



Restorative Sleep and Hearing Health

Hearing loss ranks as the third most prevalent disability in the US. Hearing loss significantly impacts individuals and society. The World Health Organization estimates approximately one-third of hearing losses are caused by preventable factors. Recent research indicates that one such factor, restorative sleep, is related to hearing loss.

5 facts about the relationship between restorative and hearing health.

#1 Hearing loss is linked to sleep duration

A prospective study of 9,573 adults aged 45+, followed for several years, found that sleeping less than 5 hours per night increased the risk of self-reported hearing loss. Additionally, taking moderate midday naps (5–30 min) was associated with a $\approx 20\%$ lower risk of incident hearing loss. Participants with both short nocturnal sleep and minimal napping had the highest risk of hearing decline. (Cui, et al 2023).

#2 There appears to be a relationship between sleep duration and degree of hearing loss

In an analysis of 2,777 adults aged 20–69, self-reported sleep categorization (<7h, 7–9h, >9h) was linked with degree of hearing loss. Short or long sleep durations tended to be associated with small hearing threshold shifts, but findings varied by subgroup. (Long & Tang, 2023).

#3 There appears to be a relationship between sleep quality and hearing loss

Over 231,650 participants (age 38–72), followed for a median of 4.2 years, self-reported sleep complaints (e.g., insomnia, snoring, daytime sleepiness), not duration, were associated with incident hearing loss. For each additional sleep complaint (up to 4–5), the adjusted hazard ratio rose from ~ 1.15 to 1.49, indicating poorer sleep quality predicted higher risk, while sleep duration per se had no significant link. (Yévenes-Briones, et al 2023).

#4 Sleep patterns are associated with hearing loss

Among $\sim 3,100$ U.S. adults aged 40+, sleep duration showed age-dependent associations: at age 70, both short (<7h) and long (>8h) sleep were linked with worse audiometric hearing (approximately 2.5–2.7 dB worse puretone averages). (Jiang et al 2024).

#5 Noise-induced hearing loss (NIHL) is linked to poor quality sleep

In a cohort of $\sim 1,285$ workers in noisy environments, occupational NIHL was significantly associated with poor sleep quality. Workers without hearing protection experienced greater sleep disturbance than those using protection, highlighting how hearing impairment in noisy settings worsens restorative sleep. (Jo & Boek, 2024).

Restorative Sleep and Hearing Health (Continued)



KEY POINTS

Very short sleep patterns (<5 h) is linked to increased risk of hearing loss; conversely, moderate daytime naps may help mitigate this risk.

Sleep quality—not just duration—is a critical predictor: more sleep problems correspond to greater risk of developing hearing loss.

In older adults, both too little and too much sleep duration may associate with subtle hearing threshold declines, especially for ages ~60–70+.

Hearing damage from noise exposure disrupts sleep, thus hearing protection is needed.

ACTIONS

Besides encouraging individuals to improve the quality of their sleep, individuals over the age of 50 should be encouraged to get a baseline hearing test from an audiologist. [The American Academy of Otolaryngology-Head and Neck Surgery \(AAO-HNS\) recommends that all adults aged 50 and older undergo regular hearing screenings.](#) This recommendation is specifically for those who haven't noticed any issues with their hearing and aims to detect age-related hearing loss early.

References:

- Cui, X., Lu, Z., Guo, X., Dai, N., Huang, C., Liu, Y., Lin, R., Yu, Y., Qin, G., & Chen, J. (2023). Association of nocturnal sleep duration and midday napping with subjective poor hearing among middle-aged and older adults in China. *Frontiers in Public Health*, 11, 1160294.
- Jiang, K., Spira, A. P., Reed, N. S., Lin, F. R., & Deal, J. A. (2024). Sleep characteristics and hearing loss in middle-aged and older adults: The National Health and Nutrition Examination Survey 2015–2018. *Sleep epidemiology*, 4, 100082.
- Jo, H., & Baek, E. M. (2024). Impacts of noise-induced hearing loss on sleep, health, and workplace: Multi-group analysis. *Heliyon*, 10(9), e30861.
- Long, L., Tang, Y. (2023). Association between sleep duration and hearing threshold shifts of adults in the United States: National Health and Nutrition Examination Survey, 2015–2016. *BMC Public Health* 23, 2305.
- Yévenes-Briones, H., Caballero, F. F., Estrada-deLeón, D. B., Struijk, E. A., Mesas, A. E., Banegas, J. R., Rodríguez-Artalejo, F., & Lopez-García, E. (2023). Duration and Quality of Sleep and Risk of Self-reported Hearing Loss: The UK Biobank Study. *Ear and Hearing*, 44(5), 1182–1189.