

Effects of low level laser (diode 830 nm) therapy (LLLT) on human bone regeneration

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Tissue healing is a complex process that involves both local and systemic responses and the healing process of bone is much slower than that of soft tissues which is a great challenge of medical science. The use of Laser Therapy (LLLT) for wound/bone healing has been shown to be effective by modulating both local and systemic response by enhancing cellular & mitochondrial ion exchange, bone mineralization, nitric oxide formation, lymphatic circulation, osteoblast proliferation, effects on osteoblast gene expression, osteoclast inhibition (prevents bone mineral resorption) and by bone engraftment on synthetic materials. The result observed here is that the bone density in the laser treated group, at fracture site, at the end of 3rd week is equivalent to the bone density of control group at the end of 4th week of incidence. Treatment with 830 nm diode laser has substantially reduced the fracture healing time as well as improved the quality/quantity of callus formation of the patient; thus accelerates bone regeneration and enhance fracture healing. Laser biostimulative effects on bone could be a new dimension for bone regeneration which significantly reduce healing period, lessen cost of treatment and enhance patient compliance.

Biography

Mohammad Nazrul Islam has completed his MBBS degree from Dhaka University and later MSc (BME) from Gonobiswabidyalaya, Bangladesh. He is the founding Head of Biomedical and Medical Biotechnology Department of Shaheed Suhrawardy Medical College and Hospital, Bangladesh. He has published papers in reputed professional, national and international forum, journals and continues academic research work at Shaheed Suhrawardy Medical College, Institute and Hospital since 2007.

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