

Johan Lundström, PhD — Brain Science and Cognitive Psychologist

CUTTING TO THE ... CHEESE

Who knew you needed a great nose to be a psychologist?

Whether it is studying body odor from a locker room or freshly baked chocolate chip cookies, psychological science is showing that the way we perceive smells actually might be more in our heads than we think.

Despite being a sense shared by many creatures, including bacteria, smell is one of the least understood when compared to seeing and hearing. Thanks to brain science and cognitive psychologist Johan Lundström, PhD, a faculty member at the Monell Chemical Senses Center in Philadelphia, we are learning more about the relationship among odor, perception and behavior than ever before.

"In particular, our lab is concerned with the complex processing of social 'chemosignals,' which act along the border between perception and cognition," he says.

Lundström is studying how the brain shapes the perceptions of the odors we detect. Take parmesan cheese: Lundström suggests if you give blindfolded people small cups of parmesan cheese, telling them what it is will affect their perceptions. If they are told it is cheese, instead of let's say — vomit, they will have far more receptive and positive responses.

PASSING THE SMELL TEST

Lundström's work goes well beyond experiments with blindfolds. He is finding that smell likely plays an important role in how people act around one another, even if we do not realize it.

For instance, his work with human body odor shows that while people could not always consciously recognize fake from real human body odor, specific areas of the brain always and only become active when we smell human odors.

"It seems that body odors are processed by a sub-network in the brain and not mainly by the main olfactory system," he says. In other words, our brains are hardwired to pick out the scents of other people. He speculates that this special ability is designed to help us, if only unconsciously, choose mates and recognize kin.

The sense of smell, however, doesn't work in isolation. It is usually combined with other stimuli like sight, sound, touch and even hunger. In fact, bacon actually presents what might be called the "perfect olfactory storm" — it is high in calories, fat and protein, which we are evolutionarily programmed to seek out.

"When combined with its powerful odor, resistance to bacon, for many, is futile," Lundström says.

SNIFFING OUT THE BRAIN

Lundström's work is more than just understanding how we interact with one another and the environment. It also helps us peer into the innermost workings of the brain. Every time we smell freshly baked cookies, for example, it's not hard to understand the connection smell has to emotion and other senses, but Lundström is starting to unravel how this works inside our heads.

Once Lundström and his team began studying how the senses work together, "We started to realize what we thought was true for each sense isn't," he says. Rather than merely coexisting, our senses often overlap and one sense can actually alter the perceptions of another. This means that the brain filters the stimuli we receive and creates unique perceptions for all of us. In other words, don't believe everything you see or hear or smell: Your brain is running the show.



Paola Nogueras

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