



شبكة المعلومات الجامعية

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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأفلام قد اعدت دون أية تغيرات



## يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of  
15 – 25c and relative humidity 20-40 %



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# بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات

لم ترد بالأصل

# Stress Induced In The Main Abutments Of a Long Span Bridge Using Different Number Of a Modified Implants

Thesis submitted in partial fulfillment of the  
requirements for the Master Degree in Crown  
and Bridge Prosthodontics

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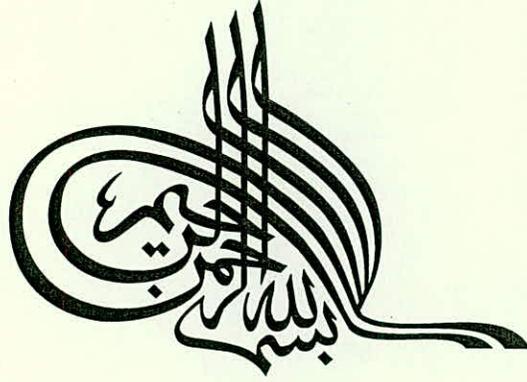
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” قال رب أشرح لي صدري (٢٥) و يسر لي أمري (٢٦)  
و احلل عقدة من لساني (٢٧) يفقهوا قولي (٢٨)“

سورة العنكبوت

سورة طه

الآية (٢٨:٢٥)

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## DEDICATION

*To the spirit and soul of my father .....*

*To my love and life, my mother,*

*To my beloved grandmother,*

*To my dear brother,*

*To my loving and caring husband for*

*his understanding and support,*

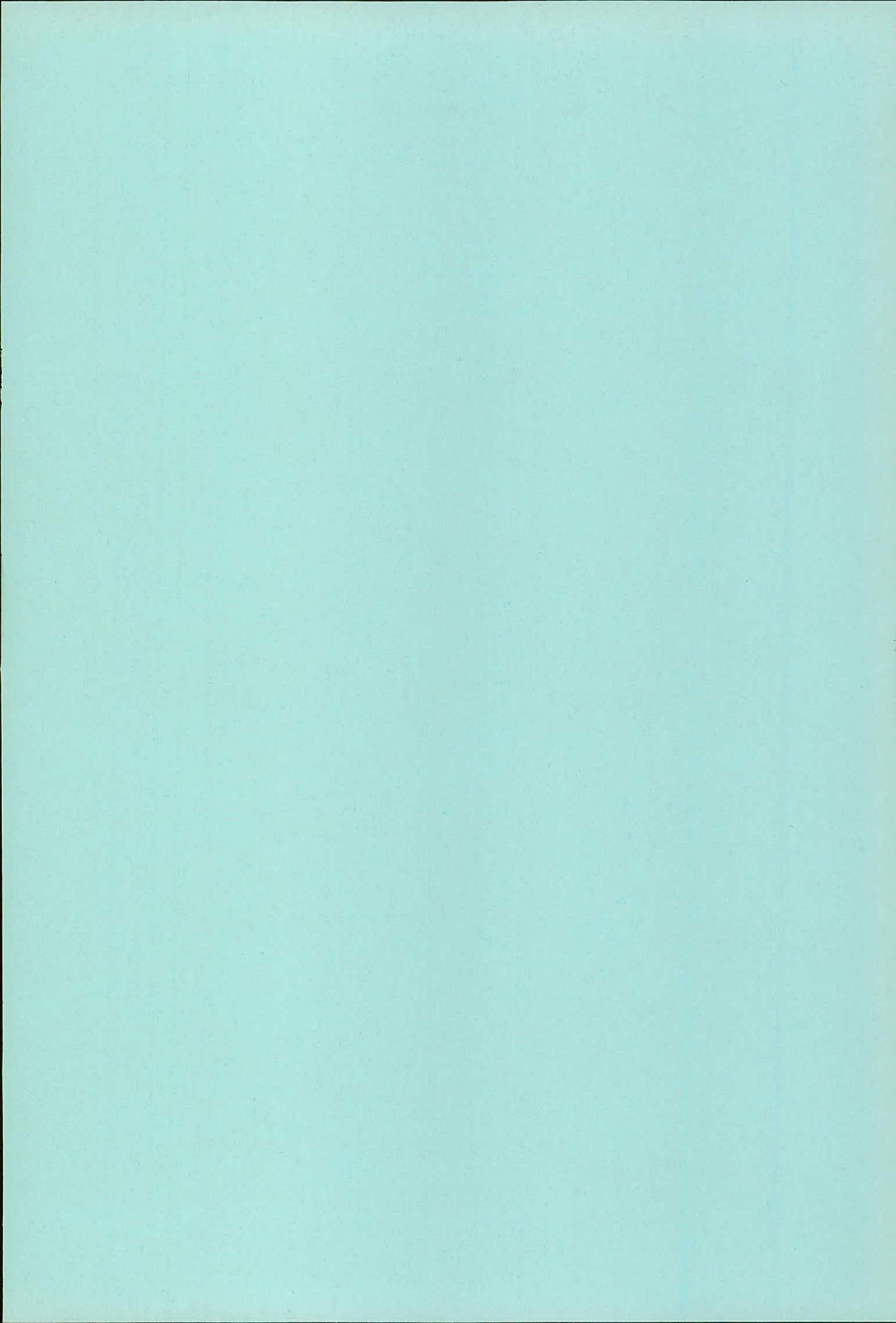
*To my hope and future,*

*To my son, Ezz Eldin*

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# ***INTRODUCTION***



## Introduction

The quest to achieve anchorage and substitutes for tooth abutments has led to the concept of osseointegration, which represents an approach that has considerably improved the possibilities to cope with a diminished or non existing periodontal support<sup>(1)</sup>.

Increased length of the edentulous span subjects the supporting abutments to bio-mechanical complications. Overload, leverage, torque and flexing are some of the most frequently cited ones. These induce abnormal stress concentration which is detrimental to the periodontium of the abutments leading to potential failure of the long span fixed partial denture<sup>(2)</sup>.

The use of implants for prosthetic treatment has created options that could not be possible with conventional methods. Ideally , implant retained prosthesis compensated for the dependency on natural teeth for retention. However, in some cases due to anatomic or financial limitations, the number of implants to be placed is restricted. It is in these situations where implant-tooth-supported prosthesis is constructed<sup>(3-5)</sup>.

In partially edentulous cases, especially long spans, implants can provide additional support and improve the load distribution on natural abutments. Two main factors should be considered when using implants in long edentulous spans. First is about the number of implants required to restore a case, and second is the way that the implants are connected to natural abutments<sup>(4-6)</sup>.

The greater the length of the edentulous span, the more implants required to improve the long term success of the implant retained prosthesis. An additional implant may reduce the number of pontics while

increasing the number of abutments. This increases the supporting capacity and distributes the forces more effectively. However, for some reasons the number of implants should be restricted to one or two. As in cases of approximation of these implants to vital structures as the mandibular canal or maxillary sinus<sup>(7-9)</sup>.

It was reported recently that there is a discrepancy in movement between implant abutment and natural teeth<sup>(10-12)</sup>. This could be due to the difference between the viscoelastic deflection of a tooth permitted by the periodontal ligament and the almost negligible elastic deformation of the implant. This results in a fulcrum like action and increases the effect of the applied load creating the potential for bio-mechanical complications which may lead to destruction of the cement medium, fatigue induced fracture of the prosthesis, break down of osseointegration, and looseness of the natural tooth abutment or its intrusion<sup>(13-18)</sup>.

To overcome such complications, the approach of choice should depend on interruption of the rigid connection between the natural tooth and the implant, either by incorporation of a non-rigid connector (precision attachment) or a resilient material between the implant and superstructure to mimic the movement of natural teeth<sup>(19-24)</sup>. This allows movement of the natural abutment by their periodontal ligament without movement of the implants, thus reducing torque on the relatively immobile implant and enhancing osseointegration<sup>(25,26)</sup>.