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Bad breath

Have you ever wondered what makes your breath smell bad in the morning?

Raghav Chawla finds out about halitosis



Also known as foetor oris, oral malodour, or simply bad breath, halitosis is a serious problem. It can be embarrassing, socially disabling, and even affect relationships. Moreover, it can be a first sign of systemic disease.

The problems caused by halitosis have been recognised for centuries. It appeared in the Jewish Talmud and was also discussed by ancient Greek and Roman writers. The prophet Muhammad, founder of Islam, is said to have thrown a congregant out of the mosque for having a smell of garlic in his breath. In more recent times, it is Joseph Tonzetich of the University of British Columbia, Vancouver, who has (among others) led some pioneering work in this area of research. His findings have appreciably advanced our current understanding of the problem.¹

Oral malodour is extremely widespread, affecting at least half of the general population.² It is particularly common after sleep—“morning breath”—and between meals, presumably due to mouth dryness, which occurs often at these times.³

Originating from within the oral cavity in up to 90% of cases, bad breath is primarily managed by dental health doctors.⁴ It is attributed to the production of volatile sulphur compounds, and possibly other substances, by oral predominantly anaerobic Gram negative bacteria such as *Porphyromonas gingivalis* and fusobacteria.^{5,6} These are found mainly on the back of the tongue and in interdental and subgingival areas, where many factors may encourage their growth—retention of food particles within various confined oral spaces, diminished saliva flow, often because of the intake of drugs, oral sepsis, postnasal drip, and dentures.^{1,3}

Some compounds of sulphur, which are predominantly hydrogen sulphide and methyl mercaptan, not only cause malodour but also damage the tissues of the mouth, leading to periodontal disease.⁷ With the progression of periodontitis attracting more bacteria, this results in the production of even more sulphurous compounds.

Many foods can also trigger bad breath, especially garlic and onions, and also foods rich in sulphur, such as dairy, fish, and meat. Smoking and drugs—including alcohol, isosorbide dinitrate, and disulphiram—may be implicated as well.^{3,4,6}

In about 10% of cases, malodour may originate from places other than the mouth, most commonly the nose or the throat. Rarely, bad breath may be a presenting complaint of disorders such as peptic ulcer disease, lung infection, liver or kidney disease, diabetes mellitus, various cancers, or even hallucinations (unreal halitosis).³


When facing a patient with suspected halitosis, it is important to take a thorough history, taking into account all possible causes, and do a complete examination of the oral cavity as well as the nose and throat. All non-oral causes of bad smelling breath must be excluded, and it is crucial not to miss the systemic ones.⁸

For many people it is not easy to judge the extent of their bad breath. Whereas most, regrettably for those surrounding them, remain oblivious to their own oral odours, others may present with features of “halitophobia,” a highly exaggerated fear that they have halitosis. A study by Mel Rosenberg of the University of Tel Aviv, Israel, showed that self estimated scores of women complaining of bad breath were significantly higher than those of men, despite the objective score revealing a reverse relationship.¹

The severity of halitosis can be assessed in clinic with a so called halitometer, a portable sulphide monitor. Sulphide concentrations have indeed proved reliable as an objective measure of the degree of bad breath.⁹ Clinicians who are interested in diagnosing and managing oral malodour cannot shun smelling it themselves, however. When doing so, they should also compare the odour exiting the mouth with the one coming out of the nose.¹

The cheapest and most effective way of managing simple halitosis originating orally is by simple oral hygiene. Dentists can obviously help with occasional thorough cleanings, however, this does not replace the patient's home work—regular tooth brushing, use of dental floss, deep tongue brushing or scraping, and proper maintenance of any dentition.¹⁰ Various mouth washes for rinsing and gargling may also be used, best before going to sleep.¹ They contain products such as chlorhexidine gluconate, an antiseptic agent; hydrogen peroxide, which helps to neutralize thiols; and essential oils based on thyme, eucalyptus and other plants.^{3,4}

Lifestyle changes may also be useful in reducing oral malodour. Refraining from smoking and avoiding odiferous foods, alcohol, and drugs is usually effective. Regular intake of water and chewing sugar-free gum contribute to increasing saliva production.³

In the presence of infective or non-oral causes of bad breath, management of the underlying problem obviously has priority. Depending on the exact cause, various treatments may be sought, including antibiotic therapy, surgery, and even laser treatment.^{8,11} 

Raghav Chawla *Clegg scholar, BMJ*
raghav.chawla@unil.ch

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