

WHY CLEAN YOUR TONGUE?

Dentists, hygienists and manufacturers of dentifrice, toothbrushes and floss have long emphasized the need to remove dental plaque from tooth surfaces to reduce the possibility of dental caries formation. Mouthwash advertisements influence people to use the products to rinse their mouths and, therefore, prevent or reduce halitosis. Fluoride has been placed in many of these vehicles to reduce dental caries formation.

This tooth and mouth cleaning has significantly improved the oral health of Americans, and it concomitantly created a competitive industry of oral hygiene products. However, in spite of significant commercial and professional emphasis on cleaning plaque from teeth, a surprising omission in hygiene has been made—the tongue. Why do many Americans produce two immaculate, shining rows of teeth separated by an organ covered with millions of microorganisms, emitting a strong malodor?

TONGUE CLEANING IN THE PAST

Centuries ago, there was some emphasis directed toward tongue cleaning. Ancient devices have been found that are believed to be implements to

scrape debris from the tongue. These are from various locations including Africa, South America, India and Arabia.¹ However, in most early cultures, tongue cleaning probably was not practiced by many people, since even the body as a whole was cleaned only occasionally. In some cultures, there were old wives' tales promoting the idea that cleaning the body of oils and secretions was harmful.

From the 15th century to the 19th century, tongue cleaning was known to be practiced primarily by the affluent leisure class. More recently, during the 19th and early 20th centuries, tongue cleaning was not a popular concept, and only a few references are mentioned in the dental literature. During this time period, perfumes became very popular to disguise body odor. Some early settlers in the American West had themselves sewn into their undergarments for the winter season to prevent the escape of body heat and to "protect" the skin. This was definitely not the era of clean bodies.

As mouth filth and dental plaque became associated with dental disease, some people actually started to clean their mouths. The preventive result was impressive, and attempts to have clean teeth, at least,

have become the norm among the majority of Americans. But filthy tongues have received only occasional mention by oral health professionals, and this small emphasis has not influenced people to clean their tongues to any significant degree. Recently, tongue cleaning has received more attention because of the development of so-called "bad breath" or "clean breath" clinics, which emphasize the various reasons why people have oral malodor and the ways to prevent this disagreeable phenomenon.

WHY CLEAN THE TONGUE?

The dorsal posterior part of most tongues has a coating of millions of organisms. During swallowing, soft foods that most of us eat do not abrade the coating significantly, and the resultant whitish-gray layer of debris and microorganisms remains intact. During the putrefaction of debris on the tongue, hydrogen sulfide and methylmercaptan are produced, both of which have been related directly to oral malodor.² It has been estimated that the debris in the mouth may be responsible for up to 90 percent of oral malodor.³ Others have stated that about 50 percent of the

population will have oral malodor unless tongue cleaning is practiced.⁴ Although it is difficult to prove from a scientific orientation, it has been considered that the many pathogenic organisms on the tongue can contribute significantly to tooth and periodontal disease.

The evidence is clear that organisms are present on the tongue in enormous quantities, that these organisms contribute to halitosis and tooth decay and that tongue scraping or brushing reduces plaque scores in the mouth.^{5,6} Today, when body cleanliness is almost a fetish with many people, tongue cleaning certainly should be a routine procedure.

TONGUE-CLEANING IMPLEMENTS

The last few years have brought forth scores of devices and gadgets to clean the tongue. The concept is so logical and so simple that prevention-oriented people should need only minimal encouragement to incorporate tongue cleaning into their oral hygiene routine.

Implements for tongue cleaning range from straplike pieces of plastic or metal held in one hand and scraped across the tongue surface, to razorlike "rakes" with plastic scraping surfaces or small brush bristles, to circular devices with handles designed to scrape the surface of the tongue. Research has shown that toothbrushes are inferior to scraping débridement implements in their ability to remove debris and organisms.⁴ Most tongue cleaners are small, easy to clean and inexpensive and do not wear out rapidly. Examples of brands rated high in a recent Clinical Research Associates evaluation⁷ were Breath-So-

Fresh (IDDS Inc.), Breath Taker (Medical Innovations Inc.), The Mouth Cleaner (Moelster International AS), Oolitt Elite and Oolitt Original (Oolitt Advantage Inc.) and Professional Tongue Cleaner (The Tongue Cleaner Co.).

IMPEDIMENTS TO TONGUE CLEANING

Most people do not enjoy placing an object down their throats and causing a gag reflex. In fact, some people need definitive instructions to accomplish tongue cleaning adequately without gagging. (Some people with bulimia use objects similar to tongue cleaners to elicit vomiting.) As tongue cleaning is practiced on a daily basis, the process becomes easier and less objectionable. Eventually, the person feels unclean when tongue debris has not been removed.

THE TONGUE-CLEANING PROCEDURE

The dorsal surface of most tongues usually has significant observable debris. Greasy foods rich in fat contribute significantly to accumulation of tongue debris. Until more controlled clinical research guides recommendations on methods and frequency of tongue cleaning, the following suggestions appear to be logical:

- Place the tongue as far out of the mouth as possible.
- Observe the location of debris accumulation. Unfortunately, the debris is usually on the most posterior aspect of the tongue.
- Place the tongue cleaner/scrapper as far posterior as possible, and place force on the implement to flatten the tongue, making the scraper conform to

the surface of the tongue. Many persons gag at this time, and practice is required to find the right positioning of the implement and to minimize the gag response.

- Pull the cleaner forward slowly to the front of the mouth. Depending on the foods eaten recently, the accumulation removed from the tongue will range from a waterlike, relatively clear solution to viscous, pigmented, mucouslike debris. If pigmented foods (chocolate, watermelon, foods containing coloring) have been eaten, the pigment can still be removed from the tongue even hours after the food was ingested and the teeth were brushed. This observation lends credibility to the idea that food debris and the organisms contained therein possibly could cause more dental disease, and that tongue cleaning may reduce this potential.

- Remove the debris from the cleaning device by placing it under a stream of running water.
- Repeat the scraping procedures several times until further debris cannot be removed.
- Clean and dry the cleaning device and store it until the next use.

Clinical research is necessary to determine the optimum number of times per day for tongue cleaning. People with halitosis are well-advised to repeat the tongue-cleaning procedure several times during the day. Depending on the anatomy of the tongue and the foods eaten, some people do not accumulate debris on their tongues. These people may need little or no tongue cleaning, while others have large accumulations of debris to be removed several times per day. Dentists should consider patients' oral characteristics and



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needs when advising them about tongue-cleaning frequency.

Some people find the concept of tongue cleaning to be disgusting psychologically. It is not clear why debris from the mouth should upset them more than debris accumulated on other parts of their bodies. When

encountering people with this response, it is well to emphasize

that the "disgusting" material they will remove from their tongues is even more repugnant to others when it is left in place and able to create oral malodor.

CONCLUSIONS

The debris present on the dorsal posterior aspect of the tongue accounts for a significant portion of oral malodor. Tongue cleaning removes organisms and debris from the tongue. It also might reduce tooth and periodontal disease. Many implements are available for tongue cleaning. The tongue-cleaning procedure is simple and fast, and the benefits for most people far outweigh the small investment and time required to accomplish this procedure. ■

The views expressed are those of the author and do not necessarily reflect the opinions or official policies of the American Dental Association.

Educational information on topics discussed by Dr. Christensen in this article is available through Practical Clinical Courses and can be obtained by calling 1-800-223-6569.

1. Christen AG, Swanson BZ. Oral hygiene: a history of tongue scraping and brushing. *JADA* 1978;96(2):215-9.
2. Tonzetich J. Production and origin of oral malodor: a review of mechanisms and methods of analysis. *J Periodontol* 1977;48(1):13-20.
3. Prinz H. Offensive breath: its causes and prevention. *Dent Cosmos* 1930;72:700.
4. Tonzetich J, Ng SK. Reduction of malodor by oral cleansing procedures. *Oral Surg Oral Med Oral Pathol* 1976;42(2):172-81.
5. Vasilakis GJ, Preis CO, Glaz J, Bissada NF. Effects of daily mechanical tongue cleaning of the rat on dental plaque and tongue mucosa. *Clin Prevent Dent* 1981;3(5):7-10.
6. Gilmore EJ, Bhaskar SN. Effect of tongue brushing on bacterial population. *J South Calif Dent Assoc* 1971;39:893-5.
7. Tongue cleaners: state-of-art review. *Clin Res Associates Newsletter* 1998;22(5):2-3.