

Let's Talk About Halitosis

Earl M. Schneider, DDS

Earl M. Schneider has a practice in Glenview, IL, and received his DDS at Northwestern University. A member of the American Dental Association, the Chicago Dental Society, the Illinois State Dental Society, and the Academy of General Dentistry, Dr. Schneider was an early adapter of the Halimeter® at his North Shore Breath Centers. In this article, Dr. Schneider covers the bases on halitosis, concluding with a case study.

Everyone has bad breath now and then, but many people find that they have a continual serious and embarrassing problem. Studies show that 90% of the population has periodic bad breath and 40% suffer from chronic halitosis. Unfortunately, oral malodor, commonly known as halitosis or bad breath, is socially unacceptable in our hygiene-conscious culture. Brushing, flossing and rinsing with perfumed, alcohol-based mouth rinses provide only temporary relief, instead of eliminating the problem.

What Causes Halitosis?

More than just a social problem, halitosis is a dental and medical problem. Studies show that 80% of halitosis problems originate in the mouth. The remaining 20% result from medical causes. Dead cells and bacteria in the mouth, occurring as a result of cell turnover, can putrefy forming volatile sulfur compound (VSC) gases.

These gases cause the odor in bad breath and are deadly to oral tissues, leading to gum disease. Other factors that contribute to bad breath are the areas around the teeth, which are irregular in contour and allow debris to be trapped and release gas, and the tongue, which has a rough surface that entraps bacteria that produce gas.

Dry Mouth

Although some cases of dry mouth are naturally occurring, most cases are caused by one of these factors: prescription medications (usually prescribed for high blood pressure or depression), antihistamines, adult beverages, or mouthwashes with alcohol in them.

When your mouth is drier, you have less saliva. Saliva naturally contains oxygen, which keeps your mouth healthy and fresh. If you have less saliva, you have less oxygen, thereby creating an anaerobic environment, perfect for bacteria to produce odorous and sour/bitter compounds.

Post Nasal Drip

We know that proteins contain amino acids, which in turn contain sulfur compounds. When a person has a post nasal drip, mucous drains and coats the back of the tongue and throat, exactly where bacteria live. Since mucus is made up of interlinked strands of protein, the bacteria have a field day breaking down these proteins into odorous and sour tasting sulfur type compounds. Strong antihistamines don't help because of their drying effect.

High Protein Foods

Bacteria love proteins, and certain foods are packed with them:

- **Milk and cheese and most other dairy products.** The fat content does not matter. If you are lactose intolerant, do not eat or drink these products. Since your system cannot digest them properly, they are available to the bacteria for an extended period of time.
- **Fish are high in proteins.** As many people eat a high fish diet, logically they make the problem worse.
- **Coffee with caffeine (and even without)** contains high levels of acids, which cause the bacteria to reproduce more rapidly and create a bitter taste for many people. Virtually any acidic type of food will do this.

Common Signs

A few of the common signs of this misunderstood problem are:

- A white coating on the surface of the tongue.
- A sour, bitter, or metallic taste related to higher acid levels in the mouth.
- Dryness in the mouth, extreme morning breath, or evidence of thicker saliva.
- High levels of postnasal drip or mucous in the throat. Mucous is high in proteins.
- An increase in bad breath, after eating certain foods, using mouthwashes or other hormonal therapies (estrogen, progesterone, etc.), or during the menstrual cycle. Humans are walking chemistry labs in which food, alcohol, hormones, etc. act as chemicals to stimulate bacteria.

What Is the Treatment?

Bad breath is caused by bacteria, which are anaerobic in nature (not needing oxygen) and these produce sulfur. These bacteria love living within the surface of the tongue and in the throat. These bacteria are supposed to be there because they assist humans in digestion by breaking down the proteins found in specific foods, mucous or phlegm, blood, and in diseased or "broken-down" oral tissue.

Under certain conditions, these bacteria start to break down proteins at a very high rate. Proteins are made up of amino acids. Two of the amino acids are dense with sulfur. When these "beneficial" bacteria come into contact with these compounds, the odorous and "lousy-tasting" sulfur compounds are released from the back of the tongue and throat, as hydrogen sulfide, methyl mercaptan, and other odorous and bad tasting compounds. These compounds are often referred to

as VSC, where volatile means vaporous and effervescent, two adjectives which accurately describe their ability to offend people.

These bacteria are not the bad guys - they are not infectious. Everyone in the world has the same group of bacteria in their mouth. You cannot catch bad breath from someone else - even by kissing. Since the bacteria are part of our normal oral flora, you cannot permanently remove them from your mouth, not by tongue scraping, not by antibiotics, and not by rinses, which claim to "lift bacteria off your tongue." The only scientifically proven and clinically effective method of stopping halitosis is by attacking the bacteria's ability to produce VSC and converting the VSC into non-odorous and non-tasting organic salts.

When people come to our clinics seeking help for their bad breath, the first thing we do is read their anaerobic sulfur producing bacteria level. This is done on a machine called the Halimeter. The Halimeter works by having people blow into a straw attached to a tube. The Halimeter measures the concentration of sulfide molecules in bad breath and determines if indeed someone has halitosis. A borderline reading is about 75 ppb (parts per billion), [but, please refer to this [Halimeter Knowledge Base article](#)] based on a study done in the early 1990's in Japan. After smelling various concentrations of sulfide compounds, a group of test subjects agreed that they started to smell unpleasant odorous at the 75 ppb mark. The other significant reading is 120, the point at which everyone in the study agreed there was a disagreeable odor.

These bacteria are anaerobic, which means they cannot live near oxygen. All humans have oxygen in their oral cavity when they breathe. But since these bacteria cannot live on the surface of the tongue (remember the oxygen kills them off), they have buried themselves deep between the papillae (the fibers) that make up your tongue. That is why scraping and brushing your tongue with standard toothpaste and using mouthwash doesn't work!! You are missing the bacteria totally. The white coating on the tongue is a collection of sulfides that come to the surface. It is not the bacteria. The bacteria are much farther down and cannot be removed physically.

Why Antibiotics Don't Work (and can actually make the problem worse!)

The bacteria involved in this problem are not pathogenic bacteria. They are actually beneficial bacteria, which assist with digestion. If antibiotics specifically for this group are used, the problem will go away for about two days. Your body will then sense that the bacteria are missing will create resistant strains of the same bacteria, and the problems will come back. If your doctor suggests that you use antibiotics for bad breath and sour tastes, you should be aware that you might end up with an oral yeast infection. This is due to the fact that you will be creating an imbalance of your normal oral bacterial level, which allows yeast, fungi, etc. to enter and give you disorders such as thrush (candidiasis). Ask for a second opinion if your doctor pushes you to take too many antibiotics or for a long period of time.

Bad Breath is Not Your Typical Oral Hygiene Problem

As many of you know personally, you can brush and floss perfectly six to seven times daily and STILL HAVE THIS PROBLEM. I know that your family dentist may tell you otherwise. For those of you who have suffered needlessly for years and years, you most likely go out of your way to have excellent hygiene habits. Please understand, brushing and flossing are important with regards to periodontal health. You need to keep your teeth clean so they remain in good condition. The problem with constant brushing and flossing is related to the lousy ingredients in oral products and how they can actually make your breath worse.

Contrary to what you have learned in the past and are probably currently hearing in commercials for ineffective "breath capsules", BAD BREATH DOES NOT COME FROM THE STOMACH, except in extremely rare instances due to a weakening of muscles that line the esophagus. Odor-causing bacteria, located on the back surface of your tongue, on the roof of your mouth, in your throat, and in some cases on the surface of your tonsils, which may produce white odorous globules called tonsilloliths, are the real source of the problem. That is why your tongue may be discolored from rosy pink to a whitish color. From these experiences, we also realized that the sinuses, or lung diseases do not cause bad breath and its related disorders.

A Case Study

Mrs. Debbie Lewis walked into the North Shore Fresh Breath Treatment Center after overhearing her boss tell his partner that a client had complained about Mrs. Lewis' bad breath. The client requested a new sales representative or he would take his business elsewhere. Lewis left her office crying. She then learned about our office from her cousin, a patient of ours. The first thing we did was to evaluate Mrs. Lewis' complete medical, dental, and halitosis history. From this evaluation, we tried to determine if the odor, or the halitosis, was medical or oral (dental) in nature. Because Ms. Lewis' problem was oral, we next examined her breath using a device that determines the strength of the odor produced from sulfur gases in the mouth. Very specific bacteria produce these sulfur gases. Because her reading exceeded the norm, we recommended treatment.

The treatment involved irrigating the soft tissue of her entire oral cavity with a very intense spray to help get deep down into all of the crevices. The areas, which were magnified during the treatment, were the posterior two thirds of the oral cavity. After this, Mrs. Lewis was given a rinse, special toothpaste, and a tongue scrapper to use at home. The main ingredient in the rinse and the toothpaste is chlorine dioxide, which helps neutralize the odors produced by the bacteria. The treatments took two to four appointments scheduled every other week until the patient was satisfied. We then placed Mrs. Lewis on a rinse to be used once a day at first, and then once a week or even every other week until the odor from the gases was at trace levels.

Well, Mrs. Lewis is quite happy today. We recently saw her, and she informed us that she bought into a partnership with her business. We are not claiming that we saved her job, but our treatment helped improve her self-esteem.