



# Medium-term impact of COVID-19 on pulmonary function, functional capacity and quality of life

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Shareable abstract (@ERSpublications)

COVID-19 severe lung involvement can reduce respiratory performance in the medium- to long-term. Respiratory rehabilitation is recommended in COVID-19 survivors showing severe clinical and radiological signs of disease. <https://bit.ly/3jCxN0s>

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## Abstract

**Background** Coronavirus disease 2019 (COVID-19) has spread worldwide, having a dramatic impact on healthcare systems. The aim of this study is to evaluate mid-term clinical impact of COVID-19 on respiratory function.

**Methods** 379 patients were evaluated 4 months after severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) diagnosis. Patients were divided in two groups based on the presence of pneumonia during COVID-19. Clinical conditions, quality of life, symptomatology, 6-min walk test, pulmonary function test with spirometry and diffusing capacity of the lung for carbon monoxide were analysed. Data were compared to clinical evolution during COVID-19 (development of acute respiratory distress syndrome, need of invasive mechanical ventilation, partial oxygen saturation ( $S_{pO_2}$ )/inspiratory oxygen fraction ( $F_{IO_2}$ ) ratio and pneumonia severity index (PSI)).

**Results** After a median 135 days, 260 (68.6%) out of 379 patients referred at least one symptom. Patients who developed pneumonia during COVID-19 showed lower  $S_{pO_2}$  at rest ( $p<0.001$ ),  $S_{pO_2}$  during 6-min walk test ( $p<0.001$ ), total lung capacity ( $p<0.001$ ), airway occlusion pressure after 0.1 s ( $P_{0.1}$ ) ( $p=0.02$ ),  $P_{0.1}$ /maximal inspiratory pressure ratio ( $p=0.005$ ) and higher Borg category-ratio scale ( $p=0.006$ ) and modified Medical Research Council breathlessness scale ( $p=0.003$ ), compared to patients without pneumonia.  $S_{pO_2}/F_{IO_2}$  ratio and PSI during SARS-CoV-2 pneumonia were directly associated with mid-term alteration of  $S_{pO_2}$  at rest ( $p<0.001$ ) and during 6-min walk test ( $p<0.001$ ), residual volume ( $p<0.001$ ), total lung capacity ( $p<0.001$  and  $p=0.003$ , respectively) and forced vital capacity ( $p=0.004$  and  $p=0.03$ , respectively).

**Conclusion** Lung damage during COVID-19 correlates to the reduction of pulmonary function 4 months after acute infection.

