

# Oral hygiene

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**Oral hygiene** is the practice of keeping the mouth and teeth clean to prevent dental problems, most commonly, dental cavities, gingivitis, periodontal (gum) diseases and bad breath.<sup>[1]</sup> There are also oral pathologic conditions in which good oral hygiene is required for healing and regeneration of the oral tissues. These conditions include gingivitis, periodontitis, and dental trauma,<sup>[2]</sup> such as subluxation,<sup>[3]</sup> oral cysts,<sup>[4]</sup> and following wisdom tooth extraction.

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## Teeth

Teeth cleaning is the removal of dental plaque and tartar from teeth to prevent cavities, gingivitis, gum disease, and tooth decay. Severe gum disease causes at least one-third of adult tooth loss.

Tooth decay is the most common global disease.<sup>[5]</sup> Over 80% of cavities occur inside fissures in teeth where brushing cannot reach food left trapped after every meal or snack and saliva or fluoride have no access to neutralise acid and remineralise demineralised teeth, unlike easy-to-clean parts of the tooth, where fewer cavities occur.

Dental sealants, which are applied by dentists, cover and protect fissures and grooves in the chewing surfaces of back teeth, preventing food from becoming trapped thus halting the decaying process. An elastomer strip has been shown to force sealant deeper inside opposing chewing surfaces and can also force fluoride toothpaste inside chewing surfaces to aid in remineralising demineralised teeth.<sup>[6]</sup>

Since before recorded history, a variety of oral hygiene measures have been used for teeth cleaning. This has been verified by various excavations done throughout the world, in which chew sticks, tree twigs, bird feathers, animal bones and porcupine quills were recovered. Many people used different forms of teeth cleaning tools. Indian medicine (Ayurveda) has used the neem tree, or *daatun*, and its products to create teeth cleaning twigs and similar products; a person chews one end of the neem twig until it somewhat resembles the bristles of a toothbrush, and then uses it to brush the teeth. In the Muslim world, the miswak, or *siwak*, made from a twig or root, has antiseptic properties and has been widely used since the Islamic Golden Age. Rubbing baking soda or chalk against the teeth was also common, however this can have negative side effects over time.<sup>[7]</sup>

Generally, dentists recommend that teeth be cleaned professionally at least twice per year.<sup>[8]</sup> Professional cleaning includes tooth scaling, tooth polishing, and, if tartar has accumulated, debridement; this is usually followed by a fluoride treatment. However, the American Dental Hygienists' Association (ADHA) publicly stated in 1998 that there is an absence of evidence that

scaling and polishing provides therapeutic value.<sup>[9]</sup> The Cochrane Oral Health Group reviewed nine studies but found them to be of insufficient quality and not enough evidence to support the claims of the benefits of regular tooth scaling or tooth polishing.<sup>[10]</sup>

Between cleanings by a dental hygienist, good oral hygiene is essential for preventing tartar build-up which causes the problems mentioned above. This is done through careful, frequent brushing with a toothbrush, combined with the use of dental floss to prevent accumulation of plaque on the teeth.<sup>[11]</sup>

Dentist and dental hygienist are about preventing tooth loss and gum disease. The patient needs to be aware of the importance of brushing and flossing their teeth daily. New parents need to be educated to promote a healthy life and mouth for their children. At any age; a person should be notified about how to take care of their teeth and how they will be able to keep their teeth and not need dentures.

## **Removing plaque**

Plaque is a yellow sticky film that forms on the teeth and gums and can be seen at gum margins of teeth with disclosing tablets. The bacteria in plaque convert carbohydrates in food (such as sugar) into acid that demineralises teeth, eventually causing cavities. Daily brushing with toothpaste and flossing removes plaque.

Plaque can also cause inflammation of the gum (gingivitis), making it red, tender and can easily bleed when flossing or brushing your teeth. If this is not treated, bones around the teeth can be affected by the various inflammatory factors, eventually leading to periodontitis. If not treated, the loss of bone structure may cause teeth to become mobile. The treatment is to remove plaque inside the deep pockets between the tooth surface and the soft tissues using specialized dental equipment. If the treatment is not successful, the gum will pull away from the teeth (receding gums) as a result of the cessation of the inflammatory swelling.

## Flossing

The use of dental floss is an important element of oral hygiene, since it removes plaque and decaying food remaining between the teeth. This food decay and plaque cause irritation to the gums, allowing the gum tissue to bleed more easily. Acidic foods left on the teeth can also demineralise teeth, eventually causing cavities.

Flossing for a proper inter-dental cleaning is recommended at least once per day, preferably before brushing so fluoride toothpaste has better access between teeth to help remineralise teeth, prevent receding gums, gum disease, and cavities on the surfaces between the teeth.

It is recommended to use enough floss to enable easy use, usually ten or more inches with three to four inches of taut floss to put between teeth. Floss is then wrapped around the middle finger and/or index finger, and supported with the thumb on each hand. It is then held tightly to make taut, and then gently moved up and down between each tooth. It is important to floss under visible areas by curving the floss around each tooth instead of moving up and down on gums, which are much more sensitive than teeth. Bleeding gums are normal upon first



A dental hygienist demonstrates dental flossing.

usage of floss, but will stop as gums become healthier with use.<sup>[12]</sup> One should use an unused section of the floss when moving around different teeth. Removing floss from between teeth requires using the same back-and-forth motion as flossing, but gently bringing the floss up and out of gaps between teeth.

## Interdental brushes

An interdental brush, also called an inter proximal brush or a proxy brush, is a small brush, typically disposable, either supplied with a reusable angled plastic handle or an integral handle, used for cleaning between teeth and between the wire of dental braces and the teeth. Brushes are available in a range of widths, color coded as per ISO 16409. Interdental brushes are classified according to ISO standard 16409:2006. The ISO brush sizes range from 1 to 7. The ISO brush size is determined by the PHD or Passage Hole Diameter in mm. This PHD is the minimum diameter of a hole that the interdental brush will pass through without deforming the brush wire stem. A peer-reviewed clinical study has found that using a toothbrush and an interdental brush more effectively removes plaque than using a toothbrush and dental floss.<sup>[13]</sup>

## Tongue scrapers

Tongue scrapers are simple tools for removing build-up on the tongue. Proper use can improve breath and reduce plaque.

## Oral irrigation

Some dental professionals recommend oral irrigation as a way to clean teeth and gums.<sup>[14][15][16][17]</sup>

Oral irrigators reach 3–4 mm under the gum line. Oral irrigators use a pressured, directed stream of water to disrupt plaque and bacteria.

## Food and drink

Foods that help muscles and bones also help teeth and gums. Breads and cereals are rich in vitamin B while fruits and vegetables contain vitamin C, both of which contribute to healthy gum tissue. Lean meat, fish, and poultry provide magnesium and zinc for teeth.

Eating a balanced diet and limiting snacks can prevent tooth decay and periodontal disease. The *Fédération dentaire internationale* (FDI World Dental Federation) has promoted foods such as raw vegetables, plain yogurt, cheese, or fruit as dentally beneficial—this has been echoed by the American Dental Association (ADA).<sup>[18][19]</sup>

## Beneficial foods

Some foods may protect against cavities by naturally containing fluorine, from which fluoride is derived.<sup>[20]</sup> Fluoride is naturally present in all water. Community water fluoridation is the addition of fluoride to adjust the natural fluoride concentration of a community's water supply to the level recommended for optimal dental health, approximately 1.0 ppm (parts per million). One ppm is the equivalent of 1 mg/L, or 1 inch in 16 miles.<sup>[21]</sup> Fluoride is a primary protector against dental cavities. Fluoride makes the surface of teeth more resistant to acids during the process of remineralisation. Drinking fluoridated water is recommended by some dental professionals while others say that using toothpaste alone is enough. Milk and cheese are also rich in calcium and phosphate, and may also encourage remineralisation. All foods increase saliva production, and since saliva contains buffer chemicals this helps to stabilize the pH to near 7 (neutral) in the mouth. Foods high in fiber may also help to increase the flow of saliva and a bolus of fibre like celery string can force saliva into trapped food inside pits and fissures on chewing surfaces where over 80% of cavities occur, to dilute carbohydrate like sugar, neutralise acid and remineralise tooth like on easy to reach surfaces.

## Harmful foods

Sugars are commonly associated with dental cavities. Other carbohydrates, especially cooked starches, e.g. crisps/potato chips, may also damage teeth, although to a lesser degree (and indirectly) since starch has to be converted to sugars by salivary amylase (an enzyme in the saliva) first. Sugars that are

higher in the stickiness index, such as toffee, are likely to cause more damage to teeth than those that are lower in the stickiness index, such as certain forms of chocolate or most fruits.

Sucrose (table sugar) is most commonly associated with cavities. The amount of sugar consumed at any one time is less important than how often food and drinks that contain sugar are consumed. The more frequently sugars are consumed, the greater the time during which the tooth is exposed to low pH levels, at which point demineralisation occurs (below 5.5 for most people). It is important therefore to try to encourage infrequent consumption of food and drinks containing sugar so that teeth have a chance to be repaired by remineralisation and fluoride. Limiting sugar-containing foods and drinks to meal times is one way to reduce the incidence of cavities. Sugars from fruit and fruit juices, e.g., glucose, fructose, and maltose seem equally likely to cause cavities.

Acids contained in fruit juice, vinegar and soft drinks lower the pH level of the oral cavity which causes the enamel to demineralize. Drinking drinks such as orange juice or cola throughout the day raises the risk of dental cavities tremendously.

Another factor which affects the risk of developing cavities is the stickiness of foods. Some foods or sweets may stick to the teeth and so reduce the pH in the mouth for an extended time, particularly if they are sugary. It is important that teeth be cleaned at least twice a day, preferably with a toothbrush and fluoride toothpaste, to remove any food sticking to the teeth. Regular brushing and the use of dental floss also removes the dental plaque coating the tooth surface.

## **Chewing gum**

Chewing gum assists oral irrigation between and around the teeth, cleaning and removing particles, but for teeth in poor condition it may damage or remove loose fillings as well. Dental chewing gums claim to improve dental health. Sugar-free chewing gum stimulates saliva production, and helps to clean the surface of the teeth.<sup>[22]</sup>

## Other

Smoking is one of the leading risk factors associated with periodontal diseases.<sup>[23][24]</sup> It is thought that smoking impairs and alters normal immune responses, eliciting destructive processes while inhibiting reparative responses promoting the incidence and development of periodontal diseases.<sup>[25]</sup>

Regular vomiting, as seen in bulimia nervosa, also causes significant damage.

Caffeine products are known to cause teeth to stain, though this can usually be cleaned by drinking fresh water after a caffeinated drink and also at the dentist by surface cleaning.

Mouthwash or mouth rinse with saline (salty water), fluoridated solution or the antiseptic solution chlorhexidine gluconate can improve oral hygiene by removing some tooth decaying materials. In particular, it may help to remove some foods that were recently eaten.

Retainers can be cleaned in mouthwash or denture cleaning fluid.<sup>[26]</sup> Dental braces may be recommended by a dentist for best oral hygiene and health. Dentures, retainers, and other appliances must be kept extremely clean. This includes regular brushing and may include soaking them in a cleansing solution such as a denture cleaner.

## Oral hygiene and systemic diseases

Several recent clinical studies suggest oral disease and inflammation (oral bacteria & oral infections) may be a potential risk factor for serious systemic diseases, such as:<sup>[27][28]</sup>

- Cardiovascular Disease (Heart attack and Stroke)



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- Bacterial Pneumonia: Oral hygiene care for critically ill patients has been reported to reduce the risk of ventilator associated pneumonia.<sup>[29]</sup>
- Low birth weight/Extreme High Birth Weight
- Diabetes complications
- Osteoporosis

## See also

- Tooth brushing
- Dental floss
- Periodontology
- List of oral health and dental topics
- List of basic dentistry topics

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## External links

- World Health Organization site on oral health ([http://www.who.int/oral\\_health/en/](http://www.who.int/oral_health/en/))



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