

Vaccines don't shield against long COVID, but may ease symptoms

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Vaccinated people who experience a breakthrough case of COVID-19

are at risk for developing long-haul symptoms, though they are better protected against some of the worst ones, new data show.

Compared to the unvaccinated, people who had COVID shots had a 15% lower risk of developing long COVID symptoms after a [breakthrough infection](#), according to data drawn from more than 13 million U.S. veterans.

"Vaccines really reduce only modestly the risk of long COVID and certainly do not eliminate the risk of long COVID," said lead researcher Dr. Ziyad Al-Aly, a clinical epidemiologist at Washington University School of Medicine in St. Louis. "I'm sorry, it's not very happy news, but that's the data."

But vaccination did significantly reduce the risk that a person would suffer some of the most debilitating symptoms of long COVID, according to findings published online May 25 in the journal [Nature Medicine](#).

For example, the vaccinated were 49% less likely to develop long-term lung problems and 56% less likely to have persistent blood clotting disorders, the researchers found.

Vaccines also reduced a person's risk of death from a breakthrough infection by 34% compared to the unvaccinated, the findings showed.

Al-Aly noted that the [COVID vaccines](#) are "remarkably effective" in preventing death and hospitalization, and do provide some protection against [long COVID](#)—just not as much as everyone hoped.

"Definitely this should not be taken out of context to mean that vaccines are not effective, or not doing a good job, or they're not really protecting [public health](#), or they're not really an essential tool in our continued fight

in this pandemic," he said. "Vaccination absolutely has a role. All we're saying here is they were designed from the get-go to address the short-term acute effects of the virus."

Al-Aly likened the situation to an athlete who specializes in the 100-yard dash.

"Those athletes are not going to necessarily do very well in marathons, right?" he said. "That's not what they've trained for."

For [the study](#), his team analyzed health data on more than 13 million veterans provided by the U.S. Department of Veterans Affairs.

The researchers compared long-term symptoms of more than 113,000 unvaccinated COVID-19 patients to nearly 34,000 vaccinated people who experienced breakthrough infections between January and October 2021.

The researchers noted that the study does not include data from the less severe but more infectious [Omicron variant](#), which began spreading late last year.

"To my knowledge, this is the first study that really looks at breakthrough infections and long COVID, and clearly, even though you're vaccinated, if you have a [breakthrough infection](#), you can still have long COVID," said Dr. William Schaffner, medical director of the Bethesda, Md.-based National Foundation for Infectious Diseases.

"It lets us know once again that these are good vaccines, but not perfect," Schaffner added. "They don't prevent everything."

There are several theories about why COVID-19 might produce long-haul symptoms even in the vaccinated, Al-Aly said.

The spike protein that allows [SARS-CoV-2](#) to infect cells interacts with a type of receptor that seems to be expressed "almost ubiquitously on every human cell," he said. That means the virus can spread anywhere in the body.

"We've initially sort of thought about SARS-CoV-2 as a respiratory virus, but that no longer is really true," Al-Aly said. "SARS-CoV-2 clearly is not an exclusively respiratory virus. It can do a whole lot of damage in many [organ systems](#)."

He said it might be that the body's [immune response](#) to COVID-19, rather than the virus itself, damages organs and causes long-haul symptoms.

Yet another theory holds that even after a person fends off a COVID-19 infection, fragments of the virus continue to circulate through the body, causing chronic inflammation that leads to organ injury, Al-Aly added.

"All of these are hypotheses that people are researching to try to get to the bottom of this," he said.

One problem with the new study is that it included both hospitalized and non-hospitalized COVID-19 patients, said Dr. Amesh Adalja, a senior scholar at Johns Hopkins Center for Health Security, in Baltimore.

"One of the challenges is to separate long COVID from post-ICU and post-hospitalization syndrome, which are well established conditions," Adalja said. In other words, health problems caused by a lengthy hospital stay for [severe illness](#) might be mistaken for signs of long-haul COVID.

The study shows the need for better vaccines, as well as better strategies for avoiding COVID-19 transmission, Al-Aly and Schaffner said.

"There are any number of investigators around the world that are working on COVID vaccines 2.0 and 3.0, and hoping to really provide improved protection of various kinds," Schaffner said. "We don't have those in our hands yet, but these sorts of studies will continue to motivate people to try and improve the vaccines that we currently have."

More information: Johns Hopkins School of Medicine has more about [long-haul COVID](#).

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