What does Disease Smell Like?

Researchers at the University of Chicago find correlation between smell and dementia.

In our everyday lives, smell plays an integral part in helping us recognize certain odors. How else could you tell whether that fish you picked up at your local supermarket today has spoiled? However, scientists are now using smell for something other than seafood gone bad; they have found a correlation between inaccurate scent detection and increased risk of dementia.

A survey of common odors that spanned a period of 5 years was given to nearly 3,000 adults between ages 57 to 85. An estimated 14 percent could name just three out of five, five percent could only identify two scents, two percent could name only one, and one percent were unable to identify any scents. Seventy eight percent of those tested could identify at least four out of the five odors.

After a period of five years, scientists conducted a health check and were shocked to find that nearly all of the participants who could not identify a single scent were diagnosed with dementia. Nearly 80 percent of those who only identified one or two scents correctly also had dementia.

Jayant M. Pinto, a professor of surgery at the University of Chicago but was not involved in the experiment, says that “the results show a correlation between smell and brain health”, and that “the signs of dementia may not only be correlated to smell but with all senses.”

The researchers used a validated tool known as “Sniffin’Sticks”, that look like felt-tip pens but contain distinct scents. The study subjects were asked to smell and identify an odor and given a set of four choices. The five presented odors, by increasing difficulty, were peppermint, fish, orange, rose, and leather.

Kristen D. Wroblewski, an MS graduate student at the University of Chicago who led the research study, said that the olfactory system was measured due to its “sharp ability to detect scents” and how “it may be easier to quantify smell across a certain period instead of measuring the brain. It has the potential to be an all-access health indicator for the elderly. Then early-prevention trials can be set up and treatment can start before dementia can do its damage.”

Biologist Laurence J. Zwiebel at Vanderbilt University provided insight to why smell is important to not only humans. Zwiebel’s research revolves primarily around mosquitoes and ants, yet he states that the olfactory chamber within these insects work similarly to humans, and that signs of malaria within the mosquito may also be detected via secreted hormones. Though not involved with the research study, his insight provides an important perspective on scent detection across species.

“Of all human senses, smell is the most undervalued and underappreciated-until it’s gone,” says Pinto.

Official research article: Adams, Dara R., et al. “Olfactory Dysfunction Predicts Subsequent Dementia in Older U.S. Adults.” *Journal of the American Geriatrics Society*, 25 Sept. 2017, onlinelibrary.wiley.com/doi/10.1111/jgs.15048/full.