سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

سامية محمد مصطفى

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

سامية محمد مصطفى

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

سامية محمد مصطفى

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

Fiber Reinforced Composite versus Metallic Frameworks for Implant Supported Mandibular Overdentures. (Stress Analysis)

Thesis Submitted in a Partial Fulfillment of the Requirements for Master Degree in Prosthodontics

By
Anees Abdul Mola A. Murshed
B. D. S. 1997
Jordanian University

Faculty of Dentistry
Suez Canal University
2006

SUPERVISORS

Prof. Doctor. Adel Mostafa Abdul Monem.
Professor and Head of Prosthodontics Department
Faculty of Dentistry
Suez Canal University

Doctor. Ahmed Aly Abul Rahman Habib.
Ass. Professor of Prosthodontics
Faculty of Dentistry
Mansoura University

Doctor. Mohammed Ezzat Elsayed.
Lecturer in Prosthodontics Department
Faculty of Dentistry
Suez Canal University

ACKNOWLEDGEMENTS

I would like to thank my supervisors, who supported me and i appreciate their efforts to achieve this work. As well as I thank department of prosthodontics and faculty of dentistry in Suez Canal University.

ABSTRACT

Author: Anees A. A. Murshed.

Title: Fiber Reinforced Composite versus Metallic Frameworks for Implant Supported Mandibular Overdentures. (Stress Analysis)

Faculty: Faculty of Dentistry

Department: Prosthodontics

Degree: Master

Supervisors: Prof. Doctor. Adel Mostafa Abdul Monem.
Doctor. Ahmed Aly Abul Rahman Habib.
Doctor. Mohammed Ezzat Elsayed.

This study was undertaken to analyze and compare the induced stresses at the osseointegrated implants, superstructures, prosthesis and the implant–bone interface area when utilizing two patterns of denture base reinforcement for the implant supported mandibular overdentures; the glass fiber reinforced composite and metallic frameworks. Two dimensional finite element method was implemented to built up the mesh model with element number= 7411 and total nodal number= 22791. 1 Newton load was exerted to the assembly in the axial direction to the long axes of the supporting implants and in the lateral (oblique) distomesially direction of 45 degree to the long axes of the supporting implants. It was found that the oblique load induced higher stresses, while the axial load resulted in better distributed stress and the glass fiber reinforced denture base induced highest stresses at the implant–prosthesis complex as well as at the implant–bone interface area with strain values near the borderline of the pathologic overload zone of the bone more than the metallic reinforced denture base. It was concluded that, this is may be attributed to the differences in the elastic moduli of the different patterns of denture base reinforcement and the high rigid prostheses are recommended because the use of low rigid predicts largest stresses at the implant–bone interface. The elastic moduli are 25.57 GPa for the glass fiber reinforced and 45.76 GPa for the metallic reinforced denture base.

Key words: Implant supported overdenture, fiber reinforced composite, finite element stress analysis.

CONTENTS