

Acupuncture and Low-Level Laser Light

John Amaro, LAc, DC, Dipl. Ac.(NCCAOM), Dipl.Med.Ac.(IAMA)

My first introduction to laser was in 1973 by a friend and colleague who had purchased a laser device in Austria for his clinic in the U.S. He had attended an international presentation on laser which was perhaps the first professional presentation of laser for clinicians. On his way home from the airport, he had to go right by my office, so he stopped to show off his acquisition. This was the first time I had ever seen or heard of a laser, other than the one in the movie [Goldfinger](#) that had threatened the life of James Bond. However, my friend insisted I use it in place of needles for one week in my practice and he would pick it up on his next visit.

After looking at this strange box for the next few days, I finally gained enough nerve to actually use it on a difficult shoulder case that, to my utter amazement, had an almost miraculous response. Following this and several other similar dramatic responses to a variety of musculoskeletal conditions, I was convinced I had to have a laser for myself. The problem was they were not available in the U.S. As months went by and I continued my search for an affordable laser (preferably from America), my interest grew along with my absolute desire to own one of these laser devices. My friend loaned me his laser on several occasions and I became sold on its merits.

As fate would have it, my friend's laser malfunctioned and was unable to operate. Since there was no one in America who had ever seen a laser, let alone knew how to build or repair one, it looked as if the only solution was to return it to Austria and see if it could be repaired.

A friend's son who was a 17-year-old science whiz thought he could repair it. Within a couple of days, the broken laser was operational again. Word of this caught the attention of a local businessman related to the young man, who thought these laser units could be manufactured here in the U.S. and improved upon considerably. This was the birth of the first North American company that began manufacturing lasers for general medical use.

Within a very short time, another company developed that had a connection with the first one but became a competitor. Due to the diligence and desire to make the best product available, these two companies continually developed the best laser systems available at that time and could be compared to any laser system offered internationally.

By this time, the vast majority of my very large acupuncture and chiropractic practice was being treated with laser application. When my success caught the attention of the Kansas City Royals baseball team, I treated their players' extremely difficult and nonresponsive orthopedic conditions with incredible clinical response. I continued to do so for nearly seven years. I was the treating doctor for those difficult cases when the team [won the World Series in 1985](#). As a result of this, I was sought after to treat a variety of sports figures and entertainment celebrities throughout the country with laser. This also included race horses in Kentucky and show horses in Virginia.

Interestingly enough, the lasers we used were the Helium Neon 632.8nm with 1mw coherent laser light. The laser I used also had a combination of low-tech transcutaneous nerve stimulation within the head of the laser. Thus, the patient received a combination of very mild laser and electrical

stimulation. The laser light was delivered through a fiber optic, which altered the beam considerably. Those lasers were nothing like the ones available today, however even at just 1mw, it produced absolutely irrefutable clinical response. Today, most lasers for clinical application are 635nm with 5mw or more laser diodes that are portable and produce very favorable response. Even though the lasers today are much more powerful, I have always questioned if more is really necessary when I recall my early successes with low-power laser light.

Low-level laser therapy, also known as low-intensity laser therapy or photobiomodulation, are the generic terms for the therapeutic application of low-output laser and monochromatic super luminous diodes less than 500mw. These light sources are used to treat pain and stimulate tissue repair. It produces these effects by affecting cell activity. Many authorities will argue that it takes a powerful laser at 10 to 100mw to absorb into the body. However, my personal experience in using very low-level mw laser and experiencing the dramatic clinical response I have witnessed, questions this logic. Low-level laser therapy is not to be confused with high-intensity lasers operating in the area of 30w or greater. These are considered surgical lasers and produce heating to the point of vaporizing tissue.

The most important part of laser therapy is the wavelength, which determines the color of the light. It must be compatible with the human body so that the photons produced will be absorbed. The mitochondria of the cell contain cytochromes known to absorb photons of certain wavelengths. Cytochrome C oxidase absorbs red light, which ideally is focused at 632.8nm. However most superluminous diode lasers produce 635nm all the way up to 690nm (as in a laser pointer). The question is, do laser pointers work within the body to produce positive effects. Even though they are not the ideal modality, they will have a positive outcome for no other reason in that they are operating at the color of red. The absorption of the photons act as a stimulus that triggers cell activity, resulting in accelerated healing and pain relief.

Laser light produces pain control by modulating cell activity. Laser can stimulate the healing of chronic and acute wounds by the absorption of the wavelength of the light. Once cells have absorbed the photons, a cascade of biochemical events occurs. The conditions known to be helped significantly by laser are carpal tunnel syndrome, hyper-extension/flexion neck injuries, chronic wounds, trigeminal neuralgia, epicondylitis, neck/back pain, fibromyalgia, tendonitis, bursitis, migraine, plantar fasciitis, headache, rheumatoid arthritis, muscle pain and Morton's neuroma, in addition to other typically seen orthopedic issues within a clinical practice.

A window of biostimulation has shown by the fact the parameters include wavelength (nm), power of intensity (mw) and energy dose through the time the laser is applied. If the dose is too low, it is ineffective. If it is too high, it may be damaging. In pain control, the deeper the injury, the more energy must be applied at the surface to ensure the dose reaches the target. This is applied through more milliwatts and/or time or both. I have personally discovered that the application of laser to an acupoint to replace the needle will take place within 12-15 seconds at 635nm/5mw. However, it may take several minutes of the same intensity to properly "surround the dragon" in an affected joint or body part.

The administration of laser to substitute acupoint stimulation by needles is fast becoming the standard throughout numerous countries. I personally do not feel needles will be taken over completely by laser, just because of the historical significance of the art. However, laser offers a very viable alternative for weak, elderly or young patients, or those who are simply needle-phobic. If you have never used laser, it is beyond time you consider adding this exciting dimension to your practice.

