

# Infographic. Stay physically active during COVID-19 with exercise as medicine

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## INTRODUCTION

There are over 35 000 000 reported cases of COVID-19 disease and 1 000 000 deaths across more than 200 countries worldwide.<sup>1</sup> With cases continuing to rise and a robust vaccine not yet available for safe and widespread delivery, lifestyle adaptations will be needed for the foreseeable future. As we try to contain the spread of the virus, adults are spending more time at home. Recent evidence<sup>2</sup> suggests that physical activity levels have decreased by ~30% and sitting time has increased by ~30%. This is a major concern as physical inactivity and sedentary behaviour are risk factors<sup>3</sup> for cardiovascular disease, obesity, cancer, diabetes, hypertension, bone and joint disease, depression and premature death.

To date, more than 130 authors from across the world have provided COVID-19-related commentary on these concerns. Many experts<sup>4</sup> have emphasised the importance of increasing healthy living behaviours and others<sup>5</sup> have indicated that we are now simultaneously fighting not one but two pandemics (ie, COVID-19, physical inactivity). Physical inactivity alone results in over 3 million deaths per year<sup>5</sup> and a global burden of US\$50 billion.<sup>6</sup> Immediate action is required to facilitate physical activity during the COVID-19 pandemic because it is an effective form of medicine<sup>3</sup> to promote good health, prevent disease and bolster immune function. Accordingly, widespread messaging to keep adults physically active is of paramount importance.

Several organisations including the WHO, American Heart Association and American College of Sports Medicine have offered initial suggestions and resources for engaging in physical activity during the COVID-19 pandemic. Expanding on these resources, our infographic aims to present a comprehensive illustration for promoting daily physical activity to the lay audience during the COVID-19 pandemic (figure 1). As illustrated, adults are spending more time at home, moving less and sitting more. Physical activity provides numerous health benefits, some of which may even help directly combat the effects of COVID-19. For substantial health benefits, adults should engage in 150–300 min of moderate-to-vigorous intensity physical activity each week and limit the time spent sitting. The recommended levels of physical

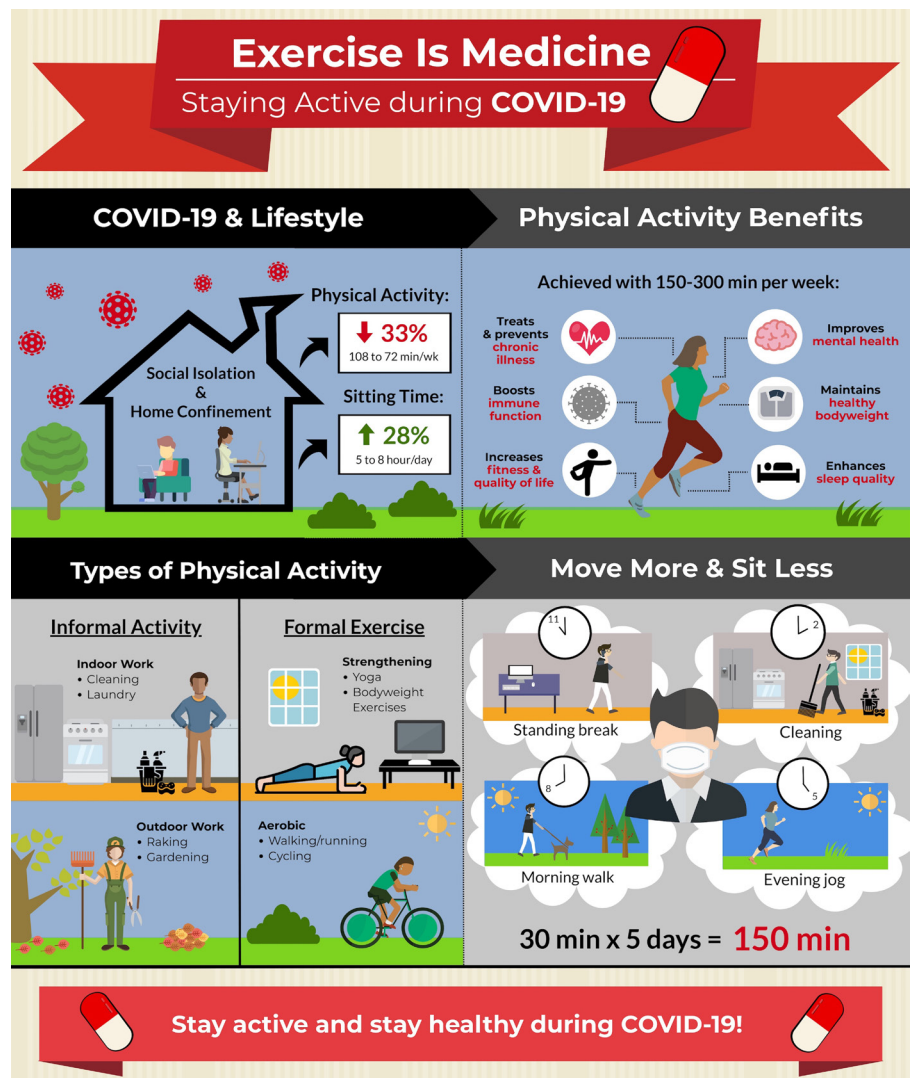


Figure 1 Infographic.

activity are safely attainable even at home. Using a combination of both formal and informal activities, 150 min can be reached during the week with frequent sessions of physical activity spread throughout the day. Sedentary behaviour can be further reduced by breaking up prolonged sitting with short active breaks. In summary, this infographic offers as an evidence-based tool for public health officials, clinicians, educators and policymakers to communicate the importance of engaging in physical activity during the COVID-19 pandemic.

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#### REFERENCES

1 World Health Organization. Coronavirus disease (COVID-19) outbreak situation (online), 2020. Available: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

- 2 Ammar A, Brach M, Trabelsi K, *et al*. Effects of COVID-19 home confinement on eating behaviour and physical activity: results of the ECLB-COVID19 international online survey. *Nutrients* 2020;12:1583.
- 3 Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. *Curr Opin Cardiol* 2017;32:541–56.
- 4 Arena R, Lavie CJ. The global path forward – healthy living for pandemic event protection (HL – pivot). *Prog Cardiovasc Dis* 2020.
- 5 Hall G, Laddu DR, Phillips SA, *et al*. A tale of two pandemics: how will COVID-19 and global trends in physical inactivity and sedentary behavior affect one another? *Prog Cardiovasc Dis* 2020. doi:10.1016/j.pcad.2020.04.005. [Epub ahead of print: 08 Apr 2020].
- 6 Lim SS, Vos T, Flaxman AD, *et al*. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the global burden of disease study 2010. *Lancet* 2012;380:2224–60.