



National Dental  
Centre Singapore  
SingHealth

# Tooth Decay



## TOOTH DECAY

Dental caries or tooth decay is one of the most common chronic diseases in the world that can be transmitted from one person to another. Cavities are the end result of the disease. The good news is, caries disease is preventable and if treated early, can be controlled. Early caries can even be reversed.

### What is tooth decay?

Plaque, a sticky film of bacteria constantly forms on the surface of teeth. When you eat or drink foods containing sugars or acids, the bacteria in the plaque produce acids which attack the tooth enamel, causing loss of minerals.

In the early stages, the mineral loss can be seen as a white spot lesion on the tooth surface. When the oral environment continues to be acidic, the lesion develops into a cavity, which increases in size.



Early white spot lesions, discolouration and mineral loss



Cavitated lesions



Decay left unattended may lead to tooth loss

### What are the signs and symptoms of dental caries disease?

Many people are not aware that they have early caries disease until it has progressed to an advanced and painful stage. In fact, early caries disease is detectable.

Other symptoms that may occur include

- Tooth sensitivity when eating hot/cold foods
- Tooth ache or a throbbing pain
- Visible pits or holes in the teeth
- Pain when biting
- Bad breath or foul taste in the mouth

## What are the conditions that can cause the oral environment to be acidic?

This could be due to poor oral hygiene, poor saliva conditions or diets with frequent intake of sugars and acids.

## Why is saliva important?

- it clears leftover food debris in the mouth, removing the bacteria's nutrient-source and hence controlling its multiplication. This prevents infections.
- it helps to digest foods and drinks consumed
- its protective function rebalances the pH level in the mouth to a healthy one to brake bacterial activity
- it contains antibacterial agents which help to control the caries-causing bacterial population
- it contains minerals such as fluoride, calcium and phosphate which are needed to remineralize damaged tooth enamel

The amount and quality of saliva produced has to be adequate in order for saliva to have these positive effects. Simple saliva tests are available to tell if the amount of caries-causing bacteria in your mouth is normal.

## How does taking of sugary and acidic foods and drinks affect caries disease?

Sugars in foods and drinks are a source of food for the bacteria in the mouth. When a person snacks frequently between meals, the bacteria in the mouth feeds on the constant supply of food to produce acids, attacking the tooth enamel. Frequent, continuous acid attacks slowly dissolve away minerals from the tooth structure and weaken it over time.

Saliva slows down the decay process and allows remineralization (repair) to occur. It is important to allow time for the saliva to work to neutralize the acids. Therefore, avoid taking sugary or acidic snacks in between main meals as far as possible.

## Why is oral hygiene important?

Good oral hygiene ensures that the film of plaque is cleared and the tooth surface remains clean. This will deprive the bacteria of its food supply and limit its growth.

## Who is prone to caries disease?

- People with dry mouth due to
  - medical conditions eg. Sjogren's syndrome and other diseases affecting the salivary glands
  - radiation therapy for treatment of head and neck cancer
  - chemotherapy
  - medications that affect salivary flow
- People who are outdoors for prolonged periods, which could potentially cause dehydration
- People who consume sugary, acidic or caffeinated foods and drinks
- Smokers
- People with poor oral hygiene
- Orthodontic patients
- People who snack frequently in between main meals

## How can caries disease be managed?

Managing the caries disease requires a good partnership between the dentist and the patient.

### **Your dentist can**

- Help you learn about the caries disease and decay prevention
- Analyse your diet and advise you on any changes needed
- Advise on the appropriate oral hygiene care suited to your dental needs
- Perform simple treatment procedures to manage the disease including
  - seal the deep grooves on your teeth

- place high concentration fluoride on your tooth surfaces
- clean the decay from the carious cavities and fill them
- Perform regular checks at appropriate intervals

**As a patient, your commitment is to:**

- Use the prescribed hygiene and therapeutic aids and follow the oral hygiene care regime as advised by your dentist
- Follow the diet management plan including
  - drinking fluoridated water
  - consuming less sugary and acidic foods and drinks between meals

**The Minimal Intervention Dentistry Programme is an initiative that provides an individualized plan to patients to manage their caries disease.**

To identify factors contributing to disease, a thorough assessment is carried out on your

- diet
- saliva functions eg. saliva flow, buffering capacity (the ability of saliva to neutralize acids), pH (acid level) of saliva
- amount of caries-causing bacteria in your mouth
- oral hygiene care
- other medical and dental caries risk factors

Strategies to control and prevent disease and repair early caries lesions will then be prescribed. Cavity restoration with the minimal amount of tooth removal will follow, if needed.



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