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Letter to the Editor

COVID-19 and time spent outdoors: a golden opportunity for health promotion



Non-pharmaceutical measures will remain the principal instrument in controlling the spread of severe acute respiratory syndrome coronavirus 2 until adequate effective vaccine coverage is achieved worldwide. Because viral transmission occurs primarily through infected respiratory droplets emitted in close proximity to other people, physical distancing has formed the cornerstone of global public health interventions throughout the pandemic. While airborne transmission is thought to be possible, such contagion is much less probable in well-ventilated and uncrowded outdoor environments. Consequently, public health restrictions generally permit individuals to spend time outdoors, providing physical distancing and social mixing regulations are observed.

Owing to the high risk of viral transmission indoors, many national lockdowns have necessitated the closure of recreational sports and fitness facilities including gyms, leisure centres and swimming pools. Consequently, exercise may now only be performed in outdoor environments. However, although the advantages of exercise to physical and mental health are well recognised,³ many other health benefits are offered by simply spending time outdoors. For example, exposure to green space is significantly associated with reduced all-cause mortality and reduced incidence of diabetes, cardiovascular disease and poor mental health.⁴ While the mechanisms underlying these effects remain unclear, a sense of escapism, perception of vastness and experience of connectedness with the natural world each contribute to the restorative characteristics of time spent outdoors and are strongly associated with a plethora of health benefits.⁵ In the context of COVID-19, further value may be obtained from time spent outdoors through exposure to ultraviolet radiation and the consequent synthesis of vitamin D, which may offer protection against viral infection.6

COVID-19 represents a global health emergency owing to both the direct effects on those infected and the indirect impacts on populations living under lockdown. There is, therefore, an urgent need to improve health and well-being on nationwide scales. Because time spent outdoors is known to be both beneficial to health and safe from viral transmission, a timely opportunity presents itself for public health officials to educate and empower communities to access this resource. This should involve clear messaging to

communicate the available benefits, low barriers to access and participation and relative safety, provided physical distancing is maintained. This golden opportunity for health promotion, unexpectedly provided by COVID-19, could be translated into substantial health behaviour changes that endure beyond, and contribute to an equitable and health-focussed recovery from, the pandemic. It must not be missed.

References

- 1. The Lancet Respiratory Medicine. COVID-19 transmission—up in the air. Lancet Resp Med 01 December 2021;8(12):1159. https://doi.org/10.1016/S2213-2600(20)30514-2.
- Morawska L, Milton DK. It is time to address airborne transmission of coronavirus disease 2019 (COVID-19). Clin Infect Dis 06 July 2020;71(9):2311-3. https://doi.org/10.1093/cid/ciaa939.
- Lee I-M, Shiroma EJ, Lobelo F, et al. Effect of physical inactivity on major noncommunicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet* 21 July 2012;380(9838):219–29. https://doi.org/10.1016/S0140-6736(12)61031-9.
- 4. Rojas-Rueda D, Nieuwenhuijsen MJ, Gascon M, et al. Green spaces and mortality: a systematic review and meta-analysis of cohort studies. *Lancet Planet Health* 01 November 2019;**3**(11):469–77. https://doi.org/10.1016/S2542-5196(19)30215-3.
- Pearson DG, Craig T. The great outdoors? Exploring the mental health benefits of natural environments. Front Psychol 21 October 2014;5:1178. https://doi.org/ 10.3389/fpsyg.2014.01178.
- The Lancet Diabetes and Endocrinology. Vitamin D and COVID-19: why the controversy? Lancet Diabetes Endocrinol 01 February 2021;9(2):53. https://doi.org/10.1016/S2213-8587(21)00003-6.
- 7. Pierce M, Hope H, Ford T, et al. Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *Lancet Psychiatr* 01 October 2020;**7**(10):883–92. https://doi.org/10.1016/S2215-0366(20)30308-4.

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1 March 2021 Available online 2 April 2021