Green Exercise as an Opportunity to Promote Equity in Physical Activity Engagement Across Diverse Populations

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Key Points
- Hiking promotes opportunity for individuals to be active based on varying fitness, skill, and sociodemographic levels.
- The authors suggest that with support from local municipalities and health providers, it is feasible and essential to provide equitable opportunity for individuals to receive the health-promoting benefits of hiking.

Insufficient physical activity (PA) is a leading risk factor for mortality worldwide (World Health Organization). This public health challenge is exacerbated in underserved populations due to institutional, societal, and environmental barriers.1 Individuals from lower socioeconomic and education levels experience greater barriers to PA, relating to low skill level, lack of motivation, social support, and resources, along with fear of injury.2 The exploration of inequities and inequalities in outdoor walking groups found that the physical and psychological benefits of outdoor walking preferentially benefit traditionally advantaged populations.3 With these barriers in mind, there is a need for PA opportunities that are affordable, accessible, and equitable to help make PA a universal health behavior.

One popular and accessible outdoor activity is hiking, likely due to its limited skill requirement and easy acceptability. Hiking is defined as the act of walking over a distance in the outdoors, often in a natural environment with geographical obstacles.4 Although outdoor walking is the most readily practiced PA and is known to have many positive health benefits,5 hiking can provide further advantage due to the greater intensity and muscular endurance requirements.4 Hiking is also a form of “green exercise,” a term used to describe engaging in exercise while in the natural environment, providing synergistic benefits from nature and PA exposure.6 Time spent in natural environments has been associated with significant mental and physical health benefits,7 with greater benefits among those of lower socioeconomic groups.8 For example, nature-based activity has been advocated for as an efficient health-supporting measure for new immigrants in Nordic countries9 to reduce health inequity.

Although there are many benefits to PA engagement, PA levels are low worldwide.10 In addition to the perceived barriers mentioned earlier, this may also be due to an unpleasurable affective response commonly noted by participants during exercise, particularly at higher intensities of physical effort.11 In contrast, engaging in PA in a natural outdoor environment has been associated with greater positive affect and likelihood of PA engagement and adherence.12 Furthermore, participants report lower perceived effort when walking outdoors compared with indoors,13 possibly owing to the psychologically restorative effects of immersion in natural outdoor environments.14 Given the low levels of PA in the general population, and even lower rates of vigorous PA that would elicit further health benefits,15 hiking may serve as an innovative PA alternative to meet (and exceed) current guidelines for healthy living.

We have found hiking programs to improve exercise self-efficacy and well-being in those affected by cancer and in older adults (both active and inactive). In our qualitative research, older adults reported a twice-weekly hiking program to be enjoyable and to elicit positive health, fitness, and social benefits. Furthermore, hiking promotes opportunity for individuals to be active based on varying fitness, skill, and sociodemographic levels. We have recently found that participants of varied fitness levels self-selected similar relative rates of exercise intensity (many achieving vigorous intensity) regardless of differences in hiking ability.16 Hiking has also been found to elicit greater caloric expenditure compared with walking or running due to increased duration of activity, likely encouraged by nature immersion, social engagement, and positive affect.16 Similarly, a systematic review by Thompson Coon et al17 found that the positive experiences in mood and well-being reported following outdoor exercise were not replicated in an indoor setting.

Hiking and trail walking are activities that may also be accessible to participants with varying degrees of mobility as trails can be chosen based on skill level. Many trail systems include signage to denote level of difficulty (easy, moderate, and strenuous), and in many communities (in Canada), there are options for maintained gravel or boardwalk trails in addition to wooded trails. To increase safety and accountability, group-based hiking should be considered. We, and others, have found social support to be of strong importance for engagement in outdoor walking.5 A hiking program that 2 of the authors conducted with older adults resulted in strong social cohesion, which led to a subgroup continuing regular group-based hiking long after the program ended. Peer-led hiking programs with others of similar fitness levels present a positive opportunity for enhancing accountability and providing diverse groups with an opportunity for engagement.
In recent years, “green prescription” programs in Europe and North America have been established in partnership between health care providers and nature organizations to support physical and mental health. An overarching goal of these initiatives is to promote equitable engagement in PA. Hiking allows health care providers to further expose their patients to the myriad of PA benefits by achieving higher intensities and cognitive restoration than one would achieve during a typical bout of walking. In Canada, the PaRx nature prescription program allows health care providers to prescribe patients annual Parks Canada Discovery Passes to give them access to national parks free of charge.18 Encouraging patients to use these opportunities for approachable PA engagement through leisure-based hiking provides further patient health benefits and has been encouraged in programs, initiatives, and partnerships in recent years.

Although hiking may be a positive opportunity for PA engagement, it is necessary to recognize the barriers that are present as well as whether the local geography allows for hiking. Environmental inequity is prevalent, with access to high-quality green space reduced among those with lower socioeconomic status.19 Therefore, it is important to facilitate equitable access via methods including free access to parks with day use fees and providing transportation. although countries like Norway have made green exercise an important component of their way of life, there remain barriers to green exercise opportunities among immigrants, particularly women.20 For instance, immigrants experience challenges to engagement due to a lack of knowledge of where to go and how to partake,21 making engagement in green exercise a challenge.13 To ensure equitable opportunity for hiking, health care providers who intend to encourage outdoor activity should be able to share specific examples of local areas for their patients to explore. Ensuring that patients are aware of how to plan their outing safely,22 the need to warm up, start slowly, take frequent breaks, and cool down are essential (see Table 1). Offering opportunities to connect with other novice hikers through peer-led hiking programs may further support safety and enjoyment. The authors suggest that with support from local municipalities and health providers, it is feasible and essential to provide equitable opportunity for individuals to receive the health-promoting benefits of hiking.

### Table 1 Recognizing Barriers and Ways to Break the Barrier to Increase Equitable Hiking Opportunities in Diverse Populations

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Breaking the barrier</th>
</tr>
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<tbody>
<tr>
<td>Transportation to local hikes</td>
<td>Providing public transportation</td>
</tr>
<tr>
<td>Appropriate outdoor clothing</td>
<td>Partnerships with local outdoor stores/ donations of used outdoor clothing</td>
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<tr>
<td>Self-efficacy for hiking</td>
<td>Education around physical activity engagement and how to get started/health care provider prescription</td>
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<tr>
<td>Cost requirements</td>
<td>Freely available recreational opportunities, eg, Parks Canada Discovery Passes</td>
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<tr>
<td>Accountability</td>
<td>Peer-led hiking groups</td>
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<tr>
<td>Safety</td>
<td>Appropriate progression in hiking challenge and referral to education around outdoor safety and peer-led groups</td>
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</tbody>
</table>

References

17. Thompson Coon J, Boddy K, Stein K, Whear R, Barton J, Depledge MH. Does participating in physical activity in outdoor natural

18. Announcing a new collaboration between PaRx and Parks Canada. [https://www.parksprescription.ca](https://www.parksprescription.ca)


