Dental sealants have been recognized as an effective preventive measure for preventing pit and fissure caries in primary and permanent teeth in children. They are placed to prevent caries initiation and to arrest caries progression by providing a physical barrier that inhibits microorganisms and food particles from collecting in pits and fissures. They is generally accepted that the effectiveness of sealants for caries prevention depends on their long-term retention.

When selecting the sealants, the fissures prior to sealant application, considers better the tooth re- lation.

It has been long known that remo- val of the fissure sealant is essential prior to etching in order to allow bonding of the sealant. The classic technique for removing of the debris prior to sealing is prophylaxis with a non-flu- oridated toothpaste, techniques however have emerged, such as air-purging, abrasion techniques. Air-polishing technique with sodium bicarbonate is a non-invasive removal of organic and other element from pit and fissures, caries, and the depth of the sealant resin penetra- tion rate.

Fissure sealants exhibit the highest re- tention rates and have better stability under occlusal forces due to their main component, Bis-CMA. However teeth sealed with glass ionomer des- cend caries less frequently than those sealed with resin and this has been attributed to the fluoride release from the glass ionomer cement. Even more, if the glass ionomer sealant is lost, some of the materials remains in the depth of the fissures providing ex- tra preventive effect.

How successful are sealants over the years? What problems do you expect to occur?

Data on 200 patients after 15 years with autopolymerized sealants on permanent first molars, showed only partial retention in 60% of the teeth while 40% had partial retention. Ca- rious or restored surfaces were found in 31% of sealed teeth and 85% of the unsealed. Regarding the surfaces sealed, retention was lower in pits/ fissures of Caries Fearful’s cephalic mood- lary molars. Caries experience was low under partially retained sealants or missing sealants (4.5%) and completely lost in 6.6% of teeth after 3 months.

An alternative for cleaning of the fissure and when combined with acid etching, most commonly used, the resin based sealants, exhibit the highest re- tention of all the sealants, but without returning to the original enamel.


Retention rates for the second molars were comparable to the first ones.

Sealants are being replaced (Figure 1b), by removing the superficial polymerized layer, acid etching, re- placing the sealant material and light curing.

References available from the author.