Does Concentration Blunt Our Sense of Smell?

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Inattentional blindness is a well-studied phenomenon in psychological research. This dynamic plays out when, absent of any vision problems, individuals are so focused on a visual aspect of a scene that they fail to notice some other, highly visible feature. The Invisible Gorilla experiment is among the most famous illustrations of this effect:

(Video source: Daniel Simons)

Inattentional blindness has implications for driving, aviation, and witness testimony. Psychological scientists Sophie Forster at the University of Sussex and Charles Spence at the University of Oxford wondered if attention could also cause people to 'miss' smells in a similar fashion. Their research appears in *Psychological Science*.

They set up a room to be distinctively aromatic, hiding three small containers of coffee beans around the room overnight. Over the course of two experiments, they led 40 college students into the room one at a time to perform a tough visual-search task on a computer, finding the letter "X" or "N" in a circle of similar-looking letters ("W," "M," "K," "H," "Z," and "V"). 40 other students completed an easier

version of the same task; searching for the letter “X” or “N” among a circle of lowercase “o”s.

The experimenters then took the students into another room and asked them some follow up questions that grew increasingly leading :

1. “Describe the room you just completed the task in. Try to describe it using all of your senses.”
2. “Did you notice any odors in the room, if so what?”
3. “Could you smell coffee in the room?”

Students assigned to the difficult search task were far less likely to report having picked up the aroma (25% of participants said they noticed a coffee smell) compared to the participants assigned to the easy task (60%-70% percent of participants). When the experimenters led the students back into the test room, all of them said they could smell it. Some of them even commented that the room smelled like a cafe.

After two experiments testing the basic hypothesis, the researchers decided to see how long these smell-blocking effects might last. They had 20 students focus on the difficult visual search task in a room that smelled strongly of coffee. Then, while still in that room, the students were asked to describe the test room and its smells. Even though they were sitting in a room with 3 open containers of coffee beans, only 30% of participants said they smelled coffee. When they left the room for a few minutes and came back, all of them could smell it. This experiment suggested that the effects of selective attention last after even after the attention-absorbing task is over.

The report authors suggest that this phenomenon has advantages. Individuals could, for example, resist junk food if they’re so engaged with a task to even smell it. But this temporary loss of smell can also pose dangers, leaving an individual oblivious to a fire or gas leak if people miss the threatening odors like smoke or gas, according to their report. Some research into inattentional blindness has shown that people do notice dangerous visual cues when their attention is otherwise occupied, but the results have been inconclusive. Forster and Spence advocate for future research to see if people fail to notice unpleasant or threatening smells when they are focused on another task.

Reference

Forster, S., & Spence, C. (2018). “What smell?” Temporarily loading visual attention induces a prolonged loss of olfactory awareness. *Psychological Science*. doi:10.1177/2F0956797618781325.