Introduction

Historically, bad breath has had many names...halitosis, fetor oris, fetor ex ore. The terms bad breath, halitosis, and breath malodor all mean an unpleasant breath odor that is objectionable to others. The truth is that bad breath under any name can be an indication of a serious disease entity for many people and a lifetime of social problems for others. Nearly everyone, in fact, experiences bouts of halitosis from time to time. It is fortunate that most bad breath is caused by oral conditions.

The history of halitosis is well documented with references to the condition dating back to ancient civilizations. Halitosis, from the Latin for breath (hali) and condition (tosis), refers to a systemic-related malodor. Fetor ex ore and fetor oris are terms that directly relate to oral conditions producing malodor. Researchers and experts in the malodor field have suggested that the condition should be referenced as oral malodor or nonoral malodor. Oral malodor can be either transitory or chronic. Transitory malodor is described as a food-related malodor that may last up to 72 hours and is a condition all individuals suffer from at one time or another. Chronic malodor is generally oral-related and in some cases due to a medical/systemic condition, such as diabetes.

The individual usually seeks out dental treatment because of a toothache, bleeding gums, unhappiness with the appearance of his/her teeth, or because he/she has been told that he/she has bad breath. The dental profession has dealt quite adequately with the first three of these complaints, but has tended to neglect the fourth or the malodor complaint.

Public awareness and concern for this phenomenon is evidenced by the support of an $850 million mouthwash industry in the United States despite wide agreement that commercially available products have no significant effect on breath malodor.

Understanding the Problem

Halitosis, and the treatment of this problem, is quickly becoming the growth area of the 90’s in dental practices throughout North America. Oral malodor is a very pervasive problem, and can be simply an embarrassment to some, or the sign of potentially serious systemic problems for others. Most dental schools have no formal lectures on this subject and provide the student with no hands-on experience with the treatment of oral malodor. Thus, a very important and common
problem from the patient's perspective has been essentially ignored by the dental community.

Professionals are being drawn to establish this treatment service within their offices for several reasons. Perhaps the primary reason is the power of this concept as a marketing tool. It is an excellent way of attracting new patients, particularly those who are not regular users of dental services. The treatment of halitosis is often viewed as a "non-dental" procedure by the public, and so does not carry the psychological impact of other dental treatment. This allows these people to become comfortable with the dental environment in a non-threatening fashion. Amongst existing patients it is a strong motivator for the acceptance of dental treatment, particularly in the area of periodontal disease, which is known to be a major source of halitosis. Finally, there are now the means to quantify this problem, and some definitive means to treat the problem, once properly diagnosed.

This awareness of malodor as a treatable oral condition has to be tempered by our relative lack of knowledge of the epidemiology and pathophysiology of this problem. And, in the absence of this information, there is no body of epidemiological studies which describes the prevalence of this problem in any given population. Advertisements seeking subjects with malodor for clinical trials often elicit many inquiries, suggesting that the problem is common, or that people with the problem are not seeking treatment. But this is not the same as well designed epidemiological studies to provide accurate prevalence figures.

Japanese investigators have published the most on this subject, and we should pay heed to their findings. They find that some individuals have no physical evidence of malodor, but rather their complaints of such odors seemed to be based on the presence of certain phobias. This has been confirmed by other studies, and indicates that the individual with a complaint of malodor, but without evidence of such, may have an underlying psychological condition. Thus, one of the outstanding needs is reliable data on the prevalence of malodor among various age groups and communities.

**Causes of Halitosis**

Bad breath is a condition that has many different causes and even though it is most often caused by oral problems, bad breath can also be a symptom of a serious disease. One of the best examples of this is diabetes. While an odor is not detectable in well-controlled patients, an acetone sweet fruity odor can often be detected in the uncontrolled patient. This odor can even be a sign of an impending coma.

It used to be thought that bad breath could originate directly from the contents of the stomach. We now know that this is not true except when
belching or vomiting since odor and gas cannot escape when the esophagus is in a normal closed condition.

Instead, most of the odors which are not intra-oral in origin enter our breath through the lungs. The most common example of this is the odor which comes from some of the food we eat. The bi-products from ingested foods are absorbed, carried through the blood and excreted through the lungs. This explains why patients complain of garlic or onion breath long after they have eaten and even after they have brushed, flossed and rinsed.

It is thought that disorders of the oral cavity cause up to 85% to 90% of all the cases of halitosis. Some of the more common causes are: a dry mouth due to lack of flow of saliva during sleep, denture wearing, food retention, poor oral hygiene, dental decay, gingivitis, gum disease, an unclean tongue, and smoking. Most of these factors have in common an increase in bacteria in the oral cavity. These bacteria produce compounds like hydrogen sulfide, methyl mercaptan, dimethyl sulfide and dimethyl disulfide. Collectively they are known as volatile sulphur-containing compounds or VSC. These are the compounds responsible for bad breath.

Risk Factors Associated With Halitosis

<table>
<thead>
<tr>
<th>Non-disease related</th>
<th>Disease related</th>
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<tbody>
<tr>
<td>Oral</td>
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<tr>
<td>• Inadequate oral hygiene</td>
<td>• Candidiasis</td>
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<tr>
<td>• Long periods of mouth closing (i.e., morning breath after sleep)</td>
<td>• Cancer</td>
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<tr>
<td>• Xerostomia (e.g., dry mouth due to mouth breathing, medication)</td>
<td>• Gingivitis</td>
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<tr>
<td>• Tongue coatings</td>
<td>• Mouth infection, inflammation, ulceration</td>
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<td></td>
<td>• Periodontitis</td>
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<tr>
<td>Non-oral</td>
<td></td>
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<tr>
<td>• Aging (reduced salivary flow)</td>
<td>• Gastrointestinal (gastroesophageal reflux, hiatal hernia, cancer)</td>
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<tr>
<td>• Alcohol</td>
<td>• Nasal (rhinitis, sinusitis, tumors, foreign bodies)</td>
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<tr>
<td>• Hunger</td>
<td>• Pulmonary (bronchitis, pneumonia, tuberculosis, cancer)</td>
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<tr>
<td>• Pungent foods (i.e., onion, garlic)</td>
<td>• Systemic (cirrhosis, dehydration,</td>
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### Pathogenesis of Halitosis

It is generally known and agreed that VSC's (Volatile Sulfur Compounds) are responsible for the odor, and that 80-90% of these come from oral sources. VSC's are produced by bacterial and cellular degradation, and include hydrogen sulphide, methyl mercaptan and dimethyl sulphide. The nature of the odor may vary in intensity (strength of the smell) and quality (the type of odor). These traits are key diagnostic indicators of underlying disease; halitosis linked to disease is more intense and has a distinct quality which is often related to the underlying source. The fact that oral odors can originate from sources other than the oral cavity demands that a proper diagnosis be done, requiring a thorough exam and history. It is known that systemic disorders, medications, and ENT problems can all contribute to halitosis.

Research identifies the production of volatile sulfur compounds (VSCs) by gram-negative anaerobic bacteria in the oral cavity as the chief culprit in oral malodor. The posterior dorsum of the tongue and the sulcus have been identified as key areas for harboring these bacteria. The coating on the tongue comprises dead epithelial cells, anaerobic gram-negative bacteria, and food debris. In periodontally healthy patients, this is the primary cause of oral malodor. In the patients with periodontal disease, the gingival sulcus/periodontal pocket has proven
to be an additional reservoir for odor-producing bacteria. In addition, the shift from gram-positive to gram-negative bacteria populations, as seen in gingivitis and periodontitis, increases oral malodor.

Hydrogen sulfide (H2S) and methyl mercaptan (CH3SH) are the two main odor-causing VSCs produced by gram-negative anaerobic bacteria. Hydrogen sulfide has been associated with periodontally healthy individuals, whereas methyl mercaptan has been associated with periodontal patients. Additionally, research suggests that these compounds may be especially important in periodontal infection, as they may interfere with collagen and protein synthesis. Research also suggests that the presence of these compounds may affect the permeability of the gingival sulcus, may enhance the ability of bacteria-produced toxins to pass into the bloodstream, and may accelerate the infection process. This correlation between oral malodor and periodontal infection warrants serious clinical consideration and treatment for patients.

Psychogenic Halitosis

A complaint of bad breath, possibly based on psychologic factors, that others do not perceive.

Psychogenic halitosis may occur as a symptom in various psychologic disorders. It may also be associated with anxiety. It may be reported by the hypochondriacal patient who commonly amplifies normal body sensations. At times, the complaint may reflect a serious thought disorder (e.g., somatic delusion). An obsessional patient may have a pervading sense of uncleanness, or a paranoid patient may have the delusion that his organs are rotting.

In dealing with patients seeking professional care for halitosis, one must be prepared to differentiate between those patients who emit above average malodor, those who emit average or near average malodor but are more sensitive to it, and those who emit below average or no odor but believe that their breath is offensive despite objective evidence to the contrary. In the former two cases treatment for malodor is warranted; in the latter it is not.

There are many patients who complain of chronic bad breath for whom no objective evidence of breath malodor can be identified. Olfactory reference syndrome is a recognized psychiatric condition in which there occurs a somatization of some distress resulting in a belief on the part of the patient that an offensive odor emanates from some body part, usually the mouth. This condition interferes with normal social interactions for fear of offending others with breath malodor and has been described in the psychiatric literature for over 100 years.

Affective disorders and schizophrenia were reported to develop in patients whose initial complaints were limited to breath malodor, and
some success has been reported in treating olfactory reference syndrome with tricyclic antidepressants and the neuroleptic primozide. If breath malodor cannot be detected organoleptically from a patient complaining of bad breath, if above normal VSC cannot be demonstrated instrumentally and if the patient cannot provide reliable third-party verification of an odor problem, olfactory reference syndrome (“Imaginary halitosis”) must be considered.

[Richter, Jon L., DMD PhD, Diagnosis of Treatment of Halitosis. Compendium of Continuing Education in Dentistry, April 1996]

The Relationship Between Oral Malodor, Gingivitis, and Periodontitis

by Perry A. Ratcliff and Paul W. Johnson

Volatile sulfur compounds (VSC) are a family of gases which are primarily responsible for halitosis, a condition in which objectionable odors are present in mouth air. Although most patients perceive this condition as primarily a cosmetic problem, an increasing volume of evidence is demonstrating that extremely low concentrations of many of these compounds are highly toxic to tissues. VSC may, therefore, play a role in the pathogenesis of inflammatory conditions such as periodontitis. Since these compounds result from bacterial putrefaction of protein, investigations have been conducted to determine whether specific bacteria are associated with odor production.

Two members of this family, hydrogen sulfide (H$_2$S) and methyl mercaptan (CH$_3$SH), are primarily responsible for mouth odor. Although many bacteria produce H$_2$S, the production of CH$_3$SH, especially at high levels, is primarily restricted to periodontal pathogens. Direct exposure to either of these metabolites adversely affects protein synthesis by human gingival fibroblasts in culture. However, methyl mercaptan has the greatest effect. Other in vitro experiments have demonstrated that cells exposed to methyl mercaptan synthesize less collagen, degrade more collagen, and accumulate collagen precursors which are poorly cross-linked and susceptible to proteolysis. CH$_3$SH also increases permeability of intact mucosa and stimulates production of cytokines which have been associated with periodontal disease. VSC, and in particular methyl mercaptan, are therefore capable of inducing deleterious changes in both the extracellular matrix and the local immune response of periodontal tissues to plaque antigens. J Periodontol 1999;70:485-489.

Diagnosis

Identification and diagnosis of the patient who suffers from oral malodor is not a specific science. This can make the diagnostic process difficult and uncomfortable for the dental professional. In addition, oral malodor may or may not be an issue to the patient when addressed during the
preventive appointment (see the table below). From the most complex of equipment to the use of organoleptic judges, researchers have yet to establish a method that will consistently and easily quantify oral malodor.

<table>
<thead>
<tr>
<th>Oral Malodor Patient Types</th>
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<tr>
<td><strong>Type I</strong>—Those who have it and know it.</td>
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<tr>
<td><strong>Type II</strong>—Those who have it but deny or do not know they have it.</td>
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<tr>
<td><strong>Type III</strong>—Those that do not have it, but think they do.</td>
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The most effective means of oral malodor identification is counterpart assessment. Family members, close friends, and spouses can assist patients in identifying objectionable malodor and provide key information about its duration, frequency, time of the day, and intensity. Additional diagnostic means include the use of a volatile sulfur monitor, bacterial culturing tests, and use of organoleptic judges. The first two options have limitations, while the use of specially trained researchers (organoleptic judges) has been the most reliable method and is the standard against which diagnostic tools are measured.

Regardless of the method utilized, patients are interested in the prevention of oral malodor. A simple preventive approach will provide the desired results. Therefore, daily management of oral malodor, versus a one-time treatment, should be implemented to achieve effective oral malodor control.

Some specific pieces of equipment have been developed to help the dentist diagnose halitosis. These are known as the halimeter and the periotemp. Many dentists do not have these devices and you may need to ask your dentist for a referral to a dentist who has them if your problem is severe.

The halimeter is a gas analysis machine designed to measure the amount of sulfur bonds in a volume of gas. With the halimeter it is possible to directly measure the quantitative amounts of offending VSCs present.
The periotemp measures elevated temperatures in the periodontal pocket surrounding the teeth. If an elevated temperature reading is detected, this equates with the degree of inflammation that is occurring at a specific gingival site. This inflammation directly relates to the presence of periodontal (gum) disease. The specific bacteria that causes malodor also is responsible for causing periodontal disease.

Medical History

Due to many possible causes of bad breath, diagnosis of the origin of halitosis is essential for its treatment. The first step to making a proper diagnosis is the taking of a complete medical history. Some of the questions you may ask are:

- **When is the last time you visited the dentist?**

  Someone who does not go to the dentist regularly has a higher risk of halitosis from decay and gum disease.

- **What are your oral hygiene habits? a) Brush daily b) Brush & floss daily c) Brush, floss, and rinse daily**

  This is an important question because even patients who are very meticulous about brushing and flossing may still suffer from bad breath that is oral in its origin. This is because the tongue is believed to be one of the main sources of oral odor. Most people have never been taught to brush their tongue.

- **Do you use an over-the-counter mouth rinse regularly? a) Yes? What brand? b) No?**

  Although millions of dollars are spent every year on over-the-counter mouthrinses and deodorizing sprays, it is clear that most of them will only mask bad breath temporarily. Furthermore, most of these mouthrinses contain a high percentage of alcohol which when used too frequently will tend to dry out the mouth's tissue.

- **When you sleep do you breathe through your mouth?**

  Dryness of the mouth is almost always associated with halitosis.
Are you taking any medication?

Many medications can cause dryness. Some also have a distinct odor of their own which enters the breath via the lungs.

Have you been experimenting with ethnic foods that use different spices?

Many spices like garlic and onions affect the breath. In the digestive system the by-products of these spices are able to enter into the bloodstream. From there they enter the breath by being excreted from the lungs.

Are you on a special diet?

Dieting can make you prone to halitosis. When a person doesn’t eat he or she experiences what has been called “hunger odor”. This may actually be caused by the juices in the stomach. Dieters also burn stored fat which gives off acetone. These odors enter the breath via the lungs.

Do you drink alcohol?

Remember alcohol tends to dry out the oral tissues. Alcohol is also excreted into the breath via the lungs.

Do you smoke?

Smoking encourages periodontal disease, decreases salivary flow and causes a tongue condition which can trap food debris and tobacco odor.

If you are a denture wearer, how often and by what method do you clean your dentures? a) Brush? b) Soak? How often?

Dentures tend to collect food more than natural teeth. It is also true that since most denture wearers are older their salivary flow seems to be less. Both these factors contribute to an increase in halitosis for the denture patient.

How long have you noticed the problem?

The duration of the problem can be significant in making a diagnosis. For example, a long duration of symptoms is more consistent with persistently poor hygiene while a short duration of symptoms may suggest an infectious source like an abscess.

Has your bad breath been confirmed by others?

It is very difficult to determine for yourself if you have bad breath. Trying to smell your own breath usually doesn't work and having a bad taste in
your mouth doesn't necessarily mean that you have bad breath. Since most patients do not have access to sophisticated measuring instruments, the only way they can really tell if they have bad breath is to ask somebody to check it for them.

Today, the technology exists to measure the level of volatile sulfur compounds right in the dental office with the use of an instrument called a halimeter. This along with other new techniques will usually allow you to pinpoint the cause of patient's bad breath.

**Management of Oral Malodor**

Odors must be eliminated on the molecular level before halitosis can be controlled. Masking of odor is only transient. It is not only ineffective, but it generally creates an additional odor problem that is also disagreeable and more complex than the original smell.

As opposed to anti-plaque and anti-gingivitis claims, breath freshening remains a cosmetic claim in many countries. Since water also reduces bad breath for a given period (albeit a very brief one), practically all oral products can fit neatly into this category. Consumers and dentists themselves have a conspicuous difficulty in determining which products actually "take your breath away," and for how long. Few papers have been published on malodor reduction for periods of above 2 or 3 hours.

Mouthwashes shown to reduce bad breath for 8 hours or more include 0.2% chlor-hexidine formulations (Rosenberg et al., 1981; 1982), Listerine® (Kozlovsky et al., 1994) and a recently developed two-phase oil:water mouthwash (Rosenberg et al., 1982; Kozlovsky et al., 1994). Studies such as in Consumer Reports have shown that mouthrinses and other commercial products have effects that are very short lived (as in a few minutes) and no significant effect on halitosis.

[Source: Rosenberg, Mel; Bad Breath: Research Perspectives. 2nd Edition (1997).]

The goal of oral malodor management is achieved by eliminating the associated odor producing bacteria from the oral cavity. A combined approach that includes mechanical debridement with chemotherapeutic adjuncts will provide patients with good results. Mechanical debridement includes daily deplaquing of the dorsum of the tongue. This procedure alone will significantly decrease oral malodor. Tongue deplaquing is best achieved through the use of implements designed exclusively for use on the tongue rather than brushes designed for teeth. The higher profile of toothbrushes make them less effective on the tongue. In addition, tongue scraping has proven to be more effective in reducing odor-causing bacteria because it facilitates an even pressure that will force bacteria, food debris, and dead cells from the crevices of the tongue surface. Daily tongue hygiene, combined with chemotherapeutic support, will control oral malodor as well as enhance overall oral health.
Chemotherapeutic products such as mouthrinses, toothpaste, and tongue gels are popular with patients; therefore, the progressive clinician needs to have a good understanding of the options available. By and large, product criteria should include products that are alcohol-free and sugar-free, and contain an antibacterial agent known for its effectiveness in controlling oral malodor. Agents such as zinc chloride, essential oils, and chlorine dioxide have proven effective in reducing oral malodor. Chlorine dioxide acts by neutralizing the VSCs. Essential oils, such as thymol and eucalyptol, kill anaerobic bacteria, while zinc chloride will effect bacteria cell walls and neutralize volatile sulfur compounds. Other antibacterial agents also may prove effective in oral malodor control. More research in the arena will assist clinicians in making appropriate product recommendations.

Mouthrinses, toothpastes, tongue gels, and chewing gum are popular vehicles for delivering antibacterial agents. It is important to recognize that patients want and use chemotherapeutic options. The combined approach of mechanical deplaquing and chemotherapeutics will provide effective oral malodor control and should be introduced and utilized during the dental hygiene appointment.

Clinical Protocol for Oral Malodor Management

1. Pre- and post-procedural use of an antibacterial mouth rinse to neutralize VSCs.

2. Eliminate/reduce plaque and calculus:
   
   A. Instrumentation as indicated—Take the opportunity to correlate periodontal conditions with oral malodor.
   
   B. Subgingival irrigation to neutralize VSCs that have been linked with an increase in mucosa permeability, interference with collagen and protein synthesis.
   
   C. Remove remaining plaque from interproximal regions.
   
   D. Perform selective polishing as indicated.
   
   E. Perform tongue deplaquing procedure using tongue scraper and antibacterial tongue gel.

   Involve the patient in this process and open dialog regarding the tongue coating and its relationship to oral malodor and bacteria accumulation.

3. Evaluate for additional preventive care:

   - Sealants
   - Topical fluoride treatment
Daily fluoride use.

Professional and daily fluoride therapy is indicated based upon caries activity. A patient, regardless of age, who has had an incipient or active lesion within the past year is a candidate for fluoride therapy.

4. Introduce smile-enhancement options:

- Tooth whitening, laminate veneers, crown/bridge, composites, peri-cosmetic options, and dental implants are all examples of aesthetic options. Be aware and informed about these options and discuss them with each patient.

5. Patient education for daily care:

- Consideration of appropriate tools should include automated devices, interproximal cleansing, use of appropriate chemotherapeutics and tongue scrapers. Make the correlation between plaque removal and fresh breath.

6. Appointment for recare and restorative/esthetic procedures

Source: Kristy Menage Bernie, RDH, BS. Discus Dental.

Patient Teaching

Since most bad breath is caused by oral factors, the elimination of these factors should be the first step in the treatment approach. The following steps are recommended:

- **Improve oral hygiene techniques.**

Since improper oral hygiene is probably the most common underlying factor in halitosis, the institution of an effective home care program is essential. In addition to conventional tooth brushing and flossing, daily irrigation of the oral tissues and regular scraping or brushing of the tongue is recommended.

Since the tongue is a main reservoir for bacteria which produce VSC one method to control odor is to eliminate the bacteria that live there. This can be accomplished by brushing the tongue and using a solution which contains chlorine dioxide. Studies have shown that sulfur molecules are oxidized by chlorine dioxide. The reaction creates a powerful deodorizing effect in which the volatile sulfur gas is eliminated. This deodorizing agent along with brushing or scraping will abrade the tongue and remove the bacteria. This product is produced by a few companies and is called RetarDex, RetarDent and Oxyfresh. The patient
is provided a supply of this product to use at home. RetarDent, RetarDex and Oxyfresh come in a toothpaste, gel and rinse.

Another hygiene technique which has been found useful in controlling halitosis is the use of a new type of oral irrigator. These special units can ionize whatever solution you care to use to irrigate the soft tissues. It has been shown that by irrigating the soft tissues and the teeth with ionized solutions you can inhibit the formation of plaque and tartar. This technique is especially useful for patients who have a hard time flossing properly.

Control gum disease (periodontal disease).

By eradicating periodontal disease you will destroy one of the main sources of bacteria that produce volatile VSC.

Perform all necessary dental care.

Restoring all existing areas of decay, closing open contacts between teeth, extracting all unrestorable teeth and correcting any other defects like overcontoured fillings and crowns that are impossible to clean will help to minimize the accumulation of the bacteria and food debris that cause bad breath.

Increase salivary flow.

Eating smaller meals more frequently, drinking water with a little lemon in it, chewing sugarless gum, and sucking a sugarless citrus or mint candy, will all increase salivary flow. This will enhance the mouth’s natural ability to clean, thus reducing the number of oral bacteria as well as their substrates and end-products that could stagnate and putrefy in saliva. Patients who suffer from severe dry mouth can use an artificial saliva to moisten the oral cavity without any untoward adverse reactions.

Patients who wear dentures, or partials need special home care instructions.

Since food debris easily gets caught around clasps and on denture teeth, it is important to tell your patient to rinse out their appliances after every meal. A good cleaning should be done at least once in the afternoon and then prior to soaking them in a disinfecing solution for the evening. Wearing dentures during sleep when salivary flow is diminished will enhance the process that causes bad breath.

Patients wearing removable appliances also need to be given special oral hygiene instructions.
Since these appliances are usually worn 24 hours a day, it is imperative to take them out after every meal and clean them. They should also be soaked once a day in a good disinfectant like CLEAN N' FRESH.

For people who eat spicy food like garlic and onions, excellent oral hygiene is not enough to stop bad breath since the metabolites these foods produce are absorbed, and excreted through the lungs.

One product which works well to control this type of bad breath is Breathasure. This simple product which is made of parsley and sunflower seed oil in a gel cap seems to prevent the odor-causing byproducts of these foods from entering the blood stream.

When all the previously described oral measures have been taken and they fail to improve the halitosis condition in a relatively short period of time, systemic disease or some other cause should be suspected. Referral to a physician for a complete medical examination should then be made. Remember while halitosis is usually due to benign oral disorders it may be the first manifestation of a serious or even fatal disease.

Source: W.B. Williams, DMD
Suwance, Dental Care
Suwanee, GA

References


38. Murray, Mary: Kiss Bad Breath Goodbye, Readers Digest, September 1994, pp89-93.


Additional Reading, Continuing Education Seminars & Resources


Linder AA: This hygiene check will build your practice. Dental Practice & Finance 1998;6(6):57-60.


Principles of Aesthetic Dental Hygiene: A Patient Centered Approach. Continuing education seminar (four hours) hosted by associations throughout the country. Contact Educational Designs at 1-925-735-3238 for the seminar schedule or to schedule a presentation for your group.

In-Office Training & Education on oral malodor, tooth whitening and preventives through Building Blocks at Discus Dental. Call 1-800-600-9748 for more information.