

# Can losing your sense of smell predict heart failure?

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Losing the ability to smell properly—a common sensory deficit as people age—may help predict or even contribute to the development of heart failure, new research suggests.

[The study](#), published in the *Journal of the American Heart Association*, adds to a growing body of research investigating the role that poor olfaction—the sense of smell—may play in the health of aging adults.

"We know that it's a marker for [neurodegenerative diseases](#) such as Parkinson's disease and dementia," said Dr. Honglei Chen, the study's lead author and a professor in the department of epidemiology and biostatistics at the Michigan State University College of Human Medicine in East Lansing.

"We are learning that olfaction may mean a lot for the health of older adults, and that led us to explore how it may be related to other diseases beyond neurodegeneration."

As people age, it is not uncommon to experience some loss of their sense of smell. [Research shows](#) nearly one in four people experience olfactory impairment by their early 50s. After age 80, more than half do. Losing the ability to smell properly can lead to a lower quality of life, including loss of pleasure in food and increased health hazards due to issues such as a reduced ability to detect spoiled food or smell a gas leak.

Being unable to smell properly can have other consequences. Prior studies have suggested a poor sense of smell may be an early marker for cognitive function loss, finding an association between [olfactory dysfunction](#) and lower general cognitive performance, memory and language.

It has been shown to predict Parkinson's disease and is considered an early symptom of Alzheimer's disease. Olfactory dysfunction also has been found to be a [strong predictor](#) of dying within 10 years for older adults, and may be a [potential sign](#) of slowed cellular regeneration or years of toxic environmental exposures—or both.

Because dementia and Parkinson's disease account for just 22% of the excess mortality associated with a poor sense of smell, researchers in the new study questioned whether olfactory dysfunction could be a marker for more far-reaching health issues.

Chen and his colleagues analyzed data for 2,537 people in the National Institute on Aging's Health ABC Study, an investigation of the interrelationships between conditions associated with aging, social and behavioral factors and functional changes in older adults. When they enrolled in the study in 1997 and 1998, participants were well-functioning adults ages 70 to 79 who lived in the areas surrounding Pittsburgh and Memphis, Tennessee.

Participants were followed from the time their sense of smell was tested at their three-year clinic visit in 1999 or 2000 for up to 12 years, or until they had a cardiovascular event or died.

Researchers were looking for a link between poor olfaction and having a [heart attack](#), stroke, angina, death caused by coronary heart disease, or [congestive heart failure](#), which occurs when the heart isn't pumping as well as it should. Researchers counted someone as having heart failure when they were hospitalized overnight for the condition.

Sense of smell was tested by having participants sniff and identify 12 items from a list of four possible answers. One point was given for each correct answer for a score of 0 to 12. Poor olfaction was defined as having a score of 8 or less. In prior analyses of this same group of participants, researchers found strong associations between poor olfaction and Parkinson's disease, dementia, mortality and being hospitalized for pneumonia.

In the new analysis, participants with olfactory loss had a roughly 30% higher risk of developing congestive heart failure than participants with

a good sense of smell. There was no association between olfactory loss and heart disease or stroke.

Chen said it remained unclear as to whether a poor sense of smell may be contributing to the development of heart failure or merely predicted it.

"Poor olfaction may be related to age acceleration," he said, an area that needs to be investigated more deeply.

This area of research is still in the early stages and raises a lot of interesting questions, said Dr. Khadijah Breathett, an advanced heart failure transplant cardiologist with the Advanced Heart Failure, Mechanical Circulatory Support and Cardiac Transplantation Team at Indiana University Health in Indianapolis.

"I am curious whether olfactory loss is a biomarker for another physiological process," said Breathett, who was not involved in the study. "It doesn't quite make sense that loss of smell would lead to heart failure."

Of the multiple causes of heart failure, heart disease is the leading cause, said Breathett, also a tenured associate professor of medicine at Indiana University. "Olfactory loss was not associated with [coronary heart disease](#) in this study, which makes me wonder a little bit more about that relationship."

Breathett also wondered whether anything could be learned from people who lost their [sense of smell](#) because of COVID-19. The symptom can linger for weeks or longer in some people. The study analyzed data gathered prior to the COVID-19 pandemic.

"This study does not show causation," she said. "It raises questions, but

that's good because it may help point us in a new direction for targets to improve care."

**More information:** Keran W. Chamberlin et al, Olfactory Impairment and the Risk of Major Adverse Cardiovascular Outcomes in Older Adults, *Journal of the American Heart Association* (2024). [DOI: 10.1161/JAHA.123.033320](https://doi.org/10.1161/JAHA.123.033320)

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