

# Study: Sudden hearing loss not associated with COVID-19 vaccination

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In a new study, Johns Hopkins Medicine researchers have tried to address recent reports that sudden sensorineural hearing loss—a condition that occurs as a result of damage to the inner ear—has been suspected of being a potential side effect of vaccination against SARS-CoV-2, the virus that causes COVID-19. Their conclusion so far: Vaccination does NOT increase one's risk for sudden hearing loss.

A research letter detailing the team's findings appeared May 20 in *JAMA Otolaryngology–Head and Neck Surgery*.

Researchers at Johns Hopkins and across the country experienced an increase in patients presenting with [sensorineural hearing loss](#) after COVID-19 vaccination.

"Sudden [hearing loss](#) can occur naturally, so it hasn't yet been confirmed whether sudden [hearing](#) loss occurring after COVID-19 vaccination is coincidental or related to the [vaccine](#)," says study co-author Daniel Sun, M.D., assistant professor of otolaryngology-head and neck surgery at the

Johns Hopkins University School of Medicine.

Though current data do not provide clues as to whether the hearing loss is temporary or permanent, doctors have been treating the hearing loss like other cases of idiopathic sudden sensorineural hearing loss, with either steroids by mouth or steroids injected through the ear drum into the middle ear.

For their study, Sun and colleagues used data related to sudden hearing loss after COVID vaccination from the U.S. Centers for Disease Control and Prevention's Vaccine Adverse Events Reporting System (VAERS), a national repository of reports tracking medical problems following vaccinations in the country. For the period Dec. 14, 2020, to March 2, 2021, the researchers found 40 reports of sudden hearing loss in 86,553,330 people who received one dose of either the Pfizer or Moderna mRNA vaccines (0.3 cases per 100,000 per year) and 147 reports in 43,276,665 patients who received two doses during the same time span (4.1 cases per 100,000 per year). The investigators narrowed the reports to only those describing hearing loss diagnosed by a clinician within three weeks of receiving the vaccine. Researchers chose data for people experiencing hearing loss in this time frame since vaccine doses are spaced between three and four weeks and hearing loss examined after four weeks may not be correlated to the vaccine.

"Based on the rate of hearing loss reported in VAERS, so far there is no evidence that people receiving a COVID-19 vaccination are at higher risk of developing sudden hearing loss than those who have not been vaccinated," says Sun.

"The sooner it is treated, the more likely the hearing can be restored," says Sun.

"Although this preliminary analysis suggests that the COVID-19 vaccine is not associated with

sudden hearing loss, more research is needed to address this question," says study lead author Eric Formeister, M.D., a neurotology fellow at the Johns Hopkins University School of Medicine. "Our study depended on data produced by voluntary submission of reports to a database, so there is a possibility that there was underreporting, meaning that some cases of post-vaccine hearing loss were undocumented."

To validate the preliminary results of their latest study, the researchers would like to conduct comprehensive investigations that can more accurately define the risk of hearing loss following COVID-19 vaccination. They also plan to look for any specific medical risk factors that may increase the risk of developing [sudden hearing loss](#) after COVID vaccination in certain individuals.

**More information:** Eric J. Formeister et al, Preliminary Analysis of Association Between COVID-19 Vaccination and Sudden Hearing Loss Using US Centers for Disease Control and Prevention Vaccine Adverse Events Reporting System Data, *JAMA Otolaryngology–Head & Neck Surgery* (2021). DOI: [10.1001/jamaoto.2021.0869](https://doi.org/10.1001/jamaoto.2021.0869)

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