

Age-related smelling loss significantly worse in African-Americans

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The ability to distinguish between odors declines steadily with age, but a new study shows that African-Americans have a much greater decrease in their sense of smell than Caucasians. This can have serious consequences. Olfactory loss often leads to impaired nutrition. It also may be an early warning sign of neurodegenerative diseases, such as Alzheimer's or Parkinson's, and can predict death.

The study, published early online in the *Journal of Gerontology: Medical Sciences*, found that as they aged, African-Americans and Hispanics had comparable deficits. For [Hispanics](#), many of whom are recent immigrants, social and cultural factors, such as [disparities](#) in education and household assets and health-related [cognitive problems](#), accounted for the [sensory loss](#). For African-Americans, however, premature presbyosmia—age-related declines in the ability to smell—could not be explained by social, environmental or medical factors.

"We have long known that men begin to lose their [sense of smell](#) some years sooner than women, but this is the first study to point to racial or ethnic differences," said study author Jayant Pinto, MD, associate professor of surgery at the University of Chicago. "What surprised us was the magnitude of the difference. The racial disparity was almost twice as large as the well-documented difference between men and women."

Although many people live long lives with only minor age-related declines in the ability to smell, about 24 percent of Americans 55 years or older have a measurable problem with their sense of smell, according to data from the National Institute on Aging. That rises to about 30 percent for those ages 70 to 80, and to more than 60 percent for those over age 80.

This study was one component of the University of Chicago-based National Social Life, Health and

Aging Project (NSHAP), the first in-home study of [social relationships](#) and health in a large, nationally [representative sample](#) of [older adults](#), ages 57 to 85.

For this project, conducted from 2005 to 2006, survey teams from the National Opinion Research Center used a standard, well-validated test to assess the ability of 3,005 older participants to identify five common odors. The scents were presented one at a time. Subjects were asked to identify each smell from a set of four choices. The odors, in order of increasing difficulty, included peppermint, fish, orange, rose and leather.

Personal information about race and ethnicity was provided by the study subjects. The surveyors also assessed their physical and mental health, social and financial resources, education, and alcohol or substance abuse through questionnaires and careful observation.

The researchers found that:

- Only half (49 percent) of those tested correctly identified five out of five odors; 78 percent got four or more right, 92 percent got at least three and 97 percent got two or more correct.
- Performance declined steadily across the age groups; 64 percent of those age 57 identified all five, but that fell to 25 percent of those age 85.
- Non-white subjects had consistently poorer performance, scoring 47 percent lower, equivalent to a nine-year increase in age.
- The study confirmed previous reports that women perform better at this task, equivalent to being five years younger. This study extended that finding across the age range, 57-85.

Caucasian women typically begin to experience some loss of smelling acuity in their early 70s, Pinto

said. Caucasian men start about five years earlier, in their late-60s. Black and Hispanic women start in their mid-60s. Non-white men start in their late-50s or early 60s. Because the changes occur gradually over several years, many older people do not notice the decline.

The cause of this disparity is not clear. Genetic variation may play a role, as could exposure to nerve-damaging substances in the environment, or both. "Race likely serves as a proxy for differential environmental exposures and life experiences, which may interact with biological differences," the authors note.

Certain medications, chronic or recurrent nasal disease or exposure to various volatile chemicals can harm olfactory function. "Sanitation workers, for example, are often affected," Pinto said. "They are routinely exposed to noxious odors that can trigger inflammation."

Presbyosmia can have a substantial impact on wellbeing, the researchers emphasize. Those who can't detect odors are unable to maintain their personal hygiene. Food smells have a huge impact on how foods taste, so many with smelling deficits lose the joy of eating.

"They make poor food choices, get less nutrition," Pinto said. "They can't tell when foods have spoiled or detect odors that signal danger, like a gas leak or smoke."

Follow-up interviews with the original study subjects five years later confirmed earlier findings that impaired olfaction also is a harbinger of mortality. Those with the poorest sense of smell in 2006 were three times more likely to have died by 2011 than those with normal smell function.

"Olfaction is the canary in the coal mine of human health," Pinto said.

Provided by University of Chicago Medical Center
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