

COVID-19 does not damage auditory system, study finds

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Since the beginning of the COVID-19 pandemic, there have been reports in the professional literature on possible hearing loss caused by the disease. A new study from Tel Aviv University (TAU), in collaboration with the Galilee Medical Center, finds no evidence of damage to the auditory system as a result of COVID-19 infection.

The study was led by Professor Karen Avraham of TAU's Sackler

Faculty of Medicine. The results were published online in the journal *Otology & Neurotology* on December 8, 2020.

"Since the beginning of the pandemic, it has been clear that COVID-19 has some long-term effects, such as the loss of the sense of smell and taste," Professor Avraham explains. "The possibility of hearing loss, however, has been debated among [medical practitioners](#), with some reporting this symptom in recovered patients.

"The question is whether such hearing loss is caused by damage to the auditory system, or whether it is a temporary symptom caused by fluids clogging the middle ear, as often happens with a common cold."

The researchers began to investigate this question during the first wave of the pandemic, when the numbers of patients in Israel were still relatively small. Participants included eight asymptomatic individuals who had tested positive for COVID-19 and eight healthy volunteers who served as a control group, none of whom reported any previous hearing loss. The study provided for the first time quantitative measures for hearing quality following exposure to the virus.

"Our study explored whether COVID-19 can cause permanent neural or sensory damage to the hearing system. We found no evidence for such damage," says co-author Dr. Amiel Dror of the Galilee Medical Center and the Azrieli Faculty of Medicine at Bar-Ilan University. "We measured electrical data from the brainstem to test the entire route of soundwaves through the ear until electric waves are ultimately received in the brain. We also examined the activity of the inner ear hair cells that intensify and tune the sound. We found no difference between the COVID-19-positive subjects and the [control group](#)."

"It's true that at this initial stage the study examined asymptomatic patients," Professor Avraham continues. "But objective scientific

research takes a long time, and we started recruiting our volunteers in April, at the peak of the first wave of the pandemic in Israel. There are so many speculations about this virus and the damage inflicted by it, and we have shown that at least in the auditory system no damage was detected."

"It's very important to base our knowledge of the virus upon objective studies and refrain from hasty conclusions," says Dr. Dror. "The [social media](#) have attributed numerous illnesses and symptoms to the coronavirus, but often the information is unfounded and leads to unwarranted stress, as well as needless pressure on the health system."

Co-author Dr. Eyal Sela of the Galilee Medical Center and the Azrieli Faculty of Medicine at Bar-Ilan University concludes, "This study proposes that the COVID virus does not cause extensive neurological damage but is rather spotty, mostly affecting the sense of smell. Moreover, the [hearing](#) impairment among some patients is mostly transient and secondary to fluid buildup in the middle ear, as for the common cold, and therefore likely passes once the acute disease is over."

The researchers are currently conducting a much more comprehensive study with hundreds of patients, including persons who had been severely ill and even ventilated.

More information: Amiel A. Dror et al, Auditory Performance in Recovered SARS-COV-2 Patients, *Otology & Neurotology* (2020). [DOI: 10.1097/MAO.0000000000003037](https://doi.org/10.1097/MAO.0000000000003037)

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