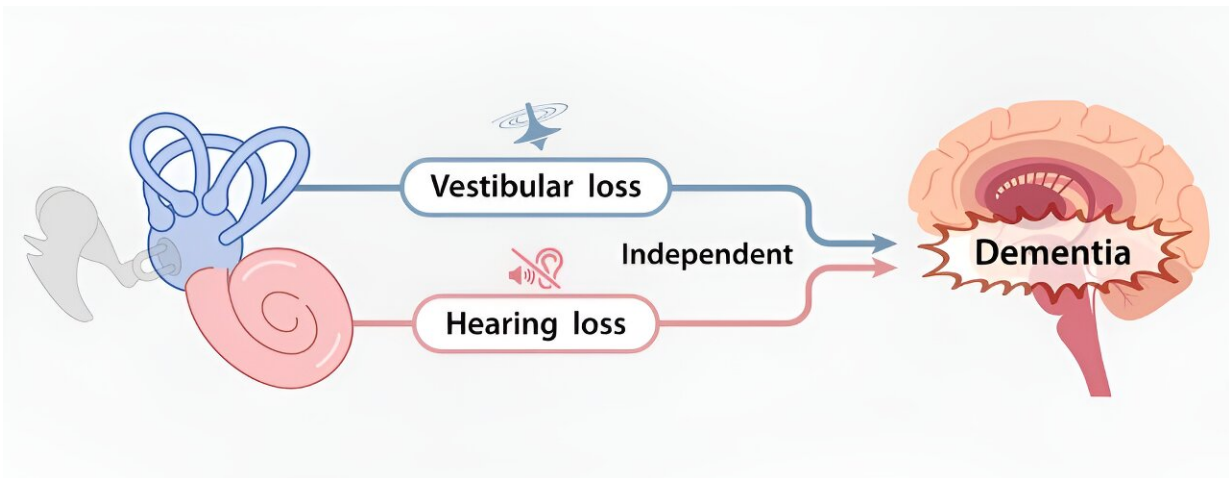


New large-scale study results add to evidence that vestibular loss increases dementia risk

October 23 2023, by Stephanie Baum



The relationship between vestibular loss and the risk of dementia. Credit: *Scientific Reports* (2023). DOI: 10.1038/s41598-023-42598-w

Existing research shows [a link between hearing loss and the risk of dementia](#), and a new study adds to growing evidence that vestibular loss can increase dementia risk as well. [Results from this work](#), by a team from the Korea University College of Medicine, are published in *Scientific Reports*.

Dementia is characterized by problems with judgment, language, memory, mood and social behavior, and problem-solving. Meanwhile, through its role in discerning head movement and spatial alignment, the

vestibular system helps many animals, including humans, maintain balance.

Previous findings posit that [vestibular system](#) involvement in visuospatial processing may help guide cognitive functioning. In animals and in humans, issues with executive functioning and memory, processing speed, and spatial cognition impairment have all been linked to bilateral vestibulopathy, and vestibular disorders are more common in people with cognitive loss.

This new large-scale study included data from 2,347,610 Korean adults between the ages of 40 and 80. The research team derived the data from the database of the Korean National Health Insurance Service, in which all Korean citizens are enrolled, for the years 2002–2019.

Within the study population, 2,145,609 individuals (mean age: 53.29 years), who represented the general population, had neither hearing loss nor vestibular loss. Another 141,476 individuals (mean age: 58.52 years) had hearing loss; and 60,525 individuals (mean age: 58.26 years) had vestibular loss.

Among the general study population, 127,081 (5.9%) individuals received diagnoses of [dementia](#), while 16,116 of those with [hearing loss](#) (11.4%) developed dementia, as did 7,705 of those with vestibular loss (12.7%).

These results, which indicate that vestibular loss might raise [dementia risk](#), are consistent with those of at least five other studies between 2013 and 2022. [Results from one of those studies](#) point to a link between loss of different cognitive areas and saccular vestibular and bilateral semicircular canal loss. Another study reports significantly diminished hippocampal volume (important for memory processing) among patients with persistent bilateral vestibular loss.

The findings, to date, comprise evidence of an association between vestibular loss and dementia, but what hasn't been proven yet is a causal relationship. Hypotheses for potential causes include:

- Brain atrophy resulting from reduced vestibular input to the brain
- Social isolation due to safety concerns, especially fear of falling, in those with vestibular loss
- Neurodegeneration with implications for both vestibular loss and cognitive loss.

The researchers of this study caution that it has a number of limitations, including possible exclusion of patients with vestibular loss due to specific parameters for inclusion in the vestibular loss group; no data on the duration of illness or the severity of symptoms; and possible data errors or omissions due to use of insurance claims data originally organized for reimbursement rather than research purposes.

Additionally, the researchers note that varying washout periods among this study and others on this topic, many of them less than three years, constitute an additional limitation.

Nevertheless, this newest study provides a good basis for more work on this topic. The research team suggests that future investigations could focus on the duration and symptom severity of vestibular loss and importantly, whether and how vestibular treatment might affect cognition.

More information: Sung Jin Lim et al, Relationship between vestibular loss and the risk of dementia using the 2002–2019 national insurance service survey in South Korea, *Scientific Reports* (2023). [DOI: 10.1038/s41598-023-42598-w](https://doi.org/10.1038/s41598-023-42598-w)

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