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### Title

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### Permalink

<https://escholarship.org/uc/item/2zg436qw>

### Journal

Translational Behavioral Medicine, 11(4)

### ISSN

1869-6716

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### Publication Date

2021-04-26

### DOI

10.1093/tbm/ibaa134

Peer reviewed

## Physical distancing ≠ physical inactivity

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Cite this as: *TBM* 2020;XX:XX–XX  
doi: 10.1093/tbm/ibaa134

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### Abstract

During this time of global health crisis, physical distancing, along with mask wearing, has emerged as the sine qua non social practice to protect ourselves and others from COVID-19. But as physical distancing ensues and all eyes remain fixed on the novel coronavirus, another, albeit careworn, pandemic rages on. Physical inactivity, the world's fourth leading cause of death, may indeed be exacerbated by physical distancing measures, such as sheltering at home and closing or limiting access to recreation and exercise facilities. The purpose of this paper is to urge public health and medical professionals not to forget the importance of physical activity to whole-person health, recognize the importance of physical activity as a potential COVID-19 mitigation strategy and to serve as advocates for promoting active lifestyles. It is imperative that the national call for physical distancing not be interpreted as a call for physical inactivity.

### Keywords

Physical activity, COVID-19, Social distancing, Clinician, Sedentary behavior, Chronic disease

Medical and public health professionals have long known that physically activity (PA) decreases cardiovascular and other chronic disease risk and associated mortality [1–4], regardless of body weight. Likewise, sedentary behaviors increase the risks for chronic illnesses [5–8]. Research on PA continues to demonstrate additional health benefits which includes reducing anxiety and depression and improving sleep and quality of life [9, 10].

Substantial evidence shows that physical inactivity and sedentary behaviors increase the risk for chronic inflammatory diseases [11, 12]. Nearly half of Americans hospitalized with COVID-19 are obese, a quarter of those have diabetes, and nearly a third have cardiovascular disease [13]. A common trigger for systemic chronic inflammation is physical inactivity [14], and it is thought that underlying systemic inflammation may worsen COVID-19 infection [15]. Because PA has immediate positive effects on immune functioning [16] and inflammation [14], persons most vulnerable to COVID-19, such as those with pre-existing chronic conditions, would especially benefit from frequent, moderately intense PA [17].

However, much like the COVID-19 pandemic, physical inactivity is a global health problem, and

### Implications

**Practice:** Public health and medical professionals are called to provide opportunities and credible guidance for physical activity in response to the COVID-19 pandemic and for promoting the necessity of physical activity for overall health.

**Policy:** Policymakers can promote the health of the nation by including physical activity and health considerations in all policies.

**Research:** Future research is needed to assess and evaluate health professional practice changes to use physical activity as a means to prevent and treat disease.

has been identified as the fourth leading cause of death worldwide [18]. The Physical Activity Guidelines for Americans [10] recommends that all Americans move more and sit less throughout the day so that all adults achieve at least 150 min per week of moderate-intensity activity with more benefits achieved by engaging in more PA. The guideline for school-aged children (ages 6–17) is to participate in at least 60 min per day of mostly moderate or vigorous PA, while for children ages 3–5, a target of 3 hr per day of light, moderate, and vigorous activity is recommended. Additionally, muscle-strengthening activities are recommended for both children and adults at least twice every week, and bone-strengthening activities are also highlighted for children and adolescents. These guidelines were designed as a *minimum* set of recommendations.

Americans are less active than residents of other developed countries [19]. Recent data show that only 26% of men, 19% of women, and 20% of adolescents achieve enough PA each week to meet nationally recommended guidelines [10]. According to a recent study of step counts, there has been a marked decrease in steps across the globe since the pandemic was declared [20]. Over the past several years, there have been many national campaigns to keep PA and environments promoting PA in the forefront of public attention [21–24]. Most recently, the Centers for Disease Control and Prevention created the campaign Active

People, Healthy Nation to accelerate Americans becoming more physically active [25], and the 2016 National Physical Activity Plan laid out a comprehensive, multisector set of policies, programs, and initiatives designed to increase PA across all segments of the U.S. population [23]. However, much work remains to increase PA in the United States.

In light of the pandemic and in efforts to attenuate the spread of the virus, government leaders have recommended individuals stay in their homes and only venture out for essential activities while maintaining appropriate physical distance [26]. Further efforts have resulted in the temporary closure of exercise facilities and gyms, the suspension of sport activities and leagues, and the recommendation to avoid public recreational spaces [27, 28]. Early school closures and postponement of reopening have also resulted in loss of opportunities for sufficient PA for children and adolescents [29]. There has been an effort to promote the use of platforms such as Zoom and Facebook to encourage and provide PA opportunities from organizations such as the American Heart Association. Emerging data suggest that in an effort to contain the spread of COVID-19, there has been an acute decrease in PA [30]. This is alarming as previous research suggests that even brief periods of sustained physical inactivity can have deleterious effects [31]. The authors of this paper are concerned that the new normal of “social distancing” and “sheltering in place” directives will increase sedentary behavior and decrease PA to levels that yield both short- and long-term impacts on chronic disease risk, emotional health and mortality risk [32].

The COVID-19 pandemic has exacerbated the health inequalities that exist in the United States [33]. There is increasing evidence that some racial and ethnic minority groups as well as those of lower socioeconomic status are disproportionately affected by this coronavirus [34, 35]. As these populations also experience greater rates of pre-existing chronic conditions, more attention needs to be given to promoting PA in vulnerable populations at the highest risk for COVID-19. Lower rates of PA are associated with communities of color and lower-income populations living within neighborhoods with greater inequalities in the built environment including fewer PA facilities, sidewalks, connected streets, multiuse paths, and outdoor spaces perceived as safe [36–39]. Such communities may be disproportionately impacted by physical distancing restrictions and decreased access to public spaces, resulting in even fewer opportunities for PA during the pandemic.

In the pandemic era, it is more important than ever to provide credible guidance about the necessity of PA and to provide opportunities and support for PA. All sectors have a role to play in promoting PA. This is a call to action for the nation to prioritize and engage in PA promotion.

- Clinicians have a crucial role to play in promoting PA among their patients, particularly in the COVID-19 pandemic era where a multitude of factors are resulting in even lower PA levels. The U.S. Preventive Services Task Force recommends PA behavioral counseling for those with cardiovascular risk factors [40]. We know education alone does not automatically translate to behavior change, but, a clinician recommendation carries a much stronger likelihood of follow-through circumstance [41].
- Health systems need to change organizational practices and health policy needs to support PA through the use of PA as a vital sign, using exercise referrals, insurance coverage of lifestyle treatment, and working with community-based PA partners to provide safe opportunities for PA [41].
- Workplaces need to support safe PA breaks and healthy work-life balance. Clinicians should advocate for employee wellness programs that include PA opportunities, and empower patients to be advocates by suggesting evidence-based strategies that patients can share with their employers and colleagues. Where possible, wellness programming should extend to the home environment for employees who need to telecommute and work from home.
- At home PA including using household items such as chairs for squats, push-ups against a wall, or step-ups on stairs should not be overlooked [42]. Using small items such as resistance bands and online exercise videos within the home can be used for people who are at increased risk such as older adults and those with compromised immune systems.
- Community recreation access challenges need to be addressed. Outdoor activities, such as walking, biking, and playing outside, should be highly encouraged and fully accessible. These activities are more important now than ever before due to the increased risk of indoor gathering. Such activities have never been contraindicated and clinicians can work with their patients to identify appropriate options.
- Priority should be given to our education systems. Clinicians can be a resource to P-12 schools, which should be places of health and safety for children and adolescents. These institutions must prioritize the promotion of students' PA through multicomponent approaches, such as a comprehensive school PA program, which encompasses physical education, recess, classroom PA breaks, PA integrated with academics, PA opportunities before and after school, and the support of all teachers, school administrators, families, and communities in PA promotion.
- Public health and allied health professionals should use their voice to speak out on media platforms in support of PA. The mass media and social media channels need champions to focus on highlighting safe ways to be physically active. In addition, medical professionals who serve small towns and rural communities have a responsibility to be an advocate for health which includes active transportation and working with local

public health units to help in communicating messages of health that are best for the population.

The current pandemic has given light to many other issues that are being exacerbated by the social and physical distancing guidelines. Recognizing that health inequities have structural causes warranting policy-level solutions, public health, and medical communities must acknowledge the everyday barriers that marginalized communities must overcome when promoting PA. Now, more than ever, our nation needs to heed the call for healthy behaviors, especially PA, and in a systematic way so as to not put the burden on individual behaviors alone.

**Acknowledgments:** This work is a product of the Physical Activity Policy Research and Evaluation Network (PAPREN). PAPREN is supported by Cooperative Agreement Number U48DP006381 from the Centers for Disease Control and Prevention and is a product of the Physical Activity Policy Evaluation and Research Network, a thematic network of the Prevention Research Center network. The findings and conclusions in this paper are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

**Compliance with Ethical Standards**

**Conflicts of Interest:** All authors declare that they have no conflicts of interest.

**Human Rights:** This article does not contain any studies with human participants performed by any of the authors.

**Informed Consent:** This study does not involve human participants and informed consent was therefore not required.

**Welfare of Animals:** This article does not contain any studies with animals performed by any of the authors.

## References

- Wei M, Kampert JB, Barlow CE, et al. Relationship between low cardiorespiratory fitness and mortality in normal-weight, overweight, and obese men. *JAMA*. 1999;282(16):1547–1553.
- Manson JE, Greenland P, LaCroix AZ, et al. Walking compared with vigorous exercise for the prevention of cardiovascular events in women. *N Engl J Med*. 2002;347(10):716–725.
- Manson JE, Hu FB, Rich-Edwards JW, et al. A prospective study of walking as compared with vigorous exercise in the prevention of coronary heart disease in women. *N Engl J Med*. 1999;341(9):650–658.
- O'Donovan G, Lee IM, Hamer M, Stamatakis E. Association of “weekend warrior” and other leisure time physical activity patterns with risks for all-cause, cardiovascular disease, and cancer mortality. *JAMA Intern Med*. 2017;177(3):335–342.
- Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT; Lancet Physical Activity Series Working Group. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet*. 2012;380(9838):219–229.
- Kohl HW, 3rd, Craig CL, Lambert EV, et al.; Lancet Physical Activity Series Working Group. The pandemic of physical inactivity: global action for public health. *Lancet*. 2012;380(9838):294–305.
- Patel AV, Bernstein L, Deka A, et al. Leisure time spent sitting in relation to total mortality in a prospective cohort of US adults. *Am J Epidemiol*. 2010;172(4):419–429.
- Young DR, Hivert MF, Alhassan S, et al.; Physical Activity Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Clinical Cardiology; Council on Epidemiology and Prevention; Council on Functional Genomics and Translational Biology; and Stroke Council. Sedentary behavior and cardiovascular morbidity and mortality: a science advisory from the American Heart Association. *Circulation*. 2016;134(13):e262–e279.
- Bize R, Johnson JA, Plotnikoff RC. Physical activity level and health-related quality of life in the general adult population: a systematic review. *Prev Med*. 2007;45(6):401–415.
- U.S. Department of Health and Human Services. *Physical Activity Guidelines for Americans*. 2nd ed. Washington, DC: U.S. Department of Health and Human Services; 2018.
- Booth FW, Roberts CK, Thyfault JP, Rueggsegger GN, Toedebusch RG. Role of inactivity in chronic diseases: evolutionary insight and pathophysiological mechanisms. *Physiol Rev*. 2017;97(4):1351–1402.
- Wahid A, Manek N, Nichols M, et al. Quantifying the association between physical activity and cardiovascular disease and diabetes: a systematic review and meta-analysis. *J Am Heart Assoc*. 2016;5(9):e002495.
- Garg S. Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019—COVID-NET, 14 States, March 1–30, 2020. *MMWR. Morbid Mortal Weekly Rep*. 2020;69:458–464.
- Furman D, Campisi J, Verdin E, et al. Chronic inflammation in the etiology of disease across the life span. *Nat Med*. 2019;25(12):1822–1832.
- Yang J, Zheng Y, Gou X, et al. Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: a systematic review and meta-analysis. *Int J Infect Dis*. 2020; 94:91–95.
- Nieman DC, Wentz LM. The compelling link between physical activity and the body's defense system. *J Sport Health Sci*. 2019;8(3): 201–217.
- Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. *Curr Opin Cardiol*. 2017;32(5):541–556.
- World Health Organization. *Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks*. Geneva, Switzerland: World Health Organization; 2009.
- Ozemek C, Lavie CJ, Rognmo Ø. Global physical activity levels—need for intervention. *Prog Cardiovasc Dis*. 2019;62(2):102–107.
- Tison GH, Avram R, Kuhar P, et al. Worldwide effect of COVID-19 on physical activity: a descriptive study. *Ann Intern Med*. 2020;173(9):767–770.
- Benjamin RM. The surgeon general's vision for a healthy and fit nation. *Public Health Rep*. 2010;125(4):514–515.
- Office of the Surgeon General (US), Office of Disease Prevention and Health Promotion (US), Centers for Disease Control and Prevention (US), National Institutes of Health (US). *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* (Publications and Reports of the Surgeon General, Issue. Rockville, MD: Office of the Surgeon General (US); 2001.
- National Physical Activity Plan Alliance. U.S. National Physical Activity Plan. 2016. Available at [http://physicalactivityplan.org/docs/2016NPAP\\_Finalforwebsite.pdf](http://physicalactivityplan.org/docs/2016NPAP_Finalforwebsite.pdf). Accessibility verified July 31, 2020.
- US Department of Health Human Services. *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities*. Washington, DC: US Department of Health and Human Services; 2015.
- Fulton JE, Buchner DM, Carlson SA, et al. CDC's active people, Healthy NationSM: creating an active America, together. *J Phys Act Health*. 2018;15(7):469–473.
- Gostin LO, Wiley LF. Governmental public health powers during the COVID-19 pandemic: stay-at-home orders, business closures, and travel restrictions. *JAMA*. 2020;323(21):2137–2138.
- Hasson R, Sallis J, Coleman N, Kaushal N, Novera V, Keith N. The missing mandate: promoting physical activity to reduce disparities during COVID-19 and beyond. 2020. Available at <https://www.acsm.org/home/featured-blogs—homepage/acsm-blog/2020/06/03/promoting-physical-activity-reduce-disparities-during-covid-19>. Accessibility verified July 31, 2020.
- Slater SJ, Christiana RW, Gustat J. Recommendations for keeping parks and green space accessible for mental and physical health during COVID-19 and other pandemics. *Prev Chronic Dis*. 2020;17:E59.
- Rundle AG, Park Y, Herbstman JB, Kinsey EW, Wang YC. COVID-19—related school closings and risk of weight gain among children. *Obesity*. 2020;28(6):1008–1009.
- Peçanha T, Goessler KF, Roschel H, Gualano B. Social isolation during the COVID-19 pandemic can increase physical inactivity and the global burden of cardiovascular disease. *Am J Physiol Heart Circ Physiol*. 2020;318(6):H1441–H1446.
- Bowden Davies KA, Sprung VS, Norman JA, et al. Short-term decreased physical activity with increased sedentary behaviour causes metabolic derangements and altered body composition: effects in individuals with and without a first-degree relative with type 2 diabetes. *Diabetologia*. 2018;61(6):1282–1294.
- Hall G, Laddu DR, Phillips SA, Lavie CJ, Arena R. A tale of two pandemics: how will COVID-19 and global trends in physical inactivity and sedentary behavior affect one another? *Progr Cardiovasc Dis*. 2020. doi:10.1016/j.pcad.2020.04.005

33. Hooper MW, Nápoles AM, Pérez-Stable EJ. COVID-19 and racial/ethnic disparities. *J Am Med Assoc.* 2020;323(24).
34. Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus disease 2019 case surveillance—United States, January 22–May 30, 2020. *Morbidity and Mortality Weekly Report.* 2020;69(24):759.
35. Price-Haywood EG, Burton J, Fort D, Seoane L. Hospitalization and mortality among black patients and white patients with Covid-19. *N Engl J Med.* 2020;382(26):2534–2543.
36. Gordon-Larsen P, Nelson MC, Page P, Popkin BM. Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics.* 2006;117(2):417–424.
37. Ferdinand AO, Sen B, Rahurkar S, Engler S, Menachemi N. The relationship between built environments and physical activity: a systematic review. *Am J Public Health.* 2012;102(10):e7–e13.
38. Armstrong S, Wong CA, Perrin E, Page S, Sibley L, Skinner A. Association of physical activity with income, race/ethnicity, and sex among adolescents and young adults in the United States: findings from the National Health and Nutrition Examination Survey, 2007–2016. *JAMA Pediatr.* 2018;172(8):732–740.
39. Montgomery MJ, Kandi D. QuickStats: percentage of adults who met federal guidelines for aerobic physical activity through leisure-time activity, by race/ethnicity—National Health Interview Survey, 2008–2017. *MMWR Morbidity and Mortality Weekly Report.* 2019;68:292.
40. Lin JS, O'Connor EA, Evans CV, Senger CA, Rowland MG, Groom HC. *Behavioral counseling to promote a healthy lifestyle for cardiovascular disease prevention in persons with cardiovascular risk factors: an updated systematic evidence review for the US preventive services task force [Internet].* Rockville, MD: Agency for Healthcare Research and Quality (US); 2014 Aug. Report No.: 13-05179-EF-1.
41. American College of Sports Medicine. Rx for health series. 2020. Available at [https://www.exercisemedicine.org/support\\_page.php/rx-for-health-series/](https://www.exercisemedicine.org/support_page.php/rx-for-health-series/). Accessibility verified September 21, 2020.
42. American College of Sports Medicine. Staying active during the coronavirus pandemic. Exercise is Medicine. 2020. Available at [https://www.exercisemedicine.org/assets/page\\_documents/EIM\\_Rx%20for%20Health\\_%20Staying%20Active%20During%20Coronavirus%20Pandemic.pdf](https://www.exercisemedicine.org/assets/page_documents/EIM_Rx%20for%20Health_%20Staying%20Active%20During%20Coronavirus%20Pandemic.pdf). Accessibility verified September 21, 2020.