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Can You Eliminate Bad Breath for Good?

Analysis by Dr. Joseph Mercola Fact Checked | October 29, 2022

STORY AT-A-GLANCE

- In up to 85% of cases, bad breath originates in the mouth, typically as a result of gingival and periodontal diseases, as well as tongue coating
- Tongue coating is a "grayish-white deposit" on the tongue, made up of bacteria, dead epithelial cells, blood metabolites, postnasal secretions and saliva
- People with periodontal disease have four times more tongue coating, in terms of wet weight, than those without
- The action of chewing fibrous foods helps to naturally cleanse the mouth, reducing tongue coating and bad breath along with it
- Regularly using a toothbrush or a tongue scraper to wipe away tongue coating can help reduce tongue coating and bad breath
- Oil pulling with coconut oil and using peppermint essential oils can also keep your breath fresh

Halitosis, or bad breath, is a common condition, affecting 50% of adults at some point in their lives.[1] The word stems from the Latin "halitus" (breath) and the Greek "osis," which means a pathological process.[2] However, it's said that mouthwash giant Listerine was the first to actually coin "halitosis" as a medical condition.[3]

Bad breath exacts both a physical and mental toll on those affected. It often leads to social embarrassment and can progress to stigmatization and reclusiveness.[4]

Far from being a trivial issue, bad breath is the third most common reason why people are referred to dentists — after dental caries and periodontal diseases, which often go hand in hand with halitosis.

Further, bad breath is ranked among the top 100 most distressful diseases in humans.[5] With proper attention to oral health — including your tongue — and overall health, however, it's possible to keep your breath fresh and malodor-free throughout your life.

What Causes Bad Breath?

In up to 85% of cases, bad breath originates in the mouth, typically as a result of gingival and periodontal diseases, as well as tongue coating. Another 10% of bad breath cases are caused by disorders having to do with the ears, nose or throat, while 5% are gastrointestinal or endocrinological in nature.[6]

When bad breath stems from a problem in the mouth, the bad odor is the result of a combination of pathological microbes. As noted in the International Journal of Oral Science:[7]

> *"Microbial degradation in the oral cavity is the main cause of oral malodor. Due to this process, volatile sulphur compounds (VSCs) are formed. The most important VSCs involved in halitosis are hydrogen sulphide (H_2S), methyl mercaptan (CH_3SH) and dimethyl sulphide $(CH_3)_2S$. These VSCs are mainly produced by Gram-negative anaerobic oral bacteria.*
>
> *... Most of the responsible microorganisms in halitosis are involved in periodontitis. So, there is a positive correlation between bad breath and periodontitis: the depth of the periodontal pockets is positively correlated to the height of the VSC concentrations in the mouth."*

However, when tongue coating is factored in, the correlation gets even stronger.[8] It's estimated that of the cases of halitosis that originate in the mouth (referred to as intra-oral halitosis), 51% to 73% may be associated with tongue coating.[9]

What Causes a Tongue Coating?

Tongue coating is a "grayish-white deposit" on the tongue, made up of bacteria, dead epithelial cells, blood metabolites, postnasal secretions and saliva. Most healthy people have a tongue coating, which is typically thin, whitish and slightly moist. Many factors affect tongue-coating thickness, however, including periodontal disease.

According to a review published in the Journal of Breath Research, people with periodontal disease have four times more tongue coating (TC), in terms of wet weight, than those without.[10] "In periodontal disease," the researchers noted, "the TC thickness increases, due to the migration of leukocytes from periodontal pockets into the saliva, and subsequently, these cells are deposited onto the tongue surface."

However, even in people without gum disease, food particles can get caught between the bumps and cracks on the tongue, leading to a bacterial biofilm coating.[11] Other factors that affect tongue coating include:[12]

- **Age —** Older people tend to have thicker, more discolored tongue coatings.
- **Diet —** Greasy foods contribute to tongue coating formation. The coating also changes texture, from water-like to a mucous-like paste, depending on the foods you eat. Discoloration of the tongue coating may occur if you eat foods like chocolate or drink coffee or red wine. If you eat fiber-rich foods, which promote chewing and swallowing (as opposed to soft, heavily processed foods) it can help to cleanse the tongue and keep the tongue coating thin.
- **Oral hygiene —** Mechanical tongue cleaning can remove debris and tongue coating.

Reducing Tongue Coating Fights Bad Breath

The action of chewing fibrous foods helps to naturally cleanse the mouth, reducing tongue coating and bad breath along with it. In fact, in a study of 20 people who ate either a high-fiber or a low-fiber meal, the high-fiber — chewing-intensive — group had a greater reduction in bad breath both immediately after the meal and 2.5 hours later.[13]

You can be even more proactive in removing tongue coating by adding tongue cleaning to your regular oral hygiene routine. Use a toothbrush or a tongue scraper and wipe from the rear of the tongue to the front. In a study published in the International Journal of Environmental Research and Public Health, these tools were pitted against each other, as well as used together, to see which worked best.[14]

No difference between the groups was found, which suggests it doesn't matter what tool you use. What does matter is simply doing it; it's a simple way to reduce bad breath and research confirms that "mechanical tongue cleaning is effective at reducing bad breath and tongue coating."[15]

Why Mouthwash Isn't the Answer

People have long been advised by well-meaning dentists to use mouthwash to kill oral bacteria and freshen breath. But just as is the case in your gut, if you kill off bacteria in your mouth by swishing harsh antiseptics like chlorhexidine, you're wiping out both good and bad varieties, which puts your health at risk.

Twice-daily use of mouthwash has been linked to an increased risk of prediabetes and Type 2 diabetes, for instance, again by affecting oral bacteria critical for the formation of nitric oxide, which predisposes individuals to metabolic disorders like diabetes.[16]

As it's becoming more apparent that regularly exposing your oral microbiome to antiseptics in mouthwash is problematic, researchers have taken on increased interest in the topic, including a team that investigated multiple effects of chlorhexidine (CHX) mouthwash after seven days of twice-daily use.[17]

Thirty-six individuals used a placebo mouthwash for one minute, twice a day for one week, followed by a CHX mouthwash using the same protocol for another week. A "major shift" in the salivary microbiome was noted after the chlorhexidine mouthwash usage, triggering more acidic conditions, which favor increased dental caries, and lower nitrite availability and oral nitrate-reducing bacteria, which affect heart health.

The use of mouthwash containing chlorhexidine twice daily has also been associated with a significant increase in systolic blood pressure after one week.[18] Differences in more than 10 species of bacteria living on the tongue were noted after mouthwash use, including lower microbial diversity after one week of use.[19]

Other research, including a study that followed 1,028 people over a period of three years, revealed similar mouthwash risks. Those who used mouthwash twice a day or more were more likely to develop high blood pressure than those who used it less often or not at all.[20]

Oil Pulling Reduces Bad Breath Naturally

A natural alternative to mouthwash would be oil pulling with coconut oil, which has a lipophilic effect, helping to eliminate unhealthy biofilm from your teeth. While it does have a natural detergent effect, it doesn't do the damage chemical detergents do. Coconut oil also contains a number of valuable nutrients that help promote oral health.

Oil pulling has been used as a traditional Ayurvedic remedy in India since ancient times. To try it, simply take a small amount of the oil and swish it around your mouth, “pulling” it between your teeth and ensuring it moves around your entire mouth. After about 20 minutes, spit the oil out into the garbage. You can use oil pulling daily along with regular brushing, flossing and tongue scraping.

In a systematic review that looked into the effect of oil pulling with coconut oil on oral health, coconut oil significantly lowered plaque index scores compared to a control group, while also reducing bacterial colony counts in saliva.[21] Coconut oil, in particular, is an ideal oil for oil pulling due to its antimicrobial effects.[22]

Research demonstrates that pulling oils improves the saponification, or breakdown, of bacterial membranes.[23] It’s also been suggested that it may kill microorganisms that are damaging cells, or reduce plaque and bacterial cohesion via the oily film that covers your teeth and gums.[24]

Oil pulling is also an effective mechanical method of cleansing your teeth and the smallest crevices along your molars that the bristles of your brush cannot reach. Your dentist may have recommended using sealants on your teeth to help prevent decay from forming in these tiny areas.

"Coconut oil also contains lauric acid that together with sodium hydroxide and bicarbonates creates a substance that reduces adhesion and plaque accumulation, having a cleaning action," researchers explained in the European Journal of Dentistry. "Despite its ambiguous mechanism of action, some studies have clearly demonstrated an anti-inflammatory effect, together with the one against adhesion/aggregation of plaque."[25]

Oil pulling only requires a small amount of oil — 1 tablespoon for adults and 1 teaspoon for a child — and should be done for at least 20 minutes daily for best results.[26] If you've never tried oil pulling before, you may need to work your way up to 20 minutes a day.

Peppermint Oil Freshens Breath, Reduces IBS

Proper oral hygiene, including regular brushing, flossing and tongue scraping, and getting regular cleanings with a mercury-free biological dentist, will go a long way toward keeping your teeth and gums healthy — and your breath fresh. A healthy lifestyle, including a diet based on fresh, whole foods, is also essential to a naturally clean mouth with no bad odors.

However, if you need a natural quick fix that may even have some longer term benefits, consider peppermint oil. Peppermint oil extract may be more effective than the mouthwash chemical chlorhexidine in preventing development of biofilm that may lead to cavities and bad breath.[27]

Further, peppermint oil offers benefits that mouthwash does not, including being an effective short-term treatment for irritable bowel syndrome (IBS).[28] In terms of bad breath, peppermint essential oil has also been found to target Fusobacterium nucleatum, gram-negative bacteria linked to halitosis, making it a "promising agent to

control halitosis and promote oral health."[29] The more tools you have at your disposal, the easier it is to keep bad breath away, once and for all.

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