

BRAIN HEALTH BOOST



Brain Health Matters and Hearing Health and Safe Headphone Habits Make a Difference

Hearing is a complex sense that provides us with awareness of environmental sounds and, more importantly, the ability to communicate. The ear is the organ responsible for perceiving sound, but it may not be so obvious that the brain is responsible for processing the sound. It is necessary that both organs work properly for hearing to occur and to optimize brain health and performance and reduce risk for brain illness.

Hearing health and headphones. What would we do without our headphones?

What do use of headphones and iPods have to do with hearing health? They allow us to enjoy music and have conversations from anywhere at any time. The ease and mobility of headphone use has become even more apparent during the COVID-19 pandemic as we spend hours at a time in virtual meetings and classrooms.

But despite the convenience, there are also concerns about the safe use of headphones. It is important to be aware of the volume levels and when to take a break from headphone use. Our colleagues at Harvard Health recently published [Healthy headphone use: How loud and how long?](#) The article addresses the dangers of hearing loss related to headphone use. The article points out that excess sound can damage the sensitive cells of the inner ear that transfer sound to the brain.

Sound is measured in decibels (dB) and, according to current research and guidance, sounds less than 70 dB are unlikely to damage the ears. To put that into perspective, lawn mowers and leaf blowers operate at levels of about 85 dB. According to the article, most headphones are tuned to a maximum volume of around 105 to 110 dB and exposure to sound at that level can cause damage in just five minutes. So, in addition to volume, the duration of sound exposure can also contribute to ear damage and potentially impact brain health and possibly cause greater risk of brain illness.

In recent years, there has been extensive research examining how age-related hearing loss and brain performance are associated. There are some general concepts that might contribute to the association between hearing loss and cognitive performance. One theory is that hearing loss leads to a decreased input to the brain, so there is less processing that occurs, which contributes to cognitive decline. Another theory is that early cognitive deficits may impact a person's ability to process sound, and thus contribute to hearing loss.

Additional related research demonstrated through brain scans show us that hearing loss may contribute to a faster rate of atrophy in the brain. Scientists also have reported how hearing loss also contributes to social isolation. You may not want to be with people as much, and when you are you may not engage in conversation as much. All of these factors may contribute to increased risks of brain illness like depression and dementia. Irrespective of which these theories, combination of theories, or others yet to be considered are correct, it is clear that the association between hearing and cognition is very real. This connection emphasizes the need to improve our approach to caring for our hearing health, as well as testing for and treating hearing loss.

Simply stated, the louder the sounds and the longer we are exposed to them, the greater the potential for damage to our hearing, which can decrease brain health and increase risk of brain illness.

WHAT YOU CAN DO TODAY TO PROTECT YOUR BRAIN HEALTH

Hearing health is important and complex and is related to brain health, performance, and risk of brain illness. If you have any questions about safe headphone use or safe sound levels, talk with an audiologist or otolaryngologist. Listening to headphones at a comfortable level should be safe but try to balance duration of use with loudness of exposure.

Here are some suggestions from the Harvard Health article for healthy listening habits.

- Be aware of how loud your headphones are and how long you have been listening.
- Take breaks if you have prolonged listening sessions.
- Keep your headphone volume at a comfortable level.

In addition to headphone use, if you are going to be exposed to prolonged loud noise, such as using lawn equipment or, someday in the future attending a concert or sporting event, use ear protection. There are many options available from simple foam earbuds, to headphones with noise cancelling properties, to customizable ear molds made by an audiologist.

About the Brain Health Initiative

The Brain Health Initiative (BHI) is a cutting-edge, new approach to protecting brain health and fighting brain illness across the lifespan. The BHI works collaboratively with Massachusetts General Hospital, a Harvard Medical School Teaching Hospital, and the Academy for Brain Health and Performance to build brain healthy communities through education, research, innovation and action, with a specific focus on *brain health promotion, prevention, early detection, evidence-based intervention, and performance optimization*. The BHI is creating a culture that promotes brain health protective factors and decreases risk factors, thereby improving brain health and optimizing brain performance outcomes for the Florida Suncoast region and beyond. Join the brain health movement, ***because brain health matters, and lifestyle makes a difference.***

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