

# Hearing loss associated with development of dementia

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Older adults with hearing loss appear more likely to develop dementia, and their risk increases as hearing loss becomes more severe, according to a report in the February issue of *Archives of Neurology*.

By the year 2050, an estimated 100 million people or nearly one in 85 individuals worldwide will be affected by [dementia](#), according to background information in the article. Interventions that could delay the onset of dementia by even one year could lead to a more than 10 percent decrease in the prevalence of dementia in 2050, the authors note.

"Unfortunately, there are no known interventions that currently have such effectiveness," they write. "Epidemiologic approaches have focused on the identification of putative risk factors that could be targeted for prevention based on the assumption that dementia is easier to prevent than to reverse. Candidate factors include low involvement in leisure activities and social interactions, sedentary state, diabetes mellitus and hypertension."

To assess another potential risk factor, [hearing loss](#), Frank R. Lin, M.D., Ph.D., of Johns Hopkins Medical Institutions, Baltimore, and colleagues studied 639 individuals age 36 to 90 without dementia. Participants initially underwent cognitive and hearing testing between 1990 and 1994 and were followed for the development of dementia and Alzheimer's disease through May 31, 2008.

Of the participants, 125 had mild hearing loss (25 to 40 decibels), 53 had moderate hearing loss (41 to 70 decibels) and six had severe hearing loss

(more than 70 decibels). During a median (midpoint) follow-up of 11.9 years, 58 individuals were diagnosed with dementia, including 37 who had Alzheimer's disease.

The risk of dementia was increased among those with hearing loss of greater than 25 decibels, with further increases in risk observed among those with moderate or severe hearing loss as compared with mild hearing loss. For participants age 60 and older, more than one-third (36.4 percent) of the risk of dementia was associated with hearing loss.

The risk of developing Alzheimer's disease specifically also increased with hearing loss, such that for every 10 decibels of hearing loss, the extra risk increased by 20 percent. There was no association between self-reported use of hearing aids and a reduction in dementia or Alzheimer's disease risk.

"A number of mechanisms may be theoretically implicated in the observed association between hearing loss and incident dementia," the authors write. Dementia may be overdiagnosed in individuals with hearing loss, or those with cognitive impairment may be overdiagnosed with hearing loss. The two conditions may share an underlying neuropathologic process. "Finally, hearing loss may be causally related to dementia, possibly through exhaustion of cognitive reserve, social isolation, environmental deafferentation [elimination of sensory nerve fibers] or a combination of these pathways."

"If confirmed in other independent cohorts, the findings of our study could have substantial implications for individuals and public health. Hearing loss in [older adults](#) may be preventable and can be practically addressed with current technology (e.g., digital hearing aids and cochlear implants) and with other rehabilitative interventions focusing on optimizing social and environmental conditions for hearing. With the increasing number of people with hearing loss, research into the

mechanistic pathways linking hearing loss with dementia and the potential of rehabilitative strategies to moderate this association are critically needed."

**More information:** Arch Neurol. 2011;68[2]:214-220.

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