

# Post-COVID not necessarily a barrier to exercise, finds study

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People suffering from post-COVID have been discouraged from exercising because early observations suggested it could be harmful. In a study published in *JAMA Network Open*, researchers from Karolinska Institutet show that post-COVID does not mean that exercise must be strictly avoided.

People affected by post-COVID often experience symptoms such as extreme fatigue, shortness of breath, high resting [heart rate](#), and [muscle weakness](#). Symptoms are often exacerbated by exertion.

"The World Health Organization (WHO) and other major bodies have said that people with post-COVID should avoid intense exercise," says Andrea Tryfonos, a researcher at the Department of Laboratory Medicine, Karolinska Institutet, and first author of the current study.

But now she and a research team can show that this recommendation is probably too strict.

The researchers recruited 31 patients with post-COVID but no other diagnoses. For comparison, 31 sex- and age-matched people without post-COVID were selected. All participants then completed three different training sessions consisting of [high-intensity interval training](#), moderate-intensity continuous training and [strength training](#) in a randomized order a few weeks apart.

The participants were checked before, immediately after and two days after the training sessions for [symptom](#) levels. In addition, they underwent several medical examinations, including blood tests, heart ultrasound, spirometry for lung function, muscle strength tests, neurophysiological tests, and muscle biopsies.

"What we can generally see is that the post-COVID patients do just as well as the controls, even though they had more symptoms to begin with. By equally well, I mean that they did not worsen their symptoms or negatively affect their body during the 48 hours we observed them," says Andrea Tryfonos.

The study also showed that there are some differences between the people with post-COVID and the controls.

"People with post-COVID had generally lower levels of fitness and muscle strength, which could be due to both the infection and lower activity. After two years of prolonged symptoms and being discouraged from exercising, it's not surprising that you have lost some of your work capacity," says Andrea Tryfonos.

The researchers also found that as many as 62% of people with post-COVID suffered from myopathy, a change in the muscle tissue that impairs muscle capacity.

"This percentage is far too high to be explained by reduced activity alone. Therefore, we are currently analyzing the biopsies to see if we can explain the reason behind these muscle changes," she says.

However, she believes that the recommendations for exercise in post-COVID should be revised now.

"People with post-COVID should not be discouraged from exercising in general. Instead, under supervision, they should be encouraged to start with any kind of exercise they enjoy, at an appropriate level of course, and then slowly increase the intensity," says Andrea Tryfonos, while emphasizing that the study's results do not mean that all patients can tolerate exercise equally well.

The subjects with post-COVID were between 18 and 64 years old, had had symptoms of post-COVID for more than three months, had not been hospitalized for COVID, and had no other diagnoses.

The [training sessions](#) consisted of:

- High-intensity interval training: 5 x 1 min cycling at 90% of maximum workload with 1 min rest between intervals.
- Moderate-intensity continuous training: 30 min cycling at 50% of

maximum workload.

- Strength training with deadlifts, push-ups and leg kicks in a machine, 3 x 10 repetitions of each with 3 min rest in between.

**More information:** Functional Limitations and Exercise Intolerance in Patients With Post-COVID Condition - A randomized Crossover Clinical Trial, *JAMA Network Open* (2024). [DOI: 10.1001/jamanetworkopen.2024.4386](https://doi.org/10.1001/jamanetworkopen.2024.4386)

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