Exercise can help support recovery of patients with lasting COVID symptoms, study finds

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Patients with lasting symptoms of COVID-19 who completed a six-week, supervised rehabilitation program demonstrated significant improvements in exercise capacity, respiratory symptoms, fatigue and cognition, according to researchers at the National Institute for Health Research (NIHR) Leicester Biomedical Research Centre—a partnership between Leicester's Hospitals, the University of Leicester and Loughborough University.

The study, which is published in the journal *Chronic Respiratory Disease* today (Friday, May 7, 2021), followed thirty patients who took part in face-to-face exercise rehabilitation classes twice a week over a period of six weeks. The program included aerobic exercise, such as walking or using a treadmill, strength training of the arms and legs, and educational discussions to support symptom management based upon the information on the Your COVID Recovery platform.

Researchers found a statistically significant improvement in exercise capacity, as measured by scores of distance traveled and ability to keep going without a rest, using incremental and endurance shuttle-walking tests. They also found that fatigue improved by 5 points on the Functional Assessment of Chronic Illness Therapy (FACIT) Fatigue Scale over the six-week period. In addition, participants demonstrated improvement in their overall wellbeing and cognition, as measured by standardized clinical assessment tools.

Participants were referred through a hospital discharge follow-up telephone assessment, at a face-to-face COVID-19 clinic assessment, or via their GP. Individuals were offered the opportunity to take part if they displayed physical and/or psychological symptoms that were affecting their daily activities. Patients were excluded if they demonstrated acute symptoms, or were not medically stable (with conditions such as uncontrolled diabetes) or had only symptoms that were deemed unlikely to benefit from a pulmonary rehabilitation program, such as loss of taste or smell.

Of the participants, there was an even split between men and women, with an average of 58 years. Eighty-seven percent of participants were admitted to hospital with COVID-19, staying on average 10 days in the hospital. Fourteen percent required mechanical ventilation and were treated in an intensive care unit. Four individuals had a pre-existing respiratory condition, such as asthma or chronic obstructive pulmonary disease (COPD).

Dr. Enya Daynes, specialist pulmonary rehabilitation and research physiotherapist at Leicester's Hospitals and lead author of the study, said, "We know that COVID-19 survivors present with a wide variety of symptoms and that a one-size-fits-all approach to managing these would not be

appropriate. However, there are some overlap between the needs of COVID-19 survivors and patients who have accessed pulmonary rehabilitation [PR] for other conditions, such as COPD. So we modified our well-established PR course for COVID-19 survivors and measured their symptoms to assess whether the program could be of potential benefit.

"We found there were significant improvements in clinical outcomes of walking capacity and symptoms of fatigue, cognition and respiratory symptoms—factors that patients tell us most affect their quality of life."

Professor Sally Singh, head of cardiac and pulmonary rehabilitation at Leicester's Hospitals, professor at the University of Leicester and senior author of the paper, said, "This adapted rehabilitation program for individuals following COVID-19 has demonstrated promising improvements in clinical outcomes. There were no dropouts due to worsening symptoms and the high completion rate suggests that patients found it to be an acceptable treatment.

"There has been concern that rehabilitation may worsen or trigger symptoms of post-viral fatigue and that exercise therapy may exacerbate fatigue. The exercise element of this program is progressed by staff experienced in delivering pulmonary and cardiac rehabilitation programs in line with patient's symptoms throughout the program. Our results did not show that fatigue worsened among the group of patients on the study, and that many of their symptoms improved. This suggests an adapted pulmonary rehabilitation courses can be part of a spectrum of patient-centered and holistic approaches to treating the many different presentations of lasting COVID symptoms."

The research team acknowledges that as a cohort study there is no control group of people with similar symptoms who did not embark on the modified pulmonary rehabilitation course to offer a comparison and that further studies with a larger patient population are needed to confirm their preliminary findings.

More information: Early experiences of rehabilitation for individuals post-COVID to improve fatigue, breathlessness exercise capacity and cognition - A cohort study, *Chronic Respiratory Disease*, DOI: 10.1177/14799731211015691

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