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Randomized Controlled Trial [Lasers Med Sci](#). 2018 Nov;33(8):1699-1706.

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Effects of Low-Level Laser Therapy on Soft and Hard Tissue Healing After Endodontic Surgery

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Abstract

The aim of this prospective study was to examine possible benefits of low-level laser therapy (LLLT) on soft and hard tissue healing after endodontic surgery. Seventy-six endo-surgery cases on maxillary incisors were included. The patients were assigned randomly into control and laser groups. In the laser group, gallium-aluminum-arsenide (GaAlAs) diode laser irradiation (810 nm, 129 mW, 3.87 J/cm²) was performed immediately after surgery and daily for postoperative 7 days from buccal and palatal surfaces (5 min for each side). In the control group, patients were not subjected laser therapy. The patients were compared in terms of pain, clinical and radiological findings, and life quality indexes [Oral Health Impact Profile-14 (OHIP-14) and General Oral Health Assessment Index (GOHA)]. Seventy-one patients completed the study (n = 37 for control group, n = 34 for laser group). The laser group showed better results in edema, wound healing, and the number of analgesic tablets used on the 1st, 3rd, and 7th postoperative days. Significant reduction in ecchymoses was observed in the laser group on the postop 3rd and 7th days. The patients had significantly lower pain on the 1st and 3rd postop days in laser group. The laser group showed significantly better results in OHIP-14 and GOHA indexes on postop days 1 and 3. The laser group showed significantly favorable results in terms of bone density, defect volume and area, and periapical index in the postop 3rd month. This study concluded that LLLT improved soft and hard tissue healing after endodontic surgery and also showed favorable effects on pain and life quality of patients especially in the early phase of healing period.

Keywords: Apical resection; Biostimulation; Diode laser; Endodontic surgery; LLLT; Low-level laser therapy.

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