



# EGYPTIAN DENTAL JOURNAL



**Volume 50. Number 1, January, 2004,  
Official Journal of the Egyptian Dental Association  
EDA website: [www.eda-egypt.org](http://www.eda-egypt.org)**

## EFFECT OF OCCLUSAL FISSURE CLEANSING METHODS ON RETENTION OF FISSURE SEALANTS

Nadia E. Metwalli\*, Someya K. El-Telety,\*\* Ibrahim H. El Kalla\*\*\*  
and Abeer A. Ahmed \*\*\*\*

### ABSTRACT

The purpose of this study was to evaluate and compare the effect of six different types of occlusal fissure cleansing methods [rubber cup and pumice, dry pointed brush, round bur, fissure bur, prophjet with 50 micron particles and with 25 micron particles] on retention of unfilled non fluoride containing fissure sealant [Helioseal] and filled fluoride-containing fissure sealant [Sealrite].

The present study was carried out on two hundred and one children [106 females and 95 males] in a school in Mansoura province . Their ages ranged from six to eight years old. Each child had two contralateral sound and fully erupted lower first permanent molars with deep or moderate occlusal fissures and no history of previous fissure sealant application. The different fissure cleansing methods were applied on both contralateral molars .Helioseal fissure sealant was then applied on a first permanent molar on one side and Sealrite was applied on its contra lateral. Follow up was done clinically using the criteria described by Simonsen.

Fissure sealant placed on fissures prepared with burs showed highest retention followed by air polishing methods. Unfilled non fluoride -containing sealant had a tendency for higher retention rate than filled fluoride-containing sealant.

### INTRODUCTION :

Pit and fissure caries account for more than 85% of the affected surfaces for all caries experience and are found to develop fast. This is due to their narrow and deep gaps, which allow retention of bacteria, nutrients and debris. Moreover, their prevention is very difficult. <sup>(13)</sup>

Sealing of pits and fissures has been demonstrated in a number of reports to be a safe and effective procedure for the primary prevention of occlusal caries. Adequate retention of sealant requires

that the pits and fissures must be clean and free of moisture.<sup>(16,19,27)</sup>

The development of pit and fissure sealant was based on the discovery of etching enamel with phosphoric acid that increased the retention of resin restorative materials and considerably improved marginal integrity. Fissure sealing is demonstrated as a technique whereby pits and fissures that occur principally on the occlusal surfaces of molars and premolars are occluded through the application of fluid materials, that polymerized in situ. It was re-

\* Associate Professor, Pediatric Dentistry and Orthodontics dept. Faculty of Dentistry, Ain Shams University.

\*\* Professor and Head of Pediatric Dentistry dept.Faculty of Dentistry, Mansoura University.

\*\*\* Professor of Pediatric Dentistry dept. and Vice Dean for Education and students affair. Faculty of Dentistry , Mansoura University.

\*\*\*\* Dental Specialist B.D.S. Ministry of Health , Egypt.