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About the Author

Curtis Turchin, M.A., D.C. has a bachelor's degree in pre-medical studies from the University of Southern California, a master's degree in Special Education from San Francisco State University,

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Laser Reduces Heart Attack

One of the hot areas in medicine is the use of stem, satellite and mesenchymal cells to rehabiliatate tissues damaged through disease and trauma. In this study, the reasearchers implanted laser-irradiated mesenchymal stem cells into the hearts of rats damaged by heart attack.

It was demonstrated that low-level laser therapy (LLLT) at 810 nm wavelength rehabilitated the area receiving those cells. In the area that received mesenchymal cells without LLLT, there was no improvement in the heart tissue. In fact, the LLLT treated hearts showed a **53% decrease in infarct size compared to hearts that were implanted with non-laser-treated cells!** Also the hearts implanted with laser-treated cells demonstrated a 5- and 6-fold increase in cell density.

This is one more example of how LLLT can significantly increase survival and/or proliferation of healthy tissue when there has been trauma or disease. (Photomed Laser Surg. 2009 Apr; 27(2):227-33)

Is Laser Similar to Acupuncture?

This study done by anesthesiologists at least takes a first step in answering that question. They compared a far infrared lamp, acupuncture, and infrared laser for their effect on ear acupoints. In the acupuncture group, an acupuncture needle was placed in the auricle of the ear for 20 min. The lamp group repeatedly received near infrared irradiation. The laser group continuously received 60 mW of laser irradiation. In the lamp and laser groups, the auricle was irradiated for 10 min with a contact probe at exactly the same points.

and a doctor of chiropractic from Palmer College. He is in private practice near San Francisco using manual therapies and lasers in a practice with a physician. He has published 3 books, more than 20 journal articles, and has been extensively interviewed on radio and television. Dr. Turchin is the author of the new text, ***Light and Laser Therapy: Clinical Procedures***, described as the authoritative text on clinical laser treatment as well as, ***Treating Addictions with Laser Therapy,*** the only book published on this subject.

Arteriolar diameter and blood flow velocity were measured to see if these treatments provided similar or different results. Maximum circulation was reached 20 min after the end of the acupuncture stimulation, and 10 min after the end of lamp and laser irradiation.

The three groups showed significant increases in arteriolar diameter when compared with the control group ($P < 0.005$). Blood flow velocity and blood flow rate showed similar trends to arteriolar diameter. Treatment effect persisted for 40-50 min after the end of stimulation and irradiation.

It was their conclusion that acupuncture stimulation and laser both increase the diameter of the local vessels and increase blood flow. There are other areas that need to be studied for us to know how these therapies are similar and different. However, now we know that their effect on blood flow is similar. (Anesth Analg 2009 Feb;108(2):635-40)

Hotter Lasers Not as Effective as Cooler Lasers (check source)

The Department of Bioengineering at the University of Toledo investigated the efficacy of 980 nm laser therapy on human fibroblast growth rates. They exposed the fibroblasts to varying intensities of laser light in an attempt to accelerate cell growth rate.

They found that high-intensity light negated the beneficial effects of laser exposure whereas lower intensity exposure promoted cell growth. They found that even very long exposure to low and medium intensity laser therapy accelerated the growth of cells using medium-intensity laser light, with no significant inhibition of cell growth.

However, higher intensity (hotter) lasers inhibited the growth of tissue. This is one more study, among many, proving the hotter, higher intensity lasers may fall short when it comes to stimulating healing. That is why at Apollo we have created powerful, cold lasers. There continue to be new studies published on a regular basis that confirm that hot lasers are fine for pain relief, but they can delay healing.(Photoderm Photoimm Photomed 2009 Aprl25(2):75-80)

Red Laser Best for Wounds

In this study phototherapy with the 633-nm laser was found to be quite promising for alleviating diabetic wound and burn healing and exhibited better results than other wavelength lasers and mixed wavelength LEDs. This found that the healing rate was normalized with phototherapy. In view of these interesting findings, they recommended that 633-nm laser therapy be given three times per week at a dose of 4-5 J/cm² per dose for diabetic burns, and three times per week at 2-3 J/cm² per dose for diabetic wound healing.

These doses are their recommended actual doses for humans, especially after major surgery in those with impaired healing, such as diabetics and the elderly.

This is one more study that extols the benefits of red light for more superficial treatments such as wounds and skin conditions, **whereas 800 to 900 nm wavelength appears to be better for neuromusculoskeletal treatment.** (Photomed Laser Surg 2009 Feb 4)

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I will try to bring you unbiased, evidence based information on a regular basis to help you understand this new and exciting modality. If you would like to see any particular topics or have any comments or suggestions, please email me, Curtis Turchin, MA, DC at: dr.turchin@yahoo.com (yes, that is dr dot turchin @ yahoo.com)

Sincerely,

Dr. Curtis Turchin

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