

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



دکتره رانيا سامير
لشوية لدراسة البلاك
د. ابراهيم

مدرسة طب
ش

B12C



**A CLINICAL AND SCANNING ELECTRON MICROSCOPE
STUDY ON THE EFFECT OF ENAMEL MICROABRASION
TECHNIQUE IN REMOVING SUPERFICIAL
DECALCIFICATION DEFECTS.**

A THESIS

**Submitted In Partial Fulfillment Of the
Requirements
For The Master Degree
In
Pediatric Dentistry**

By

Ranya Samir Aly

(B.D.S. Alex)

1992

**Faculty Of Dentistry
Alexandria University
1999**

Supervisors

Prof. Dr. Hafez Mahmoud.

Professor of Pediatric Dentistry & Public Health.

Faculty of Dentistry, Alexandria University.

Dr. Soheir Abo El-Amayem.

Lecturer of Pediatric Dentistry.

Faculty of Dentistry, Alexandria University.

Dr. Hesham Osman.

Lecturer of Oral Histology.

Faculty of Dentistry, Alexandria University.

بِسْمِ اللَّهِ الرَّحْمَنِ

الرَّحِيمِ

Acknowledgement

Owing to the blessing of God and the objective criticism of my dear supervisors this work has come to light.

I am greatly indebted to Professor Dr. Hafez Mahmoud, Professor of Pediatric Dentistry and Public Health, Faculty of Dentistry, Alexandria University, for his kind supervision, sincere guidance and enormous help throughout this work.

I greatly acknowledge with gratitude Dr. Soheir Abo El-Amayem, lecturer of Pediatric Dentistry, Faculty of Dentistry, Alexandria University. Her interest, sincerest effort and most valuable advice are indeed beyond the capability of words.

I would like to express my sincere appreciation to Dr. Hesham Ibrahim Osman, lecturer of Oral Histology, Faculty of Dentistry, Alexandria University, for his valuable effort, supporting attitude and most constructive comments.

I am most thankful to Professor Dr. Ahmed Abd El-Rahman, Professor of Community and Preventive dentistry, Faculty of Dentistry, Alexandria University for his immeasurable help and valuable suggestions.

Finally I would like to extend my wholehearted thanks and appreciation to my professors and colleagues in the Pediatric Dentistry department for their encouragement and support.

Dedication

To the soul of my mother

CONTENTS

- INTRODUCTION.....	1
- AIM OF THE WORK.....	29
- MATERIAL AND METHODS.....	30
- RESULTS.....	41
- DISCUSSION.....	56
- CONCLUSION.....	61
- RECOMMENDATIONS.....	63
- REFERENCES.....	64
- SUMMARY.....	
- ARABIC SUMMARY.....	

LIST OF FIGURES

	<u>Page</u>
<i>Fig. 1:</i> Photograph showing prema Introductory Kit.	31
<i>Fig. 2:</i> Photograph showing contents of prema Intro. Kit (the material cups, prototype rotary mandrels & synthetic rubber tips.)	31
<i>Fig. 3:</i> Photograph showing a patient with rubber dam and protective eyeglasses.	33
<i>Fig. 4:</i> Photograph showing a preoperative view of a lower left first molar with surface decalcification defects.	33
<i>Fig. 5:</i> Photograph showing the lower left first molar with rubber dam before treatment.	34
<i>Fig. 6:</i> Photograph showing a preoperative view of upper left central and lateral incisors with surface discolouration and decalcification defects.	34
<i>Fig. 7:</i> Photograph showing a postoperative view of the lower left first molar with elimination of the decalcification defect.	37
<i>Fig. 8:</i> Photograph showing a postoperative view of the upper left central and lateral incisors with elimination of the defects.	37
<i>Fig. 9:</i> Photograph showing a 3 months-follow up view of the lower left first molar with no recurrence of the defects.	38
<i>Fig. 10:</i> Photograph showing a 3 months-follow up view of the upper left central and lateral incisors with no recurrence of the defects.	38
<i>Fig. 11:</i> Scanning electron micrograph (SEM) of the facial surface of the enamel of control specimen showing normal intact smooth enamel surface with several well definite perikymata.	51

- Fig. 12:** Higher magnification of the previous figure showing naturally pronounced enamel prism ends which terminate at the depth of the perikymata. 51
- Fig. 13:** Scanning electron micrograph (SEM) of intact enamel surface of a tooth in group **Ia** after ten applications of microabrasion compound showing irregular rough surface with significant abrasion and erosion and exposure of the underlying enamel prisms. 52
- Fig. 14:** SEM of an intact enamel surface in group **Ib** following microabrasion and fluoride gel application showing thin amorphous coating of the abraded enamel prisms obscuring the surface details. 52
- Fig. 15:** SEM of an intact enamel surface of a tooth in group **Ic** after microabrasion, fluoride gel application and storage in artificial saliva for three months showing a uniform surface coating of a dense compact mineral by-product layer. 53
- Fig. 16:** SEM of both white-spot lesion (w) and its neighboring intact enamel prior microabrasion. 53
- Fig. 17:** SEM following microabrasion of the white-spot lesion group **II a** demonstrating a smooth, compact mineralized surface with the absence of the lesion. 54
- Fig. 18:** SEM of enamel surface group **II a** after microabrasion of the white-spot lesion showing partly removal of the surface porosity of the lesion with the presence of several local micropits. 54
- Fig. 19:** SEM of the white-spot lesion on the enamel surface group **II b** following microabrasion and fluoride gel application. 55
- Fig. 20:** Higher magnification of fig (14) showing the amorphous coating on the enamel surface. 55

LIST OF TABLES

	<u>Page</u>
Table 1: Number of applications of prema compound required to eliminate the decalcification defects from teeth treated with fixed orthodontic brackets.....	41
Table 2: Number of applications of prema compound required to eliminate the decalcification defects from teeth treated with fixed bands.....	42
Table 3: Number of applications of prema compound required to eliminate the decalcification defects and spots that developed in teeth due to extrinsic factor.....	43
Table 4: The effect of treatment with prema compound on teeth with decalcification defects and spots immediately and 3 months after treatment.....	44
Table 5: Comparison between the reading of the pulp tester for lower first molars, upper central incisors and upper lateral incisors before and immediately after treatment with microabrasion technique.....	47
Table 6: Comparison between the reading of the pulp tester for lower first molars, upper central incisors and upper lateral incisors before and 3 months after treatment with microabrasion technique.....	49

