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June is Alzheimer's & Brain Awareness Month: What do we know about hearing loss and cognitive function?

[Alzheimer's & Brain Awareness Month](#) in June is an excellent opportunity to learn more about the connection between hearing loss and cognitive function.

A number of studies have come to light over the last few years showing a link between hearing loss and dementia. Specifically, a pair of studies out of Johns Hopkins found that hearing loss is associated with accelerated cognitive decline in older adults and that seniors with hearing loss are significantly more likely to develop dementia over time than those who retain their hearing. A third Johns Hopkins study revealed a link between hearing loss and accelerated brain tissue loss. The researchers found that for older adults with hearing loss, brain tissue loss happens faster than it does for those with normal hearing. <http://ow.ly/AAQ31> <http://ow.ly/AAQ5N> <http://ow.ly/AAPX1>

Some experts believe that interventions, like hearing aids, could potentially delay or prevent dementia. Research is ongoing. <http://ow.ly/MCWgf>

How hearing loss affects cognitive function

We “hear” with our brain, not with our ears. When we have a hearing loss, the connections in the brain that respond to sound become reorganized.

Fortunately, for many people, hearing aids can provide the sound stimulation needed for the brain to restore the normal organization of connections to its “sound center” so it can more readily react to the sounds that it had been missing and cognitively process them.

Brandeis University Professor of Neuroscience, Dr. Arthur Wingfield, has been studying cognitive aging and the relationship between memory and hearing acuity. He says unaddressed hearing loss not only affects the listener's ability to “hear” the sound accurately, but it also affects higher-level cognitive function. Specifically, it interferes with the listener's ability to accurately process the auditory information and make sense of it.

In one study, Wingfield and his co-investigators found that older adults with mild-to-moderate hearing loss performed poorer on cognitive tests than those of the same age who had good hearing.

Wingfield and colleagues at the University of Pennsylvania and Washington University in St. Louis also used MRI to look at the effect that hearing loss has on both brain activity and structure. The study found that people with poorer hearing had less gray matter in the auditory cortex, a region of the brain that is necessary to support speech comprehension.

Wingfield has suggested the possibility that the participants' hearing loss had a causal role. He and his co-investigators hypothesize that when the sensory stimulation is reduced due to hearing loss, corresponding areas of the brain reorganize their activity as a result.

“The sharpness of an individual’s hearing has cascading consequences for various aspects of cognitive function,” said Wingfield. “We’re only just beginning to understand how far-reaching these consequences are.”

“Even if you have just a mild hearing loss that is not being treated, cognitive load increases significantly,” Wingfield continued. “You have to put in so much effort just to perceive and understand what is being said that you divert resources away from storing what you have heard into your memory.”

As people move through middle age and their later years, Wingfield suggested, it is reasonable for them to get their hearing tested annually. If there is a hearing loss, it is best to take it seriously and treat it.
