



Combating physical inactivity during the COVID-19 pandemic

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Physical inactivity is common during periods of self-isolation, but for patients with rheumatic diseases, there are crucial benefits to be gained from maintaining an active lifestyle throughout the COVID-19 pandemic. Patients should be provided with support to maintain physical activity and avoid prolonged periods of time spent sitting.

COVID-19, a disease caused by the SARS-CoV-2 virus, has been classified as a pandemic by the World Health Organization (WHO). In an effort to slow infection rates, particularly in groups predisposed to high risks of morbidity and mortality, extensive social distancing and isolation policies have been adopted worldwide.

Patients with rheumatic diseases commonly have a higher risk of serious infections than the general population owing to immunosuppression and disease activity, particularly in those with suboptimal control of disease activity¹. Moreover, some patients are at increased risk of COVID-19 complications as they are older and have concomitant chronic diseases. Therefore, patients are recommended by national health advisory services to continue with their current treatment to prevent disease flares and practice self-isolation to prevent infection during the COVID-19 pandemic.

Physical inactivity (not meeting the physical activity guidelines) and sedentary behaviour (too much sitting) are highly prevalent in patients with rheumatic diseases; previous studies show that 38–72% are physically inactive, and sedentary time ranges between 8.3–14.0 hours/day, which is higher than for the general population (31% and ~7.5 hours/day, respectively)². Importantly, both of these behaviours are associated with poor disease-related outcomes (such as high disease activity, pain and fatigue) and cardiometabolic risk factors (such as obesity and insulin resistance) in patients with rheumatoid arthritis². Among patients with rheumatic diseases, cardiovascular diseases are the leading cause of morbidity and mortality and are likely to be exacerbated by physical inactivity and prolonged periods of sitting. Children and adolescents with rheumatic diseases are also commonly hypoactive compared with healthy peers owing to disease manifestations and symptoms and to overprotection by parents and health-care professionals³. The negative clinical effects of inactivity for paediatric patients include muscle atrophy and weakness, fatigue, obesity, insulin resistance, dyslipidaemia, reduced physical capacity and function and poor quality of life³.

The COVID-19 pandemic has created an environment that promotes reduced amounts of habitual physical activity owing to self-isolation and quarantine requirements, reduced opportunities to remain physically active and fear of being infected. Sustained physical inactivity and sedentary behaviour are typically associated with poor physical and mental health and increased disease-specific and all-cause mortality risk⁴. Even brief periods of exposure to these behaviours can be deleterious; for example, a 2-week reduction in daily steps from ~10,000 to ~1,500 steps lead to impaired insulin sensitivity and lipid metabolism, increased visceral fat and decreased fat-free mass and cardiovascular fitness in healthy adults⁵. Interestingly, a bout of moderate-intensity exercise does not counteract the detrimental effects of 4 days of inactivity, suggesting that individuals can become ‘resistant’ to well-known exercise-induced metabolic adaptations⁶.

In the past, bed rest was extensively used as part of the treatment for rheumatic diseases such as rheumatoid arthritis and myositis to avoid disease exacerbation and/or joint destruction. However, compelling evidence shows that disuse actually leads to joint destruction, muscle weakness and atrophy, causing reduced physical function^{3,3}. Such evidence has led to the contemporary abrogation of the ‘bed rest paradigm’ for rheumatic diseases and has guided new approaches to clinical practice that emphasize physical activity as an important part of therapy to improve patients’ symptoms⁷. Given that physical inactivity and sedentary behaviour will potentially increase as a function of social distancing measures during the COVID-19 pandemic, patients with rheumatic diseases who are already hypoactive might be at particular risk of worsened disease activity and symptoms, general comorbidities and poor quality of life (FIG. 1).

Exercise (structured physical activity) is advocated by EULAR as an integral part of standard care for patients with inflammatory arthritis and osteoarthritis⁷. Moreover, exercise improves disease symptoms, cardiovascular

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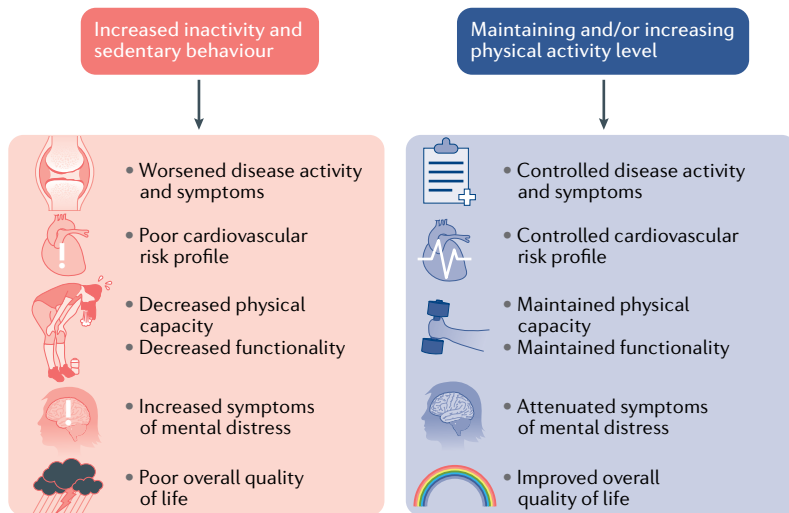


Fig. 1 | The effects of physical inactivity during the COVID-19 pandemic on patients with rheumatic diseases. Imposed physical inactivity and sedentary behaviour (sitting) can be disruptive to disease parameters, cardiovascular risk profile, physical capacity and function and mental health in patients with rheumatic diseases, resulting in poor quality of life, whereas maintaining more optimal physical activity levels can help to ameliorate these detrimental effects.

risk factors, physical capacity and function, mental health and quality of life for patients with other rheumatic diseases⁸. From a safety perspective, acute and long-term exercise did not trigger inflammation in a study involving patients with systemic lupus erythematosus⁹. Of relevance in the context of the COVID-19 pandemic, home-based exercise programmes are feasible and can be effective in promoting health benefits for patients with rheumatic diseases without causing any important adverse events^{2,3,8} (FIG. 1).

Guided by this evidence, we recommend that clinicians and other health-care practitioners are proactive in prescribing physical activities to their patients during the COVID-19 pandemic. Several scientific and medical organizations are promoting messages to keep people active at home during the COVID-19 pandemic, including the WHO¹⁰. We highly recommend that associations within the field of rheumatology embrace this idea and help to spread the message that exercise is therapeutic to patients with rheumatic diseases.

What physical activity should be prescribed during self-isolation? In general, patients with rheumatic diseases can follow the current guidelines for the general population. If patients are physically inactive and have no previous experience with exercise programmes, they should engage in less intensive exercise regimes and progress slowly. If patients are already physically active, then they can either maintain their exercise routine, if viable (for example walking), or adapt their activities to be performed at home. A flexible clinical guide for physical activity promotion during the COVID-19 pandemic that can be downloaded as an electronic practitioner resource or shared with patients as a printed pamphlet, electronic document or wall poster is provided as Supplementary Fig. 1. Given patient and practitioner infection concerns about clinical contact, the file can also be adapted for use as a visual resource in telemedicine consultations.

For patients with particular physical limitations, uncontrolled disease activity and/or who are at high risk of injury when taking unsupervised exercise, home-based exercise programmes designed for the general population might not be ideal from a safety perspective. With these at-risk patients, strategies such as ‘move more and sit less during the day’ can be promoted as safe and accessible options to at least attenuate the deleterious effects of imposed inactivity during self-isolation. Importantly, simple strategies such as breaking up prolonged sedentary time (such as 2 minutes of walking for every 30 minutes of sitting) could improve some symptoms and cardiometabolic risk factors². As children and adolescents with rheumatic diseases are commonly hypoactive, physical activity should be also recommended to paediatric patients with rheumatic disease³.

Patients with rheumatic diseases are already at an increased risk of being hypoactive, which will probably be further aggravated by self-isolation measures imposed to tackle the spread of SARS-CoV-2. This issue raises pressing concerns, as substantial reductions in physical activity can be detrimental to disease outcomes, cardiovascular risk factors, physical capacity and mental health. In light of the systemic benefits of physical activity for patients with rheumatic diseases (FIG. 1), health practitioners are therefore encouraged to be proactive in promoting appropriate physical activity for these patients.

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Competing interests

The authors declare no competing interests.

Supplementary information

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