

# Medicine for Managers

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## How Do I Smell Things?

**The sense of smell is amazing and we take it for granted. To be able to distinguish bread, onions, fruit, perfume or chlorine with a simple sniff is amazing. The reason that things give off a smell is because the molecules of which they are composed are volatile (that is they evaporate) and travel through the air and into your nose. Steel is**

The ability to smell things is a vital component of awareness of our environment. The sensitive cells responsible for recognising scents are renewed every twenty-eight days. Research has found that the smell of a cooking breakfast is a man's favourite smell, whilst a woman's favourite is a newborn baby. A woman's sense of smell is stronger than that of a man and, during the reproductive years, is at its height at the time of ovulation. Smells are more easily noticed and recognised in spring when the moisture content of the air is higher. Interestingly, the sense of smell is inoperative during sleep.

Smell is the most sensitive of the senses. There is evidence that people can, on average, remember smells with a 65% accuracy after a year whereas visual recall is less than 50% after three months. Smells trigger emotions, particularly those that are associated with pleasure. Everyone likes the 'new car' smell and manufacturers spray the inside of new cars with the smell which lasts six weeks.

Interestingly though, the sense of smell develops 'tolerance'. Go into a bakery and smell

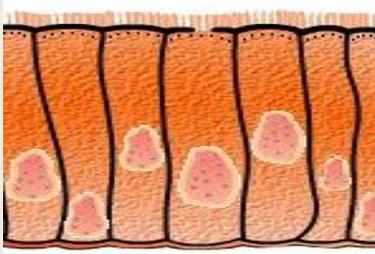
the marvellous smell of freshly baked bread. By the time you are paying for the bread, your ability to smell the bread has declined dramatically.

Of course, perhaps one of the most important functions of smell is during choosing a partner. A study showed that women were consistently attracted to men who had a specific genetic makeup which produced particular pheromones.

Some people are born with an inability to smell anything and they are said to have **congenital anosmia**.

The cells that are sensitive to smells (**olfaction**) are located in the upper part of the nose and are a specialised series of cells called **olfactory epithelium**.

This is made up of millions of cells covering an area the size of a postage stamp and the cells have sensitive hair-like



structures along their upper surfaces which greatly increase their surface area and which have receptor sites to which molecules can be bound. The hair-like projections are called **cilia**. The cells are linked to nerves which pass up through a bony plate containing many perforations and called the **cribriform plate** and which travel to the part of the brain called the **olfactory cortex**. The two nostrils have separate inputs into the brain.

The human nose can detect a huge number of individual smells. Classically it was thought to be around 10,000 but more modern research has suggested that it is at least 50,000 and probably much more. For animals of course smell is more important for hunting and for survival.

Humans have about five million receptors whereas a dog, for example, has between 200 and 250 million receptors. Next time the dog appears spellbound by the Irish Stew that is cooking, remember that you can probably detect three separate constituents when you smell it whereas the dog may be able to detect up to thirty separate constituents.

There are a variety of abnormalities of the sense of smell; in **dysosmia** things smell differently from recollection or expectation, **hyperosmia** is an increased sense of smell, **hyposmia** is a decreased sense of smell, **phantosmia** is experiencing hallucination smells and **parosmia** or **cacosmia** is a condition where

pleasant smells are horrible evoking revolting odours such as putrefaction. From a medical perspective **anosmia**, loss of the sense of smell, may be very important.

The sudden loss of the ability to identify smells may be extremely frustrating and depressing; however it may also be a sign of a significant medical problem and anyone experiencing loss of the sense of smell should consult his or her GP.

The loss of the ability to identify smells may be damaging to appetite, for example, because 80% of food flavour comes from its smell rather than its taste.

**As we get older the sense of smell declines, having reached its peak at about age 18-21, and with the decline dietary choices change resulting in increasing use of stronger flavourings and a tendency to eat a less healthy diet.**

Temporary anosmia may be the result of viral illness (colds and 'flu), sinusitis and hay fever. The use of some medications, such as the antibiotic *metronidazole* may alter and diminish smell as can recreational drugs such as cocaine and amphetamine.

More permanent losses of smell may be associated with skull fracture (which involves damage to the cribriform plate) or brain tumour and other neurological acute events such as epilepsy or stroke.

Other conditions such as diabetes (which impairs blood flow to the sensitive nerves), Parkinson's disease and Cushing's syndrome, can cause the disorder together with other

disorders such as liver or kidney disease, some blood disorders and pernicious anaemia, which damages peripheral nerves with vitamin B12 deficiency.

Loss of smell should be investigated. A GP will take a history and undertake an examination together with blood tests and sometimes radiography.

Referral is then normally to an Ear, Nose and Throat surgeon (or sometimes in specific circumstances to a neurologist) where more detailed investigations such as CT or MRI scans. A diagnosis is made in 80% of cases of anosmia although in 20% no cause can be found.

Unfortunately most of the chronic conditions cannot be cured. However, the more temporary conditions, and particularly those affecting the nose itself, are often amenable to treatment.

Simple treatments include **nasal douching**, the use of an **antihistamine** or a **steroid nasal inhaler**. Sometimes the sense of smell is compromised by a deviated nasal septum or by the presence of polyps and the appropriate surgery may result in resolution.

So, smell is a very important sense to help you keep safe and to enjoy the experiences of life around you . Manufacturers have known this for a long time and it is a subtle way to keep a partner interested.

I am not sure that it works with me but I have to finish this article now because I can smell breakfast cooking!!

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