



Cardiopulmonary exercise capacity and limitations 3 months after COVID-19 hospitalisation

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Oxygen uptake was reduced in one-third of participants 3 months after hospitalisation for COVID-19. The most common exercise limitation was deconditioning. Circulatory limitations to exercise were more common than ventilatory limitations. <https://bit.ly/3jmVDQ6>

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Abstract

Background This study aimed to describe cardiopulmonary function during exercise 3 months after hospital discharge for COVID-19 and compare groups according to dyspnoea and intensive care unit (ICU) stay.

Methods Participants with COVID-19 discharged from five large Norwegian hospitals were consecutively invited to a multicentre, prospective cohort study. In total, 156 participants (mean age 56.2 years, 60 females) were examined with a cardiopulmonary exercise test (CPET) 3 months after discharge and compared with a reference population. Dyspnoea was assessed using the modified Medical Research Council (mMRC) dyspnoea scale.

Results Peak oxygen uptake ($V'_{O_{2peak}}$) <80% predicted was observed in 31% (n=49). Ventilatory efficiency was reduced in 15% (n=24), while breathing reserve <15% was observed in 16% (n=25). Oxygen pulse <80% predicted was found in 18% (n=28). Dyspnoea (mMRC ≥1) was reported by 47% (n=59). These participants had similar $V'_{O_{2peak}}$ (p=0.10) but lower mean±SD $V'_{O_{2peak}} \cdot kg^{-1}$ % predicted compared with participants without dyspnoea (mMRC 0) (76±16% versus 89±18%; p=0.009) due to higher body mass index (p=0.03). For ICU- versus non-ICU-treated participants, mean±SD $V'_{O_{2peak}}$ % predicted was 82±15% and 90±17% (p=0.004), respectively. Ventilation, breathing reserve and ventilatory efficiency were similar between the ICU and non-ICU groups.

Conclusions One-third of participants experienced $V'_{O_{2peak}}$ <80% predicted 3 months after hospital discharge for COVID-19. Dyspnoeic participants were characterised by lower exercise capacity due to obesity and lower ventilatory efficiency. Ventilation and ventilatory efficiency were similar between ICU- and non-ICU-treated participants.

