

*Saliva Fluoride Concentrations after  
Application of Two Fluoride Releasing  
Pit and Fissure Sealants and Fluoride  
Varnish*

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# *List of Contents*

	<i>Page</i>
➤ <i>List of Tables</i>	<i>I</i>
➤ <i>List of Figures</i>	<i>II</i>
➤ <i>Introduction</i>	<i>1</i>
➤ <i>Review of Literature</i>	<i>4</i>
➤ <i>Aim of the Study</i>	<i>27</i>
➤ <i>Materials &amp; Methods</i>	<i>28</i>
➤ <i>Results</i>	<i>42</i>
➤ <i>Discussion</i>	<i>55</i>
➤ <i>Summary</i>	<i>64</i>
➤ <i>Conclusions</i>	<i>66</i>
➤ <i>Recommendations</i>	<i>67</i>
➤ <i>References</i>	<i>69</i>
➤ <i>Arabic Summary</i>	

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**تركيز الفلورايد في اللعاب بعد تطبيق نوعين  
من الساد المحكم للشقوق والنقر المشبع  
بالفلورايد و راتنج الفلورايد**

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# المشرفون

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## ***Recommendations***

1. Sealants should be placed as part of an overall prevention strategy based on individual caries risk model and tooth risk assessment.
2. Resin sealants are safe, effective and underused in preventing pit and fissure caries on at-risk surfaces. Effectiveness is increased with good technique and appropriate follow up.
3. Proper cleaning of the pits and fissures and proper isolation are mandatory for sealant placement.
4. Fluoride varnish is recommended as topical fluoride application after orthodontic treatment, in initial carious lesion “early childhood caries” and in handicapped patients as a preventive measure before initiation of caries as varnish is a less sensitive technique and has higher stability and low dissolution in saliva with time.
5. It is recommended to shift to varnish application when child’s cooperation cannot be gained.

6. The profession must be alert to new preventive methods effective against pit and fissure caries. These may include changes in dental materials or technology.

# *Saliva Fluoride Concentrations after Application of Two Fluoride Releasing Pit and Fissure Sealants and Fluoride Varnish*

*Keywords: Pits and Fissure, fissure Sealants, Fluoride Varnish*

## *Abstract*

**Purpose:** To investigate the fluoride levels in saliva before and after applying fluoride-containing pit and fissure sealants and a fluoride varnish, and compare the fluoride release of the three materials at different time intervals.

**Methods:** Sixty children of 6-7 years were randomly divided into 3 groups: Group 1- Teeth Mate-F\*; group 2- Helioseal-F\*\*; and group 3- Fluor Protector\*\*\*. Saliva samples were collected before and after the materials placement on the lower first permanent molars. Fluoride levels were measured using the ion-specific electrode mounted on digital electrometer and statistically analyzed using Wilcoxon signed-rank test, the 3 groups were compared by Kruskal-Wallis test and the Mann-Whitney *U* test was used for pairwise group comparisons.

**Results:** There was no statistically significant change in salivary fluoride concentration at different time intervals in the 3 groups compared to baseline. *After 2 weeks*, the Teeth Mate-F and Helioseal-F showed higher means of fluoride concentration in saliva than Fluor Protector. However, there was no significant difference in fluoride levels of the 2 groups. *After 1 month*, the Teeth Mate-F showed the statistically significant highest mean of salivary fluoride concentration.

**Conclusions:** Teeth Mate-F group showed the highest significant increase of salivary fluoride level at 1 month after material placement.

\*Sealant containing methacryloyl fluoride methyl methacrylate copolymer.

\*\*Sealant containing fluorosilicate glass.

\*\*\*Fluoride varnish containing fluorosilane (0.1% fluoride).



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*DEDICATION*

*TO*

*The memory of my beloved mother*

*My father and my sisters*

*My husband*

*AND*

*My precious pearl Aly*

## List of Tables

Table (1):	Materials and their specifications.	32
Table (2):	Shows the means and the standard deviation (SD) values for the comparison of fluoride release between the three materials at different time intervals.	49
Table (3):	Shows the mean differences and the standard deviation values for the changes in the fluoride levels in saliva at different time intervals in the Teeth Mate-F group.	51
Table (4):	Shows the mean differences and the standard deviation values for the changes in the fluoride levels in saliva at different time intervals in the Heliobond-F group.	53
Table (5):	Shows the mean differences and the standard deviation values for the changes in the fluoride levels in saliva at different time intervals in the Fluor Protector fluoride varnish.	55
Table (6):	Shows the means and standard deviation (SD) values for the comparison between the percentage changes in the three groups at different time intervals.	58

## *List of Figures*

Fig. (1):	Teeth Mate-F pit and fissure sealant	40
Fig. (2):	Helioseal-F fissure sealant and Total Etch used with it	41
Fig. (3)	Fluor Protector fluoride varnish	42
Fig. (4):	Collection of unstimulated saliva from a child	43
Fig. (5):	Ion-specific electrode mounted on digital electrometere	43
Fig. (6):	First permanent molar with deep pits and fissures	44
Fig. (7):	Total Etch applied on the occlusal pits and fissures	44
Fig. (8):	Fluoridated pit and fissure sealant applied on the occlusal surface of first permanent molar	45
Fig. (9):	Light curing unit	45
Fig. (10):	Application of Fluor Protector	46
Fig. (11):	Shows the comparison between the means of fluoride concentrations in saliva in the three groups through different time intervals.	50
Fig. (12):	Shows the changes by time in the means of fluoride concentration in saliva in the group treated by the Teeth Mate-F pit and fissure sealant.	52
Fig. (13):	Shows the changes by time in the means of fluoride concentration in saliva in the group treated by the Helioseal-F pit and fissure sealant.	54

Fig. (14):	Shows the changes by time in the means of fluoride concentration in saliva in the group treated by the Fluor Protector fluoride varnish.	56
Fig. (15):	Shows the comparison between the mean percentage change in fluoride concentrations in saliva in the three groups at different time intervals.	58

# **Introduction**

Dental caries is a major public health problem affecting most of the schoolchildren and the vast majority of adults. It is the main cause of tooth mortality, presentation of dental emergencies and tooth extraction. The many causes of dental caries include poor dietary habits, poor oral hygiene and lack of dental care.

Dental caries presents a widespread condition that is costly to treat and it impacts on the quality of life at all ages. It is the result of the interaction between a susceptible tooth, a dietary substrate (sugar), a chronic bacterial infection and time.

Thus, prevention of dental caries has attracted the attention of many researchers. Consequently several methods for caries prevention have been developed; among these methods are dietary control, proper oral hygiene measures and topical protection of the tooth surface as topical fluoride application, in the form of fluoride varnishes and pit and fissure sealants (**Nowak and Anderson, 1990; Rozier et al., 2003; Marthaler, 2004 and Berkowitz, 2008**).