

## Physical Activity and Immunity: Maintaining Overall Health and Well-Being

**Background:** Physical activity and fitness reduce both infectious disease and chronic disease such as diabetes, cardiovascular disease, high blood pressure, cancer, and obesity. Physical activity improves mental health, stress management and enhances immune function.<sup>1,2</sup> Due to COVID-19, social distancing and other recommended restrictions have increased the tendency toward sedentary behavior by limiting everyday activities such as going to work or school, using fitness facilities, or outdoor/community areas.<sup>3</sup>

Our society is currently facing two pandemics: COVID-19 and physical inactivity.<sup>3</sup> A recent study showed that COVID-19 patients who were inactive were more likely to be hospitalized, admitted to the ICU, and even die when compared with patients who were physically active.<sup>4</sup>

Excessive sedentary behavior, including prolonged sitting times, are predictors of adverse health outcomes.<sup>3</sup> Chronic conditions that increase the risk of severe complications and mortality from infectious disease, such as diabetes and obesity, can improve with exercise. Studies show a higher level of habitual physical activity is associated with 31% risk reduction for community acquired disease and a 37% risk reduction in mortality from infectious diseases.<sup>1</sup> Current guidelines recommend at least 150 minutes of moderate to vigorous-intensity physical activity every week.<sup>6</sup> Physical activity and exercise are effective for stress management, which influences inflammatory responses and the immune system, and has been observed to increase antibody concentration after vaccination.<sup>1</sup> The immune response depends on the intensity and duration of exercise.<sup>7</sup> Habitual physical activity should be promoted to benefit chronic disease management and treatment, reduce susceptibility to infectious disease, decrease the risk of community acquired infections and infectious disease mortality, boost immunization programs, and lower the impact of pandemics.<sup>1,7</sup>



### Key Points:

- Physical inactivity was defined as a pandemic in 2012.<sup>3</sup>
- Current activity guidelines recommend at least 150 minutes of moderate to vigorous-intensity physical activity every week.<sup>6</sup>
- Lack of exercise can be associated with likelihood of hospitalization and death of patients due to COVID-19.<sup>4,5</sup>

**Solutions:** It is important to promote physical activity while following public health guidance and safety recommendations during a pandemic.<sup>3</sup> Physical activity should be a recommendation for pandemic control in all population groups.<sup>4</sup> Identify alternatives that allow people to maintain and increase physical activity while complying with health authorities in response to a public health crisis.<sup>5</sup> Technology, such as smartwatches or smartphones, can help facilitate physical activity goals by monitoring and measuring daily activity.<sup>2</sup> Despite restrictions, it is important to remain physically active for overall health and well-being in the short and long term.

**Recommendations:** The Physical Activity Alliance advocates for:

- Creating an interagency task force at the federal level or a White House Council to address policies, promote inclusive programming, and identify funds for NIH to study the effects physical activity on COVID-19 infection and vaccine response.
- Integrating physical activity into delivery of health care, standardizing measures for physical activity in the electronic health record and supporting coverage and payment by private and public payers of physical activity and exercise counseling from health care professionals and health and fitness professionals.
- Tripling the chronic disease budget at the Centers for Disease Control and Prevention, including \$125 million for the Division of Nutrition, Physical Activity, and Obesity and \$10 million for Active People Healthy Nation to achieve a 50-state funding strategy.

## References

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