



Physical activity promotion and translational research

Paul A. Estabrooks, PhD

¹Department of Health Promotion
Social and Behavioral Health,
University of Nebraska Medical
Center, Omaha, NE 68198, USA

Correspondence to: P Estabrooks
paul.estabrooks@unmc.edu

Cite this as: *TBM* 2017;7:1–2
doi: 10.1007/s13142-016-0456-y

In 2013, I was invited to the University of Western Ontario to give the Albert Taylor Distinguished Alumnus Lecture. I called my doctoral mentor Dr. Bert Carron to bounce off ideas for the talk. We reminisced about some of the early studies I did as a student working with Dr. Kerry Courneya testing interventions in a university fitness facility [1–3] and a study Bert and I did together with the Victoria Order of Nurses in Ontario. The later study was a very small pilot but resulted in a community physical activity program for older adults that was sustained for years after the study was completed [4]. We talked at length about how these and other studies helped to identify what factors could accelerate the use of physical activity promotion science in typical community and clinical practice. I landed on the idea of a talk on “Keys for Translating Physical Activity Interventions into Practice: Theory, integration, scalability, and existing measures,” and as I reviewed the papers included in this special section of *Translational Behavioral Medicine*, I was drawn back to the following propositions I presented during my talk in Western.

I have always been drawn to the Lewinian principle that nothing is as practical as a good theory (or conceptual model). Theoretical, conceptual, and logic models allow translational researchers to develop a comprehensive view of factors that can influence the translational process [5]. In this issue, theory is used as the target for intervention development to improve effectiveness [6]. Jennings et al. use social ecological theory to ensure the branded UWALK initiative addressed individual, organizational, community, and policy aspects associated with reaching a large population and effectively increasing steps and stair climbing [7]. Of course, translational science is about more than reach and effectiveness, and theoretical approaches are also needed to address the uptake, implementation, and sustainability of effective intervention in typical community or clinical settings [8]. Beauchamp et al. provide an elegant tripartite approach to physical activity promotion in schools that can complement individual-level theory and provide specific structure for broader ecological approaches [9]. It acknowledges that translation of physical activity promotion to school settings necessitates research into political processes and structures to facilitate broad system changes including workforce expertise and extensions to the traditional school day [9].

Across the studies in this issue, I was also struck by the focus on partnerships and integration within systems that can support program, policy, and environmental changes for physical activity promotion [7, 9–12]. Whether it be partnerships to adapt an evidence-based intervention for a system like cooperative extension [12] or for a high need and underserved population [13]—these approaches add needed external validity to the research enterprise and may be more likely to effectively change behavior *and be sustained in practice* [14]. Research-practice partnerships are necessary to also achieve the recommendations for improving access to physical activity interventions to improve mental health outcomes [11]. As Druss notes in his commentary, research-practice translation can occur when scientists and practice professionals partner through their affiliations with organizations such as the Society of Behavioral Medicine and the American College of Sports Medicine. Resulting recommendations include a practical focus on cost structures and reimbursement plans that will be critical to the uptake and sustainability of physical activity strategies intended for different audiences [11].

Physical activity promotion interventions that include high-frequency small group meetings or one-on-one counseling are unlikely to have a meaningful public health impact—unless they can be scaled up for large populations [15]. That does not mean that some high-frequency, high-resource programs are not needed for populations that may need higher rates of supervision in clinical settings or for health equity approaches that provide a higher level of resources for populations experiencing health disparities. However, even in these cases, as Hoffman and colleagues highlight, efficiency is the key [10]. Efficiency is a close cousin to scalability. To increase the adoption and implementation of physical activity promotion strategies across community and clinical organizations, the use of options that can be scaled to a large number of participants with relatively low incremental costs are needed.

Ultimately, translational physical activity research is intended to demonstrate impact in typical community and clinical settings. An area that has not seen as much attention, but is broached by the UWALK paper, is the use of existing data as a tool to evaluate translational efforts (i.e., activity tracker data (7)). Objective measurement of physical activity is an excellent goal, and progress in the ubiquity of accelerometers in smart

phones and activity trackers makes the likelihood of this a reality in the relatively near future. Still, a focus on existing data that are being used to determine health at the population level should also be used in the evaluation process of population health approaches to physical activity. For example, community health needs assessments and community improvement plans provide public health resources for the evaluation of translational physical activity strategies. These assessments have stronger external validity than typical research-driven assessments, though the lower level of precision and internal validity is acknowledged.

A final note on the papers included in this section of TBM—a number used the RE-AIM framework [8]. Not to be confused with a theoretical model, the RE-AIM framework provides a number of outcomes that should be considered in the planning and evaluation of interventions that are intended to have a public health impact. RE-AIM is intended to improve the balance between internal and external validity when developing interventions and to inform typical community and clinical organizations on the potential applicability of a given study and intervention to local settings and populations. Baillie and colleagues' summary of literature on physical activity promotion as a tool for positive youth development demonstrated that low reporting across RE-AIM dimensions makes it difficult to understand the potential generalizability of these interventions to underserved indigenous populations in Canada [16]. The use of RE-AIM also demonstrates the complexity of translational physical activity research where research can be focused on intervening at any one level of RE-AIM while assessing other dimensions as secondary outcomes. For example, Harden and colleagues used RE-AIM to evaluate an intervention with the primary outcome of community adoption and monitored reach, effectiveness, implementation time, and likely organizational maintenance as secondary outcomes [12]. This also is relevant to the recommendations made by Hoffman and colleagues that highlight the need to understand intervention reach, effectiveness, and costs to determine the degree to which community-wide interventions can be adopted [10].

In concert, the included articles provide examples of the potential for improving translational physical activity research through the use of theory, integration within local community partners, testing scalable intervention strategies, and using existing measures that reduce the burden of primary data collection for participants and researchers. The articles also reflect a nice balance of translational research to promote physical activity in different settings and, in some cases, for different outcomes. Methodological differences across articles also suggests that a range of research designs are necessary including those that may or may not include randomization and may or may not focus on effectiveness as the primary outcome. Finally, the

articles also highlight the need for additional research on (a) the use of strong conceptual models to improve adoption, implementation, and sustainability at the community level, (b) the role of integrated research-practice partnerships across the translational research spectrum, (c) methods to best scale and adapt interventions to populations that could most benefit, and (d) the utility of innovative, existing, and objective measures of physical activity that can be used to demonstrate impact at a reasonable cost.

Compliance with ethical standards

Funding support: U54 GM115458–01 Great Plains IDEA CTR.

1. Nigg, C. R., Courneya, K. S., & Estabrooks, P. A. (1997). Maintaining attendance at a fitness center: an application of the decision balance sheet. *Behav Med*, *23*, 130–137.
2. Courneya, K. S., Estabrooks, P. A., & Nigg, C. R. (1997). A simple reinforcement strategy for increasing attendance at a fitness facility. *Health Educ Behav*, *24*, 708–715.
3. Estabrooks, P. A., Courneya, K. S., & Nigg, C. R. (1996). Effect of a stimulus control intervention on attendance at a university fitness center. *Behav Modif*, *20*, 202–215.
4. Estabrooks, P. A., & Carron, A. V. (1999). Group cohesion in older adult exercisers: prediction and intervention effects. *J Behav Med*, *22*, 575–588.
5. Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging research and practice: models for dissemination and implementation research. *Am J Prev Med*, *43*, 337–350.
6. Antikainen, I., & Ellis, R. (2011). A RE-AIM evaluation of theory-based physical activity interventions. *Journal of Sport & Exercise Psychology*, *33*, 198–214.
7. Jennings, C. A., Bery, T. R., Carson, V., et al. (2016). UWALK: the development of a multi-strategy, community-wide physical activity program. *Transl Behav Med*. doi:10.1007/s13142-016-0417-5.
8. Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health*, *89*, 1322–1327.
9. Beauchamp, M. R., Rhodes, R. E., Nigg, C. R. (2016). Physical activity for children in elementary schools: time for a rethink? *Transl Behav Med*. doi:10.1007/s13142-016-0443-3.
10. Hoffman, S. A., Warmick, J. L., Garza, E., Spring, B. (2016). Physical activity: a synopsis and comment on “community-wide interventions for increasing physical activity”. *Transl Behav Med*. doi:10.1007/s13142-016-0419-3.
11. Druss, B. G. (2016). Improving access to exercise training programs for patients with serious mental illness. *Transl Behav Med*. doi:10.1007/s13142-016-0435-3.
12. Harden, S. M., Johnson, S. E., Almeida, F. A., Estabrooks, P. A. (2016). Improving physical activity program adoption using integrated research-practice partnerships: an effectiveness-implementation trial. *Transl Behav Med*. doi:10.1007/s13142-015-0380-6.
13. Murray, K. E., Ermias, A., Lung, A., et al. (2016). Culturally adapting a physical activity intervention for Somali women: the need for theory and innovation to promote equity. *Transl Behav Med*. doi:10.1007/s13142-016-0436-2.
14. Estabrooks, P. A., Bradshaw, M., Dziewaltowski, D. A., & Smith-Ray, R. L. (2008). Determining the impact of Walk Kansas: applying a team-building approach to community physical activity promotion. *Ann Behav Med*, *36*, 1–12.
15. Green, B. B., & Estabrooks, P. A. (2011). Assessing the scale-up of a weight loss program narrowing the gap between research and practice. *Am J Prev Med*, *41*, 548–549.
16. Baillie C. P. T., Galaviz K. I., Emiry K., Bruner M. W., Lévesque L. (2016). Physical activity interventions to promote positive youth development among indigenous youth: a RE-AIM review. *Transl Behav Med*. doi:10.1007/s13142-016-0428-2.