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Randomized Controlled Trial

> [Photomed Laser Surg](#), 35 (4), 223-230 Apr 2017

Low-Level Laser Therapy in Enhancing Wound Healing and Preserving Tissue Thickness at Free Gingival Graft Donor Sites: A Randomized, Controlled Clinical Study

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Abstract

Objective: The aim of this study was to determine the effects of low-level laser therapy (LLLT) on wound healing at free gingival graft (FGG) donor sites.

Materials and methods: Forty patients requiring FGG were selected for this randomized, controlled, and double-blinded prospective clinical trial. The FGG donor sites were treated with LLLT and compared with an untreated control group. The Wound-Healing Index (WHI), tissue consistency, color match, and H₂O₂ bubbling test for the evaluation of complete wound epithelialization were recorded on the 3rd, 7th, 14th and 21st days. The pain-burning level, number of analgesics, and bleeding were recorded for 7 days. Donor area soft tissue thickness (TT) was measured at baseline and at the first month.

Results: The prevalence of Complete Wound Epithelialization was higher in the LLLT group than in the control group on the 14th day ($p < 0.001$). The bleeding was lower in the test group than in the control group during the first 2 days ($p \leq 0.001$). Higher WHI Scores were observed in the test group relative to the control group at all visits ($p \leq 0.001$). Color match scores were higher in the test group than in the control group at the first 3 visits ($p < 0.05$). The TT changed from 4.62 ± 0.79 to 4.71 ± 0.82 mm in the LLLT group and from 4.23 ± 0.62 to 4.01 ± 0.68 mm in the control group.

Conclusions: It can be concluded that LLLT enhances FGG donor site wound healing and preserves TT at palatal donor sites.

Keywords: low-level laser therapy; periodontology; tissue effects; tissue repair; wound; wound healing.

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