

# Effectiveness of Moderna's COVID-19 Vaccine 'Turns Negative' Within Months, Study Shows



The effectiveness of Moderna's COVID-19 vaccine turns negative over time subjecting a vaccinated person to a higher risk of contracting the virus, according to a new study funded by Moderna and Kaiser Permanente.

The study, [published in MedRxiv](#) ahead of peer review, evaluated the effectiveness of 3 and 4 doses of mRNA-1273 against infection with and hospitalization for Omicron subvariants in a large diverse population.

The effectiveness of three doses – a primary series and a booster – against infection remained higher than 50% after 150 days against the BA.1 Omicron variant but turned negative against BA.2, BA.4 and BA.5 subvariants. Effectiveness also turned negative after 91 days for BA.1.12.1.

“Our study found that 3-dose VE [vaccine efficacy] of mRNA-1273 against infection with BA.1 was high and waned slowly, whereas VE against infection with more recent Omicron subvariants, including BA.2, BA.2.12.1, BA.4, and BA.5, waned more rapidly,” researchers wrote. “Similarly, 4-dose VE against infection with BA.2, BA.2.12.1, BA.4 and BA.5 was moderate, and was only approximately 35% against BA.5. The 4-dose VE against these subvariants was short-lived, disappearing beyond 90 days after the fourth dose.”

Researchers also found that people who [received three doses](#) of Moderna were more likely to become infected when compared to people who received only two doses.

A [vaccine's efficacy](#) reflects how it worked for a random group of people – or a specific population – in a clinical trial. [Vaccine effectiveness](#) measures how well vaccination protects people against outcomes such as infection, symptomatic illness, hospitalization and death in a “real world” setting.

[Negative effectiveness](#) means that a vaccinated person is more likely to contract COVID-19 than an unvaccinated person.

Researchers said [negative effectiveness](#) “could be due to differential risk behaviors among vaccinated and unvaccinated individuals when protection from antibodies becomes minimal.”

Although researchers claimed the vaccine remains protective against severe illness, they didn't separate the effectiveness estimates by time since vaccination.

Other studies have also found the [effectiveness of COVID-19 vaccines](#) turns negative over time:

A [study](#) published Sept. 22 in the New England Journal of Medicine showed the effectiveness of Pfizer's COVID-19 vaccine against infection turned negative over time for children aged 5 to 11, subjecting vaccinated children to a higher risk of infection.

Researchers found that for children ages 5 to 11, vaccine effectiveness peaked at 60% to 70% several weeks after the first dose. It then dropped to almost zero at week 18 for previously uninfected children and week 20 for previously infected children. Vaccine effectiveness then turned negative.

An [analysis](#) by the Centers for Disease Control and Prevention estimated COVID-19 vaccine effectiveness turns negative around six months.

Swedish researchers in a September [Lancet preprint](#) found vaccine effectiveness turned negative within several months.

“Somewhat implausibly, we even observed a negative VE against Omicron infection from week 14, indicating that vaccinated individuals experienced a higher risk of infection than those unvaccinated,” researchers concluded.

Researchers said negative effectiveness could be related to several factors, but a “higher risk among vaccinated individuals might be observed for a limited time period.”