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## [16 Things You Did not Know about Smell and Taste](#)

### *The chemical sense*

This is how we investigate the chemical composition of our environment: through smell and taste.

1. The olfactory sensors are located in the upper nose, in the olfactory mucosa. The mucosa contains millions of olfactory cells (ciliated cells). Each ciliated cell contains over 12 cilia. The mucous maintains the humidity level of the mucosa. The scented chemicals dissolve into the mucosa covering the cilia and these get bathed in the solution of the scented chemicals. Under their action, the cilia trigger an electric impulse that goes through the olfactory nerve to the brain. The olfactory part of the brain is called rhinencephalon and is much more reduced in humans than in most mammals. In humans, the olfactory mucosa is about 10 square centimeters, in dogs 150!
2. Olfaction implies 8 molecules of a specific substance reaching an olfactory cell. The smell sensation appears when at least 40 olfactory cells have been stimulated.
3. There are 6 basic types of smell: sweet, fruity, putrefaction-like, spicy, burned and paint (terebenthene).
4. For a chemical to have smell, it must spread its molecules in the air. That's why a cold dish smells less than a heated one: the vapors carry more of the scented molecules from the food. Another condition is that the chemical dissolves in the water. That's why during the hot, wet weather we feel that smells are more intense. A field spreads its fragrances after a rainfall and the smell of the bath salts is detected more in a hot bath, no matter how diluted, than in the wrapping. To feel better a smell we sniff, increasing voluntarily the speed of the air currents passing to the olfactory mucosa.
5. When we enter a room where something is being cooked, the smell is strong for us, while those inside do not even feel it. This is accommodation: after all the olfactory cells have been stimulated by a specific smell, they stop sending signals to the brain.
6. The air refreshers act by masking the smell: they do not wipe out the bad smell, but cover it, being more intense, like a loud sound covering other background sounds. How this covering happens is not known, as not all the smells can be covered; sometimes we feel the mix of smells.
7. From about 110,000 kinds of smells in nature, humans perceive just about 100-200. The smell of children is much finer and those working in the perfume industry can detect 600-800 smells! In women, the smell sense is strongest around the ovulation period, significantly stronger than during other parts of the menstrual cycle and also generally stronger in males.
7. The left nostril catches smells better than the right one. In 80 % of the people the nose is not exactly on the middle of the face, but to the right. This will enable them to detect the source of a smell, as the slight difference permits a comparison and direction detection. (like in the owls, which have their ears disposed asymmetrically to locate the source of a noise in the dark). 70 % of infections enter our body through the nose.
8. For us pure salt is inodorous. Quinine is inodorous. But a dog will detect them even dissolved at 1:10,000 (a gram in a cub of water). But we will feel them better in food.
9. When we catch a cold, we do not detect the taste of the aliments. But the cold affects the nose, not the taste receptors. Still, we associate the taste of the aliments with their smell. If you try to taste with the eyes closed and nose tapped butter or grease, tea or water, they will seem impossible to determine, seeming tasteless; we also will not be able to differentiate between smashed potatoes and smashed apples.
10. There are 5 basic kinds of taste: sweet, sour, bitter, salty and umami (savoriness), like the taste of monosodium glutamate.
11. The taste is triggered only by chemicals that dissolve in the water. We feel the taste of the dry aliments only when they start to dissolve into the saliva. We feel salt quickly, as it dissolves rapidly in the water, while complex molecules do it more slowly.
12. The taste receptors are called taste buds. They are located on papillae of various shapes on the tongue, mouth roof and pharynx. Each bud contains about 50 cells and all buds react to the

basic tastes. Each papilla contains about 100-200 buds. The sensitive taste cells have cilia, too. An adult has 9,000 taste buds, a child even more. 13. The taste receptors are connected to those for touch, thus the taste of a food is given by both its chemical and tactile traits (soft or hard, crunchy or pasty). The temperature of the food is also important in determining the taste, directly and indirectly (it influences the speed of dissolving speed of the chemicals). The spicy foods (like chili peppers) stimulate the pain receptors, not the taste buds. They cause a sensation of burning on the skin, too. Ears too contribute, as they perceive the chewing noises. Memory is also important: we won't be able to eat for long a type of food that caused us harm once. 14. Is it necessary to add the importance of the way the food looks? We salivate and feel the taste of a preferred food before touching it. In the end, people believe more in what they see than in the other senses. Try to taste with your eyes closed an orange juice and a grapefruit juice. You won't be able to make the difference. One interesting thing: people tend to avoid blue food. 14. The sweet food is best detected by the tip of the tongue, the acid one by the dorsal face of the tongue, the salty by the edges and the bitter one by the base of the tongue. The buds react to all the tastes, but researches showed that sweetness and bitterness are detected by certain proteins. Perhaps these proteins are produced in different amounts on the tongue's parts. 15. The sweet and salty tastes are not that different. A salt solution over the saturation threshold is perceived as being sweet. 16. 25,000 times more molecules from a substance are necessary to detect its taste than its smell.