

Sensory loss affects 94 percent of older adults

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The first study to measure the full spectrum of age-related damage to all five senses found that 94 percent of older adults in the United States have at least one sensory deficit, 38 percent have two, and 28 percent have three, four or five.

The study, published in the February issue of the *Journal of the American Geriatrics Society*, also found that deficits in multiple senses were strongly associated with age, gender and race.

As expected, older participants in the study had more sensory deficits, with large differences in [hearing](#), vision and smell. Men scored worse on hearing, smell and taste, but better than women for corrected vision. African Americans scored lower on all senses, except hearing. Hispanics had lower scores on vision, touch and smell, but scored higher on taste.

Some of these deficits were mild but many were serious. Nearly two-thirds (64%) of those in the study—3,005 people between the ages of 57 and 85 who enrolled in a large, nationally representative sample—suffered from a significant deficit in at least one sense; 22 percent had major deficits in two or more senses.

"We know that sensory impairment is common and is often a harbinger of serious health problems, such as cognitive decline or falls, as well as more subtle ones like burns, caused by loss of touch sensitivity, food poisoning that goes undetected because of loss of smell and taste, and smoke inhalation, from loss of smell," said study author Jayant Pinto, MD, associate professor of surgery at the University of Chicago. "Our

findings here give us a better appreciation of the prevalence of multi-sensory loss, a first step toward learning more about what causes the senses to decline."

The most prevalent [sensory deficit](#), affecting 74 percent of participants in the study, was a decrease in the sense of taste. Twenty-six percent of the study subjects had a sense of taste rated only as fair, and 48 percent were rated poor.

Decreased sense of touch was also common. Thirty percent of study subjects had a normal sense of touch, but 38 percent were rated as fair and 32 percent as poor.

Age-related sensory loss is a serious problem. An earlier study from Pinto's team, published in October 2014, found that olfactory dysfunction predicted mortality better than a diagnosis of heart failure or cancer. A similar study, published last September in *JAMA Otolaryngology-Head & Neck Surgery*, found that hearing impairment may also be associated with an increased risk of death.

In this study, the authors found evidence of a common process underlying impairment of the five senses. They suspect that this underlying factor could involve nerve degeneration, environmental insults or underlying genetic susceptibility that contributes to sensory loss associated with aging.

The sensory impairment study was part of the National Social Life, Health and Aging Project (NSHAP), the first in-home study of social relationships and health in [older adults](#). In the first wave of NSHAP, conducted in 2005-06, professional survey teams from the independent research organization NORC at the University of Chicago used validated tests to measure each subject's ability to see, feel, smell, taste and hear.

- The vision study allowed participants to wear their glasses or contact lenses and measured their ability to see under typical home lighting conditions. Subjects with vision rated as 20/40 or better were ranked as good. Those between 20/40 and 20/63 were fair; those below 20/63 were considered poor.
- Touch measured subjects' ability to distinguish between two points on the index finger of their dominant hand. Those who could feel two separate contact points 4 millimeters apart were considered good, 8 mm apart was fair, 12 mm (about half an inch) or more was poor.
- Smell was assessed using a validated taste that presents five different smells, one at a time. Those who correctly identified at least four of the five were rated good. Those who identified two or three were considered fair, and those who identified one or none were rated poor.
- Taste testing relied on four paper strips—sour, bitter, sweet and salty—applied to the tongue. Those who correctly described all four were rated as good. Those who got one or two right were rated fair, and those who got all four wrong were rated as poor.
- Interviewers for the study rated subjects' ability to hear on a five-point scale based on how they responded during their conversation and categorized them as good, fair or poor. Subjects were allowed to wear their hearing aids if they chose to.

The interviewers also assessed participants' age, physical and mental health, social and financial resources, education, and alcohol or substance abuse through structured interviews, testing and questionnaires.

Sensory loss related to age is an understudied issue. Shakespeare described it as "second childishness and mere oblivion, sans teeth, sans eyes, sans taste." The gradual decline of input from the senses "constrains how the elderly cope with social, physical and cognitive

stresses, Pinto said. "It is a major part of why older people report decreased quality of life."

"We need to understand the biology behind the links between age and sensory loss and design better ways to prevent its decline," Pinto said. "People caring for older adults, including family members, caregivers and physicians, should pay close attention to impairments in vision, hearing, and smell."

There are interventions for those senses "that could make a big difference," he said, for example eyeglasses, hearing aids and [smell](#) training. "Even simple things like increasing spices in foods could help those with taste loss or providing tactile clues for people with loss of touch could improve function. This area remains under active investigation."

The study, "Global Sensory Impairment among Older Adults in the United States," was funded by the National Institutes of Health—including the National Institute on Aging, the Office of Women's Health Research, the Office of AIDS Research, the Office of Behavioral and Social Sciences Research—the McHugh Otolaryngology Research Fund, the American Geriatrics Society, and the Institute of Translational Medicine at the University of Chicago.

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