

## **Study: Which arm gets the COVID-19 booster may make a difference**

When you go to get your newly updated COVID-19 booster this fall, you might want to choose the arm the vaccine goes in carefully.

The immune response may be stronger if your booster goes in the same arm as your last COVID-19 shot, according to a [study published August 11 in the journal eBioMedicine.](#)

"The question seems so banal, so trivial that nobody before has thought to ask it," study coauthor Martina Sester, a biologist and head of the department of the Institute of Infection Medicine at Saarland University Hospital in Germany, said in a news release.

The researchers used the data of 303 people who received the mRNA vaccine as well as a booster shot as part of Germany's vaccine campaign.

Two weeks after the booster, the number of "killer T cells" was significantly higher in those who had both shots in the same arm, according to the study.

Those cells, which attack and destroy the other cells they target, were present in 67% of the same-arm cases and only 43% in people who had their injections in different arms, according to study coauthor Laura Ziegler, a doctoral student at Saarland University.

"It's absolutely fascinating because this is a subject that is clearly under-studied," said Dr. William Schaffner, a professor in the Division of Infectious Diseases at Vanderbilt University Medical Center in Nashville and former medical director of the nonprofit National Foundation for Infectious Diseases. Schaffner was not involved in the study.

"I can't remember another study similar to this with other vaccines," he said.

Why it might or might not work

It makes sense why the location of the injection would make a difference, Schaffner added.

The cells that provide the immune response are in local lymph nodes, he said.

Lymph nodes are across the body in places including the neck, chest, abdomen, and armpits, [according to the American Cancer Society.](#)

If the immune cells in those lymph nodes are restimulated in the same place, there is a greater immunological response, the study said.

Although the study showed a greater immune response, researchers can't say for sure that getting the booster in the same arm results in better or longer-lasting protection, Schaffner said.

"We wouldn't know that unless we did a much larger clinical study with follow-up actual infections," he added.

The immune cells are important for quickly destroying the virus, but antibodies are also important to prevent further harm, the study said. And researchers did not find a larger number of antibodies.

However, the antibodies in people with the booster in the same arm were better at binding to the viral spike proteins, the study showed. Spike proteins are responsible for the coronavirus entering cells, according to the [National Institutes of Health](#).

Still a good idea

Questions remain about the actual protection impact, and this study is small, but Schaffner said it is worthwhile to consider the results when going for your next booster.

"I do not have a critique of the methods," he said. "I think the results as presented can be taken at face value."

The laboratory assessment of the immune response is solid, Schaffner said.

This study made Schaffner think about this fall, when he will get vaccines for [respiratory syncytial virus, known as RSV](#), and influenza as well as a COVID-19 booster.

"I began thinking, 'Which arm am I going to get them in?' And I think I'm going to get my COVID booster — on the basis of this study — in the same as the previous inoculations," he said.