



EFFECT OF LOW INTENSITY LASER VERSUS BONE SUBSTITUTE ON OSSEOINTEGRATION AFTER IMMEDIATE IMPLANT

Thesis

**Submitted for partial fulfillment of Master degree in Oral and
maxillofacial surgery
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By

Nabila Mohamed Abdel-Hamid Dawoud

**B.D.S., Diploma of Oral surgery (2006)
(Cairo University)**

**Faculty of oral and Dental Medicine
Cairo University
2009**

SUPERVISORS

Prof. Ragia Mohamed Mounir

Professor of Oral and maxillofacial surgery

Faculty of oral and Dental Medicine

Cairo University

Prof. Mouchira Salah El-Din

Professor of Oral Medicine and Periodontology

Faculty of oral and Dental Medicine

Cairo University

Ass. Prof. Khaled Atef El-Hayes

Assistant Professor of Oral and maxillofacial surgery

Faculty of oral and Dental Medicine

Cairo University



تأثير أشعة الليزر منخفض الكثافة مقارنة ببدائل العظام حول الغرسات السنية الفورية

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الطبيبة/ نبيلة محمد عبد الحميد داود

بكالوريوس طب وجراحة الفم والأسنان
دبلومة جراحة الفم والأسنان
جامعة القاهرة (٢٠٠٦)

كلية طب الفم والأسنان
جامعة القاهرة
٢٠٠٩

المشرفون

أ.د/ راجية محمد منير

أستاذ بقسم جراحة الفم والأسنان
كلية طب الفم والأسنان
جامعة القاهرة

أ.د/ مشيرة صلاح الدين

أستاذ بقسم الفم وأمراض اللثة
كلية طب الفم والأسنان
جامعة القاهرة

أ.د.م/ خالد عاطف الحاييس

أستاذ مساعد بقسم جراحة الفم والأسنان
كلية طب الفم والأسنان
جامعة القاهرة

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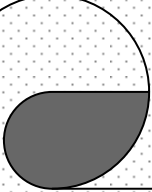
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DEDICATION

To

- My Great grandmother

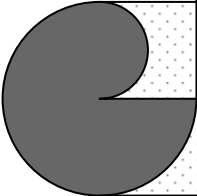
- My Father

- My Mother

And My Brother

**Who are always
representing the ultimate
support in my life**

I wish them the



best of all

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LIST OF ABBREVIATIONS

ASIMC	American Society Testing Materials
ASME	American Society of Mechanical Engineers
BBM	Bovine Bone Materials
BDX	Bovine Derived Xenograft
OX-bone	As a substitute for autograft bone
BMP	Bone Morphogenetic Proteins
CLT	Cold Laser Therapy
CP	Commercially Pure
DBN	Deminarlized Bone Matrix
HA	Hydroxy Apatite
SBM	Soluble Blast Media
He-Ne	Helium- Neon
IMC	Inter Mobile Connector
IME	Intrer Mobile Element
ITI	International Team of oral Implantology
LILT	Low Intensity Laser Therapy
ER.YAG	Erbium YAG Laser
AR.Laser	Argon Laser
HZ	Hertz
DH	Dentinal Hypersensivity
TGF	Transforming Growth Factor
TPS	Titanium Plasma Sprayed
SPS	Storage Phosphor Screen
CCD	Charged Coupled Device
GBR	Guide Bone Regeneration
PGD	Prostaglandin
TGF-β	Transforming Growth Factor Types β
SLRP	Small Leucine – Rich Proteoglycan
T_i	Titanium
ALP	Alkaline Phosphatase
ROS	Reactive Oxygen Specias
EC	Endothelial Cell
BFGF	Basic Fibroblast Growth Factor
PA	Plasmingen Activator
IFN	Interferon- Y
PHA	Phytoheamagglutinin.
T-Cal	T-Calculated
Group I	Bone substitute group.
Group II	Laser group.

INTRODUCTION

Implant is non living tissue or material transferred into a biological system. The dental implant is term used today to describe the Alloplastic material anchoring into the jaw to provide support and also retention for prosthetic replacement of teeth that have been lost. Early implant may preserve the alveolar anatomy, and the placement of fixture in fresh extraction socket helps to maintain the bony crest.⁽¹⁾

Single tooth replacement is most common problem facing the patients. The replacement of missing teeth with dental implants has become an acceptable standard of care over the past several decades. Placing the implant during the same visit at which the tooth is extracted is termed the immediate implant. Immediate implant placement provides a considerable number of advantages over the traditionally established placement. An immediate placement combines post extraction healing phase with the integration phase, reducing the total healing period by one-half. Immediate placement prevents the bone resorption in the alveolar crest, it permits the bone to regenerate in the alveolar space around the implant, conserves the attached gingival thereby. Providing better aesthetic result. It permits a precise placement with better resistance to occlusal and lateral forces.⁽²⁻⁴⁾

Xenogenic bone grafts, owing to the Ready availability of animal tissues, the worth of preserved xenogenic skeletal tissues, including ivory, cow-horn, and bovine bone, has been extensively explored in surgery. Several attempts have been made to use

various types of preserved OX- bone as substitute for autograft bone.⁽⁵⁾

LASER, has become useful tool in the surgeons armamentarium. In addition to being an adjunct to conventional surgical methods. Lasers are now the treatment of choice for a variety of pathologies, Einstein recognized light as bundles of waves and he described a unique kind of electromagnetic radiation through atomic process in which the atoms in the tube or resonate cavity. The laser beam is delivered to the tissues by contact or non contact mechanism, in non contact laser the beam of light is focused to it returns to the ground state; two photons of equal energy and frequency traveling in the same direction and in perfect special and temporal harmony are produced. This phenomenon is termed stimulated emission of radiation, when such radiation is in optical or infrared spectrum; it is termed laser.⁽⁶⁾

Low power lasers or soft lasers considered as Cold Lasers Therapy (CLT) as Diode Laser or Helium-Neon (He-Ne). Used in pain relief, biostimulation, eliminating areas of increased muscle spasm.⁽⁷⁾

So, the question here is laser able to assist osseointegration without bone graft or not?