

Hormone, hearing loss linked-- UR-RIT study hints potassium may be a factor

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Local researchers have discovered that a hormone controlling levels of potassium may be linked to age-related hearing loss.

Robert D. Frisina, professor of otolaryngology at the University of Rochester Medical Center and an adjunct professor at Rochester Institute of Technology, called the findings "fairly significant."

He and others last week discussed the findings at the Association for Research in Otolaryngology in Baltimore.

"What we would like to do is have some sort of dietary supplement or regime for an older person to improve their sensory function," he said.

Scientists from UR and RIT's National Technical Institute for the Deaf, working at the International Center for Hearing and Speech Research, last year tested nearly 50 men and women between the ages of 58 and 84.

Hearing tests were given and blood samples taken to determine the amount of aldosterone present. While all of their aldosterone levels appeared to be in the normal range, those with a greater hearing loss appeared to have about half as much aldosterone in their bloodstream.

Aldosterone regulates kidney function and helps control levels of two crucial signaling chemicals in the nervous system, potassium and sodium. For nerves to send signals crisply and work properly, potassium and sodium must be in precise proportion, without any disruption in the molecular channels or gates through which they move, according to the UR.

Levels of potassium are particularly crucial in the sensitive inner ear, where fluid rich in potassium plays a central role in converting sounds into signals that the nervous system recognizes.

Although the link between aldosterone and hearing has been determined, Frisina said it's not known whether the lower hormone levels caused the hearing loss, or whether another factor affecting both failing hearing and lower hormone levels is to blame.

And a potassium imbalance is found not just for those with age-related hearing loss, but in those born congenitally deaf, Frisina said.

Fixing the problem would involve more than introducing more potassium in your diet. Gene therapy techniques could be tried to replace a protein that's missing, he said. But such tests would be a decade or more away.

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