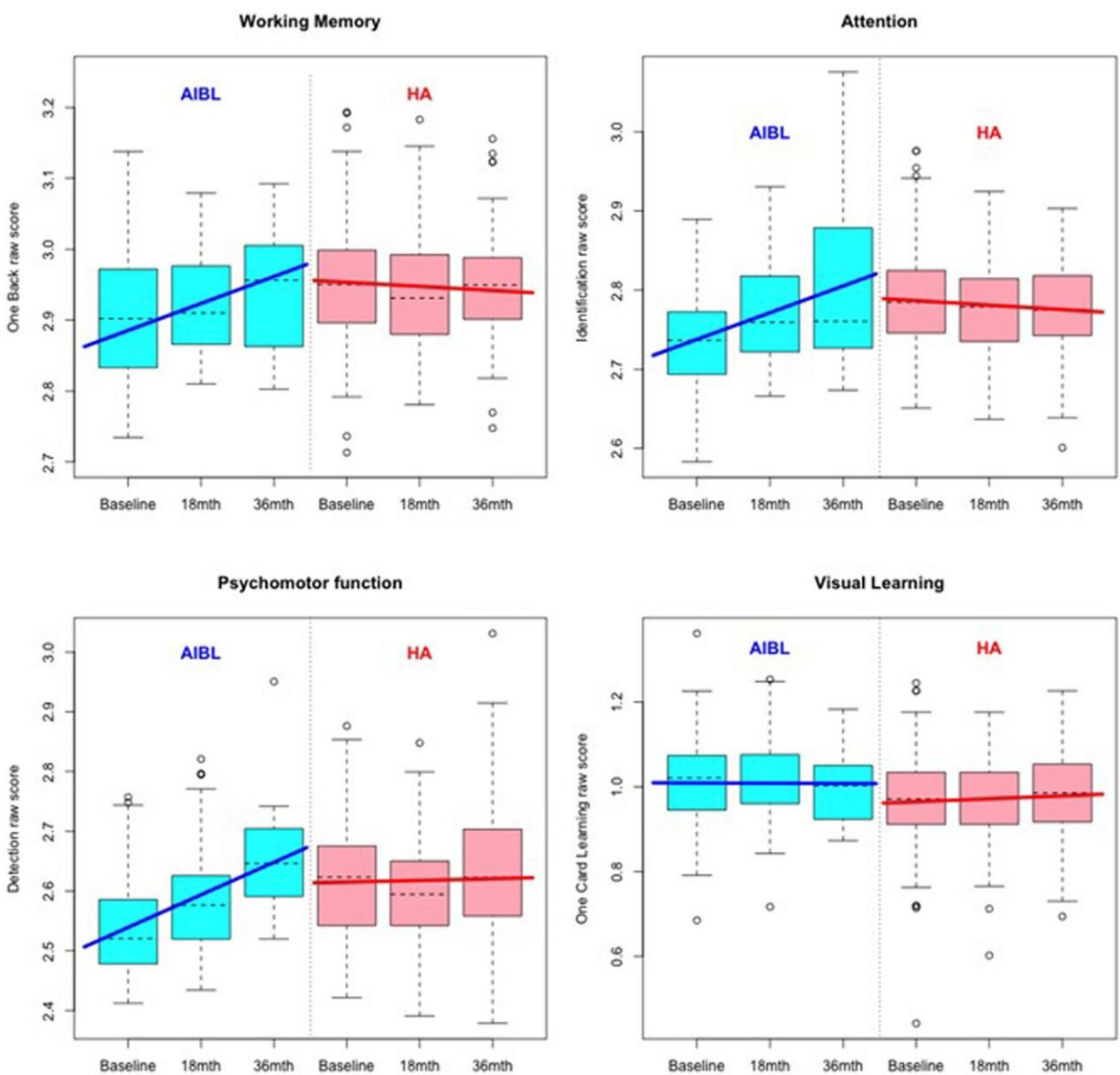


A hearing aid could extend your brain function by years

March 4 2024, by Julia Sarant, David Harris, Peter Busby, Jocelyn Phillips, Charlotte Anderson and Jack Hargreaves



Comparative cognitive performance over 36 months for the HA and AIBL groups on the Cogstate Brief Battery. Scoring is based on speed and accuracy; therefore, increased scores indicate poorer performance. Relative to HA participants, scores for AIBL participants increased over time, while those for HA participants remained relatively stable. Credit: *Frontiers in Aging Neuroscience* (2024). DOI: 10.3389/fnagi.2023.1302185

Hearing loss is a common part of aging. According to the [World Health Organization](#), almost 60% of moderate, or disabling, hearing loss is experienced by adults aged over 60 years.

Another part of aging is cognitive decline—our brain ages just like the rest of our body. Cognitive aging is not a disease—it is a normal, lifelong process that begins in our twenties.

As we age, cognitive changes typically include a slowing of the speed at which we can process and use information, more effort to learn new things and do tasks that require divided attention, as well as reduced memory.

However, other cognitive functions, like language and wisdom gained from life experience [improve with age](#).

The link between hearing loss and cognitive function

What many people don't know is that [hearing loss is associated with accelerated cognitive decline](#), raising the risk of [dementia](#) for older adults with untreated hearing loss.

The rate of cognitive decline is thought to [increase with increasing severity of hearing loss](#). People with mild hearing loss have almost

double the risk of dementia than someone with normal hearing, and people with severe hearing loss have almost five times the risk.

Around 40% of dementia cases are thought to be preventable. Of 12 potentially modifiable risk factors identified, hearing loss is the largest—in fact, it's a [greater risk than cardiovascular disease and diabetes](#).

There are three proposed theories why wearing hearing aids could help promote cognitive health.

One theory is that decreased auditory stimulation to the brain and reduced processing of sound (which is a cognitive process) could cause changes in [brain structure](#) and function (the "use it or lose it" theory).

Another theory suggests that people with hearing loss put in greater cognitive effort and resources for listening and processing auditory information like speech.

Cognitive resources usually allocated to other functions are then "recruited" for speech processing, leaving fewer cognitive resources for other functions—like memory.

A third theory proposes that reduced environmental stimulation and social participation due to hearing loss (which can be associated with a reluctance to leave the house) may contribute to psychological issues like loneliness and depression, which leads to changes in brain structure and function.

Dementia is a [rapidly growing public health concern](#), affecting more than 55 million people worldwide. The statistics show that delaying dementia onset by as little as one year [could decrease its global prevalence](#) by 10%.

Hearing loss often occurs many years before the onset of dementia, so there is a window of opportunity to address hearing loss early and hopefully slow the development of hearing-loss-associated dementia.

At least three years of improved brain function

Our [new research](#), published in the journal of *Frontiers in Aging Neuroscience*, compared the cognitive performance of two groups of people.

One group all had hearing loss and used hearing aids. The other group (participants of the Australian Imaging Biomarkers and Lifestyle [AIBL] Flagship Study of Aging) did not use hearing aids.

Both groups were aged 60 years or older and were followed for three years.

We assessed cognitive performance using computerized card games, starting before hearing aids were fitted and then at 18-month intervals. And we only used visual instructions—this is because giving audio instructions to people with unaided hearing loss may have given us misleading results.

After three years, the hearing aid user group showed overall cognitive stability. But by comparison, the non-hearing aid user group had declined significantly on three of the four cognitive tests.

More questions to answer

We are also investigating other factors that are known to affect cognitive health, including loneliness, social isolation, depression, anxiety, diet and genetic risk for dementia.

And our hearing aid study is ongoing, as we still have many questions to answer, for example:

- Can these results be sustained, and if so, for how many years?
- How large can the effect of hearing aid use on cognition be? Can cognitive performance improve?
- Does the amount of hearing aid use affect cognitive outcomes?
- What are the effects of hearing aid use on other risk factors for cognitive decline?

Hearing aids promote overall well-being

In addition to greater dementia risk, hearing loss is also associated with a [higher risk of falls](#), more frequent [hospitalizations and use of medical services](#), depression and even a greater [risk of death](#).

Many people are unaware of this and more than 70% of people who need hearing aids either don't seek audiological care or use their aids.

Hearing aids are a safe, effective and non-invasive means of addressing hearing loss and promoting healthy aging.

Our research shows that hearing aid use may be an important large-scale public health strategy for delaying [cognitive decline](#)—helping to reduce or slow the global burden of dementia.

Being able to hear and maintain effective communication and connections with others not only promotes cognitive health, but also overall healthy aging and better quality of life.

Lacking social connection has been shown to be [as dangerous as smoking up to 15 cigarettes a day](#).

This preventative step is best taken before hearing loss starts to impact brain function (so it is easier to learn how to use the device) and while the brain is still flexible (to allow for the brain re-wiring that occurs when hearing is restored).

Although [hearing aids](#) do not replace normal hearing, the brain can learn to adapt to the auditory input.

Being able to communicate effectively, remain socially engaged and optimize cognitive health is essential to our well-being and healthy aging.

More information: Julia Z. Sarant et al, ENHANCE: a comparative prospective longitudinal study of cognitive outcomes after 3 years of hearing aid use in older adults, *Frontiers in Aging Neuroscience* (2024). [DOI: 10.3389/fnagi.2023.1302185](https://doi.org/10.3389/fnagi.2023.1302185)

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