Will Low Level Lasers Help Dental Implants?

One area of dentistry that has seen excellent growth and scientific advancement has been with the use of implants. Outside the dental field, there have been multiple studies that prove that low level laser therapy (LLLT) stimulates bone growth through increased osteoblastic activity. However, newer studies are also showing improved bone growth with dental implants.

A new study out of the Periodontology Department of Tokyo Medical and Dental University used low-level laser irradiation to stimulate osteoblast proliferation. Higher proliferation rates were found with various combinations of irradiation parameters on days 1 and 3 and significantly higher proliferation was observed in laser-irradiated cells at a fluence of approximately 1.0-15.1 J/cm². These results suggest that low-level laser irradiation increases osteoblast proliferation and may be able to promote bone healing following periodontal implant therapy (Lasers Med Sci. 2010 Jul;25(4):559-69).

Another relevant study on rabbits noted improved implant stability with LLLT (Photomed Laser Surg. 2010 Jun;28(3):365-9). Some fascinating research was published in Lasers Surg Med 2009 Apr;41(4):298-304, where it was noted that LLLT might be helpful with osteonecrosis of the jaw caused by bisphosphonates (Fosamax and Boniva are examples), demonstrating more osteoblastic stimulation from LLLT.

At Apollo we are working with clinicians to help them treat both craniofacial pain and help them improve the healing of all types of wounds and trauma.

Lasers and Toenail Fungus

There has been quite a stir in podiatry over the use of lasers to treat toenail fungus. There seems to be a number of studies that show that as the nail temperature approaches 40-50ºC (106-122ºF) there is inactivation of the fungal spores.

The advantage of laser therapy is that infrared wavelengths lack the teratogenic danger presented by ultraviolet light and the side effects of oral anti-fungal medication.

In this randomized controlled study, they found that 85% of the eligible treated toenails were improved. Of the 16 toes with moderate to severe involvement, 63% were improved, as shown by clear nail growth of at least 3 mm. (J Am Podiatr Med Assoc. 2010 May-Jun;100(3):166-77).

At Apollo, we are presently researching how to develop the most cost effective way of accomplishing this
Can Low Level Lasers Really Kill Bacterial Sinusitis?

Among low level laser aficionados it is well known that LLLT, or Low Level Laser Therapy, helps sinusitis. However, although we have a lot of research to support the use of low level lasers with viral infections, the research on bacterial infection has been inconclusive.

A new study on acute bacterial rhinosinusitis has come out of the Department of Otolaryngology at Columbia University School of Medicine. These authors studied eight infected rabbits randomly allocated to two separate groups, each being exposed to different laser therapies. A near infrared laser with diffuser fiber tip was used in four rabbits. Nasal cultures were obtained before and after the laser treatments. Animals were killed 5-10 days after laser treatment and bacteriological/histological results were analyzed. A significant reduction in bacterial colony counts was achieved with laser therapy. Histological studies showed tissue integrity preservation without significant damage to nasal mucosa!

This pilot study shows an innovative method of bacterial killing without host tissue damaging and may have potential future clinical application (Am J Rhinol Allergy. 2009 Nov-Dec;23(6):e29-32). We know that LLLT can kill viruses and look forward to more research on LLLT for the treatment of bacterial infection.

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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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