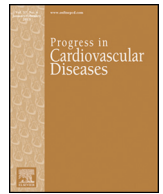




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Moving more and sitting less – Now more than ever-an important message for the prevention and treatment of chronic disease and pandemics



As authors of this lead editorial of the current edition of *Progress in Cardiovascular Diseases (PCVD)*, we would like to begin our lead commentary with a question: Is there any doubt that increasing overall daily physical activity (PA) (i.e., moving more and thereby sitting less throughout the day) and participation in a regular exercise program portends significant health benefits across the lifespan? We are confident in stating the answer to this question is resoundingly and irrefutably no - there is no doubt.^{1–4} Even with the certainty of this answer, the human race has evolved into a sedentary phenotype with no indication of reversing this trend, in fact, we seem to be sinking further into the sedentary abyss.^{5–9} How can something as simple and profoundly beneficial as moving more and sitting less be at best innocently overlooked and at worst blatantly ignored by a large percentage of the global population? Perhaps part of the answer lies in how society traditionally packages and promotes the characteristics of a physically active lifestyle needed to realize health benefits. The core tenants of the traditional view on PA is that health benefits are exclusively derived from certain activities, such as structured exercise programs, that are performed at a certain volume and intensity (e.g., 150 min/week of moderate intensity aerobic exercise).¹⁰ A shift in this traditional view on the type and amounts of PA that derive meaningful health benefits is

underway and needs to be accelerated with respect to messaging in both the public health and health care arenas. The new message, based on scientific evidence, is *any form of physical movement is beneficial*.^{2,3,11} We now know the amount, type and intensity of PA and movement needed to realize significant health benefits is well below the traditional recommendations for *exercise training*. For example, examining the benefits of running, Lavie et al.¹² demonstrated the greatest reductions in all-cause and cardiovascular mortality were realized when transitioning from no running to running: 1) <51 min per week; 2) <6 miles per week; 3) 1–2 times per week; and 4) < 6mph. There are countless other examples in the literature demonstrating the benefits of all forms of physical movement with the greatest health benefits being derived when transitioning from a completely sedentary lifestyle to one that incorporates some PA, albeit well below the recommendations founded in the traditional view of exercise and PA.^{2,3,11} In this context, while the most recent United States Physical Activity Guidelines continue to stress the importance of striving to meet ideal PA recommendations, they also recognize any amount of increased physical movement, of any type (e.g., occupational, recreational, household tasks, etc.), has significant health benefits.¹³ As such, the new and appropriate message for PA is *move more, sit less, some movement is good and more is better*.

We continue to have concern that this new message is, for the most part, not being broadly promoted to individuals who would benefit most from receiving it. As an example, we continue to be struck by a particular comment reported in a qualitative study by Segar et al.,¹⁴ which examined a cohort of women's "beliefs, feelings, and experiences" related to PA. During the interviews, one subject, who was identified as a low PA participant, stated "that walking her dog was a barrier to being active, which implied that she did not believe dog-walking counted as valid PA". Given the traditional view of what constitutes a beneficial amount of PA continues to likely be the predominant view in the general public as well as in the health care setting, there is great concern that many sedentary individuals choose to not *move a little more* throughout their daily life because of the belief, which is not commonly assuaged by health care professionals, that it will not portend any health benefits and the perceived amount of PA needed for health benefits (e.g., 150 min or more per week at a moderate intensity) is unattainable. This perception must be changed and shifted to a consistent *move more, sit less* message while also encouraging individuals to continue to increase their movement portfolio (i.e., increased steps per day, decreased sitting time and participation in a regular exercise program) toward ideal PA recommendations.

The importance of increasing PA and decreasing sedentary time as a primary strategy to prevent and treat noncommunicable disease is well established and strongly supported by scientific evidence, which justified a continued focus on this topic in this issue of *PCVD*. However, while this issue was being developed, the world drastically changed due to the COVID-19 pandemic. Concerns began to rapidly rise over how social distancing and shelter in place measures would further decrease PA behaviors,¹⁵ which has already been demonstrated through research.^{16,17} The importance of PA and exercise training on immune function, as an important way to protect yourself from poor health outcomes if infected with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is also garnering attention.¹⁸ Lastly, it rapidly became clear that there is an increased risk of complications (e.g., mechanical ventilation and hospitalization) and mortality if infected with SARS-CoV-2 while also presenting with preexisting risk factors for noncommunicable disease (e.g., obesity and hypertension) or one or more confirmed noncommunicable diseases (e.g., cardiovascular disease, diabetes).^{19–22} In this context, unhealthy lifestyle behaviors, noncommunicable disease, and viral infections such as SARS-CoV-2, can be characterized as a new troubling syndemic,²³ synergistically interacting with one-another and, when all are present, significantly increase the risk of poor health outcomes. Moreover, one of the most effective ways to address this syndemic is through healthy living medicine.^{24,25} In light of these new and rapidly evolving findings in the COVID-19 era, the importance of promoting PA as well as other healthy living behaviors (i.e., good nutrition, normal body weight, not smoking) is now greater than ever. We must act now and in dramatic fashion to promote *moving more and sitting less* on a global scale, for both the prevention and treatment of noncommunicable diseases as well as protecting the human race from disastrous outcomes during viral pandemics; unhealthy lifestyle behaviors, noncommunicable disease and increased risk for poor health outcomes with viral infections are interrelated and healthy living medicine, of which *moving more and sitting less* is a key intervention, is the primary way to address the syndemic triad we currently face. As a result of the COVID-19 pandemic, a new collaborative group, focused on healthy living medicine, was formed and is being introduced in this edition of *PCVD* – The Healthy Living for Pandemic Event Protection (HL-PIVOT) network.²⁶ In fact, the HL-PIVOT network has endorsed this edition of *PCVD* (see Appendix A for list of current network members).

This edition of *PCVD* will cover several topics related to PA, movement and healthy living medicine including: 1) Present the current state of global movement patterns, PA and the prevalence of the sedentary phenotype, with emphasis on health and economic impacts; 2) Describe opportunities for promoting movement and PA in various settings, highlighting supporting scientific evidence; 3) Address special topics related to movement and PA; and 4) Discuss the importance of PA, movement, and other key tenants of healthy living medicine in the context of the COVID-19 pandemic. We truly hope readers find this edition informative and inspire a renewed vigor in advocating for *moving more and sitting less* as an essential form of medicine.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pcad.2020.10.001>.

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