

Dental Decay

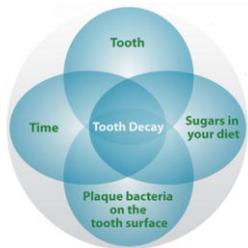
What is dental decay?

Dental decay or dental caries as it is called by dentist, is an ongoing demineralisation and remineralisation process. In other words, it is a constant process of losing and gaining tooth structure. When we lose more tooth structure than we gain, the tooth becomes weak and soft which is decay. The good news is that there are ways to minimise loss of tooth structure and maximise gain of tooth structure.

3 Requirements for decay formation:

1. Bacteria
2. Suitable carbohydrates (sugars)
3. Susceptible host/surface (tooth)

The first requirement bacteria, are present in almost everybody's mouth. Bacteria are living organisms and like people, they need an energy source to survive and multiply. They use carbohydrates as an energy source and the simplest most efficient type is sugar. Also, the bacteria need a home or host which unfortunately is the surfaces of our teeth within plaque.



Other factors such as saliva, time and oral hygiene affect our susceptibility and decay risk levels, but the above 3 are essential to dental decay.

What processes occur during decay formation?

After we brush our teeth, ideally they stay clean. However, within the next few minutes the natural bacteria within our mouth stick to our tooth surfaces in a structure called biofilm.

Most of them are not decay causing but soon the numbers of decay causing bacteria build up. They use the sugars from the food we eat to grow and produce waste which is acid. These acids attack the minerals or building blocks of our teeth, eventually weakening the tooth surface enough to form a cavity.

What happens on the surface of our tooth after we eat something?

Our diet plays a major role in the development of dental decay. After a meal, the acids produced by bacteria result in a pH drop. This

means that the mouth becomes more acidic reaching a point called the 'critical pH' which is approximately 5.5. Critical pH describes the point at which the acid levels are high enough for the minerals of our teeth to begin dissolving. This lasts for about 20 minutes until the food debris is diluted and washed away by saliva. When the pH returns to normal, our saliva then slowly works to re-mineralise our teeth. When we snack constantly, saliva does not have the chance to re-mineralise our teeth.

What types of food put us at most risk of decay?

The snacks that contain processed sugars and carbohydrates that are easily fermented (used as an energy source by bacteria) put us at a higher risk of decay. This includes almost every sweetened food or drink. Many healthy foods and drinks contain natural sugar. A plain slice of bread with nothing on it is a carbohydrate that breaks down into sugar. Foods that are sticky such as toffee or caramels can adhere to surfaces of teeth. They are difficult to flush away by saliva and provide a constant food source for bacteria.

Fizzy drinks such as Coca-cola also put you at high risk for decay. Not only are they heavily sweetened, they are highly carbonated making them acidic. This causes initial stripping of the minerals from our teeth, giving the bacteria an easier job to cause decay with their own acids. Compared to water which has a neutral pH of 7, Coca-cola with an acidic pH of 2.4 is over 10,000 times more acidic!! This is because a single can of soft drink can have 11 teaspoons of sugar.

So what can I do to prevent decay?

The most logical way to approach preventing tooth decay is to modify the 3 requirements of decay.

You can disrupt the bacteria/plaque by regularly brushing and flossing. The less time it has to form the better. By controlling the frequency of sugar intake we can reduce the times that sugar is available for bacteria to grow.

We can strengthen our tooth surfaces a number of ways. You should always use a toothpaste with fluoride included or if you at a higher risk there are specialised toothpastes such as Tooth Mousse that you can use. Fissure sealants can cover the deep grooves of our back teeth where there is a higher risk of decay formation.

Ask us at Cannon Hill Dental if you have any questions or if you would like more information on further ways to prevent decay.

Stages of tooth decay



Healthy tooth with plaque present



Early decay starting in the enamel



Decay progressing into the dentine.



Decay has progressed into the pulp of the tooth causing the nerve to die. The tooth now requires root canal treatment.

Signs of decay

- 1 Sensitive teeth to cold, hot or sweetness
- 2 Pain on biting
- 3 Spontaneous pain, which may keep you up at night
- 4 White, brown or grey discolourations
- 5 Food being caught in between teeth