



# Diabetes and Gum Disease

**Dr Ang Chee Wan, Dental Specialist in Periodontics, Clinical Director, T32 Specialist Division, uncovers the link between diabetes and oral hygiene.**

## Dental Hygiene in Adults

Studies have shown that close to 80% of Singaporean adults examined were found to have tartar. Based on the adult oral health survey 2003 by Ministry of Health, 89% Singaporean adults reportedly brush their teeth twice a day but only 33% reported the practice of flossing.

Following the general trend seen in Singapore children, the national survey revealed a shift in the oral disease profile among the adults. The findings suggested a decrease in the prevalence of tooth decay but an increase in the prevalence of gum disease. It was found that about 85% of the adults examined displayed signs of mild to moderately severe forms of gum disease.

Hence, it is worthwhile to note that while Singaporeans have reportedly lower decay prevalence, the prevalence of gum disease seems to be significantly higher.

## How bad hygiene can affect the patient's general health

Periodontal (gum) disease is a condition affecting the gum and bone surrounding the teeth. The disease does not produce obvious signs and symptoms until it has progressed to an advanced stage.

To understand gum disease, we need to first understand the structures surrounding the tooth. The tooth is divided into the crown and the root. The root is surrounded by bone, which in turn is covered by gums. There is a space between the tooth and gums, called a pocket, which is present both in healthy and diseased states.



Gum disease originates from bacteria that gain entry into the pocket. When bacteria enter, they attack the gums. This causes injury to the gums, resulting in spontaneous bleeding or upon touching, pain, redness, and sometimes swelling. The bacterial film formed at this stage is called plaque.

If the bacteria are allowed to stay on the tooth surface or in the pocket, they harden to form tartar. If it remains uncleaned, the bacteria in plaque / tartar can spread deeper towards the bone and cause destruction of the bone and deepening of the pocket.

In the advanced stage of gum disease, the tooth has lost so much bone that it becomes shaky and may drift out of position. In the late stage of gum disease, the tooth can no longer be kept and has to be extracted.

## Effect of gum disease on general health

Injured gums bleed easily through the pockets. Through this pocket, bacteria can gain entry into the blood stream. This can theoretically give rise to effects on other parts of the body and affect general health.

Patients with advanced gum disease have a large surface area of infection and inflammation. In fact, the surface area over which bacteria can enter the blood stream is equivalent to the total surface area represented by two hands.

Bacteria can either enter the blood stream directly, or they can send chemicals into the blood stream. These harmful substances can then be transported to the various organs in the body.

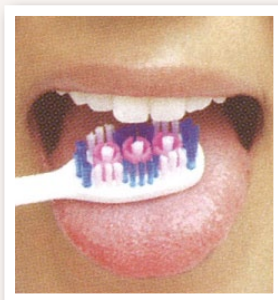
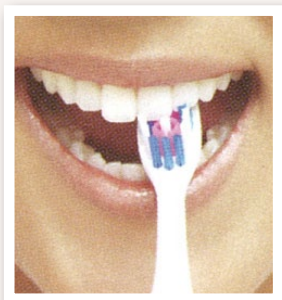
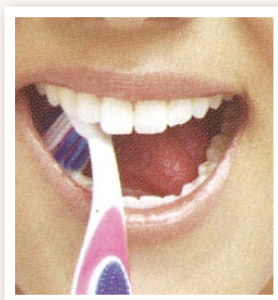
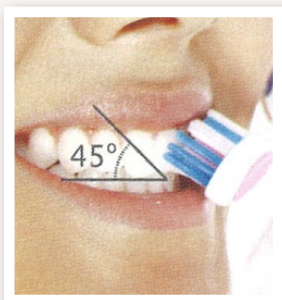


### Effect of gum disease on diabetes

Harmful chemicals produced by the bacteria can increase the insulin resistance of diabetic patients and worsen the diabetic condition. It is also well established by the WHO that diabetes can lead to worsening of gum disease.

### Oral hygiene practices

There are many different types of brushing techniques. The commonly taught method is:



1. Place the toothbrush bristles 45° towards the gum line such that the bristles and the tooth form a 45° angle.
2. The bristles should be in contact with the tooth while last row of bristles is sweeping the pocket
3. Brush in a circular motion
4. Repeat this for all outer and inner surfaces of the teeth
5. Place the bristles on the biting surfaces and scrub

Flossing of every gap should be done at least once a day because the toothbrush does not clean well between the teeth. If one does not floss, one can expect to perform only half the cleaning otherwise required. The flossing technique is described as such:



1. Wrap/coil the floss around the middle fingers
2. This would leave the index fingers and thumbs to control the floss
3. Gently ease the floss between the teeth with a sawing action
4. Once the floss gets past the contact point, wrap the floss around one tooth and clean the tooth surface 2-3 times with a up and down wiping action
5. The floss has to clean under the gums as well
6. Wrap the floss around the other tooth and repeat step 4

Brushing twice a day is sufficient although some patients feel more comfortable brushing after every meal. As long as the patient is using a soft bristle brush and applies the correct amount of pressure during brushing, there will be little damage to the tooth and gums.

Patients should change their toothbrush when the bristles are no longer straight. Bristles that are splayed do not allow the user to clean the pocket effectively.

Both electric and manual toothbrushes are equally effective in cleaning. However, if the patient has difficulties performing the circular motion required during brushing with a manual toothbrush, an electric toothbrush may come in useful.

Photos courtesy of Colgate Palmolive Eastern Pte Ltd.