

Does treating hearing loss actually slow cognitive decline?

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The potential link between hearing loss and cognitive decline has long been a subject of clinical interest, driven by observational data suggesting a correlation. For years, clinicians have grappled with whether this association is merely coincidental or if hearing impairment actively contributes to the deterioration of cognitive function. The question has always been whether intervention for hearing loss could, in turn, mitigate cognitive decline. This is not a trivial concern. With an aging population, the burden of both hearing loss and dementia is substantial and growing, creating a pressing need to identify modifiable risk factors. Understanding whether treating hearing loss offers a tangible benefit beyond improved communication could reshape preventative strategies for cognitive health.

KEY TAKEAWAYS

- **The Pivot:** While observational studies have long linked hearing loss to cognitive decline, a recent trial provides evidence that treating hearing loss can slow cognitive decline in specific high-risk populations.
- **The Data:** The intervention reduced cognitive decline by a clinically meaningful amount in older adults with hearing loss who were at higher risk for cognitive decline.
- **The Action:** Clinicians should consider screening for and addressing hearing loss as part of a comprehensive approach to cognitive health, particularly in patients with other risk factors for dementia.

Hearing loss is a pervasive condition, affecting a significant portion of the global population, particularly older adults. Its impact extends beyond communication difficulties, influencing social engagement, mental health, and potentially, cognitive function. The mechanisms proposed for this link are varied, ranging from cognitive load theory, where the brain expends excessive resources on processing degraded auditory input, leaving fewer resources for other cognitive tasks, to social isolation, which is a known risk factor for cognitive decline. Another hypothesis involves shared neuropathological pathways, suggesting that both hearing loss and cognitive decline might stem from common underlying biological processes, such as microvascular disease or neuroinflammation.

For decades, the clinical community has observed a consistent association between untreated hearing loss and an increased risk of dementia. This observation, however, has always been just that: an observation. Establishing a causal link, and more importantly, demonstrating that an intervention for hearing loss could alter the trajectory of cognitive decline, has remained an elusive goal. This is where the challenge lies, as correlation does not equate to causation, and many confounding factors could contribute to both conditions. The question has persisted: if we fix the hearing, does the brain follow?

The design of the ACHIEVE trial

The ACHIEVE trial, a large-scale, randomized controlled study, was designed to address this important question. It enrolled a substantial cohort of older adults, specifically those aged 70 to 84 years, with mild to moderate hearing loss. The trial aimed to determine if a hearing intervention could reduce the rate of cognitive decline over a three-year period. Participants were randomized into two groups: an intervention group receiving hearing aids and audiological counseling, and a control group receiving health education without specific hearing intervention. The primary outcome was a composite score reflecting global cognitive function, assessed through a battery of neuropsychological tests. A key aspect of the ACHIEVE trial's design was its focus on two distinct populations: a community-based cohort of older adults with hearing loss but no other known risk factors for cognitive decline, and a second cohort drawn from an existing observational study (ARIC, Atherosclerosis Risk in Communities) who were already at higher risk for cognitive decline due to factors like cardiovascular disease, diabetes, or a history of stroke. This stratification was essential for understanding whether the potential benefits of hearing intervention were universal or specific to certain risk profiles, with the stake being the effectiveness of preventative strategies. The trial's rigorous methodology, including standardized audiological and cognitive assessments, aimed to provide robust evidence to inform clinical practice.

What the intervention actually measured

The intervention group received state-of-the-art hearing aids, custom-fitted and programmed by audiologists, along with comprehensive audiological rehabilitation. This included regular counseling sessions focused on effective use of hearing aids, communication strategies, and managing expectations. The goal was not just to provide devices, but to ensure optimal hearing aid use and adaptation, thereby maximizing the potential for improved auditory input and reduced cognitive load. Adherence to hearing aid use was monitored, and participants received ongoing support to address any challenges.

The control group, by contrast, received a general health education program. This program covered topics relevant to healthy aging, such as nutrition, exercise, and disease prevention, but explicitly excluded any specific advice or intervention related to hearing loss. This design allowed for a comparison between the active hearing intervention and a general health promotion approach, isolating the effect of treating hearing loss on cognitive outcomes. The cognitive assessments were administered by masked evaluators, ensuring objectivity in measuring changes in memory, executive function, and overall cognitive status.

The numbers

The trial found that treating hearing loss did not significantly slow cognitive decline in the overall study population. This initial finding, when viewed superficially, might seem to contradict years of observational data. But the story becomes clearer upon closer inspection of the subgroup analyses. The intervention did not show a statistically significant effect on global cognitive function in the community-based cohort, which comprised individuals with hearing loss but otherwise healthy cognitive profiles.

But the picture changed dramatically in the high-risk cohort. In older adults who had hearing loss and were already at an elevated risk for cognitive decline, the hearing intervention significantly reduced the rate of cognitive decline. Specifically, this subgroup experienced a 48% reduction in the rate of cognitive decline over three years, as measured by the composite cognitive score. This finding suggests that while hearing loss may be a risk factor for cognitive decline, the

benefit of intervention is most pronounced in those already predisposed to cognitive impairment. The effect was driven primarily by improvements in executive function and memory, key domains often affected in early cognitive decline. This distinction between the general population and a high-risk group is critical for guiding clinical recommendations. The safety profile of the hearing intervention was excellent. There were no serious adverse events attributed to the hearing aids or audiological counseling. Minor issues, such as ear irritation or feedback, were infrequent and easily managed with adjustments. This favorable safety profile highlights the low risk associated with this intervention, making it an attractive option for preventative strategies. The trial also explored secondary outcomes, including quality of life and social engagement. While not the primary focus, improvements in these areas were also observed in the intervention group, particularly in the high-risk cohort, reinforcing the broader benefits of addressing hearing loss. This aligns with other work showing how lifestyle factors can influence cognitive trajectories.

Where it falls short

The ACHIEVE trial, while providing valuable insights, was not without its limitations. The primary limitation is the generalizability of the overall null finding. While the intervention did not show a significant effect in the broader, healthier cohort, this does not mean that treating hearing loss has no benefit for these individuals. It simply means that a statistically significant effect on global cognitive decline was not detected within the three-year study period. Cognitive decline is a slow process, and a longer follow-up might be necessary to observe a benefit in a lower-risk population. The trial was also not powered to detect subtle changes in specific cognitive domains in the overall population, which could mask some benefits.

Another consideration is the nature of the control group. While the health education program was designed to be a neutral comparator, it is possible that any general health promotion could have some positive, albeit small, effect on cognitive health. This could have diluted the observed difference between the groups. But the most important caveat remains the specific population in which the benefit was observed. The trial clearly demonstrated a benefit in the high-risk group, but whether this translates to all individuals with hearing loss, regardless of their baseline cognitive risk, remains an open question. The trial was not designed to explore the specific mechanisms by which hearing intervention affects cognitive decline, leaving room for future research to elucidate the biological pathways involved. This is a common challenge in complex interventions, where understanding the 'how' is as important as the 'what'. For example, targeting specific pathological proteins like tau is a different approach to cognitive decline.

The cost-effectiveness of widespread hearing intervention for cognitive decline also needs further investigation. While hearing aids have become more accessible, they still represent a significant investment for many individuals. Future studies should explore the economic implications of such interventions, particularly in the context of public health programs. The trial also relied on self-reported hearing aid use, which can be subject to bias. Objective measures of hearing aid adherence, such as data logging from the devices themselves, could provide more precise insights into the relationship between usage and cognitive outcomes. Clinicians often find that adherence to any long-term therapy, from hearing aids to weight loss medications, is a persistent challenge. The trial's duration of three years, while substantial, might still be insufficient to capture the full spectrum of cognitive changes that occur over a lifetime. Longer-term follow-up studies are essential to confirm the durability of the observed benefits and to identify any delayed effects. The Oxford Handbook of Neurology provides a concise reference for the complex relationship of factors influencing cognitive health.

The trial also did not explore the impact of different types of hearing loss or the severity of hearing loss on cognitive outcomes. Participants had mild to moderate hearing loss, and it is unclear whether individuals with severe or profound hearing loss would experience similar benefits from hearing aids, or if other interventions, such as cochlear implants, would be more appropriate. The heterogeneity of hearing loss itself, encompassing various etiologies and audiometric profiles, suggests that a one-size-fits-all approach may not be optimal. Future research could examine personalized hearing interventions tailored to specific types and severities of hearing loss. The trial also did not specifically examine the role of central auditory processing disorders, which can coexist with peripheral hearing loss and contribute to cognitive difficulties. Addressing these central processing issues might require different therapeutic strategies beyond conventional hearing aids.

CLINICAL IMPLICATIONS

The ACHIEVE trial provides a clear directive for clinicians: addressing hearing loss in older adults, particularly those with existing risk factors for cognitive decline, is a worthwhile endeavor. The significant reduction in cognitive decline observed in the high-risk cohort cannot be ignored. This moves the conversation beyond mere correlation to a demonstrable intervention effect.

GPs and specialists should be more proactive in screening for hearing loss in their older patients, especially those with comorbidities like cardiovascular disease or diabetes. A simple hearing screening can identify individuals who might benefit from audiological evaluation and intervention. This is not about preventing all dementia, but about mitigating a modifiable risk factor in a vulnerable population.

For patients, this means that treating hearing loss is not just about improving communication, but potentially about preserving cognitive function. It adds another layer of motivation for adherence to hearing aid use and engagement with audiological rehabilitation. The low risk profile of hearing aids makes this a compelling preventative strategy.

The challenge now lies in implementing these findings into routine clinical practice. Integrating hearing screening into annual wellness visits and ensuring access to affordable, high-quality audiological care will be essential. The data from ACHIEVE supports a more holistic approach to healthy aging, where sensory health is recognized as integral to cognitive well-being.

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REFERENCES

1. Jongsiriyanyong S, Limpawattana P. Mild Cognitive Impairment in Clinical Practice: A Review Article. *Am J Alzheimers Dis Other Demen.* 2018;33(8):500-507. doi:10.1177/1533317518791401
2. Asher S, Stephen R, Mäntylä P, Suominen AL, Solomon A. Periodontal health, cognitive decline, and dementia: A systematic review and meta-analysis of longitudinal studies. *J Am Geriatr Soc.* 2022;70(9):2695-2709. doi:10.1111/jgs.17978
- 3.

3. Palmqvist S, Whitson HE, Allen LA, et al. Alzheimer's Association Clinical Practice Guideline on the use of blood-based biomarkers in the diagnostic workup of suspected Alzheimer's disease within specialized care settings. *Alzheimers Dement*. 2025;21(7):e70535. doi:10.1002/alz.70535
4. Dominguez LJ, Veronese N, Vernuccio L, et al. Nutrition, Physical Activity, and Other Lifestyle Factors in the Prevention of Cognitive Decline and Dementia. *Nutrients*. 2021;13(11). doi:10.3390/nu13114080
5. Jost Z, Kujach S. Understanding Cognitive Decline in Aging: Mechanisms and Mitigation Strategies - A Narrative Review. *Clin Interv Aging*. 2025;20:459-469. doi:10.2147/CIA.S510670
6. An R, Gao Y, Huang X, Yang Y, Yang C, Wan Q. Predictors of progression from subjective cognitive decline to objective cognitive impairment: A systematic review and meta-analysis of longitudinal studies. *Int J Nurs Stud*. 2024;149:104629. doi:10.1016/j.ijnurstu.2023.104629

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