

Exercise doesn't change COVID-19 booster immune response in people with autoimmune disease

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A new study suggests that a single bout of exercise does not change the immune response to a coronavirus booster shot in people with rheumatic

autoimmune diseases. The article is published ahead of print in the *Journal of Applied Physiology*.

Vaccine responses vary from person to person. People with autoimmune conditions who take medications that suppress the [immune system](#) may have lower immunogenicity—the ability to provoke an [immune response](#) against a virus or disease—compared with the general population. This has notably been brought to light during the COVID-19 pandemic. Previous research has shown that a single exercise session can increase vaccine response. However, it is unclear whether this phenomenon extends to immune response for COVID-19 vaccination.

Researchers in a new study tested this hypothesis on a group of adult volunteers in Brazil. The volunteers had either [psoriatic arthritis](#) or spondyloarthritis, conditions in which the body mistakenly attacks itself to cause inflammation, joint pain and other symptoms. At least six months prior to the study, the volunteers received initial doses of Sinovac-CoronaVac, a vaccine approved by the World Health Organization for emergency use. Sinovac-CoronaVac uses an inactive form of SARS-CoV-2, the virus that causes COVID-19. Half of the volunteers participated in a 20-minute weightlifting session followed by an hour of rest before receiving a [booster](#) dose of Sinovac-CoronaVac, while the other half did not exercise before getting the booster.

The research team took [blood samples](#) from the volunteers immediately before and one month after receiving the booster shot. They analyzed the levels of neutralizing antibodies that block the interactions between the coronavirus' spike protein and angiotensin-converting enzyme 2 receptors on the surface of the cells. The researchers found that the single exercise session did not improve or decrease neutralizing antibody action and that all but one [volunteer](#) had antibodies protecting against SARS-CoV-2 in their bloodstream. "It is likely that the booster shot itself resulted in such a robust antibody response that masked any

adjuvant role of exercise," the research team wrote. "This excellent immunogenicity to the booster may have created a ceiling effect for exercise."

"Effect of an [exercise](#) bout prior to the booster dose of an inactivated SARS-CoV-2 vaccine on immunogenicity in immunocompromised patients" is published ahead of print in the *Journal of Applied Physiology*.

More information: Bruno Gualano et al, Effect of an Exercise Bout Prior to the Booster Dose of an Inactivated SARS-CoV-2 Vaccine on Immunogenicity in Immunocompromised Patients, *Journal of Applied Physiology* (2022). [DOI: 10.1152/jappphysiol.00015.2022](https://doi.org/10.1152/jappphysiol.00015.2022)

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