

Hearing loss and cognition

Hearing – a complex ability¹



- **Hearing:** passive function – perception of sound
- **Listening:** process of hearing with intention and attention
- **Comprehending:** to understand the meaning and intent of information
- **Communicating:** to exchange information, meaning or intent



Good hearing enables...²

- staying active
- staying involved
- participating in social life
- managing daily life
- preserving one's cognitive and functional level
- 68% of all hearing aid owners think they should have worn them sooner

The ears and the brain as equal partners



While the ears pick up auditory signals, the brain gives meaning to the puzzle of sounds.

Hearing loss means...³

- it gets harder for the brain to put the overall picture together.
- it becomes more difficult to focus on the speaker.
- not only a reduction of sound but also a disconnection to our surroundings.

Aging and hearing loss²:

- **Age 65+:** hearing loss prevalence of 35%
- **Age 75+:** hearing loss prevalence of 50-80%

Hearing Loss



Compromised speech perception



Communication effort
Social engagement



Cognition
Physical function
Quality of life



- ▶ The effect of any untreated hearing loss, including mild hearing losses, on social withdrawal and social isolation should not be underestimated²

Association of hearing loss and cognitive health

Hearing loss is the largest of the potentially modifiable risk factors for age-related dementia⁴

- Early onset of hearing loss in midlife and high prevalence in old age²
- Social isolation and loneliness due to hearing loss can have important implications for the psychosocial and cognitive health²
- Hearing loss and dementia are both strongly related to age (age 85+: dementia prevalence of 25-35%)⁵

- ▶ Timely identification and management of hearing loss is strongly recommended²

Keep the conversation going!

1 The ear and the brain are equal partners:¹

Verbal communication is bidirectional: bottom-up (auditory perception) & top-down (cognitive processes). The ears pick up the auditory signals, the brain gives meaning to the puzzle of sounds.

2 Untreated age-related hearing loss is associated with cognitive decline:⁶

The risk of dementia increases with the degree of hearing loss. Hearing loss results in reduced communication capability, drives social isolation, and affects cognitive abilities.

- ▶ Getting hearing devices early on is strongly recommended: The ability to hear clearly fosters participation in conversations & social engagement, reduces the cognitive load of processing degraded sound, and provides increased brain stimulation.

¹Kiessling, J., Pichora-Fuller, M. K., Gatehouse, S., Stephens, D., Arlinger, S., Chisolm, T. H., ... Wedel, H. v. (2003). Candidature for and delivery of audiological services: special needs of older people. *International Journal of Audiology*, 42 Suppl 2, 92-101. ²Chadha, S., Kamenov, K., & Cieza, A. (2021). The world report on hearing, 2021. *Bull World Health Organ*, 99(4), 242. ³Lemke, U., & Scherpiet, S. (2015). Oral communication in individuals with hearing impairment—considerations regarding attentional, cognitive and social resources. *Frontiers in psychology*, 6, 998. ⁴Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., ... Cooper, C. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet*, 396(10248), 413-446. ⁵WHO. (2019). Risk reduction of cognitive decline and dementia: WHO guidelines. ⁶Lin, F. R., Metter, E. J., O'Brien, R. J., Resnick, S. M., Zonderman, A. B., & Ferrucci, L. (2011). Hearing loss and incident dementia. *Archives of neurology*, 68, 214-220. doi:10.1001/archneurol.2010.362