

Exercise in the time of COVID-19

Kieran Fallon

It is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself.¹

The COVID-19 pandemic has placed unprecedented restrictions on the physical activity and lifestyle of the Australian population. Restrictions aimed at minimising the risk of local transmission of SARS-CoV-2 are likely to lead to reductions in physical activity.² Populations whose clinical management involves therapeutic exercise programs have been significantly affected. A 2020 *Lancet* review indicated that studies of the effects of quarantine reported negative psychological effects including post-traumatic stress symptoms, confusion and anger. Restriction of movement, loss of usual routine, and reduced social and physical contact with others were frequently shown to cause boredom, frustration and a sense of isolation.³ Patients may inquire about interventions, which they could implement under conditions of limited movement, to reduce their risk of contracting the infection itself, mitigate some of the effects of quarantine described above and maintain general health. One of these is exercise. Areas that could benefit from exercise are risk of viral infection, symptoms related to anxiety and depression, weight maintenance, and ongoing prevention and management of chronic disease.

The immune system is highly responsive to physical activity, with the extent of the response related to

both duration and intensity of exercise. Moderate-intensity exercise training is associated with a reduced incidence,⁴ duration and severity of upper respiratory tract (predominantly viral) infections.⁵ A number of epidemiological studies suggest that regular physical activity is associated with decreased incidence of and mortality from influenza and pneumonia.⁶ No scientific data currently exists regarding the effects of exercise on coronaviruses.

Exercise is moderately more effective than no therapy for reducing symptoms of depression.⁷ In relation to anxiety, Aylett et al reviewed 15 studies and found that aerobic exercise was effective in both patients with raised anxiety on a validated rating scale and those with formally diagnosed anxiety disorders. High-intensity exercise programs were found to be more effective than those of lower intensity.⁸

Restriction of activity increases the risk of weight gain by reducing energy expenditure. Anxiety, depressed mood and boredom may be partly compensated for by increased eating and consumption of alcohol. Local evidence suggests a recent increase in sales and use of alcoholic beverages, which can affect both weight gain and mental health.⁹

Those who engage in physical activity consistent with The Royal Australian College of General Practitioners' current guidelines (at least 150 minutes of moderate-intensity exercise per week, including muscle-strengthening activities on at least two days)¹⁰ are at lower risk of developing a wide range of significant chronic diseases. Exercise has a role to play in the management of the vast majority of these conditions. These therapeutic and preventative effects should be maintained throughout the current period of activity restriction.

At the time of writing, restrictions vary between states but generally allow for at least one episode of exercise outside the home each day. Runners, joggers, walkers and cyclists are well catered for. With public pools and some beaches and gyms closed, swimmers, surfers and others may find exercise more difficult.

In terms of home-based exercise, a simple internet or YouTube search will reveal a large number of home programs of dance, aerobics, yoga, Pilates, strength workouts and stretching. Aerobic exercise can be facilitated by the use of stairs and inclines; running on the spot; home exercise bikes, treadmills and running machines; or laps of the backyard pool.

Simple household items such as filled water bottles and cans or packets of food can be useful as weights. Even these low weights can be quite challenging if many repetitions are attempted. Exercises against body weight such as squats, push-ups, sit-ups and calf raises on the edge of a stair or an incline are also useful.

For those not interested in 'exercise', the following home-based activities can be vigorous enough to satisfy the criteria for moderate exercise: sweeping floors, vacuuming, general carpentering, mowing the lawn, raking leaves, cleaning windows and pushing a stroller.

As with any new activity, gradual introduction and progression are important, as is reporting new symptoms that might indicate musculoskeletal injury or a medical problem.

First published online 22 April 2020.

Author

Kieran Fallon MBBS (Hons), MD, MSpExSc, MHEd, FRACGP, FACSEP, SFHEA, Professor of Musculoskeletal, Sport and Exercise Medicine,

Faculty of Medicine, College of Health and Medicine, Australian National University, ACT; Visiting Medical Officer, Department of Rheumatology, The Canberra Hospital, ACT

Competing interests: None.

Provenance and peer review: Commissioned, peer reviewed.

Citation: Fallon K. Exercise in the time of COVID-19. *Aust J Gen Pract* 2020;49 Suppl 13. doi: 10.31128/AJGP-COVID-13. [ePub ahead of print]

References

1. Darwin C. On the origin of species by natural selection. London: John Murray, 1859.
2. Chen P, Mao L, Nassiss GP, Harmer P, Ainsworth BE, Fuzhong L. Coronavirus disease (COVID-19): The need to maintain regular physical activity while taking precautions. *J Sport Health Sci* 2020;9(2):103-4. doi: 10.1016/j.jshs.2020.02.001.
3. Brooks SK, Webster RK, Smith LE, et al. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* 2020;395(10227):912-20. doi: 10.1016/S0140-6736(20)30460-8.
4. Nieman DC, Wentz LM. The compelling link between physical activity and the body's defence system. *J Sport Health Sci* 2019;8(3):201-17. doi: 10.1016/j.jshs.2018.09.009.
5. Grande AJ, Keogh J, Silva V, Scott AM. Exercise versus no exercise for the occurrence, severity, and duration of acute respiratory infections. *Cochrane Database Syst Rev* 2020;4(4):CD010596. doi: 10.1002/14651858.CD010596.pub3.
6. Wong C-M, Lai H-K, Ou C-Q, et al. Is exercise protective against influenza-associated mortality? *PLoS One* 2008; 3(5):e2108. doi: 10.1371/journal.pone.0002108.
7. Cooney GM, Dwan K, Greig CA, et al. Exercise for depression. *Cochrane Database Syst Rev* 2013;(9):CD004366. doi: 10.1002/14651858.CD004366.pub6.
8. Aylett E, Small N, Bower P. Exercise in the treatment of clinical anxiety in general practice – A systematic review and meta-analysis. *BMC Health Serv Res* 2018;18(1):559. doi.org/10.1186/s12913-018-3313-5.
9. The Foundation for Alcohol Research and Education. Alcohol sales & use during COVID-19. Deakin, ACT: FARE, 2020. Available at <https://fare.org.au/wp-content/uploads/COVID-19-POLL.pdf> [Accessed 19 April 2020].
10. The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice. 9th edn, updated. East Melbourne, Vic: RACGP, 2018.