

FISSURE SEALANTS

Fissures are the grooves that naturally occur on the biting surfaces of the teeth. All molars and premolars have fissures to some degree. Occasionally, fissures occur on canines and incisors.

If the fissures are very deep and narrow, toothbrush bristles cannot fit inside to clean out food particles. Trapped food attracts bacteria, which multiply within the fissures and make a sticky coating called plaque. Plaque acids eat into the tooth enamel and cause decay.

Not all fissures are often prone to decay. Only the deepest and narrowest fissures are at risk. A fissure is five times more likely to develop decay than other tooth surfaces. In children and adolescents, the chewing and grinding surface of molars and premolars are the most vulnerable.

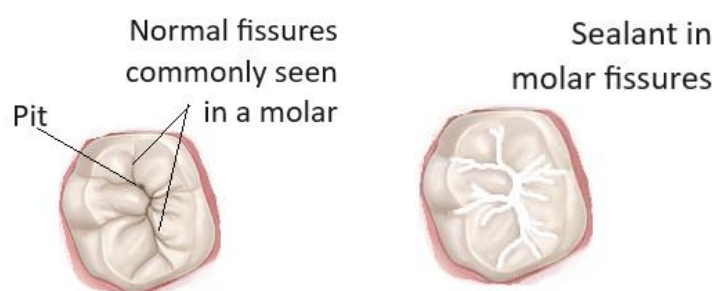
Fissure sealants are often plastic coatings that fill the fissures and protect teeth from dental plaque and acids. Glass ionomer cements may be used as an alternative material.

Many studies have shown that fissure sealants are effective in reducing the occurrence of tooth decay. On a tooth surface with completely sealed fissures, protection is 100 per cent. As the fissure sealant wears down, protection is reduced. However, even after five years, a protected tooth has half the risk of decay compared to an unprotected tooth.

Treatment is painless and non-invasive, with a coat of the sealant applied to a cleaned tooth. The liquid sets in minutes and forms a physical barrier that stops food, bacteria and plaque acids from contacting the tooth surface. Fissure sealants may be white, clear or tinted.

Most sealants are applied to molars and premolars, but any tooth that has fissures can be treated, including incisors. Primary or “baby” molars may also be recommended for treatment. Fissure sealants gradually wear away after several years and can be reapplied if needed.

Your dentist may suggest the use of fissure sealants after an examination of your teeth or those of your child or teenager. It is common to treat only those teeth most at risk of decay.



The biting surfaces of premolars and molars are likely to have fissures, some of which may be deep and prone to decay. Pits are very deep indentations that can also be protected with a fissure sealant.

However, your dentist may recommend treatment for all premolars and molars as a safeguard.

If detected very early, tooth decay can sometimes be treated with a fissure sealant instead of a filling.

Early treatment

The best time to apply fissure sealants is immediately after the permanent teeth appear. Permanent teeth are the second set of teeth that erupt during childhood and should be kept throughout adult life. The first permanent molars appear around the age of six or seven. The permanent teeth, including the premolars erupt between 11 and 14 years of age. The permanent molars (commonly called third molars or wisdom teeth) usually erupt during early adulthood, if at all. Some people have no third molars.

It is usual to wait until a tooth is fully erupted before applying a fissure sealant. However, the dentist may suggest sealing partially erupted teeth if early signs of decay are present.

Fissure sealants can be applied to primary (“baby”) teeth, and your child’s dentist may recommend this. Fissure sealants can also be used to preserve healthy teeth in adults.

Before treatment

Your dentist will need your complete medical and dental history. The treatment recommended depends on factors such as:

- Your age
- Your dental problems
- Your history of tooth decay.

First, the teeth must be prepared for sealing. If your teeth need extensive preparation, your dental-care provider may not be able to seal them in the same appointment. You will need to come back at a later date.

Preparation may include:

- Oral examination
- X-ray examination of your teeth to detect decay or other problems
- Treatment for existing problems, such as cavities or gum infections
- Replacement of loose or rough fillings
- Cleaning and scaling of teeth to remove plaque.

Application of fissure sealants

Fissure-sealant application is simple process that may be performed by your dentist or by a supervised dental therapist or dental hygienist. Many different types of sealants are available, and different application techniques are used.

The general procedure

- Teeth are thoroughly cleaned and dried, because food debris and saliva can prevent the sealant from sticking correctly to the tooth. In some cases, some shallow drilling may be needed.
- The tooth surface is coated with either a weak acid gel or a chemical solution, depending on the type of sealant used. This step ensures that the sealant sticks to the tooth surface.
- An adhesive resin may be applied under the sealant.
- The liquid sealant is applied.
- Depending on the type of sealant, a white light may be used to activate bonding and hardening.
- The liquid quickly sets to form a durable plastic coating on the tooth's surface. Some sealants release fluoride to further strengthen the tooth.
- Your bite will be checked to ensure that it is correct and comfortable. The layer of sealant should be thin enough to allow the proper occlusion of the upper and lower teeth.

While an intact fissure sealant offers excellent protection against decay on the treated surface, your dentist cannot guarantee that treatment will prevent decay on all tooth surfaces.



The sealant fills in the fissures and forms a physical barrier against decay-causing bacteria and acids

Maintenance of sealed teeth

Dentists usually recommend check-ups every six to 12 months so that tooth decay or sealant loss can be detected and treated. A sealant coating can be easily replaced if partially lost due to normal wear and tear. Sealed teeth do not require any special home treatment or dietary changes. Although the fissure sealant protects the biting surface of the treated tooth from decay, untreated surfaces and other teeth are still at risk. It is important to regularly brush and floss your teeth. Try to avoid the factors that increase the risk of tooth decay, such as:

- high sugar intake - decay causing bacteria thrive on sugar.
- poor dental hygiene - not brushing with a fluoride toothpaste correctly or often enough results in plaque build-up. A lack of flossing between teeth will increase the risks of decay on the surfaces between teeth.
- low dietary fluoride intake - fluoride is essential in early childhood and throughout life for the development and maintenance of strong healthy teeth.
- damaged teeth - cracks or chips allow access to bacteria, so protect your teeth from damage. For example, wear a mouth guard when playing contact sports.

Complications of fissure sealants

In most people, the application of fissure sealants does not cause any problems. However, if you have any concerns, discuss them with your dentist. Complications are uncommon but may include:

- minor gum or tooth discomfort due to the scaling or pre-coating processes
- hypersensitivity to sealant chemicals
- rarely, an uncomfortable change to the patient's bite due to the thickness of the sealant. The dentist can easily adjust this.

No toxicity of dental sealants has been reported.