

## Lasers and *De Qi*

David Rindge, DOM, LAc, RN

We have all the tools to bring health care to a higher level, while making it cost-effective and kinder. Lasers and other energy-based treatments promise to revolutionize the ways we care for one another across many specialties and disciplines, perhaps even taking our practice of acupuncture to new levels.

The single greatest reason that laser light holds such promise may be that it adds easily accessible energy in order to profoundly stimulate all cell and tissue activities and functions, even increasing overall vitality in living systems. For this reason, laser therapy is more like an ultimate form of moxa than acupuncture.

New kinds of laser devices have become available. In addition to offering laser therapy's well-known effects to promote biological function, regenerate tissue, reduce inflammation and alleviate pain, some of these new instruments are designed and intended to elicit a stimulus/response and be practiced in ways similar to traditional acupuncture.

### Laserpuncture vs. Laser Acupuncture

What is meant by the terms *laserpuncture* and *laser acupuncture*? *How do these methods differ from acupuncture with needles and from laser therapy?* *Laserpuncture* is a term commonly used to describe the sequential treatment of acupoints with a laser single probe. Since points are lasered singly, this process is time-consuming. It is also fundamentally different from traditional acupuncture, in which one or more needles are generally inserted, stimulated and retained as a group for a period of time.

It has been proposed that *laser acupuncture* might be defined as the placement of one or more sources of laser light over acupoints, allowing for simultaneous stimulation and unattended treatment. In Europe, this technique has also been called *laser needle acupuncture* or *laser needles*. It has also been suggested that in order to qualify as genuine acupuncture, the laser stimulus must be strong enough elicit a response similar to that of needle acupuncture.

In 2000, [Gerhard Litscher](#) of the Department of Biomedical Engineering and Research at the Medical University of Graz, Austria, first demonstrated that stimulating vision-related acupuncture points both with traditional acupuncture needles and laser acupuncture at sufficiently high intensity produced [significant increases](#) in the velocity of blood flow in the ophthalmic artery.<sup>1</sup> Litscher succeeded not only in objectively measuring the effects of needle acupuncture on the brain but also in proving that laser systems may produce effects largely comparable to needles.

### *De Qi*, Needles and Lasers

According to TCM, one must first obtain *qi* for acupuncture to be effective. In traditional acupuncture, metal needles are inserted and stimulated until the *de qi* sensation is evoked. Patients may describe this feeling as a heaviness, numbness or like an electrical current running

along the treated meridian.

*De qi* sensations may also be achieved with laser light of sufficient intensity. The threshold for acupuncture-like effects with lasers appears to begin at an intensity of around 1 watt/cm<sup>2</sup>. Further concentration of laser energy may produce [greater effects](#).<sup>2</sup>

It is important to understand that laser light may be concentrated to achieve high intensities yet still be given at relatively low average output powers. This is accomplished by reducing the area of the laser beam. Just as the force of water flowing languidly from a garden hose may be intensified and condensed by closing off most of the lumen of the hose with one's thumb, so laser light may be concentrated by narrowing the beam to greatly increase depth of penetration and stimulus on a given point. Since laser light disperses once in contact with tissue, even when the beam has been concentrated to intensities of 20 watts/cm<sup>2</sup> or more at a point with a diameter of a few millimeters on the skin, it is still possible to administer treatment comfortably and safely, as long as the output power is modest.

### Laser Needle Acupuncture

When I visited Germany last year to attend the annual conference of the [European Biological Laser Therapy and Acupuncture Association](#), I had the opportunity to observe laser acupuncture using multi-channel laser-needle systems. I also was able to speak at length with practitioners, some of whom had been using these devices for years. All with whom I spoke gave this form of treatment high marks. Many described it as the central therapy in their clinics.

One of the big attractions of this kind of laser acupuncture is that once the lasers are in place, treatment can be unattended. As anyone administering laser therapy via hand-held probes knows, it is often time-consuming. The systems I saw used eight to 12 separate channels and allowed clinicians to select among several laser wavelengths. Infrared diodes of 810 nm and 150 mw were the most popular. Red diodes of 680 nm and 50 mw ran a close second. Most used some of each. The laser diodes themselves were housed within the control unit. Fiber-optic cables suspended from an adjustable arm conducted the light and could be affixed using clear plastic tape and a metal sleeve to direct laser light precisely over body points. Scalp and ear points were treatable with the assistance of a headband and guy wires to turn and support the fiber-optic cables.

Personal experience is necessary to understand and communicate the essence of a therapy. I am looking forward to gaining such experience first-hand and letting you know about it in a future article. In the meantime, I am very grateful to Dr. Volkmar Kreisel, who kindly agreed to share his experience. He is a fully trained acupuncturist who practices Oriental medicine four days a week and practices anesthesiology one day a week.

He writes, "As you know, I have used laser needle acupuncture for some 1,000 treatments. The patients normally do not notice when the laser is started. So in the beginning of the treatment they also do not feel any *de qi* sensation. Just as well, they feel no heat or any other sensation on the skin. Several minutes later (mostly 5 to 10 minutes) after starting the laser, many patients report a pleasant warm and sometimes vibrating feeling in some treated areas. This is really similar to a *de qi*. It does not arise immediately, but it intensifies slowly over some minutes and continues until the end of the treatment. In some cases, it spreads from distal to central and is very relaxing. Frequently this *de qi* does not appear on every treated acupuncture point. It is often projected into symptom points or regulating points like *he gu*. Also the frequency the laser is pulsed with has an influence on which points react.

"There are some studies comparing the effects of laser needles to metal needles. They have shown that the initial stimulation of metal is higher than the initial stimulation of laser, but it fades earlier (it is like a spike). Laser needle stimulation initially is not as strong as metal-needle stimulation, but it continues much longer and rises during the whole treatment. This correlates to my own experience. By the way, I have treated myself with laser needles and I have felt this smooth *de qi* sensation too.

"Frequently, I combine laser needle acupuncture with metal-needle ear acupuncture. In these cases, I mostly use similar points on the ear and on the body (such as hypothalamus and *he gu*) for intensification. For children and anxious patients, I only use laser needle acupuncture because it is completely painless. My youngest patients were 3 years old.

"An interesting case I treated last summer. It was a 7-year-old boy suffering paralysis of *n. facialis* [the facial nerves] and an incompletely closing eyelid related to an infection with *borreliosis* [Lyme disease]. After only two treatments with laser needle acupuncture, these symptoms faded. Two months later, the boy was without any neurological symptoms."

### References

1. Litscher G, Wang L, Wiesner-Zechmeister M. [Specific effects of laserpuncture on the cerebral circulation](#). *Laser Med Sci*. 2000;15(1):57-62.
2. Litscher G, et al. [Acupuncture using laser needles modulates brain function: first evidence from functional transcranial Doppler sonography and functional magnetic resonance imaging](#). *Laser Med Sci*. 2004;19(1):6-11.

MAY 2009