



Welcome, Dr. Brawn
[My Subscriptions](#) - [My Alerts](#) - [My Profile](#) - [Logout](#)

Search for

[Advanced Search](#) - [MEDLINE](#) - [My Recent Searches](#) - [My Saved Searches](#) - [Search Tips](#)

JOURNAL HOME
CURRENT ISSUE
ARTICLES IN PRESS
BROWSE ALL ISSUES
SEARCH THIS JOURNAL
JOURNAL INFORMATION
<ul style="list-style-type: none"> • Aims and Scope • Editorial Board • Author Information • Info for Advertisers • Contact Information • Pricing Information
SUBSCRIBE TO JOURNAL
RSS

More periodicals:

FIND A PERIODICAL
FIND A PORTAL
GO TO PRODUCT CATALOG

Volume 106, Issue 3, Page e6
 (September 2008)

◀ previous 20 of 53 next ▶

Combined New Technologies to Improve Dental Implant Success -- Quantitative Ultrasound Evaluation of NIR-LED Photobiomodulation

[Jerry Bouquot](#), [Peter Brawn](#)

FULL TEXT
FULL-TEXT PDF (40 KB)
CITATION ALERT
CITED BY
RELATED ARTICLES
EXPORT CITATION
EMAIL TO A COLLEAGUE
REPRINTS/PERMISSIONS
BOOKMARK ARTICLE

Article Outline

• [Copyright](#)

Background: Dental implants must be placed in healthy bone for successful osteointegration and stability. Low bone density (LBD) and ischemically damaged, desiccated bone both have a poor ability to remodel and are, therefore, contraindications for implants. Readily available diagnostic imaging devices, including dental radiographs, lack the ability to adequately identify such bone. However, the new technology of through-transmission or quantitative ultrasound (QUS) is specifically cleared by the FDA to safely identify LBD and dehydrated bone and has a very low (<3%) false positive rate. Near-infrared light emitting diode (NIR-LED) therapy or photobiomodulation has been shown in cultured cells and animal models to stimulate bone healing and production. The present investigation uses QUS to determine the efficacy of in-vivo NIR-LED phototherapy to increase bone density and/or hydration of abnormal alveolar bone.

Methods: 68 patients received LED therapy (OsseoPulse, version 1.0, Biolux Research Ltd., Vancouver, Canada; 15 minutes daily for 3 months) to 294 QUS positive edentulous alveolar sites of LBD/desiccation. Before and after QUS scans were graded blindly by two independent observers (5-point scale: 0 = normal bone, 4 = most severe), after calibration, and compared using matched pair analysis.

Results: After NIR-LED photomodulation the average grade improved from 2.43 to 1.33 (44.3% improvement), with 42% of sites returning to completely normal bone and 18.4% returning to grade 1. The mean difference (improvement of bone quality) of -1.11 was very statistically significant (matched pair analysis: Std error 0.06914; t-Ratio -15.9896; DF 293; prob less than 0.0001; 95% confidence interval 0.558-1.242).

Conclusion: NIR-LED therapy seems to hold good potential for improving alveolar bone prior to implant placement, but long-term improvement must be evaluated, as must actual implant stability.

University of Texas Dental Branch at Houston, Houston, Texas; private practice, Nanaimo, British Columbia, Canada

PII: S1079-2104(08)00362-4

doi:10.1016/j.tripleo.2008.05.017

© 2008 Mosby, Inc. All rights reserved.

Copyright © 2008 Elsevier, Inc. All rights reserved | Privacy Policy | Terms & Conditions | Feedback | About Us | Help | Contact Us |
The content on this site is intended for health professionals.