

# No significant increase in Guillain-Barré syndrome after COVID-19 vaccination, researchers find

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There is no evidence that the COVID-19 vaccination increases the incidence of Guillain-Barré syndrome, a rare neurological disorder in

which the body's immune system attacks the nerves, according to a Rutgers-led study.

Published in the journal *Vaccine*, a [statistical analysis](#) by a Rutgers-team found that there was not a significant association between any of the COVID-19 vaccinations currently offered and the disease. The team was led by Nizar Souayah, a professor of neurology at Rutgers New Jersey Medical School who mentored a group of Rutgers New Jersey Medical School students, in collaboration with other scientists.

In July 2021, the U.S. Food and Drug Administration issued a warning, based on early reports, that those receiving the Johnson & Johnson's COVID-19 [vaccine](#) may be at a greater risk of developing the sometimes fatal disease.

Researchers developed an artificial intelligence tool that aided their analysis and drew information from the Vaccine Adverse Event Reporting System (VAERS). The [national database](#), which includes reports on [harmful effects](#) from vaccines that can be filed by physicians or patients, is maintained by the FDA and the U.S. Centers for Disease Control and Prevention.

"This is important because we can say that there is no significant increased risk of Guillain-Barré [syndrome](#) in the population, using VAERS data," said Mustafa Jaffry, a [medical student](#) at Rutgers New Jersey Medical School and the first author on the study. "This information can help in ensuring confidence in vaccines, while approaching it from an objective, statistical analysis."

After learning of the initial warning, the researchers wanted to dig more deeply to understand whether the risk, even if minimal, for developing the syndrome was real. They also wanted to look at all brands of COVID-19 vaccines as well as reports on other types of vaccines

because there has long been a suggestion of an association between vaccines and the syndrome. The thinking, Jaffry said, is that there may be some connection, since vaccinations stimulate the immune system, and the syndrome is an [immune system](#) disorder.

"It's a burning question in medicine," Jaffry said.

Guillain-Barré syndrome is often caused by a [bacterial infection](#), compounding the difficulty in conducting an analysis.

"The original reports were just saying that someone got vaccinated, and then a few weeks later, developed Guillain-Barré syndrome," Jaffry said. "But they could have had an infection at that time that was unrelated to the vaccine."

To ascertain whether there was a statistically significant increase in the disease among those vaccinated, the team collected vaccine data from the VAERS database and organized it in several ways. First, they divided the data into three time periods, using the time before the emergence of COVID-19 and the interval before the advent of vaccines as "control" periods offering comparison of disease rates to the third time span, which started with the introduction of the vaccine. They calculated how many vaccines were administered in each time period. They also included in their analysis adverse reports on vaccines for influenza, HPV, meningitis and pneumococcal pneumonia. In addition, they assigned a value to each case of reported Guillain-Barré syndrome indicating the likelihood it represented a true diagnosis of the syndrome.

"The primary observation is that we found that while there were more reports of Guillain-Barré syndrome after COVID-19 vaccines compared to other vaccines, this rate was not higher than the incidence of Guillain-Barré syndrome in the general population," said Souayah, the corresponding author on the study. "The significance of that statement is

this: The COVID vaccine is not statistically associated with an increased risk of Guillain-Barré syndrome."

The researchers plan to continue to employ their newly devised [analytical methods](#) to explore other possible associations between vaccines and diseases.

Other Rutgers researchers on the study included Jeffrey Kornitzer, an assistant professor in the Department of Neurology at Rutgers New Jersey Medical School; and Kazim Jaffry and Kranthi Mandava, both medical students at Rutgers New Jersey Medical School. Other institutions involved in the study included the New Jersey Pediatric Neuroscience Institute in Morristown, N.J., Columbia University in New York, Northeastern University in Boston, and Texas Tech University in Lubbock, Texas.

**More information:** M. Jaffry et al, No significant increase in Guillain-Barré syndrome after COVID-19 vaccination in adults: A vaccine adverse event reporting system study, *Vaccine* (2022). [DOI: 10.1016/j.vaccine.2022.08.038](#)

Provided by Rutgers University

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