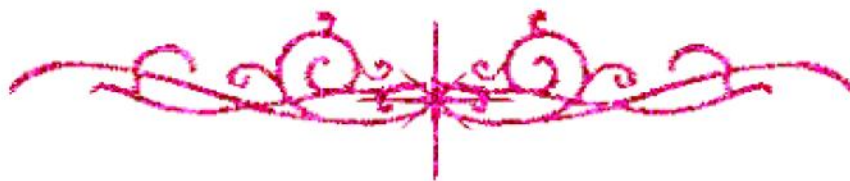


# بسم الله الرحمن الرحيم





# شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم





# جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



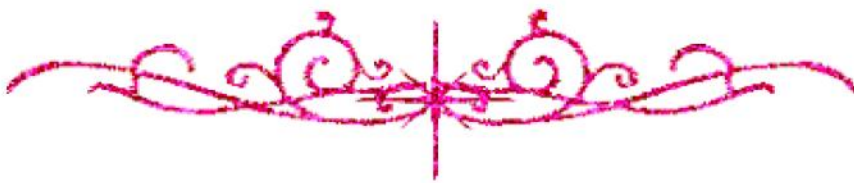
## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار





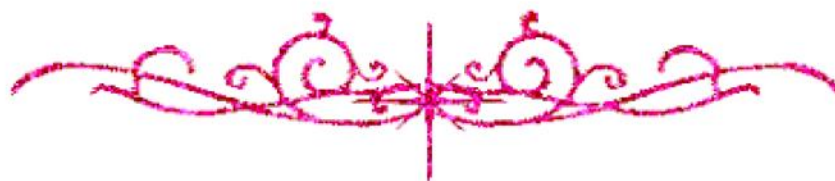
# بعض الوثائق الأصلية تالفة







بالرسالة صفحات  
لم ترد بالأصل



**Studying the effect of low power diode laser in  
combination with bone graft and platelet rich  
fibrin on healing of periodontal intrabony  
defects: A randomized controlled clinical and  
experimental trial.**

**By**

*Shrief Hemaïd Mostafa Ahmad Hemaïd*

**B.D., M.Sc. in Oral medicine and periodontology**

**Military Medical Academy**

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***Cairo University***

*Department of laser applications in Medicine*

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## **Supervisors**

### **Prof. Dr. Ali Mohamed Saafan**

*Professor of Oral & Dental Laser Application  
National Institute Of Laser Enhanced Sciences  
Cairo University*

### **Prof. Dr. Manal Mohamed Hosny**

*Professor of Oral Medicine & Periodontology  
Oral Medicine and Periodontology Department  
Faculty of Dentistry  
Cairo University*

### **Prof. Dr. Med. Gernot Wimmer**

*Professor of Periodontology  
Division of Prosthodontics, Restorative Dentistry,  
Periodontology and Implantology  
Medical University of Graz, Graz, Austria.*





# ABSTRACT





## **Abstract**

**Background:** Low-level laser therapy (LLLT) has shown a positive local biostimulative effect in the early stage of bone healing. **Aims:** This study aimed to evaluate the healing of periodontal intrabony defects by the effect of low power Diode (808nm) laser therapy in combination with Nanohydroxyapatite bone graft and autologous Platelet Rich Fibrin compared to the effect of the combined treatment of Nanohydroxyapatite bone graft and autologous Platelet Rich Fibrin only without laser on induced periodontal intrabony defects in rabbits and on periodontal intrabony defects in human.

**Materials and Methods:** The study was conducted experimentally on 16 defects in 8 adult male rabbits (n=16) divided into 4 groups; [Control non-treated group (C), laser irradiated nontreated group (CL), Non-irradiated Treated with nanograft and PRF (G+PRF) and Irradiated Treated group (G+PRF+L)]. And it also was conducted on 18 Humans (n=18) divided on 3 groups; [Non-irradiated Treated with nanograft and PRF group (Group1), Buccally laser irradiated and treated group (Group2) and Buccal and lingual irradiated and treated group (Group3). The animal defects were induced in the form of one osseous wall defects of 10 mm height, 4 mm depth between the 1<sup>st</sup> and the 2<sup>nd</sup> molars using a tapered FG drill coupled to a high-speed motor. *Assessment: For animals*, CT radiography was made at baseline, 15 and 30 days later for the living animals and a histological study was made at the 15<sup>th</sup> and 30<sup>th</sup> days. While *for the humans*, clinical assessment at baseline and after 3, 6, 9 and 12 M (including; PI, PPD, BOP, and CAL), Lab. Assessment for GCF ALP; at baseline and after, 3M, 6M, 9M and 12 M and Radiographic assessment; by CbCT at baseline and after 12 M). Statistical analysis using ANOVA was done for the obtained clinical, laboratory and radiographical data. **Results:** *In the animal* section radiographically and histologically; compared to baseline, (G+PRF), (CL) and (G+PRF+L) groups showed significantly

increased bone density after 15 and 30 days but only (G+PRF+L) group showed significant increase in bone density compared to control (C) and (G+PRF) groups after 15 and 30 days. *While in humans*; Group 3 improved significantly after 12 M compared to other groups regarding soft tissue parameter; CAL, while Group 2 showed significant increase in hard tissue parameters BF and BD compared to other groups after 12M **Conclusions:** The LLLT in a high dose as a treatment modality in combination with NanoHA and PRF may induce significantly the bone formation in the bone defect better than the non-Irradiated or in low laser doses treatment modality while using low doses may induce the improvement of the soft tissue parameters compared to the non-irradiated and the highly irradiated groups.

**Keywords:** Laser biostimulation, Periodontal intrabony defects, Clinical study, Rabbits, Experimental study, NanoHA, PRF, periodontal regeneration, CbCT, dental CT radiography and blind study.

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