

Leveraging Exercise is Medicine On Campus Programs to Promote Activity to Equity-Deserving Groups

M. Lauren Voss*¹, MSc; Myles O'Brien*^{2,3}, PhD; Joyla A. Furlano⁴, PhD; Michelle Y. S. Wong^{5,6}, MSc; Nick W. Bray^{7,8}, PhD; Jonathon R. Fowles⁹, PhD; and Taniya S. Nagpal¹⁰, PhD

*Co-first authors

¹ Faculty of Kinesiology and Physical Education, University of Toronto

² School of Physiotherapy, Dalhousie University

³ Department of Medicine, Dalhousie University

⁴ Faculty of Health Sciences, McMaster University

⁵ School of Kinesiology, Western University

⁶ Division of Critical Care Medicine, Department of Medicine, Schulich School of Medicine and Dentistry, Western University

⁷ Department of Physiology and Pharmacology, Cumming School of Medicine, University of Calgary

⁸ Hotchkiss Brain Institute, University of Calgary

⁹ School of Kinesiology, Acadia University

¹⁰ Faculty of Kinesiology, Sport, and Recreation, University of Alberta

DOI: 10.15273/hpj.v3i2.11518

Abstract

Despite the well-known benefits of leading an active lifestyle, global adherence to physical activity recommendations is low. Individuals who are from marginalized groups, including racialized populations and those with a low socio-economic status, are more physically inactive compared to those who identify as white or who have a higher income. The differences in physical activity level by socio-demographic characteristics reflect inequitable access to lifestyle resources. Exercise is Medicine On Campus (EIM-OC) is a unique international post-secondary initiative that aims to promote a culture of physical activity and chronic disease prevention and management on university/college campuses and within their local communities. EIM-OC programs currently exist on every continent, with the majority of chapters existing in North America. This provides EIM-OC a unique opportunity to address inequities in physical activity promotion. This commentary provides perspective on traditional EIM-OC program offerings, highlights learnings from the COVID-19 pandemic, and recommends strategies to increase the inclusivity of future physical activity programming.

It is well established that leading a physically active lifestyle is associated with numerous physical and mental health benefits (Warburton et al., 2006). Unfortunately, most

individuals experience impactful barriers (e.g., lack of time or knowledge, associated costs) and/or lack the facilitators to be active, resulting in a physically inactive and highly sedentary

lifestyle (Guthold et al., 2018). This perpetuates the development and poor management of chronic conditions and instances of moderate complex (≥ 3 conditions across three body systems) or highly complex (≥ 5 conditions across ≥ 3 body systems) multimorbidity (Martinez-Gomez et al., 2017). While population rates of leisure-time physical inactivity and chronic disease are prevalent in Western countries, they are exaggerated in non-white populations (e.g., Black, Hispanic) and among people with lower socio-economic status (Saffer et al., 2013).

Post-secondary education provides a unique transitional period in which young adults start to gain autonomy and may develop habits that last a lifetime. The presence of on-campus exercise facilities may enable physical activity for this group; however, an increased workload, associated stress, and additional financial limitations may serve as significant barriers (Pellerine et al., 2022). On-campus exercise programs and facilities may be structured to deliver more “traditional” forms of exercise, such as weightlifting and cardio machines like treadmills or rowing machines. The lack of diversity in exercise equipment and movement-based programs may serve as a deterrent to engaging in physical activity (Rapport et al., 2018). Additional time constraints and burdens associated with holding part-time or full-time jobs may also be exacerbated among lower socio-economic status students, further inhibiting their ability to take advantage of on-campus programming (Gómez-López et al., 2010).

The purpose of this commentary is to highlight lessons learned from the COVID-19 pandemic relating to physical activity and recommend how a university/college program, Exercise is Medicine On Campus (EIM-OC), can promote and enhance physical activity among equity-deserving groups. As members of the Exercise is Medicine Canada On Campus national student executive, we conclude the article by providing recommendations about how EIM-OC student leaders can achieve this aim.

COVID-19 and Impacts on Physical Activity

Public health interventions have the potential to reduce existing health inequities; however, such resources are unequally distributed between different population groups and predominantly favour those at the upper end of the socio-economic spectrum (Czwikla et al., 2021). Such disparities were exacerbated during the global COVID-19 pandemic; physical activity decreased across all population groups, but inequities in access to physical activity resources were particularly amplified (de Boer et al., 2021). In North America, during the first wave of the pandemic, physical activity facilities such as playgrounds and community centres were closed (Courtemanche et al., 2020; Government of Alberta, 2020; Government of Ontario, 2021). Many jurisdictions removed COVID-19 restrictions in a stepwise fashion, prioritizing access to open green spaces and sporting facilities that allowed for physical distancing (e.g., golf, tennis). Urban, lower-income populations tend to live in areas with less green space, and there is a high cost associated with the available sports that allowed for physical distancing (Chen et al., 2020; Rigolon et al., 2021; Wang & Lan, 2019). Thus, access to engaging in unstructured physical activity (e.g., activities in a local park, going for bike rides) or sport was likely unfairly distributed.

Effects of COVID-19 Restrictions on University/College Campuses

University students’ physical activity levels were also impacted by COVID-19 with systematic reviews reporting reductions in light, moderate, and vigorous physical activity with a simultaneous increase in sedentary behaviour (López-Valenciano et al., 2021; Rivera et al., 2021). Most institutions moved to virtual programming and closed on-campus exercise facilities and residences, which required students to find alternative housing or to move home. These restrictions would have removed opportunities for incidental physical activity (e.g., biking or walking to campus, moving

between lecture theatres, non-sedentary participation in experiential learning; Amornsriwatanakul et al., 2022) and access to facilities at a reduced or zero cost. It is also possible that some students may have moved home to a household with immunocompromised or high-risk family members, which may have meant that those students opted out of accessing local facilities due to infection risk.

The transition to a post-pandemic world provides exercise and health care professionals with an opportunity to consider inequities in physical activity promotion and access, as many programs are resuming for the first time. Exercise is Medicine® (EIM) and the EIM-OC program may be leveraged to widely promote physical activity and offer resources to assist more individuals within their community with becoming physically active.

Exercise is Medicine

EIM was established by the American College of Sports Medicine in 2007 and aims to make physical activity assessment and promotion a standard in clinical care, connecting health care with evidence-based physical activity resources for people everywhere and of all abilities (Sallis, 2009). EIM has garnered a global presence with programs in 37 countries, including the establishment of EIM-Canada, EIM-Latin America, EIM-Europe, and EIM-Asia (Exercise is Medicine, n.d.-b). While the objectives may vary slightly between national programs, EIM programs generally aim to further the American College of Sports Medicine's mission by promoting "buy-in" from health care providers, promoting exercise professionals as an extension of health care, and engaging students and student-led initiatives through their EIM-OC program.

Exercise is Medicine On Campus

Exercise is Medicine On Campus (EIM-OC) is a sub-program of EIM that aims to improve health and well-being at post-

secondary institutions by engaging student leaders in the promotion of physical movement on university/college campuses. The vision of EIM-OC is "[t]o see all campus and community members across multiple disciplines discover, share and adopt the principles of EIM that will help change the culture of physical activity and chronic disease prevention and management campus wide" (Exercise is Medicine, 2019, p. 2). While the function of each individual EIM-OC group varies, they utilize their student-led university/college clubs to conduct educational seminars, lead local community exercise initiatives, and promote healthy physical behaviours to the students on their campus. Globally, there are approximately 220+ registered EIM-OC groups, predominantly in North America (Exercise is Medicine, n.d.-a). The unique position of each EIM-OC chapter within their community and post-secondary institution provides an opportunity for these programs to address the disproportionately high physical inactivity level of equity-deserving groups in their immediate and surrounding area. Importantly, this aligns with the EIM aim of "for people everywhere of all abilities" (Exercise is Medicine, n.d.-c).

Many established EIM-OC programs seek to improve physical activity in the community by leveraging existing programs or facilities. For example, the EIM-OC program at the University of West Georgia provided a free 12-week program that matched students with a fitness professional and provided fitness assessments, education around exercise basics (e.g., determining exercise intensity, proper form), and a tailored exercise program based on participant goals (Biber & Knoll, 2020). Other common activities include outreach or community-based programs, such as free exercise assessment days, seminars to community groups, or participation in public fun runs/walks (Exercise is Medicine, 2019). Some EIM-OC clubs have successfully implemented physical activity as a vital sign among university health care providers and developed referral networks. These referral networks allow students to be referred to fitness specialists within the EIM-OC club or health/fitness centre

for exercise programming or behavioural counselling (Lagally et al., 2019). Finally, EIM-OC groups and their faculty leaders also work directly with medical schools offering prospective health care providers with resources and skills-based workshops on prescription and counselling for physical activity (Exercise is Medicine, n.d.-a).

Exercise is Medicine On Campus after COVID-19

During the global COVID-19 pandemic, EIM-OC groups were challenged to pivot their initiatives to virtual modalities. Student leaders successfully organized several online group fitness classes, seminars on exercise prescription and counselling, and social events to encourage their peers to remain active despite restrictions to traditional activities, such as those in fitness facilities (Exercise is Medicine, n.d.-a). For example, the University of North Carolina at Chapel Hill pivoted to providing online consultations and tailoring suggested programs to participants' locations (Stanford et al., 2020). The referrals received by the EIM-OC team increased by ~700% during the first wave of COVID-19 (Stanford et al., 2020). The virtual consultations improved program adherence rate, with more individuals completing follow-up sessions. Given its success, their EIM-OC group will continue to provide virtual consultations post-COVID-19 (Stanford et al., 2020).

The increase in attendance to virtual events is not surprising, given the expanded accessibility, and joining virtually may have felt easier for those who were uncertain about attending an in-person event. Notably, prior to COVID-19, EIM-OC groups in Canada had expressed that their educational and physical activity events were often attended by the "converted," including those who were already active or had a pre-existing interest in EIM (McEachern et al., 2019). EIM-OC groups can harness the lessons learned during the pandemic and change their offering of events to improve accessibility of physical activity resources and education on campus and within the community.

Future Considerations for EIM-OC Student Leaders

1. Integrate awareness of equity-related issues in physical activity access and promotion into educational seminars and advocacy initiatives. Most EIM-related seminars focus on the benefits of physical activity and how to prescribe it or counsel different clinical groups. These educational initiatives draw an attentive audience of prospective exercise and health professionals who can integrate these practices into their future careers. It is important that these individuals are aware of the inequities faced by marginalized populations, such as ethnic minorities, those living in rural areas or with limited economic resources, and others that identify with a minority-based community. Recently, EIM presented components of exercise prescription and referral to integrate into medical school curricula (Capozzi et al., 2022), and we suggest that equity-related issues should be added to the recommendations of physical activity promotion within medical curricula. Efforts should be made to invite individuals from marginalized communities to speak on their experience in trying to access physical activity programming.

2. Continue virtual programming where possible. Although we repeatedly see subjective comments that in-person interaction is superior to virtual events, this does not mean we should ignore the abundance of reach that online platforms have had throughout the pandemic. Several studies have successfully shown delivery of online physical activity programs to various population groups and report similar or higher adherence (Beauchamp et al., 2021; Torriani-Pasin et al., 2021; Winters-Stone et al., 2022). Importantly, in on-campus settings, a virtual option for students and community members can address inequities such as cost and location (Silva et al., 2022).

3. Collaborate with other on-campus health-related groups to diversify perspectives and knowledge. Many of the current EIM-OC programs are understandably housed within the kinesiology faculty, with few actively involving

medical schools. Collaborating with other students from health-related programs (e.g., occupational therapy, nursing, medical school) may diversify perspectives and expose more individuals to the concept of “Exercise is Medicine” at an early stage in their career. COVID-19 forced many groups to pivot and offer programs beyond the traditional exercise classes (Stanford et al., 2020). Additionally, creating strong relationships with campus offices or programs that are currently addressing inequities on campus may further the reach of EIM-OC programs. This may help ensure that programming is culturally sensitive, such as using appropriate language in resources. It is well known that a “one size fits all” approach should be avoided in the promotion of physical activity and that providing options based on individual needs, preferences, habits, and motivation may help to increase activity among students (Thornton et al., 2016). Offering less “traditional” forms of exercise programming (e.g., hikes, salsa dancing) that address a greater variety of preferences may also serve to broaden the reach of EIM-OC programs.

Conclusion

Public health initiatives like EIM and EIM-OC may serve an important role in supporting equity-deserving groups in having greater access to physical activity. Moving forward, we recommend on-campus groups consider their delivery of services for equity-deserving groups and integrate education on equity-related issues, as well as collaborate with other on-campus or community groups to expand the reach of EIM-OC programs. The recommendations provided may improve inclusivity within campus communities and help students lead more physically active lifestyles.

References

- Amornsriwatanakul, A., Rahman, H. A., Wattanapisit, A., Nurmala, I., de la Cruz, M. H. T. O., Car, J., & Chia, M. (2022). University students’ overall and domain-specific physical activity during COVID-19: A cross-sectional study in seven ASEAN countries. *Heliyon*, 8(12), Article e12466. <https://doi.org/10.1016/j.heliyon.2022.e12466>
- Beauchamp, M. R., Hulteen, R. M., Ruissen, G. R., Liu, Y., Rhodes, R. E., Wierds, C. M., Waldhauser, K. J., Harden, S. H., & Puterman, E. (2021). Online-delivered group and personal exercise programs to support low active older adults’ mental health during the COVID-19 pandemic: Randomized controlled trial. *Journal of Medical Internet Research*, 23(7), Article e30709. <https://doi.org/10.2196/30709>
- Biber, D. D., & Knoll, C. (2020). Exercise Is Medicine on Campus®: A pilot study. *Recreational Sports Journal*, 44(2), 149–157. <https://doi.org/10.1177/1558866120964815>
- Capozzi, L. C., Lun, V., Shellington, E. M., Nagpal, T. S., Tomasone, J. R., Gaul, C., Roberts, A., & Fowles, J. R. (2022). Physical activity RX: Development and implementation of physical activity counselling and prescription learning objectives for Canadian medical school curriculum. *Canadian Medical Education Journal*, 13(3), 52–59. <https://doi.org/10.36834/cmej.73767>
- Chen, Y., Yue, W., & La Rosa, D. (2020). Which communities have better accessibility to green space? An investigation into environmental inequality using big data. *Landscape and Urban Planning*, 204, Article 103919. <https://doi.org/10.1016/j.landurbplan.2020.103919>
- Courtemanche, C., Garuccio, J., Le, A., Pinkston, J., & Yelowitz, A. (2020). Strong social distancing measures in the United States reduced the COVID-19 growth rate. *Health Affairs*, 39(7), 1237–1246. <https://doi.org/10.1377/hlthaff.2020.0608>
- Czwikla, G., Boen, F., Cook, D. G., de Jong, J., Harris, T., Hilz, L. K., Iliffe, S., Lechner, L., Morris, R. W., Muellmann, S., Peels, D. A., Pischke, C. R., Schüz, B., Stevens, M., Telkmann, K., van Lenthe, F. J.,

- Vanderlinden, J., & Bolte, G. (2021). Equity-specific effects of interventions to promote physical activity among middle-aged and older adults: Results from applying a novel equity-specific re-analysis strategy. *The International Journal of Behavioral Nutrition and Physical Activity*, 18, Article 65. <https://doi.org/10.1186/s12966-021-01131-w>
- de Boer, W. I. J., Mierau, J. O., Schoemaker, J., Viluma, L., Koning, R. H., & Lifelines Corona Research Initiative. (2021). The impact of the Covid-19 crisis on socioeconomic differences in physical activity behavior: Evidence from the Lifelines COVID-19 cohort study. *Preventive Medicine*, 153, Article 106823. <https://doi.org/10.1016/j.ypmed.2021.106823>
- Exercise is Medicine. (n.d.-a). *EIM On Campus*. Retrieved April 4, 2023, from <https://www.exerciseismedicine.org/eim-in-action/eim-on-campus/>
- Exercise is Medicine. (n.d.-b). *Exercise is Medicine global presence*. Retrieved May 8, 2023, from https://www.exerciseismedicine.org/eim_map/
- Exercise is Medicine. (n.d.-c). *What is Exercise is Medicine: A global health initiative*. Retrieved May 8, 2023, from <https://www.exerciseismedicine.org/about-eim/>
- Exercise is Medicine. (2019). *Exercise is Medicine On Campus action guide*. <https://www.exerciseismedicine.org/wp-content/uploads/2021/02/EIM-on-Campus-action-guide.pdf>
- Gómez-López, M., Gallegos, A. G., & Extremera, A. B. (2010). Perceived barriers by university students in the practice of physical activities. *Journal of Sports Science & Medicine*, 9(3), 374–381. <https://www.jssm.org/volume09/iss3/cap/jssm-09-374.pdf>
- Government of Alberta. (2020, June). *Opening soon: Alberta's relaunch strategy*. <https://open.alberta.ca/dataset/61f54c09-d6d7-4a12-a5be-0bc663a02c31/resource/e158ff14-eab7-4f24-94f4-b67c3639d0d5/download/covid-19-alberta-relaunch-strategy-2020-06.pdf>
- Government of Ontario. (2021, April 16). *Ontario strengthens enforcement of Stay-at-Home order*. <https://news.ontario.ca/en/release/61192/ontario-strengthens-enforcement-of-stay-at-home-order>
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *The Lancet Global Health*, 6(10), e1077–e1086. [https://doi.org/10.1016/s2214-109x\(18\)30357-7](https://doi.org/10.1016/s2214-109x(18)30357-7)
- Lagally, K. M., Sherman, J., Amorose, A. J., Rinaldi-Miles, A., & Winters, C. S. (2019). Exercise Is Medicine on Campus programs: A descriptive study. *Recreational Sports Journal*, 43(2), 106–116. <https://doi.org/10.1177/1558866119889898>
- López-Valenciano, A., Suárez-Iglesias, D., Sanchez-Lastra, M. A., & Ayán, C. (2021). Impact of COVID-19 pandemic on university students' physical activity levels: An early systematic review. *Frontiers in Psychology*, 11, Article 624567. <https://doi.org/10.3389/fpsyg.2020.624567>
- Martinez-Gomez, D., Guallar-Castillon, P., Garcia-Esquinas, E., Bandinelli, S., & Rodríguez-Artalejo, F. (2017). Physical activity and the effect of multimorbidity on all-cause mortality in older adults. *Mayo Clinic Proceedings*, 92(3), 376–382. <https://doi.org/10.1016/j.mayocp.2016.12.004>
- McEachern, B. M., Jackson, J., Yungblut, S., & Tomasone, J. R. (2019). Barriers and facilitators to implementing Exercise is Medicine Canada on Campus groups. *Health Promotion Practice*, 20(5), 751–759. <https://doi.org/10.1177/1524839919830923>
- Pellerine, L. P., Bray, N. W., Fowles, J. R.,

- Furlano, J. A., Morava, A., Nagpal, T. S., & O'Brien, M. W. (2022). The influence of motivators and barriers to exercise on attaining physical activity and sedentary time guidelines among Canadian undergraduate students. *International Journal of Environmental Research and Public Health*, 19(19), Article 12225. <https://doi.org/10.3390/ijerph191912225>
- Rapport, F., Hutchings, H., Doel, M. A., Wells, B., Clement, C., Mellalieu, S., Shubin, S., Brown, D., Seah, R., Wright, S., & Sparkes, A. (2018). How are university gyms used by staff and students? A mixed-method study exploring gym use, motivation, and communication in three UK gyms. *Societies*, 8(1), Article 15. <https://doi.org/10.3390/soc8010015>
- Rigolon, A., Browning, M. H. E. M., McAnirlin, O., & Yoon, H. (V). (2021). Green space and health equity: A systematic review on the potential of green space to reduce health disparities. *International Journal of Environmental Research and Public Health*, 18(5), Article 2563. <https://doi.org/10.3390/ijerph18052563>
- Rivera, P. A., Nys, B. L., & Fiestas, F. (2021). Impact of COVID-19 induced lockdown on physical activity and sedentary behavior among university students: A systematic review. *Medwave*, 21(8), Article e8456. <https://doi.org/10.5867/medwave.2021.08.8456>
- Saffer, H., Dave, D., Grossman, M., & Leung, L. A. (2013). Racial, ethnic, and gender differences in physical activity. *Journal of Human Capital*, 7(4), 378–410. <https://doi.org/10.1086/671200>
- Sallis, R. E. (2009). Exercise is medicine and physicians need to prescribe it! *British Journal of Sports Medicine*, 43(1), 3–4. <https://doi.org/10.1136/bjism.2008.054825>
- Silva, R. M. F., Mendonça, C. R., Azevedo, V. D., Memon, A. R., Noll, P. R. E. S., & Noll, M. (2022). Barriers to high school and university students' physical activity: A systematic review. *PLOS ONE*, 17(4), Article e0265913. <https://doi.org/10.1371/journal.pone.0265913>
- Stanford, K., Pomeroy, A., Bates, L. C., Tamminga, K., Chai, T., Moore, J. B., Brookey, L., & Stoner, L. (2020). Exercise Is Medicine® on Campus during COVID-19: Necessary adaptations and continuing importance. *Translational Journal of the American College of Sports Medicine*, 5(12), Article e000157. <https://doi.org/10.1249/tjx.0000000000000157>
- Thornton, J. S., Frémont, P., Khan, K., Poirier, P., Fowles, J., Wells, G. D., & Frankovich, R. J. (2016). Physical activity prescription: A critical opportunity to address a modifiable risk factor for the prevention and management of chronic disease: A position statement by the Canadian Academy of Sport and Exercise Medicine. *British Journal of Sports Medicine*, 50(18), 1109–1114. <https://doi.org/10.1136/bjsports-2016-096291>
- Torriani-Pasin, C., Palma, G. C. dos S., Makhoul, M. P., Antonio, B. de A., Lara, A. R. F., da Silva, T. A., Caldeira, M. F., Júnior, R. P. A., Domingues, V. L., de Freitas, T. B., & Mochizuki, L. (2021). Adherence rate, barriers to attend, safety, and overall experience of a remote physical exercise program during the COVID-19 Pandemic for individuals after stroke. *Frontiers in Psychology*, 12, Article 647883. <https://doi.org/10.3389/fpsyg.2021.647883>
- Wang, Q., & Lan, Z. (2019). Park green spaces, public health and social inequalities: Understanding the interrelationships for policy implications. *Land Use Policy*, 83, 66–74. <https://doi.org/10.1016/j.landusepol.2019.01.026>
- Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: The evidence. *Canadian Medical Association Journal*, 174(6), 801–809. <https://doi.org/10.1503/cmaj.051351>

Winters-Stone, K. M., Boisvert, C., Li, F., Lyons, K. S., Beer, T. M., Mitri, Z., Meyers, G., Eckstrom, E., & Campbell, K. L. (2022). Delivering exercise medicine to cancer survivors: Has COVID-19 shifted the landscape for how and who can be reached with supervised group exercise? *Supportive Care in Cancer*, 30(3), 1903–1906.
<https://doi.org/10.1007/s00520-021-06669-w>