an IIRB is to protect the safety and rights of human subjects who voluntarily participate in LLLT research. Massachusetts and Florida are two states that already have LLLT within their scope of practice and investigational review boards in place to oversee this research.

What are the effects of LLLT?

The physiological effects of laser light at low intensity are not completely understood, but what is known from a biochemical model is often summarized in terms of three main effects:

- biostimulation/tissue regeneration
- anti-inflammatory
- analgesic

LLLT increases metabolism at the cellular level, causing accelerated ATP production; protein synthesis; DNA and RNA formation; and many positive markers. At the tissue level, circulation increases during and after the administration of LLLT; new blood and lymphatic vessels are formed; and collagen synthesis is enhanced. The biochemical model attributes pain relief to a host of factors, including elevated endorphins and acetylcholine; nerve blockade; decreased synthesis of bradykinin; decreased release of histamine; and increased microcirculation to correct ischemia and acidosis.

How does one integrate LLLT into Oriental medicine?

Just as depth of insertion and technique alter the effects of traditional needling, so may wavelength, power and pulsing modify the energetic response by the body of LLLT. Light is an energetic bias like needles, electrical stimulation and herbs. The body's response is activated by differences.

Are there risks associated with LLLT?

There is no destruction of tissue and relatively little risk associated with low power lasers.

While low-level lasers are comparatively safe, there is a potential for damage to the eye. The beam in LLLT, if directed through the lens of the eye, could burn the retina. In over 30 years of research and clinical practice, however, an adverse reaction of this or any other type has never been documented.

To operate a laser safely, it is important to understand the nature of one's equipment. The power, wavelength and characteristics of the laser beam (its divergence, convergence or parallel nature) all influence the level or risk. Knowledge may be even more valuable than protective goggles.

Obviously, a high power laser is much riskier than a weak one. An infrared laser poses a greater risk than a visible, red laser with the same power and beam characteristics because the light is invisible and therefore does not promote a blink response.

The following safety measures are required of acupuncture physicians participating in research with low-level lasers in Florida:

1. Do not stare into the beam or shine it into an eye.
2. Do not knowingly shine the laser beam over a cancerous tumor.
3. Do not shine the laser beam onto the unclosed fontanelles of babies and children.
4. Do not use the low-energy laser with pregnant women (except during the last few weeks of pregnancy on B167 to help correct the "breach" position of a fetus).

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About the author: David Rindge, DOM, AP, RN, is the latest addition to Acupuncture Today's list of distinguished columnists. Dr. Rindge has over 27 years experience in Western and Eastern medicine as an acupuncture physician, registered nurse, respiratory therapist, perfusionist and hypnotherapist. He has been instrumental in helping to establish the Florida Independent Investigational Review Board for Laser Acupuncture Research and is on the board of directors of the Florida State Oriental Medical Association. Dr. Rindge integrates traditional methods of Oriental medicine with low-level laser therapy and multiple strategies to restore health and well being in his clinical practice in Melbourne, Florida.

If you would like to comment on Dr. Rindge's article, please contact *Acupuncture Today* by fax (714-899-4273) or e-mail (Editorial@AcupunctureToday.com). You are also encouraged to discuss Dr. Rindge's article on his "Talk Back" forum at www.AcupunctureToday.com/columnists/rindge.