

Investigation of the Effective Parameters on the Wound Healing Process in Low Level Laser

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ABSTRACT

This study aimed to systematically assess the parameter-specific effects of low-level laser therapy (LLLT) on the wound healing process. Despite diverse methods being applied to induce wound healing, many wounds remain recalcitrant to all treatments. Photobiomodulation involves inducing wound healing by illuminating wounds with light emitting diodes or lasers. Although LLLT used on different in vitro, animal models, and clinical trial, wound healing is induced by many different wavelengths and powers, but at this time not clarified optimal set of LLLT parameters identified.

Considerable variations and weaknesses in the study designs and laser protocols limited the inter study comparison and clinical transition. However, repeated irradiations have elicited which wavelengths in the red, near-infrared range and energy density below 16 J/cm² have favorable responses. Current evidence showed that low level lasers with adequate parameters stimulated proliferation and modulated inflammation of the fibroblasts derived from human periodontal tissue. At the further time, in vitro studies with better designs and more appropriate study models and laser parameters are anticipated to provide for clinical studies and practice.

Keywords: Low Level Laser Therapy, Wound Healing, Laser Parameters