

REVISED FOR 2017

BEATING BAD BREATH



THE CURE!



YOUR COMPLETE GUIDE TO
TREATING AND CURING HALITOSIS

BY RICHARD A. MILLER, DDS

#1 EXPERT ON BAD BREATH

Beating Bad Breath **THE CURE! ©**

**Your Complete Guide to
Preventing, Treating, and Curing Halitosis**

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National Breath Center

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National Breath Center

Falls Church, VA

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A NEW BEGINNING FOR THOSE WITH BAD BREATH

My goal and the purpose for this book is to help free you from the worries and fears of bad breath and to help bring **CONFIDENCE** back into your life. **For those of you who have bad breath, please know that:**

1. You Are Not Alone.

In 24 years, I have seen over 7,000 people with all levels of halitosis—people socially incapacitated, social lives ruined, weddings called off, engagements broken, jobs lost, and even divorce. This is why I expanded and rewrote my original book, *Beating Bad Breath* (1995) — for others to know that there is help. Help that works. *And this book is the latest revised edition of the 2013 edition, newly revised for 2017.*

2. While it's sad that medicine and dentistry do not recognize halitosis as a real condition, the good news is that even the worst cases can be cured.

For 24 years, I have treated people with a 100% cure rate. This book will give you much of the knowledge I have accumulated about **CLINICAL** and **AT HOME** treatment and help you find what works for you.

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INTRODUCTION

Imagine meeting new people who offer you gum or mints, cover their noses, or stand back. Imagine your date turning their cheek away just as you go to kiss them; imagine people who move back a step when you come close; or co-workers who try to avoid you. And if you're married, imagine your husband or wife not wanting to kiss you because of your breath. Then imagine having that fear all the time. This is what people with halitosis go through every day. I see the fear in their faces when they come in as a new person to our office. I hear their skepticism when told I can cure them and I listen to their stories, most always with unhappy circumstances devastating to their confidence and their lives.

There is a CURE! A TOTAL CURE!

I know because I have personally treated and CURED over 7,000 patients with halitosis since 1993. And the people I see at the National Breath Center come from all over the world – 27 countries including the Middle East, Philippines, England, Japan, Africa, Europe and almost every state in the U.S.

In 1995, my first book, *Beating Bad Breath*, was published—the only published book on treating bad breath at that time. Since then, I have taught thousands of dentists at major dental meetings in the U.S. and Europe, and in numerous all-day seminars across the country.

As I continued to cure thousands of people with halitosis over the last 24 years, from mild to the most severe case imaginable, the doctors I taught seem to have forgotten the cure and the profession has turned to selling products instead of

curing people. Products are certainly easier to offer rather than hands-on treatment that eliminates the problem, but the TOTAL CURE takes knowledge, hard work, experience, and caring.

In this book I will tell you what works, what doesn't, and why. I will present the TOTAL CURE for the thousands I have treated. I will tell you how to *maintain the TOTAL CURE indefinitely*. In addition, I will relate some of the stories I have heard over the past years and how the TOTAL CURE has affected people's lives.

Moreover, for those who cannot find a dentist who offers the TOTAL CURE, I will offer you a proven self-treatment technique – the **Beating Bad Breath Protocol**® – that will put you in control of your problem.

In good health,

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Why I specialize in curing bad breath

When I began to cure bad breath, I had been in practice for almost 20 years. During that time, I had performed almost every dental procedure possible – from surgery to advanced restorative dentistry. I had long since mastered the techniques and procedures that define a superior dentist.

However, in 1993, I began to truly change people's lives. I was able to see someone go from withdrawn and depressed to outgoing and optimistic; to save a marriage; to help weddings go forward instead of a broken engagement; to see estranged people find their love again; to help people get a job promotion; to help people who had given up hope and those who would not quit looking for a cure; to cure someone after 35 years of their seeking a cure; this is what drives me – knowing that I am truly changing people's lives by curing their bad breath.

Sitting across from someone, hearing their story, and empathizing with their plight, occurs for me almost every day at the National Breath Center. These feelings have become a calling – to help people reclaim their normal lives by eliminating the insidious condition of chronic bad breath.

Many people I see have tried numerous bad breath cures and seek me out because they have almost no hope left; I find great satisfaction in knowing I can cure them. Curing people of bad breath is the greatest joy I could never have imagined when I entered dentistry.

Richard A. Miller DDS

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THE ROAD TO THE CURE

In mid fall of 1992, I received a phone call from a patient and friend whom I had known since I opened my office - the mother of a bride-to-be who was to be married in March of the next year. I remember the emotion in that call as she choked back tears. Her future son-in-law had just told her daughter that he was calling off the wedding as her daughter had mouth odor he could no longer be near.

As I became a confidant to her story, the mother began asking, then pleading with me to help her daughter. I told her to have Jennifer come in the next day to see me.

Jennifer was a young woman 27 years old. As she sat in my treatment room, she related her story.

Jennifer had had an occasional bad taste in her mouth for years and even thought she might have bad breath, but she had thought nothing of it. Mouthwashes, toothpastes, or gum always seemed to take care of it even though a few people had told her about her breath problem.

Then Brian came along. After they had been dating 6 months, Brian asked her to marry him. All seemed to go well until they had been engaged for about 4 months. As she was making her wedding plans, Brian began to “avoid” her. At first, she thought it was the anxiety of getting married. However, her friend Marilyn, a bridesmaid-to-be, told her the reason: Brian was turned off by her breath.

Jennifer, of course, was beside herself. She was in love with Brian and didn't want to lose him. She didn't know what to

do. She came to see me since I had been her family dentist since she was a young girl.

When she told me her problem, I felt helpless. I had never read anything in the professional literature about a formal treatment for halitosis. So I began a search of all the known information about bad breath.

I spent days off and weekends at Georgetown University Medical Library studying all past research on halitosis since 1900. I copied hundreds of pages from long forgotten journals and scientific papers.

Even though I had no treatment protocol at that time, what I *did* have was a desire to help this young woman. So before she came into the office for the diagnosis, I devised some simple steps and observations for my first halitosis exam.

No products had yet been invented to kill the bacteria that caused bad breath or to neutralize the odor. *Nothing other than cleaning the teeth and deep cleaning, if needed, were recommended as a therapeutic regimen* (that still holds true today). So we did what was recommended in dentistry at that time and improvised other treatments. Over the course of treating Jennifer, I developed an original protocol to eliminate halitosis and went on to teach it to over 10,000 dentists in the U.S. and Europe.

Sometime before her exam, I had read about the smell (organoleptic) test for halitosis but needed to devise my own technique. For the organoleptic reading, I smelled the odor in her mouth, at 1 and 6 inches from her face. I had her expel a gentle breath of air no matter where my nose was and subjectively

compared them to the one-inch reading, which I considered the baseline. Needless to say, it was not a pleasant task. I found that her fiancé really did have a point. What to do?

Since her initial treatment appointment was 4 weeks from her first visit, I began to look at things in the mouths of patients I had previously glossed over. I smelled food in food traps between the teeth; I asked patients to breathe on me at 1 and 6 inches, before they had their teeth cleaned. I asked if they had ever experienced the social signals that Jennifer had related to me. I started to see the anatomy of their tongues and their coatings; I began to look at their throat and tonsils, and I began to swab and smell their tongue coatings. I began to see possible connections, so I kept testing and observing.

Six weeks after I began treatment Jennifer came in with her fiancé in tow. We chatted for a few minutes as she worked her way to telling me her good news. She **was** getting married. I was thrilled for her, congratulated her, and decided to ask Brian a question: “What changed for you?” As best I can remember from 1993, here were his words.

“I had loved Jennifer from the moment we met in college. Her problem was minor but just noticeable then. During our engagement, I found it getting worse. I was even holding my breath when I was close. I simply started to avoid her.

‘After a lot of thought, I tried to weigh how her problem would affect our lives together. I decided my only recourse would be to try to find someone else. But the thought of living without Jen was too painful. I could only hope she would find some help.’”

I interjected, “Have you noticed a change in her breath?”
“Yes,” he replied. “I no longer need to worry about being close.

‘Whatever you did has allowed me to focus on more important things—like our wedding.’ They both smiled at each other then got up to leave. Unexpectedly, Jennifer wrapped her arms around me in a hug, and Brian shook my hand. They left the office hand in hand.

Of course, I had not yet developed the TOTAL CURE, which was two years later, but what I had done for Jennifer created no discernible bad breath – I had CURED Jennifer.

Helping Jennifer and Brian spurred me on to continuing observation and experimentation— searching for something the literature, the research, the academics, and my peers said did not exist—The Cure for Bad Breath.

PART I

CURRENT TREATMENT DOES NOT WORK

WHY CURRENT TREATMENT DOES NOT WORK

Americans spend billions of dollars annually for fresh breath. This includes mints, gums, mouthwashes, toothpastes, sprays, and numerous other products. The one characteristic these have in common is that *they only cover up the mouth odor* with a stronger, more pleasant odor that lasts a short time. That's it!

As I updated my investigation of over-the-counter (OTC) mouthwashes for this book, in most all mouthwashes the ingredients always included “essential oils” with strong odors, like eucalyptus oil, menthol, and mint. These are cover-ups and have little or no therapeutic ability to treat bad breath. And the ones with alcohol are even worse. Alcohol is not listed as an active ingredient, but it is obvious that the astringency of the alcohol is what we feel that makes it seem as if an antiseptic is cleaning our mouths.

In 1992, *Consumer Reports* tested the efficacy of 15 mouthwashes that claimed to eliminate bad breath, most still on the market today. Their tests found that while all mouthwashes tested were still working 10 minutes after use only some lasted more than one hour—and those only partially. *Consumer Reports* concluded, “...the results varied too greatly from person to person to generalize; no product proved to be consistently better than any other... at the end of two hours, they all had fairly little residual effect.”

An old test? Yes. However, the ingredients have changed little since then which is the reason Consumer Reports has not repeated the test; and from experience at the National

Breath Center, I would definitely agree. *Over-the-counter (OTC) mouthwashes and toothpastes do not work.*

THE WORST BREATH EVER!

One day in 1998, a man walked into my office surrounded by his wife and two daughters. By his body language, it was easy to see that he did not want to be there. Upon later questioning, he had been brought to the office by the three women who came with him and who corrected any comments he made.

After filling out the paperwork- medical history, dental history, and our halitosis questionnaire- he was brought into the treatment room at the end of the hall. This dental treatment room was about 10 feet by 12 feet in size. As I entered the room, I was able to smell his breath before the entry door - 12 feet away! I did not put on a mask as it would not have worked anyway. I proceeded in, took my seat, and began to talk with him and his entourage.

One daughter told me how many people had said he had terrible breath. His wife talked about how no one would sit near him in church. They all said how bad it was being indoors with him or in a closed space.

I began my investigation. He had all the symptoms and signs of severe halitosis. His tongue had a large, thick, and yellow-brown coating; he had severe gum disease, and the open contacts and food traps made it appear that his oral hygiene was nonexistent.

The Halimeter, which measures the amount of volatile sulfur compounds (VSCs) in the breath, the actual odor of halitosis, was the last instrument I used in diagnosis. The range of VSCs that can be measured is from 0-1999. When tested with the Halimeter, he registered 1999 within 30 seconds, most likely because the machine could not go any higher.

His wife and I agreed on treatment and with his nod, he showed he would do it. Over the next four months, we cured his breath problem. The Halimeter readings had come down to 100. At the end of his treatment, I felt I had accomplished something unique.

He had been aloof from the time I met him, but his wife and daughters were ecstatic. They were no longer afraid of going out in public with him. His wife even related that kissing him was no longer an unbearable task. As they left, he turned his head slightly and gave me a wink.

I saw him again for his regular maintenance that kept his condition in check. He was undoubtedly the worst case I've seen in 24 years and I was able to completely cure his bad breath.

MYTHS ABOUT HALITOSIS

A) Halitosis comes from the stomach.

Not true. There are a series of valves in our stomachs and esophagus that block the regurgitation of our food. These valves also block any stomach odors from coming back up into the esophagus, our throats, and out our mouths or nose. Only in cases of certain illnesses can severe regurgitation occur.

Controlled gastroesophageal reflux disease (GERD) does not exhibit this problem.

B) There is no cure for halitosis.

There is a **TOTAL CURE** that I will explain later. However, do not be misled by the companies that advertise a cure-in-a-bottle. What they offer is a temporary fix. **The TOTAL CURE does not depend on products to eliminate halitosis.**

C) If I brush or scrape my tongue, my bad breath will go away.

Scraping or brushing the tongue only removes **a thin, top layer** of a deep accumulation of bacteria, dead skin cells, dead blood cells, food, and debris which make up a major cause of the odor of bad breath.

D) Mouthwashes, mints, and gums can keep me halitosis free.

Companies that sell these products would like you to believe this; however, most products simply cover up the malodor with a stronger, more pleasant-smelling odor. This is true of every product that has a moderate-to-strong taste or odor. In addition, most contain some type of sugar that feed the bacteria, creating even more odor.

E) The foods I eat cause bad breath.

While it's true that onions and garlic, to mention just two foods, will taint your breath, they are not responsible for ongoing halitosis. They will, however, penetrate the coatings on the

tongue and be absorbed into the bloodstream to be expelled in the breath from our lungs. The odors from these foods can stay on the breath for days.

F) Better oral hygiene will solve my breath problem.

Better oral care will help overall, particularly when gingivitis or gum disease is present. However, halitosis is much more complex. So, establish good oral hygiene practices, and they will still serve you well, but not solve your breath problem.

G) Dipping my tongue scraper in special mouthwash will clean my tongue.

False. It is a sales technique for the mouthwash company. Will it help? Only a little, because a tongue scraper can only remove “yesterdays” coating, not what has piled up over the years and not the deeper coatings associated with chronic bad breath. Adding mouthwash does very little if anything. As you will see later, the coating, called a *biofilm* must be removed by means that are more sophisticated and hands-on.

SIGNS & SYMPTOMS OF HALITOSIS

- Coating on tongue; coating can be white, yellowish, or brown
- People reacting to you in close situations; reactions like these are common:
 - Covering their nose or mouth
 - Stepping back or turning sideways
 - Offering you mints or gums

- Rubbing under their noses
- Morning breath
- Brushing and flossing do little for the odor
- Regular mouthwashes wear off quickly
- Chronic bad taste that lasts more than 1 day
- Loss of some taste
- Food does not taste as profound
- Dry mouth
- Thick saliva
- Sinus problems & Allergies
- Post nasal drip

TEST YOURSELF FOR HALITOSIS

While many people with bad breath have tried the “lick the back of your hand” exercise, or the “cup your hands in front of your mouth” test, or even the “spoon” test, there is another test that involves your sight, your smell, and a piece of gauze. I routinely use it in my office in diagnosis and treatment.

Try this simple test to determine if you have a problem: Take a piece of sterile 2” x 2” gauze, available at every pharmacy. If you have a dry mouth, take 1 sip of water first and swish in your mouth for 30 seconds or so. Stick your tongue out as far as possible. To get the most coating, with your first two fingers on one side, and your thumb holding a corner on the other side, firmly wipe forward 3-4 times *from the farthest back* area that you can reach on your tongue. Get off as much coating as you can. Look at the gauze. Is it discolored? Compare the color to the white part of the gauze. Wait one minute. Smell the

gauze. Is there an odor? If you see *either* a color on the gauze **or** smell an odor, you have halitosis.

One additional note: It is important when doing this test to wait a moment before smelling the gauze. Why? The same reason we have a hard time smelling our own bad breath—adaptation. However, even after waiting, *many people cannot smell their own odor on the gauze, because of this same phenomenon- adaptation.* You might want to include a close friend or relative to help with this test – someone who will tell you the truth without judgment.

Adaptation is a sensory phenomenon peculiar to taste and smell. Have you ever entered a room with a particularly bad odor or sat next to someone with a strong perfume? After a time, the odor seems to get better; the perfume seems to be more in the background. In reality, the odor is still there, but you have adapted to it and lost your awareness of it. So it is with halitosis. *It's also why our loved ones and even ourselves may not notice it—they smelled it originally, but adapted to it as time went on.*

If you want to find out if others notice your breath, do not overlook the clues that they give you: A covered up nose when you are near someone, the intermittent rubbing and blocking of the nose, standing farther away than appropriate, turning sideways, and offering gums or mints may be indicators that you have a problem. Their actions should prompt you to find out if you do have bad breath by trying the tests above, asking a close friend, or by seeing a qualified professional.

In addition, trying to hide your bad breath with a strong but different odor is also a dead giveaway. Nothing screams “I have bad breath” than a strong minty odor. In addition, as that

cover-up begins to dissipate, the actual odor of halitosis reemerges.

WHAT IS HALITOSIS?

Halitosis is a *combination of odors* that come from the waste products of various bacteria that live in our mouths and digest their “foods”. These particular odors are usually Volatile Sulfur Compounds or VSCs for short, however, the same bacteria also produce other odor compounds that are not sulfur-based. The types of bacteria that produce VSCs are anaerobic bacteria, meaning they live without air. There are many places in the mouth that have little or no air: under the gums, in gum a disease areas, in food traps, in the coating on your tongue, in spaces between your teeth, and under poorly fitting fillings or crowns. Everywhere there is a dark, moist, air-deprived area in your mouth, you can be sure these anaerobic bacteria are breaking down their food, resulting in VSCs and other strong odor causing compounds that result in halitosis.

The bacterial “food” consists of proteins and sugars, dead mouth cells, dead blood cells, carbohydrates, and debris. Dead mouth cells accumulate as we slough off the mucous membrane lining of our mouths every day, like sloughing off the top-most skin cells on our bodies. In people with allergies or sinus issues, protein leaks onto the very back of the tongue, and, because of the bacteria, readily decomposes into Volatile Sulfur Compounds. Blood cells come from micro-bleeding occurring in the gums. Most people I see have not noticed any blood on their floss, toothbrush, or in the sink. Yet when I screen for bleeding, it is inevitably there, sometimes in many places. Removing the

tongue coating and elimination of inflammation and bleeding of the gums is one cornerstone of our professional treatment.

As a point of interest, here is a partial list of odors the anaerobic bacteria create:

ODOR COMPOUND	SMELL
Hydrogen Sulfide	Rotten Eggs
Methyl Mercaptan	Feces
Dimethyl Sulfide	Cabbage, Gasoline
Dimethyl Disulfide	Garlic
Skatole	Mothballs
Cadavarine	Urine
Putrescine	Rotting Flesh
Isovaleric Acid	Sweat

As you can see, there are a multitude of odor-causing compounds present in the breath. **Only the ones in bold are sulfur based. These are the only ones that are measured by the Halimeter and the Oral Chroma.** At the National Breath Center, we find that about 75% of people have sulfur based molecules as the primary odor causing compound. But about 25% of the people we see have non-sulfur based bad breath which cannot be measured by the Halimeter or the Oral Chroma, eventhough their breath is just as severe as those with a majority of sulfur compounds. That is why there is no single test that measures the level of bad breath. At the National Breath Center we use six different tests to establish a diagnosis.

PART II
WHAT CAUSES BAD BREATH

THE CAUSES OF BAD BREATH

Research has shown that approximately 95% of halitosis comes from oral causes. Halitosis does *not* come from a “sour stomach,” or ear, nose, and throat problems except in rare instances. As mentioned earlier, the actual odor of bad breath comes from the bacterial breakdown of proteins and sugars, dead mouth cells, dead blood cells, carbohydrates, and debris. The actual **odor comes from the waste products of the bacteria.**

Based on 24 years of personally treating and curing halitosis, I have identified 6 direct problems associated with bad breath:

1. Tongue biofilm coating (quantity & quality)
2. Bleeding gums, gingivitis, periodontal disease (severity)
3. Saliva and dry mouth
4. Food traps between the teeth
5. Other Oral Factors:
 - Ill-fitting fillings, crowns, or bridgework
 - Missing teeth
 - Dentures, partials, and other appliances
 - Oral thrush and oral cancer
 - Other oral diseases
6. Sinus problems (see medical causes)

All of these create an environment for halitosis, causing bacteria to thrive, reproduce, and create more and more odor causing molecules. To cure bad breath, ALL must be addressed as we do at the National Breath Center.

When there is more than one factor, there is a multiplying effect. A tongue coating with bleeding gums enhances the bad breath exponentially, as do food traps, and other problems.

TONGUE ANATOMY

It is important to understand the anatomy of the tongue as the tongue biofilm coating is a primary, but not the only cause of halitosis.

The tongue is made up of four different papillae (projections) named filiform, fungiform, foliate, and circumvallate papillae, three of which are taste buds. The average number of individual taste buds on the tongue is about 9-10,000 with each taste bud having 50-150 cells which recognize taste.

The most important point to note about tongue anatomy is that every tongue is different. Some have fissures or grooves; some have denuded areas where there are no taste buds; and all people have taste buds of differing sizes, shapes, and depths. In fact, a condition known as geographic tongue actually changes the location of structures from time to time. Geographic tongue is *not* pathologic and is present in a small number of people.

All papillae have tiny arteries, veins, and nerves which connect to the major sensory nerve of the head that goes directly to the brain. Thus, taste is one of our senses that is near instantaneous.

The filiform papillae contain no taste buds but are the most numerous structures on the tongue. With some magnification, they look like blades of grass on a lawn; with higher magnification they are seen projecting off a base. The exact purpose of these papillae is not clear; however, they do act as a supporting structure for the actual taste buds. These papillae especially accumulate the odor causing bacteria, volatile sulfur compounds, and other odor causing molecules.

Fungiform papillae have taste buds as the primary part of their structure. They can taste salty foods, sour foods, bitter foods, and sweet foods. These papillae are shaped like a balloon with a wide base.

Foliate papillae lie in the posterior (back) areas of the tongue and are found on the borders of the tongue. They too are taste buds.

Circumvallate papillae account for the fewest papillae on the tongue, and the largest of all. They are mushroom shaped and are in the back most part of the anatomical tongue. They number a maximum of 14 and are arranged in one V-like row at the back of the tongue.

The sizes and shapes of our taste buds are what allow the bacteria and odors to get down to the *bottom of the tongue base*. Here, they create a **thick, tenacious coating called a biofilm that actually grabs onto the tongue and cannot be removed by tongue cleaners, toothbrushes, or at-home treatments**. However, once you are CURED, maintenance will hold the cure and keep bad breath from returning.

Behind the circumvallate papillae, where the tongue attaches to the throat, are finger-like projections referred to as the lingual tonsils that can be different sizes and shapes. They function as part of our immune system. Unfortunately, these projections also accumulate bacteria and VSCs like the rest of the tongue with the added disadvantage of accumulating sinus-related secretions like mucous, which is an excellent protein food for the odor-causing bacteria. When a mouthwash that targets bacteria and neutralizes odors is used, for this reason, it is a good idea to gargle with it to get to these bacteria.

TONGUE COATING (BIOFILM)

The tongue is the largest single structure for the accumulation of bacteria that cause mouth odor. The bacteria along with their foods, make up what is called the **biological film (biofilm)**. Nothing can penetrate that thickness (1/4 inch) without mechanical removal. Even a *tongue cleaner cannot get down to the middle and lower layers. A biofilm can only be removed by mechanical action usually by a professional.*

In *Breath Odors*, the definitive professional book on halitosis, Nir Sterer and Mel Rosenberg, two premier researchers in the field of halitosis, state “**These oral biofilms . . . are highly resistant to rinsing, washing, detergents, and even antibiotics. This is one reason why *mechanical cleaning procedures* - cleaning of dental and oral surfaces are the cornerstone” of halitosis treatment. and the **TOTAL CURE for halitosis. Biofilms are living ecosystems which include bacteria, their food, and their waste products (bad-breath odors).****

In professional treatment, we treat the tongue with a technique called Tongue Rejuvenation™, which removes the biofilm; for the gums, the biofilm is removed by eliminating the tartar, smooth the outsides of the teeth where the biofilm is still attached, eliminate the inflammation and bleeding, and prevent it from reforming. It is important to note that most all tartar (calcium deposits with bacteria and debris) below the gums are small but have a big influence on bleeding and the dissolving of gum and bone. Finally, we teach each person how to do maintain themselves so that when they are cured they are less dependent on us.

The best analogy I have been able to think of for the tongue biofilm, is the front lawn of a house. The base of the tongue would be the dirt, while the lawn is made of grass, weeds, mushrooms, and the like. Everything above dirt level are the papillae packed together as one's lawn would be with small spaces between allowing insects (bacteria) to flourish. In our mouths, due to the thickness of layer upon layer of bacteria, their chemical waste (breath odor) has been piling up for years or even decades. Tongue scraping (cleaning) removes only the top layer while the biofilm coating keeps growing in the process, just like mowing the lawn removes only a top layer of what is growing there.

Why do some people with a tongue coating have chronic halitosis while some do not? It comes down to the anatomy of the tongue, the quantity and the quality of the biofilm itself, the virulence (activity) of the bacteria, oral hygiene practices, food traps, spaces between the teeth, and food and debris that add to the coating.

Biofilm accumulation varies from person to person. Some coated tongues have low bacterial activity while others have high activity (halitosis sufferers). The quantity of the coating depends on the anatomy of the tongue. The more space there is between the taste buds, the more accumulation. And those who have no coating are the benefactors of low bacterial activity and an anatomy unfavorable to the accumulation of bacteria and their by-products.

Up to now, the only available treatment for the tongue coating has been tongue scraping. *But tongue scraping only removes yesterday's layer.* So, while the top bacteria and their waste products are removed, the vast majority of the biofilm remains. *This is the key to CURING halitosis—removal of the biofilm down to the base of the tongue, complete removal of the biofilm under and between the teeth, and removal of the other factors that cause halitosis.*

BLEEDING, GINGIVITIS, & GUM DISEASE

Another primary concern, and a *direct cause of halitosis*, is the bacteria under the gums that are responsible for the early stages of gingivitis to the later stages of periodontal (gum) disease.

The anaerobic (without air) bacteria that cause halitosis are the ones that also cause gum disease and bleeding gums. In most cases, the gums become inflamed, a condition called gingivitis; in more advanced cases, bone loss accompanies the gum inflammation causing periodontal disease. As more biofilm accumulates, the deeper layers create a breeding ground for live

bacteria. This makes removal of the bacteria-laden plaque under the gums even more difficult, and gum disease begins. As gum disease progresses, the gums pull away from the teeth, and the bone dissolves, creating gum pockets that allow more bacteria to accumulate at an even deeper level on the tooth root—a vicious cycle. Amazingly enough, this process is mostly painless!

The sulfur compounds from the bacteria actually damage the blood vessels in the gums and allow toxins into the body. It has been scientifically proven that these toxins in our bloodstream can directly affect our heart, brain, and other organs, sometimes leading to life-threatening diseases by increasing the inflammatory load on the body. Many other serious diseases are also the product of inflammation and can become worse from the toxins entering the blood vessels of the gums.

Perhaps you already know that one of the most important predictors of systemic disease is the inflammatory load on the body. When physicians measure C-reactive protein, they are measuring the amount of inflammation and thus the likelihood of serious disease occurring. And much of that can come from bacteria and toxins entering the tiny, broken blood vessels in the gums.

It's important to note that due to the lack of gum disease symptoms, bleeding, gingivitis, and periodontal disease must be assessed by a dentist. In our office, it is an important part of every initial and periodic examination. As a professional note, I see numerous people who have never had a gum exam or have had them sporadically. Because the potential for serious disease is very real, I would only see a dentist who performs a gum exam every year or sooner.

And, if you run into a dentist who says, “You’re not bleeding too badly, don’t worry about it,” he or she is not the one you should allow to care for your teeth. Why? *Because it is in the early stages that gum disease can be cured! When cured, you no longer need worry about systemic inflammation coming from the gums.*

HOW DO YOU KNOW THAT YOU HAVE GUM DISEASE?

Unfortunately, gum disease is usually silent, causing few noticeable symptoms. When it does cause symptoms, they are always painless, allowing many people to ignore the warning signs. *Because gum disease can occur with or without the presence of halitosis, I suggest you see a dentist who does a gum examination at least once per year.* Not even x-rays show gum disease in its early stages and sometimes not even in its moderate stage when it can be cured.

The principal signs of gum disease are:

- Bad taste or bad breath
- Slightly pink floss or toothbrush
- Floss that smells when you remove it from between your teeth
- Red, swollen, or tender gums
- Gums pulling away from the teeth
- A change in your bite

However, it is important to note that people cannot diagnose their own gum disease. The **only** way to determine if

gum disease is present is to have a dentist perform a complete gum exam.

A gum examination requires measurements of the difference in gum attachment levels from the neck of the tooth to the height of the gum, with recordings of 6 different places around each tooth and notation of any site that bleeds. What should be looked for and recorded are all the places where there is bleeding and any place where the separation is greater than 3 millimeters. Research on halitosis is very specific about the *relationship of bleeding to bad breath*. The more bleeding, the worse the breath is.

SALIVA & DRY MOUTH

Saliva is our primary defense against oral disease. It plays a prominent role in bad breath in two ways. First, its acid level is important, and second, saliva carries oxygen, which neutralizes odors and bacteria to some degree.

The acidity or alkalinity of a substance is measured by its pH. The pH scale ranges between 0 and 14 with 7 being neutral; below 7 is acid and above 7 is alkaline. So, any acid level that gets farther from 7 and closer to 0 becomes more acidic, and an alkaline level that gets higher than 7 and closer to 14 becomes more alkaline. The closer to 7, the less acidic and the less alkaline. In anaerobic (without air) environments, these bacteria convert proteins and other sulfur compounds to H₂S, hydrogen sulfide gas with a pH of 4.5, highly acid and **very** damaging.

The proper level of acidity or alkalinity in our bodies is essential for life. For instance, the correct acid-alkaline level for blood is 7.4. (Neutral is 7.0, making blood slightly alkaline.) Any large deviation from that, particularly for more than short periods of time, will cause severe disease, or disease can change the acid level of our blood and tissues. This is what the pH of hydrogen sulfide and the other odor-causing compounds do in the mouth.

The pH, or acid-alkaline level of our saliva varies from 6.2- to 7.4, straddling neutral but mostly acid. The pH of most areas of our bodies is not locked into one specific value but can handle deviations within a range. In a 1972 research paper, it was shown that normal saliva in the 6.5 range (slightly acidic), would cause no VSC odor, while at pH 7.5 an alkaline saliva makes halitosis possible and even severe, proving that moderately acidic saliva is inhibitory to malodor production (McNamara 1972). Of course, this means we want our saliva to be slightly acidic, not highly acidic like the hydrogen sulfide or even alkaline which promotes halitosis.

Here's how this relates to tongue coating and bacteria on the tongue. In an article published in the *Journal of Applied Oral Science*, the authors state that "salivary pH tended to be acidic while tongue coating pH tended to be alkaline." This means that there is a war going on between the saliva in our mouths and the tongue coating and its bacteria. In halitosis the coating and its bacterial content are winning. The more alkaline (above 7) the pH, the worse the halitosis.

Another beneficial property of saliva is that it carries oxygen. Oxygenation is a primary way to kill bacteria and neutralize the odors. Earlier I mentioned that the bacteria that

cause bad breath are anaerobic (without air). Introducing oxygen into their environment will help the balance. This is called *buffering*. Unfortunately, once someone has halitosis, increasing oxygen in the solution is too little, too late and does not change the bacteria kill rate nor the odor elimination properties.

In the case of dry mouth, because the saliva volume is considerably less, there is little buffering, thus making the saliva less acidic and allowing the coating to dominate with greater numbers of bacteria, more odor, and little oxygenation. This problem, of course, leads to a stronger and more tenacious biofilm and a stronger halitosis. That's why I use saliva enhancing products in our office, for treatment at home, and in the Beating Bad Breath Protocol.

Dry mouth occurs from time to time in most of us when we are nervous or under stress. It has been shown by Queiroz in 2002 that stress can reduce saliva flow and cause an increase in VSCs. In 2006, Calil and Marcondes showed that anxiety also would elevate the VSCs.

However, some people do have a chronic dry mouth, which is called xerostomia and can stem from a medical condition or medications taken for certain problems. The list of drugs that cause dry mouth is long, some of which can be found in Appendix B.

Dry mouth is also a reason for "morning breath". When we sleep, our saliva flow stops. If we also sleep with our mouths open and breathe through our mouths, the air we inhale, along with the lessened saliva, dries the mouth lining further, allowing bacteria within the tongue coating, below the gums, and in the food trap areas to flourish and create even more of the same

sulfur compounds that cause bad breath, resulting in worsened morning breath and a chronic halitosis.

Because morning breath *IS* halitosis, your breath should be tested to determine if chronic bad breath is a problem. And, if you are already using mouthwash, mints, or any product to freshen your mouth during the day, you already have chronic bad breath. It is easiest to cure at this stage than when one notices it during the day.

SPACES, FOOD TRAPS & OTHER PROBLEMS

Spaces between the teeth and the resulting **food traps** foster growth of bacteria and the odors they produce. It's not only that food gets between the teeth and ferments causing its own noxious odors, it is that a food trap is an opening where the odor-causing bacteria and the gum disease causes the bacteria to flourish. In food trap areas, the gums may bleed with normal brushing or flossing or be red and sore. These are indications of the bacteria causing damage to the gums (gum disease) through inflammation. The blood cells, dead skin, debris, mucous, and other bacterial by-products become primary food for the bacteria. From that, the odors ensue, and gum disease progresses.

This is a much-overlooked cause of bad breath as it requires a meticulous view of your mouth and a global look at bad breath. *If spaces exist between your teeth, or your dentist has not identified any of these situations, or recommended correcting them, see another dentist.*

Ill-fitting fillings, crowns, or bridges are other areas where the bacteria flourish and the odor abounds. By ill-fitting, I

mean that the margins of the restoration near the edge of the filling, crown, or bridgework, especially near the gums, are not totally sealed.

Another way ill-fitting restorations occur is if they are not contoured properly on the back, front, and in between the teeth. You will know this if you get food trapped between or under them. *No restoration, filling, crown, implant, or bridge is acceptable* if it traps food. They may be ill-contoured at the outset or may become ill-contoured later, as the teeth drift or wear.

The problem for people is that ill-fitting dental work is usually not felt by the patient except sometimes as sensitivity, ledges that catch floss, or food traps. If you have any problems with recently done fillings or restorations, go back to your dentist. Do not wait because at a minimum it will cause gum inflammation and possible gum disease around the teeth.

If the restoration or filling is not done properly, the problem will manifest—it's only a matter of time. Only later, does a new cavity form, gum and bone loss ensue, or the restoration fails and needs redoing. That is why it is important to identify these problems early.

Dentures, partials, and dental appliances are another direct cause of mouth odor. The materials used to make almost all appliances are porous and absorb the odors of the mouth. And don't forget that your tongue can still have a long-standing coating where bacteria produce VSCs, which are absorbed into those materials over time. If you wear any of these appliances, I recommend using a Tru-**ACTIVE chlorine dioxide** mouthwash in a glass for about 5-10 minutes. If the appliance odor persists,

increase your usage. Tru-ACTIVE chlorine dioxide not only kills the bacteria that cause the odor, but also the odor itself.

Missing teeth can also be a cause of bad breath. When teeth are removed and not replaced, the remaining teeth move up or down, backward or forward, but usually a combination of all *to close the gap*. That is the natural movement of teeth—to fill a space—and is a direct cause of exposed roots and spaces where food gets trapped. These areas will then have a different contour conducive to the accumulation of bacteria and mouth odor.

SINUS PROBLEMS & POST-NASAL DRIP

The bacteria that inhabit the sinuses are not the same type of bacteria that create VSCs in the mouth. However, in those with sinus problems, allergies, and post-nasal drip, there is an accumulation of mucous on the back part of the tongue and the lingual tonsils, which inhabit the area just behind where the tongue ends and the attachment to the pharyngeal wall (back of the throat) begins. This factor in bad breath must not be overlooked.

As the mucous drips onto the tongue, the anaerobic, halitosis-causing bacteria living there receive a rich source of food. The mucous contains proteins, primarily cysteine, which breaks down to hydrogen sulfide, and methionine, which breaks down to methyl mercaptans, thus creating even more VSCs (see chart p.33). There are numerous people who take medications used to treat sinus problems and others that dry the mouth as a side-effect. Later I will talk about the best ways to eliminate this increase in VSCs and, generally to kill the bacteria and

neutralize the odors on the back most part of the tongue, in the throat, and on the lingual tonsils, including the Most Effective Bacterial & Odor Killer.

If you have sinus problems, allergies, postnasal drip, and even asthma, consider a sinus irrigator described later. It is an all-natural way to relieve symptoms. If you are taking medication for these problems, they all are antihistamines or a similar drug that will dry the mouth. For halitosis, this must be treated with the proper dry mouth products, which I will outline later in this book.

NON-ORAL FACTORS IN HALITOSIS

Non-oral factors occur from outside the mouth or are brought into the mouth and can also cause or be contributors to bad breath.

Offending foods like garlic, onions, radishes, cabbage, cauliflower, and fermented foods change the breath. Bad breath from these foods starts when the membranes of our mouth and throat absorb some of these odors. The resulting odor can last a few hours or a few days.

When these foods are digested, small odor molecules get into our bloodstream, some finding their way to our lungs. Mixed with the air we breathe, we exhale these odor molecules, causing bad breath. For those with halitosis already, these foods complicate the odors and cause a more lasting effect.

Smoking is another non-oral cause of halitosis. The mixture of the chemicals in the smoke and the coating they

create on the tongue make smokers non-curable unless they have given up the habit. If they have not, their best bet for improvement is the Beating Bad Breath Protocol© I will describe later. In my office we do not accept smokers as patients because the cure rate is zero.

Low carb diets, such as the Atkins diet, cause a direct change in body chemistry, sometimes creating mouth odor as a result. The reasons are two-fold. First, these diets cause a condition called ketosis in the body. Ketosis occurs when the body does not get enough carbohydrates, the primary fuel source for the body, and instead turns to fat stored in the body for energy, thus releasing ketone bodies. There are many of these, but a primary one that causes bad breath is acetone, which carries a fruity smell. Secondly, these diets contain an excess of protein, some of which are broken down to ammonia, another odor-causing chemical. These odors are commonly called “keto-breath.” So while you may lose weight on diets such as this, be aware that long-term dieting this way may directly cause chronic bad breath.

WHAT SHOULD YOU EAT WITH HALITOSIS?

The goal is to eat the foods that combat bacteria and help moderate the coating on the tongue. This starts with fresh fruits and vegetables for two reasons: first, the chewing action will help rub off some of the coating on the tongue, and second it will also help create more saliva, the benefits of which I mentioned earlier. Raw vegetables are one of the best foods to eat because of their cleansing action when chewing, not to mention their nutritional value.

WHAT YOU SHOULD NOT EAT WITH HALITOSIS

If you have a chronic problem with bad breath you should totally eliminate foods like onions or garlic which will add to your breath problem. This includes broccoli, cauliflower, cabbage, and radishes which create a similar odor. When eaten, all these foods leave behind a strong odor. They also last on your breath as they are only partly digested and pass into your system and into your lungs which you then breathe out for days. If you eat these foods raw, I would personally avoid them before any social occasion. If you do eat them, just be prepared to have this odor for a few days. If you have a concurrent odor from bad breath, this will complicate and strengthen that odor.

In addition, you should avoid any type of food that directly adds to the biofilm coating. Dairy products are at the head of the list. This includes milk, cheese, yogurt, ice cream—in fact, anything that coats the tongue. Remember the test for halitosis? Try it after you drink a glass of milk or have some cheese. You will smell the milky sour smell of bad breath that has now become the top layer of your tongue coating.

Other foods that coat the tongue are coffee and tea, adding to the thickness of the coating while mixing noxious components and worsening the problem.

PART III
MEDICINE & HALITOSIS

MEDICAL CAUSES OF HALITOSIS

While halitosis is overwhelmingly (95%) caused by problems in the mouth, there are some medical problems that are important to explore. Listing them all in this book would be of little use because almost every one is a disease with symptoms far worse than halitosis and for which one would have surely sought medical help. However, I will focus on a few that may cause a breath issue and are the most relevant in halitosis.

We've already mentioned sinus problems, allergies, and post-nasal drip as contributors to halitosis; any illness involving the lungs, like bronchitis or pneumonia, can cause bad breath until it is under control or eliminated. The same can occur with illnesses involving the pharynx, to which the tongue attaches. The pharynx is that area behind and below the anatomical tongue yet above the esophagus. A bad case of pharyngitis can create noxious odors, but again, the other symptoms would have led you to your physician. The big concern in all odors that are extremely fetid and do not subside is cancer. Cancer can leave large and small internal, unhealed sores that will cause odors.

Other possible contributors can be a hiatal hernia or gastroesophageal reflux disease (GERD) yet both are uncommon. I say contributors as these *may* allow *some* odors into the mouth as the lower esophageal valve, one of the valves that seal the stomach, may be ill functioning and allow some food to be retained in the esophagus. But unless the cases are extreme, their effect should be negligible. Again, since their nature is more serious than bad breath, most people would have already seen their doctor and been treated.

Diabetes Type I or II are of particular concern. Their odors are a sweet, fruity, acetone-like odor; however, as long as diabetes is controlled, there is no cause for the bad-breath alarm. One important note about diabetes: because diabetes makes people more prone to infection, the fragile blood vessels of gum disease are a particular problem among diabetics. And with the bleeding of the gums, not only do we need to be concerned about infection, but also the multiplication of a primary bacterial food (dead blood cells) that cause halitosis and gum disease. If you are diabetic, see your dentist regularly for dental cleanings and yearly gum measurements. An examination that shows gum disease must be treated, not just because of halitosis, but because of the systemic implications. Moreover, see your physician to monitor your problem.

One problem that contributes to bad breath is tonsil stones, medically called tonsilloliths, which are not really stone-like but mushy white accumulations in the palatine tonsils at the back of the throat. When present, they accumulate bacteria and partially digested food and create odors (VSCs), which can be quite profound. If you have one, your dentist should be able to remove it. And be sure to follow-up yourself with **Tru-ACTIVE** chlorine dioxide rinses to remove the residual odor.

MEDICATIONS CONTRIBUTE TO HALITOSIS

The list includes antihistamines and antidepressants, but since it is a long list, I have included only some of these medications in the Appendix. I believe it is more important to understand what these have in common that causes them to

contribute to halitosis: they greatly reduce the amount of saliva and dry the mouth, sometimes severely.

At the National Breath Center, I always review everyone's health history, illnesses, and medications and personally talk to each person. However, medications are a fact of life, so rather than attempt to manage salivation for different medications, any treatment plan should always include a saliva enhancer and a recommendation to sip 6-8 glasses of water each day. These are the least expensive and easiest ways to create more saliva that can then help buffer the tongue coating and wash away more bacteria for anyone who has bad breath.

THE PSYCHOLOGY OF HALITOSIS

Despite the article in the *Journal of Breath Research*, "Breaking Paradigms: A New Definition for Halitosis in the Context of Pseudo-halitosis and Halitophobia" which states "It is known that almost one-third of patients who seek treatment for bad breath do not have genuine halitosis", this is **not** what I have seen in my practice. In the 24 years I have been treating and curing bad breath, only a small number of people did not have noticeable bad breath.

However, there are two psychological conditions that are relevant here: halitophobia and Olfactory Reference Syndrome. The latter is where the person is preoccupied that their body odor is always there and always offensive even when there is no odor. The key word here is preoccupied. Those that are preoccupied with mouth odor when they do not have bad breath at all are said to have halitophobia, or delusional halitosis. While I am not a

researcher, I am a clinician who has seen these types of problems. They are diagnosed by measuring the breath of a person with a complaint of chronic halitosis but finding no positive test results.

The other type of halitophobia is impossible to detect at the outset. In these people, their halitophobia manifests after they have been objectively cured but still insist that they notice reactions to their breath. Since they must pass the 4 tests we originally give for halitosis before we pronounce a CURE, I know that these people have a psychological problem around their breath problem which no longer exists.

THE BAD BREATH BRUSH-OFF

After 24 years of observation and listening, here is my understanding of the ways our minds work in regard to bad breath.

The first item to note is that many of the people I see are the ones who have tried every product, seen multiple dentists, perhaps seen some physicians, and even visited a breath clinic or dentist who claims they “specialize” in bad breath. These are the people “without hope” as they put it.

They have experienced the Bad Breath Brush-Off in many ways and over much time. This has led to feelings of hopelessness, despair, and fear of rejection. Hopelessness, as they have found nothing that works; despair that they ever will; and fear of social rejection and never living a normal life. They would not feel this way unless they had bad breath and had

experienced the bad breath brush-off. It is the reaction of others that has caused this eruption of emotional issues and the lack of knowledge of the dental profession about what causes bad breath.

When others brace themselves from your breath, you feel rejected. Stepping back, offering mints, and covering noses creates an expectation that others will always do that and that you will always have bad breath. For the person doing that behavior, it is another manifestation of adaptation, a normal phenomenon. They are adapting to protect themselves from odor. In essence, *each party is reacting to each other's actions.*

For the people who interact with someone with halitosis, they have usually done it so often that it is like a reflex—automatic because of their ingrained expectation of a definitive, unpleasant odor that has been there for some time. Of course, when someone is cured, these people do not know it, so they may continue to react the same way for a time.

While this transition can be difficult for both sides, the testing we do at the end of the treatment and any time thereafter plus the testing people can do on their own proves they have no discernible breath odor. In many people, this alone raises the confidence level of these former halitosis sufferers.

Here's the story of a couple whose marriage almost didn't happen because of the Bad Breath Brush-Off as told to me by my patients' girlfriend (Susan) when she came with him for his first maintenance visit 6 months later.

Mark & Susan

“When our first date was over, Mark walked me up the stairs to my apartment. The evening was near ending and I could tell Mark was beginning to feel a bit nervous. I didn’t know it at the time, but he was worried I wouldn’t kiss him goodnight.

We had had a very nice evening, finding that we had a lot in common and were deep in conversation at the restaurant until after 1 AM.

“Thanks for a nice evening, Mark”, I said.

“I had a good time too. May I kiss you goodnight?”

Smiling, I nodded my approval.

As Mark got close, I had a reflexive action. The instant I detected his breath, I turned my head and his kiss landed on my cheek. Mark turned and ran down the stairs.

I found out later that Mark was devastated by my reaction. We had known each other for six months before he got up the courage to ask me out. And now, after that first date which had gone so well until the end, I doubted I’d see him again.

But Mark was really intent on not having our first date be our last, so he decided to find out why. The next morning, he took a piece of gauze from his medicine chest and wiped his tongue. It was yellow, he later told me. Then he smelled the gauze and found a strong odor.

As he told me, he asked Rick, his best friend to confirm whether he had bad breath. So he asked him.

Rick confirmed it and referred Mark to you.

He told me he waited to be sure his bad breath was gone, and after you cured his problem, he celebrated by sending me a dozen roses with this note:

“Problem solved. How about Saturday night?”

“I accepted, desperately wanting his problem to be solved. In the first few minutes with Mark, I knew that it was. I also thought you might want to know that we are also engaged now.”

Then I noticed the ring on her finger.

PART IV

CURRENT TREATMENT

RESEARCH

What does dentistry currently know about the clinical treatment of halitosis? I am sorry to say, but virtually nothing that will cure halitosis. While I have been curing bad breath for decades and presented my technique to over 10,000 dentists, I can no longer find a dentist that does actual treatment anymore; they seem to rely on the sales of products.

In adding my notes from the 60 previous years of research that I studied in the 1990s and studying the research about halitosis for the last 24 years, I found no awareness of the real cure for halitosis.

Recently there has been great interest in altering the oral bacteria and replacing the “bad” bacteria with non-pathogenic bacteria produced by probiotics. One of those papers is “Effects of Chewing Gum Containing the Probiotic Bacterium *Lactobacillus Reuteri* to Oral Malodor.” The researchers concluded that while the organoleptic (smell) scores were lower, “assessments of the VSC levels displayed no significant differences.” While there is merit in all research, even those looking for the “right” bacteria to counteract the odor-causing ones, their direction does not acknowledge where the real problems lie.

More recent research has identified two strains of bacteria, *S. Salivarius* K-12 and *S. Salivarius* M18 that displaces the pathogenic bacteria of bad breath to some degree. While it cannot get to the deeper layers of the biofilm, once the Tongue Rejuvenation™ process is complete it is a useful adjunct to the maintenance program.

The TOTAL CURE restores the balance of bacteria by removing the bad bacteria, their “foods”, and the debris so the beneficial bacteria can emerge in greater numbers and activity.

While many studies around the world each year regard one or another aspect of halitosis, I believe that the researchers are looking in the wrong place. The cure is literally right under their noses.

THE AMERICAN DENTAL ASSOCIATION

When I wrote the previous edition of this book in 2013 if you had gone to the ADA’s web page regarding halitosis, you were greeted by the following statement:

“There is no professional/clinical information on this topic.”

They now reference just a few studies on bad breath although none on its elimination.

GOOGLE SEARCH

The downside of an internet search is that it also includes eBooks, home remedies created or recommended by so-called “experts” who have found the “magic formula” that will cure you too. Some even relate personal experiences that they say will apply to you, some to the tune of \$39.95 for their secret.

Having seen over 7,000 people since my treatment and subsequent cure began, I am sorry to say that no such remedy exists. While many compounds or techniques can affect mouth odor temporarily, they always fail. My patients can attest to that.

In an attempt to determine the state of halitosis in industry, dental offices, breath clinics and information about products and other treatments, I conducted a lengthy Google search. It is not possible to list all that I learned; however, I am listing the top eight results for the term “bad breath” at the time of the search.

The first unpaid search item was from Web MD, titled “Dental Health and Bad Breath” which had the usual basic information. It was slanted toward a medical point of view spending too much space on medical possibilities, without even mentioning biofilms. Their recommendations are so basic they are not worth mentioning as they will make no difference in someone with bad breath.

The second result leads to the most heavily advertised products on the internet – Therabreath. It must be noted that, even though they advertise their products as active chlorine dioxide, it is not. Therabreath is stabilized sodium chlorite, a less strong bacterial killer and odor neutralizer than active ClO₂.

The third result in the unpaid search list was Wikipedia. Not surprisingly, it had the most pertinent and voluminous information on halitosis. If I were personally looking for answers, I’d start there. However, at the time of this writing, Wikipedia had a medical perspective that I have found has little impact in bad breath. In addition, as I stated earlier, I have not

seen that 25% of people seeking professional help have halitophobia, as noted earlier.

The fourth entry comes from mercola.com, a natural health proponent who puts out a newsletter and sells a lot of products that he mentions in his newsletters. Hardly an objective guide. However, he does mention some of the mouthwash treatments available and a large paragraph on dry mouth. To end the section on bad breath, he talks about the bacteria in our gut, which while important, has little to do with oral bacteria. The same strains in the mouth are not found in the gut due to the different acid levels.

The next listed search result under bad breath is titled simply “Bad Breath” from the Mayo clinic. You would expect a trove of essential information from Mayo, but it only contains 5 worthless paragraphs. This makes it easy to see why physicians do not consider bad breath a problem.

The fifth search result was titled “Halitosis Causes and Halitosis Information” and located at another product selling site.

The sixth search result is from the Mayo Clinic, “Bad Breath – mayoclinic.com.” Like many sites, it takes the same basic information and rewrites it; however, this site offers more information from the dental side where the problem originates.

The seventh search result comes from emedicinehealth.com which had the usual information; however, it was written by two physicians. I find it difficult to rate this information as definitively helpful when written by physicians who most likely see only people with bad breath caused by

serious illnesses. Physicians are not experts on bad breath, no matter their field.

The last search result in the top eight is the American Dental Association entry. This link is woefully inadequate in all categories of information. Under causes of bad breath they only list: food, gum disease, dry mouth, smoking, and medical conditions. It is no wonder that insurance companies do not pay for a bad breath cure when the ADA hardly recognizes it as a problem.

So what does this list and the others I followed from Google tell me? Two things. First, people are looking for the best information about bad breath they can find; and second, there is little if any information about the TOTAL CURE that has existed for 20 years.

WHY OVER-THE-COUNTER BREATH PRODUCTS DO NOT WORK

Contrary to millions of dollars of advertising and 95% of all oral care shelf space in the pharmacy, over-the-counter (OTC) products are almost totally ineffective for breath problems and gum disease - no matter what the advertising label says about germ killers.

A primary reason OTC products do not work is that they dry out the mouth tissues. In addition, OTC products that claim to help bad breath simply lay a more pleasant odor over the layer of bad breath odor that exists at that time. It is the strength of the chemicals that influences the time it lasts, as that more pleasant

odor is being overpowered by the odor of bad breath that exists directly beneath it.

Why do breath products not work? three reasons:

- They do not kill the bacteria that cause halitosis or neutralize the odors of bad breath; in other words, they may be disinfectants good for wiping down surfaces like Listerine, but the bacteria they target are not specific for oral bacteria, despite the astringent feeling
- The acid level does not match the saliva level.
 - Acid levels must be balanced—not too acid, not too alkaline. (Remember that saliva is pH 6.2 to 7.4.)
- They use chemicals like phenol and essential oils like menthol that strongly dry the mouth.
 - Dry mouth is a major cause of halitosis.

A complex set of ingredients goes into mouthwash products. Due to their mouth-drying effects, lack of significant bacterial kill, and the use of strong odors to cover up bad breath, I have not recommended these products since the early 1990s.

DOES FRESH BREATH REALLY EXIST?

Yes, but not as you would imagine. Here's why. The opposite of bad breath is not fresh breath, which connotes the odor of something fresh-smelling like mint, flowers, fabric softener, hair shampoo, or soap.

The true opposite of bad breath is no discernible breath. In other words, your breath is not noticeable. No one can smell it.

From my research, it appears that “fresh breath” came into vogue in the roaring 1920s, right after the Great War (WWI) when the world was feeling prosperous and ready to embrace new ideas. It was a time of great optimism as vast new possibilities were open: electricity available to almost everyone, affordable cars and luxury ones, and travel as entertainment. At this time too, hospitals, pharmaceutical companies, and doctors all flourished with new techniques and drugs to try and profits to be had.

It was during this time that the practice of sterilization flourished. The idea of killing bacteria was now in vogue.

With this as background, Listerine mounted an advertising campaign that pronounced Listerine as the cure for chronic halitosis. The public readily agreed, especially because the formulation, with 26% alcohol, which is now believed toxic by many and is outlawed in Australia, created a noticeable astringency that caused people to believe their mouth was being sterilized. Listerine became the best-selling mouthwash for decades, and the idea of fresh breath, now defined by astringency and a strong odor, took off.

Yes. I know. Thanks to Madison Avenue, we all believe that fresh breath has a “fresh” smell, usually minty. *However, breath that is not noticeable is the only true fresh breath. Because true fresh breath is the absence of odor.* Who wants anyone to notice their breath? There is literally *no discernible odor* in fresh breath.

The goal of halitosis treatment and the TOTAL CURE is to eliminate the bacteria and the VSCs to create no odor.

(In the following text, some terms are used that need clarification. Chlorine dioxide is a compound whose chemical abbreviation is as follows: ClO₂. ClO₂ represents the elements used in the compound. Capital “C” and small “l” are for chlorine; capital “O” is for oxygen; and the “2” represents 2 elements of oxygen in its molecular form. This chemical abbreviation is pronounced: C L Oh 2. True ACTIVE chlorine dioxide is a superior bacterial and odor killer that is NON-TOXIC to any oral tissue and by its mechanism DOES NOT create any bacterial immunity)

THE IDEAL MOUTHWASH & TOOTHPASTE

Now that we have covered the dubious effectiveness of OTC products and some of their undesirable side effects, *I want to detail an **ideal** breath odor product AND a superior oral care product.* After using and testing products for over 20 years, I had become discouraged. Personally and professionally, using scientific instruments and other tests I use at the National Breath Center, I had never found a product that meets all the following requirements. This has been my wish list and why I decided to collaborate with a manufacturer and offer the **SUPREME BREATH™ Tru-ACTIVE Mouthwash and Toothpaste.** *They are what I give to my patients and what I and my family use.*

*Why did I help develop Supreme Breath™ Tru-ACTIVE chlorine dioxide (ClO₂)? **Because it satisfies all the criteria below and THEY WORK! After going through dozens of***

products with many claims, I decided to help develop one that truly works.

Here is what I recommend to everyone in a breath product and oral care product:

1) A product that almost instantly eliminates bacteria and that does not cause bacterial resistance

Since anaerobic (without air) bacteria are the ultimate culprits in halitosis, the perfect product must kill them near instantly. This is where **Tru-ACTIVE chlorine dioxide (ClO₂)** products come in. These are the products of choice because they have a 100% kill rate in seconds. But also important is the means of action. They must **ONLY** destroy bacteria, not mouth tissue.

2) A product that eliminates odor immediately

As we have seen, OTC products do nothing to neutralize the odors of bad breath. The perfect mouthrinse must eliminate these odor molecules almost instantly. Rinsing, which distributes the solutions throughout the mouth, must result in near instant elimination of odor molecules as well as the highest bacterial kill rate achievable. That is why rinsing and gargling is so important: it also cleans the backmost part of the tongue where a disproportionate number of the odor molecules and these bacteria live.

3) **A product that kills the bacteria that cause gum disease**

Tru-ACTIVE ClO₂ kills anaerobic bacteria (without air) that cause and perpetuate gum disease. When rinsing or being delivered into the gum areas with an oral irrigator, the anti-bacterial action is directed down into the gum pockets where the bacteria live and flourish, and are killed near instantly.

4) **A product that allows YOU to control its strength**

Tru- ACTIVE ClO₂, can be mixed as needed allowing you to control the strength. In the Beating Bad Breath Protocol detailed later, you want to be able to vary the mix for the severity of bad breath; for the gauze protocol you need another strength; and for use in the oral irrigator you want a different strength. In the *Beating Bad Breath Protocol*© I detail the uses for different strengths and how to change the strength.

This property - mixing when needed and the ability to vary strength - allows each person to have TOTAL control over the product they use.

Varying the strength is a very important property. Not only does it allow YOU to customize your treatment and results, but when new techniques or instruments come along, you will be able to adapt the product to the technique and not be stuck with only one strength.

5) **A product that does no harm**

Alcohol-based products dry your mouth, may cause oral cancer with long-term use, and are not to be swallowed. I recommend rinsing and gargling with **Tru-ACTIVE CIO2** mouthrinse to not only kill the bacteria that cause halitosis and gum disease, but to kill the odor as well. I also recommend it to kill throat bacteria and kill the odor within the lingual tonsils at the back of the tongue where the tissue is much softer. This is also especially helpful for sinus drainage. **Tru-ACTIVE CIO2** products do not cause dry mouth nor create any of the other problems that OTC products do.

6) **A product that works and that you can depend on**

In 1995, I wrote the first book on halitosis, *Beating Bad Breath*. While two of three experts at the time chose to produce and sell products, I chose the path that would get the correct treatment to as many people as possible - treating people at the National Breath Center and teaching dentists how to cure bad breath themselves. I had hoped that more dentists would help more people cure their life-altering condition as I was. But it was not to be. Thus, for a time I used the products of others as part of my TOTAL CURE protocol.

That gave me an advantage that few have – the ability to see just what works and what doesn't. And to watch for success OR vary the treatment to accommodate an individual's own unique situation.

After testing the available chlorine dioxide products personally and with patients, I observed that they did not fit the above criteria nor were they doing the job that I needed for the TOTAL CURE. That is why **SUPREME BREATH™ Tru-ACTIVE Chlorine Dioxide (ClO₂)** exists. Later I will discuss the differences between “stabilized chlorine dioxide” (not even chlorine dioxide) and SUPREME BREATH™ Tru-ACTIVE chlorine dioxide.

I would not offer this product if I had not personally tested it and if I did not believe it is the BEST available. I use it for maintenance of the TOTAL CURE to help keep the tongue biofilm (coating) from returning. I also recommend it to all periodontal disease patients as I have seen it do a better job than anything else on the market. And, as the most effective product I have ever used, it is a part of the Maintenance Protocol and the Beating Bad Breath Protocol for those who choose the self-help route.

INEFFECTIVE CURRENT PROFESSIONAL TREATMENT

Walk into a fresh breath clinic or a dentist who says they treat bad breath, and you’ll most likely walk out with your teeth cleaned and a basketful of products. That’s the current professional treatment for halitosis. *Eliminating the causes simply does not exist.*

The resident blogger on bad breath from the Dr. Oz show says you can take control of your breath in this way:

- “Have your teeth professionally cleaned at least three times a year.
- Floss every day.
- Brush at least twice a day.
- Brush and scrape your tongue frequently.
- Try an antibacterial gel.
- Use an alcohol-free mouthwash once a day.
- Use antibacterial sprays. They’re also a quick way to give your mouth a clean sweep. Stick one in your purse or leave it by the front door so you’ll get into the habit of using it right before you leave the house.
- Drink water frequently, both to keep lingering food particles from sticking, as well as to fend off dry mouth.
- Eat right. Choose less acidic food and balance the pH levels in your mouth.”

The sum total of all these, while helpful, will essentially get you nowhere if you have halitosis. That’s the state of knowledge for current dentists.

And, what’s worse of all is that this is the standard treatment recommended by dentists across the country, aside from selling products to mask the bad breath.

A “top dentist” (or so he advertises) in halitosis diagnosis and treatment, as he says on his website with the logos of some of the television programs he has been on, *does no treatment whatsoever*. His protocol is only an initial consultation and limited diagnosis; his treatment is a basketful of products. Even more, his nurse tells people who call that if they come from

out of town, they may not even need a follow-up visit because they will most likely be cured after the first visit—a *claim with no actual treatment*. One size fits all.

As I will detail in a following chapter, hands-on treatment is the gold standard that most every dentist fails to follow. Professional, hands-on Tongue Rejuvenation™ treatment is the only way to expertly treat and CURE people that works.

In the meantime, beware of people who offer a cure with no real treatment behind it. And beware of internet cures-in-a-bottle. Later I will give you a list of questions to ask an office that advertises that they treat bad breath to determine if they actually do use the proper techniques.

That brings us to the definition of a CURE.

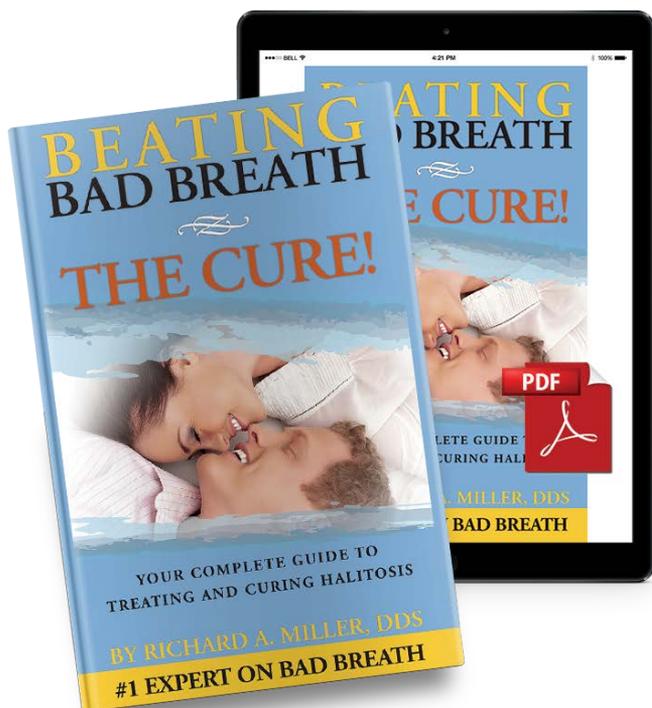
A CURE should eliminate the problem itself, all related causes, and provide the means to keep halitosis from coming back.

These are the 3 definitive criteria for a cure. If treatment does not include all three, then only a temporary fix can be achieved.

This definition is important because it excludes anything that needs to be used every day like over-the-counter- mouthwashes and internet cures – in – a - bottle. More importantly it defines professional treatment necessary to achieve a Total Cure.

Want to keep reading?

Purchase the e-Book + Hardcover Bundle and see for yourself how the Total Cure treatment, performed exclusively at the National Breath Center, is helping thousands regain their confidence and embrace life - free from the social stigmas of bad breath.



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