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## Integrated sports and respiratory medicine in the aftermath of COVID-19



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For more on **radiographic findings in MERS** see *Indian J Radiol Imaging* 2017; 27: 342–49

For more on **quality of life after SARS** see *Thorax* 2005; 60: 401–09

For more on **physiotherapy care and support after COVID-19** see *J Physiotherapy* 2020; 66: 73–82

For more on **post-COVID-19 support** see *Br J Sports Med* 2020; published online May 31. DOI:10.1136/bjsports-2020-102596

For more on an **approach to improve patient outcomes post-COVID-19** see *J Sport Health Sci* 2020; published online May 22. DOI:10.1016/j.jshs.2020.05.005

For more on the **psychological impact of SARS** see *Can Psychol* 2015; 56: 123

For **evidence of the effect of exercise on mental health** see <https://www.tandfonline.com/doi/full/10.1080/15332985.2020.1776808?scroll=top&needAccess=true>

For more on the **effect of COVID-19 on mental health** see *JPS Journal* 2020; 4: 63–77

COVID-19 has revealed inequalities in health, wellbeing, and economic status across communities and has exposed vulnerabilities in societal groups. While the pressure of the first peak abates, there is an urgent need to consider the long-term care needs of those affected by COVID-19 to ensure that it does not widen inequality. At the time of writing, the long-term effects on recovering patients remains unknown. Research on Severe Acute Respiratory Syndrome coronavirus (SARS) and Middle Eastern Respiratory Syndrome coronavirus (MERS) infection are associated with persisting abnormal radiographic change, substantial impairment of exercise and functional capacity, and reduced quality of life following Acute Respiratory Distress Syndrome (ARDS). More than 50% of patients hospitalised by COVID-19 could have profound musculoskeletal and neurological de-conditioning and require substantial care and support. Alongside those needing intense clinical support, additional resource is needed to provide support for patients recovering from COVID-19 with mild symptoms. Large numbers of patients are being discharged into community settings with substantial comorbidities and will require intermediate (3–6 months) and chronic (>12 months) support, placing unprecedented demand on health-care services.

COVID-19 is a novel virus that presents two key challenges: first, there is little evidence to support the development of support strategies (ie, to improve physical and mental wellbeing) for patients and it is unclear how this overwhelming demand on health-care services will be met. A truly multidisciplinary and collaborative approach that brings together respiratory medicine and clinical services alongside sports medicine, exercise science, engineering, and software and digital technology will help to develop an increased evidence base and to deliver support, improving patient outcomes.

Combined insight from respiratory and sports and exercise medicine can offer a unified approach to understand the complex and chronic nature of recovery from COVID-19. Interrogative procedures, such as cardiopulmonary exercise testing and body composition scanning, can evaluate individuals recovering from severe infection. These techniques can characterise cardiorespiratory fitness and the effects of de-conditioning due to COVID-19 that underpin functional impairment. They can, therefore, support the development of efficacious rehabilitation strategies.

Rehabilitation resources are scarce in the NHS; without a solid understanding of the recovery trajectory of COVID-19, it is hard to plan a response to deal with the inevitable increase in demand for these resources. One

way to partially address the issue of limited rehabilitation capacity is to use sports and exercise medicine expertise to design and deliver interventions and address patients' physical and mental health needs. The physical health of patients is the primary focus of rehabilitation programmes and yet previous epidemics have shown that the mental health and wellbeing of patients and health-care workers is also negatively affected. Lockdown and physical distancing implemented during the COVID-19 pandemic may lead to a greater negative effect on mental health than during the SARS pandemic. Evidence suggests that regular structured exercise and psychological interventions used in exercise science are effective in improving mental health and can address broader health and wellbeing issues, such as anxiety, depression, and social isolation, similar to those elicited by COVID-19. Interventions must extend beyond clinical settings to support individuals and communities, where an increase in depressive and anxiety symptoms have been reported.

Sports medicine practitioners can help support patients in their recovery from COVID-19, but health and social care policy makers, commissioners, and managers first need to understand what resources are available from this sector. For example, the provision of specific knowledge from sport medicine personnel in academic and applied settings; use of exercise physiology laboratories, which can be repurposed to provide testing facilities for patients recovering from COVID-19 in the community; and use of sports centres across the UK as COVID-19 rehabilitation centres (especially university-based centres that specialise in sports and exercise medicine).

With the risk of a second peak of infections, the need to provide support for patients recovering from COVID-19, and a potential outbreak of seasonal influenza, clinical services may well be overwhelmed once more. To effectively tackle current and future health-care emergencies, we must marshal our resources and develop strong collaborative approaches that combine clinical and sports medicine disciplines.

We declare no competing interests.

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