Label descriptions affect odour perception

February 12 2014, by William Raillant-Clark

According to Simona Manescu and Johannes Frasnelli of the University of Montreal's Department of Psychology, an odour is judged differently depending on whether it is accompanied by a positive or negative description when it is smelled. When associated with a pleasant label, we enjoy the odour more than when it is presented with a negative label. To put it another way, we also smell with our eyes! This was demonstrated by researchers in a study recently published in the journal *Chemical Senses* (Oxford University Press.)

For their study, they recruited 50 participants who were asked to smell the odours of four odorants (essential oil of pine, geraniol, cumin, as well as parmesan cheese). Each odour (administered through a mask) was randomly presented with a positive or negative label displayed on a computer screen. In this way, pine oil was presented either with the label

"Pine Needles" or the label "Old Solvent"; geraniol was presented with the label "Fresh Flowers" or "Cheap Perfume"; cumin was presented with the label "Indian Food" or "Dirty Clothes; and finally, parmesan cheese was presented with the label of either the cheese or dried vomit.

The result was that all participants rated the four odours more positively when they were presented with positive labels than when presented with negative labels. Specifically, participants described the odours as pleasant and edible (even those associated with non-food items) when associated with positive labels. Conversely, the same odours were considered unpleasant and inedible when associated with negative labels – even the food odours. "It shows that odour perception is not objective: it is affected by the cognitive interpretation that occurs when one looks at a label," says Manescu. "Moreover, this is the first time we have been able to influence the edibility perception of an odour, even though the positive and negative labels accompanying the odours showed non-food words," adds Frasnelli.

This finding indicates that the perceived edibility of an odour can be manipulated by a description, and that olfactory perception may be driven by a top-down (or directive) cognitive process.

Reaction times also affected by odours

Various studies have shown that odours affect the reaction times of individuals. Thus, unpleasant odours cause rapid reactions (recoil, for example), while pleasant odours cause slower reactions. In the University of Montreal study, which was run in collaboration with researchers from McGill, reaction times were measured by participants pressing one button as fast as they can when they detected an odor.

However, only the parmesan cheese odour elicited a different reaction time, which was slower when the label was positive. "We were surprised

by this result because we expected reaction times to increase when all four odours were associated with positive labels," says Manescu. Similarily, it is known that we react faster to food odours than to other types of odours. In this study, however, cumin – which was rated positively when presented with the label "Indian food" – did not result in a slower reaction time, unlike parmesan cheese, which yield slower reaction times and was rated positively when presented with the "parmesan cheese" label. "Although descriptions appear to influence reaction time, this may be modulated by label fit and the edibility attributed to an odour or label," concludes Manescu.

More information: Simona Manescu, Johannes Frasnelli, Franco Lepore, and Jelena Djordjevic. "Now You Like Me, Now You Don't: Impact of Labels on Odor Perception." *Chem. Senses* first published online December 13, 2013 DOI: 10.1093/chemse/bjt066

Provided by University of Montreal