

Age-related difficulty recognizing words predicted by brain differences

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Older adults may have difficulty understanding speech because of age-related changes in brain tissue, according to new research in the May 13 issue of *The Journal of Neuroscience*. The study shows that older adults with the most difficulty understanding spoken words had less brain tissue in a region important for speech recognition. The findings may help explain why hearing aids do not benefit all people with age-related hearing difficulties.

Although some hearing loss can be a normal part of aging, many [older adults](#) complain about difficulty understanding speech, especially in challenging listening conditions like crowded restaurants. Research has suggested that this decline in speech recognition is independent of hearing loss.

To identify what causes the decline in [speech recognition](#), the researchers, led by Kelly Harris, PhD, at the Medical University of South Carolina, scanned the brains of 18 younger adults (19-39 years old) and 18 older adults (61-79 years old) as they tried to identify words in listening conditions that varied in difficulty. During a challenging listening condition, the older adults repeated fewer words correctly than did the younger adults, consistent with previous studies.

Harris and her colleagues found that structural differences in the brain's auditory cortex predicted performance on the task, even when they controlled for [hearing loss](#). The older adults who had the most difficulty recognizing words also had the least brain volume in a region of auditory

cortex called Heschl's gyrus/superior temporal gyrus. However, the relationship between the ability to identify words and the volume of auditory cortex was also present in younger adults.

"The results suggest an intriguing possibility — that adults with low [gray matter](#) volume in auditory cortex may be at greater risk for problems understanding speech later in life," said the study's senior author, Mark Eckert, Ph.D., at the Medical University of South Carolina.

"Depressing though it may be, the new research by Harris and colleagues has shown that as we develop age-related deafness, investing in newer and more powerful hearing aids is only part of the solution. The [brain](#), and particularly the auditory cortex, also needs repairing, and that is not so easy to achieve," Richard Wise, MD, PhD, at Imperial College, London, who was unaffiliated with the study.

More information: www.jneurosci.org/

Source: Society for Neuroscience ([news](#) : [web](#))

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