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NEUROAUDIOLOGY NEWSLETTER

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Hidden Hearing Loss-Not so Hidden

"Hidden hearing loss" doesn't have to live up to its name. A study published in February 2026 in *Ear and Hearing* (Brungart et al., 2026) examined people who reported hearing symptoms despite normal audiometric thresholds. Using a binaural tone-in-noise detection task — the NOS π paradigm, often shorthanded as "NoSpi" — the researchers found that this group's performance on the task significantly worsened following noise exposure that caused real-world hearing complaints.

What sets these deficits apart from standard threshold shifts is how they behave over time. Unlike temporary threshold shifts, which typically resolve within days, the tone-in-noise detection impairments accumulated across multiple days of continuous noise exposure and did not fully recover, leaving a chronic performance deficit even after thresholds returned to normal.

This is the heart of why "hidden hearing loss" persists as a clinical challenge: the standard audiogram, the test most clinics rely on, simply isn't sensitive enough to catch it. But the Brungart et al. findings, like a growing body of related research, suggest the deficits aren't actually invisible — they're just outside the reach of conventional testing. With the right behavioral tasks and the right patient-reported outcome measures, clinicians can identify these problems and validate what many patients have been reporting for years. This study is just one example. As more labs adopt sensitive measures like tone-in-noise detection, the case for retiring "hidden" from "hidden hearing loss" keeps getting stronger.

Brungart, D. S., Ellis, G. M., Shub, D. E., & Davidson, A. J. (2026). Impaired Tone-in-Noise Detection in Individuals Who Report Temporary Hearing Symptoms After Noise Exposure. *Ear and Hearing*, 10-1097.

Audiology Trivia

1. How many people over the age of 65 experience at least one fall per year?
a) 1 in 4, b) 1 in 3, c) 11 in 6, d) 1 in 8

2. A recent longitudinal study by Zanin et al. (2026) linked poor performance on speech in noise tests to what in the elderly? .
a) high frequency hearing loss, b) bilateral tinnitus, c) noise exposure, d) degenerative brain changes

3. In what year was speech in noise tests first linked to central auditory dysfunction?
a) 2001, b) 1990, c) 1969, d) 1959



Characterizing Auditory Deficits in Veterans with Traumatic Brain Injury: A Principal Component Analysis Approach

A growing body of evidence indicates that patients with a mild traumatic brain injury (mTBI) have reported auditory difficulties even when their peripheral hearing sensitivity is within normal limits which often include: difficulty listening in background noise, understanding rapid speech, communication over the telephone, and following long conversations, in addition to symptoms related to tinnitus and sound/noise sensitivity.

This study looked at 95 participants, including veterans with a history of blast exposure, veterans with a history of non-blast mild traumatic brain injury, and control participants with no history of head injury. Based on the research, there is a lack of consensus regarding evidence-based assessment protocols for normal-hearing patients with a history of brain injury reporting auditory difficulties. Limitations of previous studies in this area are often related to limited sample sizes and varied test batteries across each study. This study used a large test battery to identify measures that explained the most variability across participants with and without a history of head injury to determine relationships between measures, and to explore patterns of performance across participants with the aim of identifying measures that should be considered in future research on developing clinical assessment protocols for this unique patient population.

Findings from the research indicated that non blast vs blast victims (although small sample size) had a 91% higher-self reported auditory difficulties and poorer performance on auditory and cognitive processing measures. It was indicated that tests such as: Dichotic Digits Test, Staggered Spondaic Word Test, Gaps in Noise, Quick SIN, and WIN often best differentiate those with auditory processing difficulties due to a history of head injury than those without. In summary, results from the current study suggest that, in addition to self-report measures that assess a variety of symptoms, measures of speech understanding in degraded listening conditions, binaural processing, and temporal resolution should be considered in future work on the development of evidence-based clinical assessment protocols. The measures identified in the current analysis should be investigated in future studies that aim to develop and assessment protocol for this population.



Research Article

Characterizing Auditory Deficits in Veterans With Traumatic Brain Injury: A Principal Component Analysis Approach

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Trivia Answers

- (A) 1 in 4 people over the age of 65 experience a fall.
- (D) Degenerative brain changes are linked to poor speech in noise performance.
- (D) Speech in noise tests were first linked to central auditory dysfunction in 1959.

Learning Corner

The learning corner will offer citations of articles that may contribute to one's knowledge base for CAPD/NeuroAudiology.

- Curhan, S. G., Halpin, C., Wang, M., Eavey, R. D., & Curhan, G. C. (2021). Tinnitus and 3-year change in audiometric hearing thresholds. *Ear and hearing*, 42(4), 886-895.
- Han, E. X., Fernandez, J. M., Swanberg, C., Shi, R., & Bartlett, E. L. (2021). Longitudinal auditory pathophysiology following mild blast-induced trauma. *Journal of Neurophysiology*, 126(4), 1172-1189.
- Husstedt, H., Wiedenbeck, R., Wiederschein, L., & Denk, F. (2026). Benefit of Amplification at Low Input Levels in Normal-Hearing Listeners. *Trends in Hearing*, 30, 23312165261442996.
- Kamerer, A. M., Barker, B. A., Meadows, M. A., & Lewis, C. E. (2025). Experiences of people with unexplained hearing concerns seeking hearing healthcare in the United States. *International Journal of Audiology*, 64(8), 813-822.