In nine out of ten instances, bad breath (halitosis) comes from bacterial activity in the mouth. About 15-30% of the adult population suffers from bad breath on a regular basis. In most cases, bad breath can be greatly improved following proper diagnosis, dental care, oral hygiene and advice. This Fact File explains how dentists can deal with this condition if it has an oral cause.

**Diagnosing bad breath**

In recent years it has become increasingly evident that bad breath is usually amenable to treatment once the causal factors are known. Often, people who are worried about bad breath are very poor at trying to assess how bad the problem is. Some worry needlessly. At the same time, many others (including some dentists!) may suffer from bad breath without being aware of it themselves. As a result, millions of people with bad breath go untreated, while others build up exaggerated fears about breath odour, even though they might have very little or none at all. The best way to judge whether one has bad breath is to seek the objective input of a "confidant" – a close adult friend or family member.

Since bad breath often comes from bacterial breakdown of proteinaceous debris within the mouth itself, it is a condition that dentists can help alleviate. For this reason, and because bad breath can be a sign of disease in the mouth (or – fortunately, rarely – of a systemic illness), it is sometimes appropriate for a dentist to broach the issue of breath odour with a patient.

Sometimes, patients will themselves raise the matter with their dentist. If a patient has explained in advance that they will be asking for help with bad breath, they should be strongly encouraged to bring a confidant who is familiar with the situation. This can help to give an objective picture of how bad the odour really is, how long it has been going on, and when it improves or gets worse. Since bad breath often varies, the accompanying person can also help determine whether the odour at the time of the appointment resembles, in character and intensity, the odour that is generally present.

It is advisable to ask the patient not to eat, drink, smoke, chew gum, suck sweets, use mouthwashes, breath fresheners, etc. for at least two hours before the consultation, so that the odour will be more typical. It is also worth asking the patient to avoid using perfumed cosmetic products, such as fragrances, aftershave and scented lipstick prior to the appointment, since these can interfere with the odour assessment. If the patient has been on systemic antibiotics within a month prior to the appointment, it should be postponed appropriately (since antibiotics typically eliminate oral malodour for several weeks).

The dentist can determine whether there is oral malodour by comparing the odour coming out of the mouth (for example, while the patient counts out loud to twenty) with the odour coming from the patient's nose. If the odour is primarily from the mouth itself, then the origin is likely the mouth and/or throat. The odour from the back of the tongue can be sampled by gently scraping some of the debris from the posterior tongue dorsum using a plastic spoon while holding the tip of the tongue with some gauze.

If the odour is mainly from the nose, then the nasal passages may be responsible, and an ear-nose-throat consultation may be warranted. If the odour comes equally from the mouth and nose (rare) then a systemic problem may be inferred. In any case of doubt (or if the problem does not resolve), the patient should be referred to an appropriate physician.

Another simple technique that may help diagnose whether the odour is of an oral origin is to prescribe a strong antibacterial mouthwash (e.g. 0.2% chlorhexidine) for rinsing and gargling for one week. If the odour subsides, it is likely to be due to an oral aetiology.
The causes of bad breath
This table summarises different odour-related problems, and their possible causes:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause or source of malodour</th>
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<tbody>
<tr>
<td>Odour after fasting, dieting, sleeping, taking medications, stress, prolonged speaking or exercise</td>
<td>Dryness in the mouth, insufficient saliva flow</td>
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<tr>
<td>Gums bleed and / or smell</td>
<td>Gum disease, poor cleaning between teeth</td>
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<tr>
<td>Odour upon talking</td>
<td>Postnasal drip on back of tongue, oral dryness</td>
</tr>
<tr>
<td>Small whitish stones with foul odour appear on tongue, possibly following coughing</td>
<td>Tonsilloliths from crypts in tonsils</td>
</tr>
<tr>
<td>Odour appears suddenly from mouth of young children</td>
<td>Onset of throat infection</td>
</tr>
<tr>
<td>Odour appears suddenly from nose or even entire body of young children</td>
<td>Foreign body placed in nose</td>
</tr>
<tr>
<td>Taste or smell of rotten fish, usually perceived mainly by the patient</td>
<td>Trimethylaminuria (rare)</td>
</tr>
<tr>
<td>Odour in denture wearers</td>
<td>Dentures not cleaned properly or not soaked overnight in antimicrobial solution</td>
</tr>
<tr>
<td>Odour from nose</td>
<td>Sinusitis, polyps, dryness, foreign body, hindered airflow or mucus flow</td>
</tr>
<tr>
<td>Bad taste all day long</td>
<td>Poor oral hygiene, gum disease, excessive bacterial activity on tongue. Bad taste is not necessarily indicative, however, that there is observable odour.</td>
</tr>
</tbody>
</table>

**Bad breath originating in the teeth and gums**
The teeth and gums are a common source of oral malodour, particularly subgingival and proximal areas. Margins, overhangs, leaky crowns, and periodontal pockets are prime sites for anaerobic bacterial activity, which may lead to putrefaction and to odour. Patients with pronounced gingivitis may have particularly foul odour.

Patients should be advised about the importance of good oral hygiene in maintaining gum health and in keeping food traps clear (assuming that these do not require to be resolved by surgery).

A useful tip to pass on is to smell the odour coming from the dental floss following each passage between the teeth, and to work to clean more carefully those areas with the worst odour (it is best to use unscented floss for this purpose). The same applies to dental sticks or interdental brushes where these are used. It may be appropriate to suggest daily rinsing with one of several available mouthwashes that have been scientifically shown to reduce breath odours. In addition to rinsing the mouthwash between the teeth, it is highly advisable to gargle with the rinse as far back as possible, to inhibit the odour-causing bacteria on the back of the tongue. Mouthwash is probably most effective when used directly prior to bedtime. Mouthrinses which contain cationic active agents (such as cetlypyridinium chloride or chlorhexidine) may be inactivated by the anionic detergent in toothpaste, thus it is inadvisable to use mouthrinse directly after toothpaste.

Denture-wearers need to be advised about keeping dentures clean, as these can also generate bad breath.

Since bad breath is exacerbated when the mouth dries out (e.g. after talking a lot, during sleep, when under stress or as the result of many medications), it can help to stimulate saliva flow by chewing sugar-free chewing gum for just a few minutes. It also helps to drink lots of liquid and not to drink too much coffee or alcohol, as these might worsen the situation.

**Bad breath originating on the tongue**
The posterior dorsal tongue is the major site for oral malodour. In people with healthy teeth and gums, the odour usually comes from the far back region of the tongue, and grows stronger when the patient starts talking or the mouth is dry. The odour from the back of the tongue differs in character from the dental odours described above.

This is an area of the tongue which is poorly cleansed by saliva, and is heavily populated by aerobic and anaerobic bacteria that can putrefy the proteins present in food debris, desquamating epithelial cells and postnasal drip. Some studies have shown a relationship between tongue
coating and oral malodour. The tongue may also serve as a reservoir for periodontal pathogens, which may contribute to the odour.

If the back of the tongue is the problem, then cleaning the area with a specially designed plastic tongue scraper can be recommended (in some countries, tongue cleaning is a common and ancient practice). Several types of tongue cleaner are now available in the UK. It takes time and patience to overcome the gagging reflex but, eventually, tongue cleaning becomes easy. Care should be taken to clean the back of the tongue gently, so as not to inflict pain or sores or otherwise traumatise the tongue. A toothbrush, without toothpaste, can also be used to scrub the tongue gently.

Interestingly, eating rough foods reduces tongue coating, and thus eating a wholesome breakfast may often contribute to improvement.

**Bad breath originating outside the mouth**

The nose and nasal passages can also be the site of bad breath.

Sinusitis and other bacterial infections, blockages of the airway, and dry nasal mucosa can all contribute to malodour. Furthermore, a blocked nose causes mouth breathing which dries out the oral cavity and can result in bad breath.

In children, foreign bodies in the nose can cause bad breath, sometimes resulting in an odour so foul that it completely envelopes the body.

Tonsils may, on occasion, be responsible for oral odour. Tonsil stones (tonsilloliths), consisting of partially calcified debris and rich in anaerobic bacteria, may develop in tonsillar crypts, and be released into the oral cavity, in about 5% of patients. Although the stones themselves smell, particularly when pressed, they do not necessarily contribute to oral malodour.

Hundreds of diseases (e.g. bronchial and lung infections, various carcinomas, metabolic dysfunctions, biochemical disorders) can result in bad breath, but all these taken together account for all only a very small percentage of those suffering from the problem.

There is a common misconception that bad breath comes from the stomach. However, with the exception of burping, bad breath from the stomach is extremely rare. Systemic treatment of Helicobacter pylori with antibiotics, generally does result in a temporary improvement in oral malodour, probably due its concomitant inhibition of the oral microorganisms which are responsible for the odour.

**Halitophobia**

Some 25% of patients complaining of pronounced oral malodour have little or no bad breath at all. This highly exaggerated concern of suffering from bad breath is called “halitophobia”. Such patients are convinced that they have bad breath for various reasons. Sometimes they notice bad breath in others (e.g., parents) and assume that they must have a similar problem. In some cases they misinterpret the behaviour of others (opening a window, rubbing one’s nose, offering a mint) as a sign that they have bad breath. Bad taste is often misinterpreted as a sure sign of bad breath (it is not). The presence of tonsilloliths can also lead to exaggerated concern. Some halitophobics were told once, many years ago, that their breath smelled, and continue to harbour this fear, without actually consulting anyone to see whether such a problem persists. In many cases, halitophobics shun social situations and suffer impaired quality of life. They may be reluctant to bring an objective third party to the appointment, yet should be strongly encouraged to do so.

Patients with halitophobia are often so sure that they have bad breath, that they usually proffer disbelief when the dentist tells them that there is no oral odour. These patients have a strong conviction that they have an actual medical condition, and are not likely to agree to seek psychological counselling (at least, not initially). However, together with feedback and reinforcement from a family member or close friend, they can, over time, gain a more objective perception of the situation.

**Summary**

Patients who complain of bad breath should be encouraged to bring along a close adult friend or family member to the appointment who can help the dentist determine whether the odour at the time of the appointment resembles the typical odour. This person can also notify the patient over time whether the odour has improved following the consultations.

In the great majority of cases, bad breath can be eliminated or improved by:

- proper dental care and treatment
- oral hygiene, including daily flossing
- eating a wholesome breakfast, and healthy snacks during the day
- drinking sufficient water, and avoiding coffee and alcohol when possible
- using a flat, plastic tongue cleaner to gently remove the debris from the posterior dorsum of the tongue
- chewing sugarless gum (briefly) when the mouth is dry or after eating foods rich in protein
- rinsing and gargling with an effective mouthwash at bedtime.

Last but not least, dentists should consider making their patients aware of the connection between poor oral hygiene and oral malodour (particularly with regards to flossing). This can help motivate patients towards improved professional dental care, and to more conscientious oral hygiene practices at home.

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**Further reading**


**This book, and other relevant literature, can be borrowed by BDA members from:**

BDA Information Centre
64 Wimpole Street
London
W1G 8YS
(Normal opening hours: 9am to 6pm, Monday to Friday)
Tel.: 020 7563 4545
E-mail: Infocentre@bda.org
Free video resource (professional interview with Prof. C.A.G. McCulloch, University of Toronto): www.smellwell.com/videos

**Acknowledgements**

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