

Resveratrol shows promise to protect hearing, cognition

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Resveratrol, a substance found in red grapes and red wine, may have the potential to protect against hearing and cognitive decline, according to a published laboratory study from Henry Ford Hospital in Detroit.

The study shows that healthy [rats](#) are less likely to suffer the long-term effects of noise-induced hearing loss when given [resveratrol](#) before being exposed to [loud noise](#) for a long period of time.

"Our latest study focuses on resveratrol and its effect on bioinflammation, the body's response to injury and something that is believed to be the cause of many [health problems](#) including [Alzheimer's](#) disease, cancer, aging and hearing loss," says study lead author Michael D. Seidman, director of the Division of Otologic/Neurotologic Surgery in the Department of Otolaryngology-Head & Neck Surgery at Henry Ford Hospital.

"Resveratrol is a very powerful chemical that seems to protect against the body's inflammatory process as it relates to aging, cognition and hearing loss."

The study is published online this week ahead of print in the journal *Otolaryngology-Head and Neck Surgery*: <http://oto.sagepub.com>.

Hearing loss affects nearly one in five Americans. For most, hearing steadily declines with age. Noise-induced hearing loss, too, is a growing medical issue among American troops, with more than 12 percent

returning home from Iraq and Afghanistan with significant hearing loss.

Noise-induced hearing loss not only impacts a person's ability to hear, it can cause difficulties with sleep and communication, and even raises the risk for heart disease by increasing a person's blood pressure, lipids and blood sugar.

Dr. Seidman and his colleagues have published multiple papers exploring noise-induced hearing loss, as well as the use of resveratrol, a grape constituent noted for its antioxidant and anti-inflammatory properties.

The latest study focuses the inflammatory process as it relates to aging, cognition and hearing loss.

It was designed to identify the potential protective mechanism of resveratrol following noise exposure by measuring its effect on cyclooxygenase-2 (or COX-2, key to the inflammatory process) protein expression and formation of reactive oxygen species, which plays an important role in cell signaling and homeostasis.

The study reveals that acoustic overstimulation causes a time-dependent, up-regulation of COX-2 protein expression. And, resveratrol significantly reduces reactive oxygen species formation, inhibits COX-2 expression and reduces noise-induced hearing loss following noise exposure in rats.

"We've shown that by giving animals resveratrol, we can reduce the amount of hearing and [cognitive decline](#)," notes Dr. Seidman.

Ultimately, these findings suggest that resveratrol may exert a protective effect from noise-induced hearing loss by the inhibition of COX-2 expression and reactive oxygen species formation, although other mechanism may also be involved.

Provided by Henry Ford Health System

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