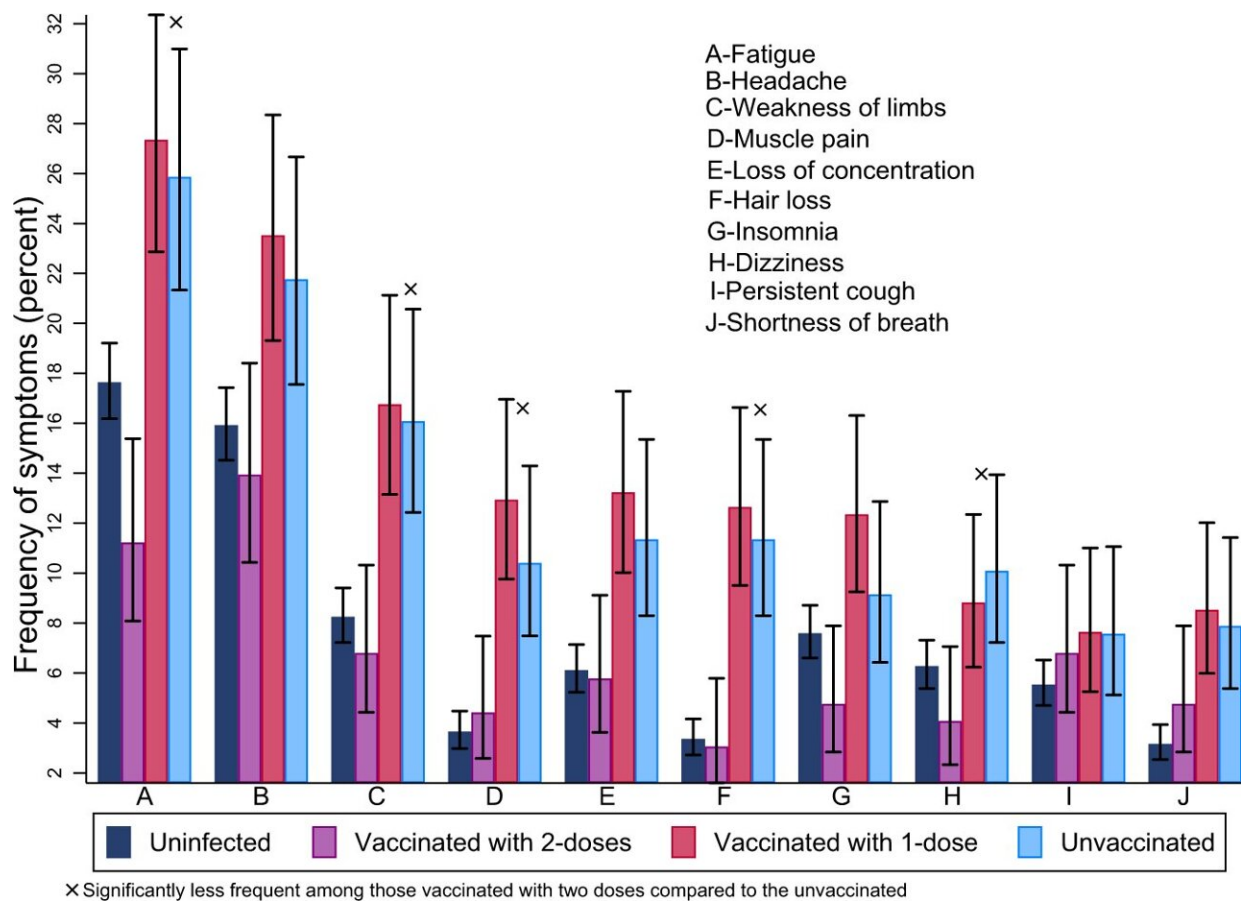


Vaccines dramatically reduce the risk of long-term effects of COVID-19

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Frequency of most reported symptoms among the uninfected, the infected and unvaccinated, and the infected and vaccinated with 1 or 2 vaccine doses. Error bars represent 95% confidence intervals. Credit: *npj Vaccines* (2022). DOI: 10.1038/s41541-022-00526-5

Being vaccinated with at least two doses of Pfizer vaccines dramatically reduces most of the long-term symptoms individuals reported months after contracting COVID-19, a new study shows.

In this study, eight of the ten most-commonly reported symptoms were reported between 50 and 80% less often among [individuals](#) who received at least two doses of COVID-19 [vaccine](#) compared with those who received no doses.

The study, recently published in the *Nature* journal *npj Vaccines*, was led by Prof. Michael Edelstein, of Bar-Ilan University's Azrieli Faculty of Medicine, in cooperation with infectious disease and IT teams at three of the Faculty's affiliate hospitals in northern Israel: Baruch Padeh Medical Center, Ziv Medical Center and Galilee Medical Center. Paul Otiku, a Ph.D. student at Bar-Ilan's Azrieli Faculty, carried out most of the statistical analysis.

Nearly 3,500 adults across Israel participated in the study, carried out between July and November 2021. These individuals completed a survey available in four commonly-spoken local languages—Hebrew, Arabic, Russian and English—with a variety of questions about previous COVID-19 infection, vaccination status, and any symptoms they were experiencing.

More than half of the participants (2,447) reported no previous SARS-CoV-2 infection, while 951 were previously infected. Of those infected, 637 (67%) received at least two vaccine doses. Of the 2,447 individuals reporting no previous infection 21 (0.9%) received one dose, 1,195 (48.8%) received two doses, 744 (30.4%) received three doses, and the rest were unvaccinated (19.9%).

The researchers compared vaccinated individuals with those unvaccinated in terms of post-acute self-reported symptoms. After

adjusting for factors such as age and time elapsed from infection to responding to the survey, they found that vaccination with two or more doses of the Pfizer vaccine was associated with a [reduced risk](#) of reporting the most common post-COVID symptoms. Among those in the current study's population the most common symptoms reported—fatigue, headache, weakness of limbs, and persistent muscle pain—reduced by 62%, 50%, 62%, and 66%, respectively. Shortness of breath reduced by 80% and persistent muscle pain by 70%.

The study contributes to scarce information to date about the impact of vaccination on long COVID. "We don't fully understand what happens in the months and years following COVID-19 in terms of physical and [mental health](#) and well-being," says the study's lead author, Prof. Michael Edelstein, of Bar-Ilan's Azrieli Faculty. "Because long COVID seems to affect so many people it was important to us to check whether vaccines could help alleviate the symptoms. It is becoming increasingly clear that vaccines protect not just against disease but, as the results of this study suggest, against long-term, sometimes life-changing, effects of COVID-19."

To what extent vaccines protect against long COVID remains less clear. This study is the first in an ongoing project launched by Edelstein to track a large cohort of individuals from all sectors of Israel's diverse society to understand the impact of the vaccines on long-term quality of life, different COVID variants, and long-COVID symptoms.

More information: Paul Kuodi et al, Association between BNT162b2 vaccination and reported incidence of post-COVID-19 symptoms: cross-sectional study 2020-21, Israel, *npj Vaccines* (2022). [DOI: 10.1038/s41541-022-00526-5](#)

Provided by Bar-Ilan University

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