Do Vaccines Protect Against Long Covid?

Maybe, according to a growing number of studies, but there's not yet a definitive answer.

By Pam Belluck

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As the pandemic enters its third year, long Covid has emerged as an increasingly important concern. And many people are wondering whether getting a Covid shot can reduce their chances of developing long-term symptoms.

What does the research show so far?

The jury is still out, but a growing number of studies suggest that getting a Covid vaccine can reduce — though not eliminate — the risk of longer-term symptoms.

The United Kingdom's Health Security Agency conducted an analysis of eight studies that had been published on the topic before mid-January. It reported that six of the studies found that vaccinated people who became infected with the coronavirus were less likely than unvaccinated patients to develop symptoms of long Covid. The remaining two studies found that vaccination did not appear to conclusively reduce the chances of developing long Covid.

How much protection could vaccines offer, according to the studies that found benefit?

Some study results suggest substantial protection, while others find only a slight benefit.

One large study of electronic records of patients in the U.S. Veterans Health Administration found that vaccinated Covid patients had only a 13 percent lower risk than unvaccinated patients of having symptoms six months later.

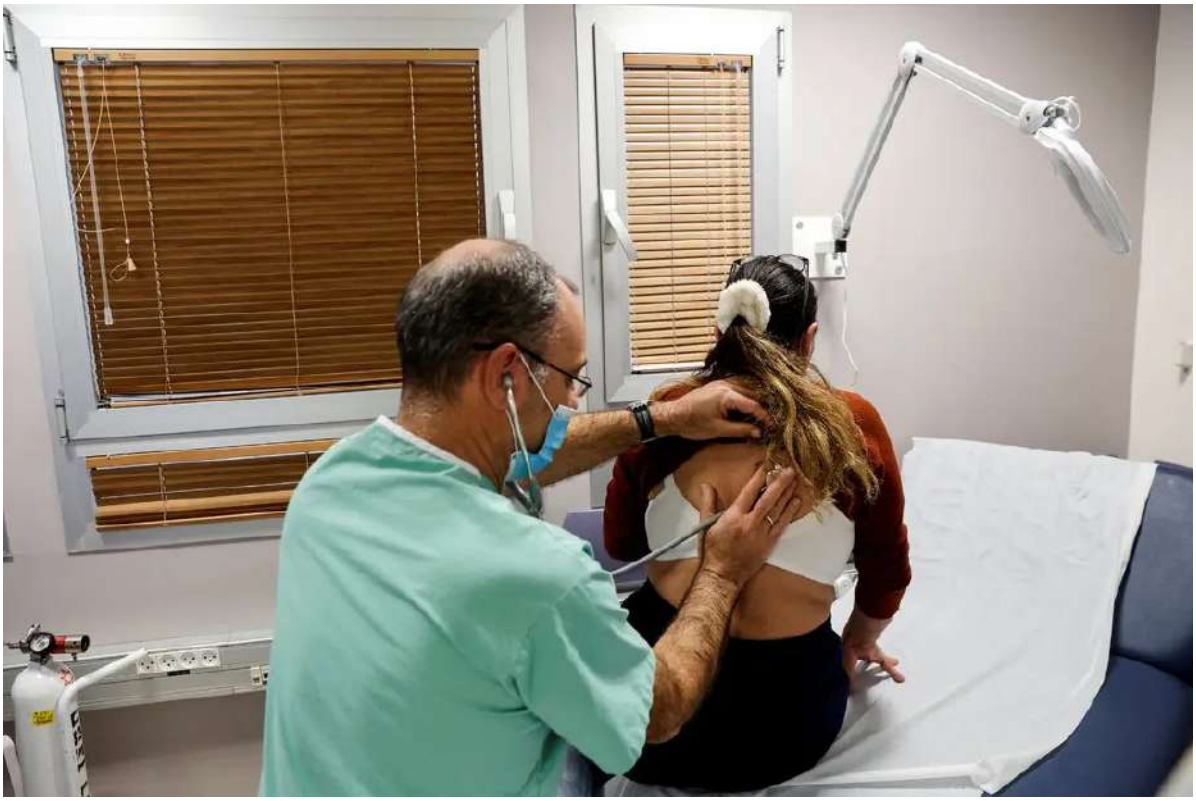
Two studies in Britain found a bigger effect. One study of about 1.2 million people, based on patients' reports via a phone app, found a 50 percent lower risk of lingering symptoms among vaccinated patients. Another, which has not been peer-reviewed and was based on surveying about 6,000 patients, found a 41 percent lower risk.

A study of U.S. patients by Arcadia, a health care data firm, and the Covid Patient Recovery Alliance, a collaboration of leaders with health expertise in government and the private sector, found a larger benefit still. The study, which has not been peer-reviewed, analyzed records of about 240,000 patients infected with the coronavirus by May 2021 and found that those who had received even one dose of a Covid vaccine before their infection were one-seventh to one-tenth as likely to report two or more symptoms of long Covid 12 to 20 weeks later. That study also found that people who received their first vaccine dose after contracting the coronavirus were less likely to develop long Covid than those who remained unvaccinated, and the sooner they were vaccinated after infection, the lower the risk of long-term symptoms.

A study in Israel, which has also not been peer-reviewed, found through surveys that people who received two doses of vaccine had between 54 percent and 82 percent lower risk than unvaccinated patients to report having seven of the 10 most common long-term symptoms. They were generally no more likely to report symptoms like headache, muscle pain and other issues than people in the general population who had never gotten Covid, the study said. (The authors said they could not confirm whether the patients were vaccinated before or after they had gotten Covid, but said that because of Israeli vaccination policy it was likely most people who received two doses of vaccine were infected with the coronavirus sometime after they had gotten their shots.)

In the veterans' study, also not yet published in a peer-reviewed publication, researchers compared about 48,000 patients who were unvaccinated when they got Covid with about 16,000 patients who were vaccinated. It found that vaccinated patients mostly benefited by being less likely to develop lung problems and blood-clotting difficulties, said one of the authors, Dr. Ziyad Al-Aly, chief of research and development at the V.A. St. Louis Health Care System and a clinical epidemiologist at Washington University in St. Louis. Other symptoms showed "very little risk reduction" from vaccines, he said.

"The overall message is that vaccines reduce but do not eliminate the risk of long Covid," said Dr. Al-Aly, adding that "reliance on vaccination as a sole mitigation strategy is wholly inadequate. It is like going to battle with a shield that only partially works."



A long-Covid patient was examined in a hospital in Tel Aviv in February. Amir Cohen/Reuters

What about studies that don't show any benefit?

In an analysis of electronic medical records of patients in the United States, researchers in the United Kingdom compared about 10,000 people who had received Covid vaccines with a similar number of people who had not been vaccinated against the coronavirus but had received a flu vaccine — an effort to limit the number of people in the study who might be considered vaccine hesitant or who generally had less healthy behaviors.

The study found that having a coronavirus vaccine before being infected did not reduce the risk of most symptoms of long Covid. There was some suggestion from the data that vaccinated people might be at lower risk of long-term symptoms like abnormal breathing and cognitive issues, the authors wrote, but those results were not statistically conclusive.

The researchers said it was possible that because their data relied on electronic health records, the study might have captured only patients with the most severe symptoms, rather than a wider range of patients who did not seek medical attention for their symptoms.

Why is the research conflicting?

One reason is the differences in the studies themselves. Not all researchers have defined long Covid in the same way, measured the same symptoms or tracked patients for the same length of time. For example, some studies recorded symptoms that have lingered at least 28 days after infection, while others measured symptoms people were experiencing six months later. Studies relying on patient surveys may yield very different results than those based on electronic medical records. And some studies did not have very diverse populations. Patients in the veterans' study, for example, were mostly older, white and male.

Are the results different for different coronavirus variants?

Much of the published data followed patients infected early in the pandemic. Some recently-published data included people infected by the highly contagious Delta variant, but it is too early for studies about vaccines and long Covid that include the Omicron variant. It's also too early for studies evaluating the effect of boosters on long Covid.

Is there anything scientists can conclude for sure?

Yes. Vaccines are very effective at preventing people from getting seriously ill from infection by all the variants known so far. And many studies have found that Covid patients sick enough to be hospitalized were more likely to have lasting health issues. So, by keeping people out of the hospital, vaccines should reduce the chances of that type of long-term post-Covid case.

Still, many people with long Covid had mild or even asymptomatic initial infections, and while some studies suggest vaccines have potential to ease their long-term symptoms, the evidence is not yet conclusive.

Vaccines do offer some protection against getting infected to begin with — and avoiding infection, of course, is the surest way to prevent long Covid.

Does the brand of vaccine make a difference in potential protection against long Covid?

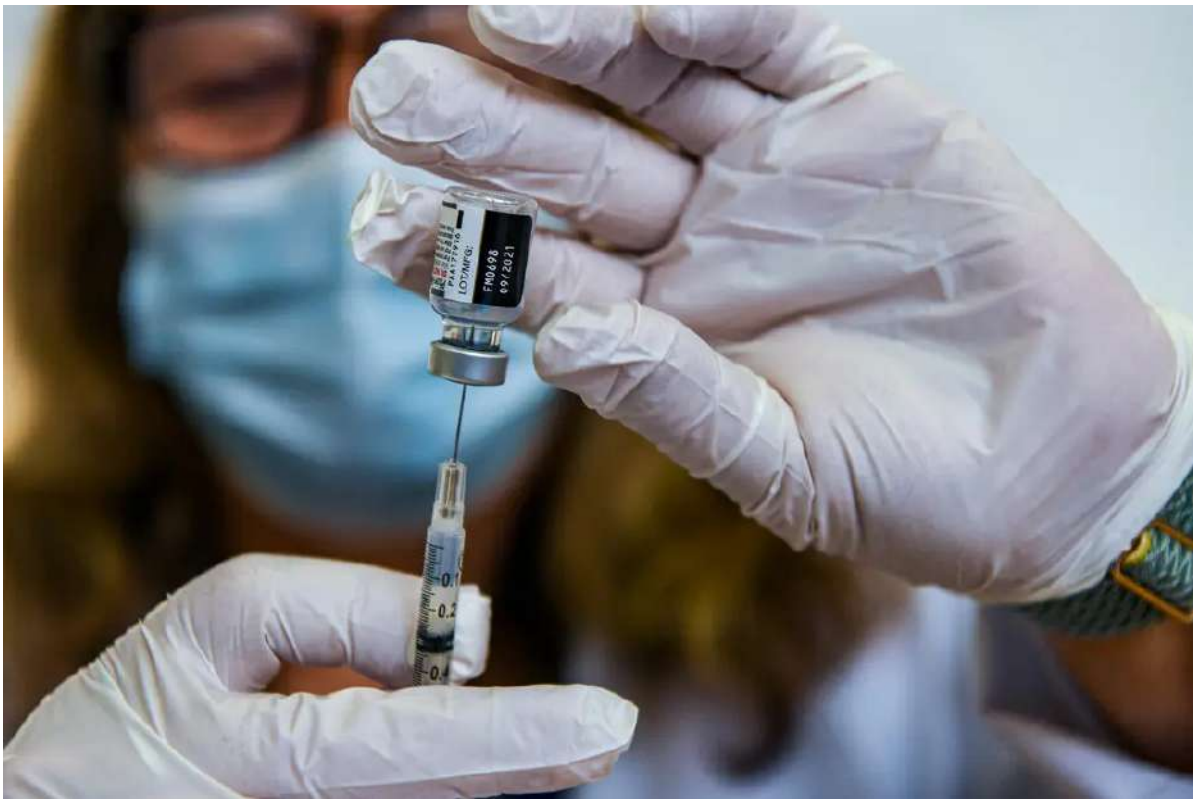
So far, studies have not found that different vaccines have different effects on long-term symptoms.

What are the possible scientific reasons that vaccines might protect against long Covid?

The cause of long Covid is still unclear, and different symptoms might have different underlying causes in different patients, scientists say. Some believe that the condition may be related to remnants of the virus or its genetic material lingering after the initial infection subsides. Another theory is that the continuing problems are related to inflammation or blood circulation problems spurred by an overactive immune response that is unable to shut down.

Akiko Iwasaki, an immunologist at Yale, has said that vaccines may be able to provide lasting relief in people whose symptoms are caused by vestiges of the virus if the antibodies generated by the vaccines eliminate those remnants.

But in people whose symptoms may be caused by a post-viral response resembling an autoimmune disease, she said, vaccines may help only temporarily, and problems like fatigue could re-emerge.



One thing we know for certain is that vaccines are very effective at preventing people from getting seriously ill from infection by all the variants known so far. Kenny Holston for The New York Times

Can getting vaccinated help if you already have long Covid?

When vaccines were first rolled out, some patients with long Covid were finding that symptoms like brain fog, joint pain, shortness of breath and fatigue improved after they had gotten vaccinated. Still, many people experienced no difference in their symptoms after

vaccination, and a small percentage said they felt worse.

A study by the Office for National Statistics in the United Kingdom found that in people ages 18 to 69 who reported their symptoms between February and September 2021, a first dose of a vaccine lowered the odds of reporting long Covid symptoms by 13 percent. A second dose further lowered the odds by 9 percent, the study found.

The recent analysis by the U.K. Health Security Agency evaluated that study and seven others that examined whether vaccinating people with long Covid affected their symptoms. It found that in most of those studies, more people with long Covid reported improvement in their symptoms at some point after they were vaccinated. However, some people also reported worsening of symptoms, and in several studies the majority of people said their symptoms were unchanged.

The agency noted that the definition of long Covid varied widely among the studies and that, because all the studies were observational, changes in symptoms could be due to factors other than vaccination.