**Preventive resin restoration:**

* includes the removal of carious tissue, insertion of a resin filling and sealant application​
* Used when decay is confined to a part of the fissure system

**WE HAVE 3 TYPES OF PRR DEPENDING ON HOW EXTENSIVE THE CARIES IS:**

1. typeA
2. typeB
3. typeC

**TYPE A**: using high speed bur and explore area that is most carious in the fissure system, Then by using the bur for widening this area and look if there is no caries stop and put **fissure sealant only** Because we want to be conservative

**Type B**: open the fissure and if you find caries so you have to prepare this area "just carious area not all the fissure " after cleaning caries you have small cavity that will be filled with composite and then fissure sealants for remnant fissure” .

 **Type c**: start to prepare and if you find extensive caries so you will end by having conventional class I cavity which will be resorted by amalgam or composite.

**GI FISSURE SEALENT :**

* The idea of use GI as FS was coming from ART "alternative restorative technique"
* ART appeared in developing countries

**GI is not use in all cases so what are the indication of use it ?**

* erupting "partially erupted molar where we can't achieve good isolation”
* uncooperative patients "behavior problem”

**ALL the clinical studies that compared the conventional resin sealant with GI showed that:**

1-resin is much higher retentive than GI

Note: all studies encourage using of high viscosity GI sealant because its more retentive than low or medium viscosity.

2- Both of them have the similar effect on prevention of caries

**we have 2 ways of prevention caries :**

1-physical binding to the tooth structure as conventional resin sealant.

2-biological: as GI 'FLUORIDE REALES ".

**Why do we use GI sealant more than conventional rein sealant ?**

Because of bisphenol A material that is released from most of resin material. This material has possible **carcinogenic and estrogenic** effect.

* AAPD​ said resin based sealant achieved **better retention** but GI could be used as transient sealant especially **when moisture control is not possible as in pt with high risk caries**

What do we need to place fissure sealant ?

1-proper isolation

2- Cleaning the tooth structure

3-acid etching

4-sometimes bonding agent

5- Instruments (probe ,fissure sealant material ,microbrush, articulating paper to check the occlusion at the end )

1. **Prepare patient (Tell, Show, Do)**
2. **​ Isolation**
* IS AMUST ​
* Done by using rubber dam "needs anesthesia", or cotton roll
* Or by dry dam that is placed buccally or lingually to absorb the saliva

Isolation is critical because enamel porosity will be compromised with any liquid.

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1. **​ Surface cleaning​**

By brush or cup without using a pumice because it will stick to the tooth structure

1. **Etching**
* 35%phosphoric acid​ for 15 sec
* acid selectively removing crystalline phases of enamel
* Vastly increases surface area for adhesion

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**\* patterns of acid itching in fissure sealants :**

This mainly seen in permanent teeth not primary because of less enamel prism and more organic control:

**​1-Honey comb etch pattern​:**

The crystal with no core because it’s destructed and periphery intact .this is the best pattern of etching

**2-** **Reverse honey comb etch pattern**

The core is intact and the peripheral is destructed

**3-** **Haphazard etch pattern​**

Destruction all over, no pattern at all .

**What is the significant of the pattern ?**

That means that the histology of enamel differ from tooth to tooth and surface and even in the same surface we can see differences.