

# Effects of physical rehabilitation on exercise performance, dyspnea and quality of life in patients with acute and post-acute COVID-19: Systematic review and meta-analysis

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**Introduction:** Previous studies concluded that exercise programs carried out via telerehabilitation can improve functional capacity, dyspnea and quality of life, compared to the absence of rehabilitation in patients with acute and post-acute COVID-19. Despite the beneficial effects found, the authors included only six telerehabilitation studies and did not include studies that analyzed the effects of in-person physical rehabilitation. To our knowledge, there is no published meta-analysis on the effects of physical rehabilitation interventions carried out in person and via telerehabilitation during hospitalization and after hospital discharge. **Objective:** This systematic review and meta-analysis aimed to analyze published RCTs investigating the effects of in-person and telerehabilitation physical rehabilitation interventions on exercise performance, dyspnea and health-related quality of life in patients with acute and post-acute. **Methods:** for this systematic review and meta-analysis, different electronic databases (PubMed, Cochrane, Embase and PEDro) were used until December 2022 for RCTs that evaluated the effects of in-person physical rehabilitation and telerehabilitation in patients with acute COVID-19 and post-acute. Mean difference (MD), standardized mean difference (SMD), and 95% confidence intervals (CI) were calculated. **Results:** 34 studies met the eligibility criteria, totaling 2214 patients. Physical interventions can improve aerobic capacity in patients with acute COVID-19 (SMD 1.7; 95% CI 0.37, 2.8; 260 participants low certainty of evidence) and in patients with post-acute COVID-19 (MD 0.4; 95% CI 0.1, 0.7; 432 participants; low certain of evidence) compared with usual care for patients with acute and post-acute COVID-19, respectively. Physical interventions can also improve dyspnea in patients with acute COVID-19 (SMD -1.4; 95% CI -0.8, -0.01; 305 participants; low certainty of evidence) and in patients with COVID-19 post-acute (MD -0.4; 95% CI -0.7, -0.2 283 participants; low certainty of evidence) compared with usual care for patients with acute and post-acute COVID-19, respectively. Physical Interventions may result in improvement in health-related quality of life (physical domain) (SMD 0.6; 95% CI 0.3, 0.8; 237 participants; low certainty of evidence) in patients with post-COVID-19 -acute compared to usual care in patients with post-acute COVID-19. **Conclusion:** The results support that physical rehabilitation interventions improve aerobic capacity and dyspnea in patients with acute and post-acute COVID-19. Furthermore, physical interventions improve the physical domain of health-related quality of life.