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COMMENTARY

Striking a Balance: Physical Activity and Planetary Health

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Physical activity stands as a fundamental pillar of human well-being, conferring multifaceted advantages encompassing physical, mental, and emotional dimensions. The side effects of physical activity; however, extend far beyond personal health; they also have profound impacts not only on the well-being of our social surrounding and communities, but also on our environment and on our planet.

The primary focus of public health experts in the 21st century is likely to revolve around comprehending and taking action against the adverse health effects of global environmental change.[1] While the United Nation's Sustainable Development Goals have laid out objectives for saving the planet and enhancing quality of life by 2030, including a goal for ensuring health and well-being for all (Sustainable Development Goal 3),[2] Salvo et al[3] elaborated on the synergies between physical activity promotion and the Sustainable Development Goals. As it holds the potential to bring about change for both human and planetary health, it is critical to understand and harness the bidirectional relationship of physical activity and planetary health in greater detail.[4] In fact, we believe that a deeper understanding of the complex interconnections of physical activity and planetary health has significant implications for public health, informs policy decisions, contributes to climate crisis mitigation, and helps safeguard the health of future generations.

Therefore, with this editorial, we invite scholars to critically examine the intersection of planetary health and physical activity. We argue that recognizing both the positive and negative effects of physical activity on planetary health enhances our holistic understanding of the relationship between human behavior and environmental well-being. This holistic perspective enhances the development of effective strategies and policies for promoting physical activity that align with broader sustainability goals. By addressing these issues today, researchers can help ensure that physical activity remains a sustainable and health-promoting behavior for generations to come.

Physical Activity and Planetary Health—The Good

One of the most immediate ways physical activity positively influences planetary health is by reducing carbon emission. In an era where carbon emissions are a significant contributor to climate change, opting for human-powered modes of transportation and recreation instead of motorized vehicles is a small yet impactful carbon-friendly decision.[5] In fact, active transport interventions not only reduce carbon emission and increase physical activity levels, but also reduce air pollution and energy consumption.[6] The mechanisms behind providing infrastructure for active mobility are complex and can only be addressed with multi- and cross-sectoral collaboration among policymakers, researchers, and practitioners alike.

Engaging in outdoor physical activities connects individuals with nature.[7] In a world where many children, adolescents, and adults are becoming more detached from the natural world, re-establishing a connection with the environment may foster a sense of responsibility and stewardship.[8] This, however, does not come automatically, rather, as Wendtland and Wicker[9] found, it is the cognitive and moral evaluation of the consequences of the outdoor activity that is performed. People who spend time in green spaces and are capable to evaluate behavioral consequences are more likely to advocate for nature's preservation, leading to the protection of essential ecosystems and biodiversity.

Additionally, the positive impact of physical activity on mental health cannot be overstated. As people engage in regular exercise, they tend to experience lower stress levels and improved mood.[10,11] This not only enhances the quality of our personal lives but also leads to a greater willingness to engage in proenvironmental behaviors.

It is encouraging to see a growing awareness of the importance of physical activity for planetary health.[12] Initiatives that promote walking and cycling, green urban planning, and the protection of natural spaces are gaining momentum in cities worldwide.[13] These initiatives not only reduce emissions but also create more livable environments. In conclusion, physical activity is a potent tool for both personal well-being and planetary health. Its positive impact extends beyond the individual, influencing our choices, behaviors, and attitudes toward the environment.

Physical Activity and Planetary Health—The Bad

Amidst the calls for more public health efforts to promote physical activity, there lies an often-overlooked dimension—its potentially negative environmental impacts. In today's era in which climate change plays a prominent role and holistic health concepts such as one health and planetary health gain ever more prominence, it is critical to acknowledge that some physical activities can produce negative effects on planetary health. Commonly, one health is defined as "a unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems,"[14] while planetary health is defined as "the health of human civilisation and the state of the natural systems on which it depends."[15] Taking such a holistic view, physical activity potentially comes with previously unknown environmental costs.

Among the costs we refer to, some encompass specifically the impact of leisure-time physical activity (LTPA) on the sites and

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natural locations in which these activities occur, as well as the transportation choices made when engaging in LTPA. For example, hunting, fishing, and horse riding are forms of outdoor LTPA that have direct adverse consequences for animal welfare. For alpine skiing, the production of artificial snow upon which an increasing number of ski resorts depend entails substantial energy and water consumption.[16] Besides, ski slopes have been documented to negatively affect vegetation.[17] Other LTPA modes, such as golf, encompass several detrimental environmental impacts related to land use, water consumption, the application of insecticides, pesticides, and fertilizers, as well as its repercussions on wildlife.[18] Regarding hiking, biking, or rock climbing, its effect on vegetation and wildlife has been described by Peters et al.[19] Unregulated hiking and camping can disturb wildlife, damage sensitive ecosystems, and disrupt natural behaviors of animals; climbing can disturb wildlife and mountain biking can lead to trail erosion and habitat disruption, impacting local flora and fauna and as such leave an environmental footprint. Additionally, many LTPA take place indoors and use indoor facilities, and the energy consumption associated with these facilities for heating, air conditioning, and lighting can be substantial. For example, Boussabaine et al[20] estimated the carbon footprint to operate one indoor pool to be at around 50 t/CO_2 per year. Further, energy and resource consumption associated with the construction of these facilities should also be accounted for. Besides, a significant environmental cost associated with LTPA arises from the transportation choice individuals make to reach their activity sites. Wicker[21] calculated the carbon footprint for various LTPA in Germany, based on the mode of transport people choose. Her findings indicate that nature-based LTPA often come with long motorized transport trips to natural sites and this with high greenhouse gas emissions. The list goes on; air travel to remote leisure destinations is another aspect that comes with considerable carbon footprints due to aviation emissions.

Regarding physical activity in other domains, interconnections to the environment are less clear. While active transport that replaces car use obviously saves greenhouse gas emissions and is also overall cost-effective,[22] the construction of bike lanes will at the same time cause greenhouse gas emissions. Occupational physical activity can take many forms, producing environmental co-benefits (eg, fitting a roof with solar panels), or causing environmental harm (extracting fossil fuels), depending on the nature of the work and the cooperation this is performed for. The same holds true for domestic physical activities that can also have positive (gardening) or negative (cutting wood to be burned) effects on the environment.

Additionally, hard to quantify negative planetary health effects of physical activity linked to global inequalities and climate justice might exist. This includes opportunity costs (the gains or losses by choosing one of many alternatives) of land-use decisions where resources are allocated to build physical activity facilities instead of community essentials such as public housing. Also, decisions made in high-income countries to continue energy intensive forms of LTPA can, over time, contribute to rising temperatures, droughts, flooding, and other extreme weather events in countries of the global south.

Ethical Considerations and a Way Forward—A Balancing Act?

Acknowledging these positive and negative consequences of physical activity promotion gives rise to significant ethical inquiries within our research domain. A fundamental question is to what extent we—as physical activity and public health scholars—need and should be concerned about them. Given the numerous positive health effects of LTPA, perhaps emphasizing its adverse consequences on planetary health might not be prudent, or is even ill-advised?

We highlight 2 ethical arguments that pose a challenge to ignoring planetary health consequences in physical activity research: For one, Shue[23] distinguishes between "subsistence emissions" and "luxury emissions." Subsistence emissions refer to the emissions that individuals generate to sustain their basic needs, for example, cooking with coal or wood to provide for a family when no other viable options are accessible. In our physical activity domain, this refers to choosing the car as a means of transport because the surrounding environment does not provide access to safe active mobility modes. On the other hand, there are what are often referred to as "luxury emissions"—emissions that are not directly associated with the essential needs for survival but are typically generated during choice-based leisure or pleasurable activities, such as engaging in a game of golf or taking a car to a nature park for a hiking excursion. Clearly, the emissions related to luxury should be the initial target for reduction.

Another important ethical argument can be derived from the work of Cohen.[24] Cohen[24] distinguished 3 types of denial that can be applied to climate change: literally—"there is no global warming, it's a hoax"; interpretive—"yes, it is getting hotter but humans are not to blame"; and implicatory—"yes, it is getting hotter and humans are to blame but there is nothing we should do about it, other countries should act." Using this distinction, acknowledging the negative impacts of physical activity on planetary health and not acting to minimize them would be implicatory denial.

Given that inaction is not a viable option and ethically difficult to justify, the following questions arise: How can we strike a balance between the myriad individual health advantages of physical activity and the planetary health drawbacks associated with certain forms of it? To what extent is it reasonable to recommend leisure activities when there are no readily accessible options in the local vicinity? Can experts in physical activity genuinely suggest that individuals resort to motorized or even air travel merely to access leisure activity sites? Is it viable to promote leisure activities in the absence of nearby opportunities? As of today, we do not know. Nevertheless, given the pressing nature of the climate crisis, it is imperative that we seek answers sooner rather than later, and acknowledge that, when it comes to planetary health, not all physical activities are equally advisable.

Hence, it is of paramount importance that the promotion of LTPA is coupled with an unwavering commitment to champion responsible and sustainable practices. This, then, should not be viewed as mere suggestions, but rather as a moral and ethical duty, an unequivocal obligation to safeguard our planet.

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