



The relationship between physical literacy scores and adherence to Canadian physical activity and sedentary behaviour guidelines

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Abstract

Background: Physical literacy (PL) is a positive, holistic, and life-long learning process that involves the development of the knowledge, skills, confidence, and motivation to engage in physical activity. The purpose of this study was to examine the relationship between PL scores and adherence to Canadian physical activity and sedentary behaviour guidelines.

Methods: A cross-sectional study of 2956 (56.6%) Canadian youth (8–12 years) was conducted. PL scores were measured using the Physical Literacy Questionnaire (PLQ). Physical activity and sedentary behaviour were measured using the International Physical Activity Questionnaire (IPAQ). Data were analysed using multivariate regression models.

Results: Higher PL scores were associated with higher adherence to physical activity guidelines (OR 1.09; 95% CI: 0.8, 0.9), lower adherence to sedentary behaviour guidelines (OR 0.4; 95% CI: 0.3, 0.5), and higher adherence to both guidelines (OR 1.6; 95% CI: 1.2, 2.2). The relationship between PL scores and adherence to physical activity guidelines was stronger for youth with lower PL scores (OR 1.7; 95% CI: 1.2, 2.5) than for those with higher PL scores (OR 0.8; 95% CI: 0.7, 0.8). The relationship between PL scores and adherence to sedentary behaviour guidelines was stronger for youth with higher PL scores (OR 1.7; 95% CI: 1.4, 2.0) than for those with lower PL scores (OR 0.4; 95% CI: 0.3, 0.5).

Conclusions: Physical literacy is a key determinant of adherence to Canadian physical activity and sedentary behaviour guidelines. Higher PL scores are associated with higher adherence to physical activity guidelines, lower adherence to sedentary behaviour guidelines, and higher adherence to both guidelines.

Keywords: Physical literacy, Physical activity, Sedentary behaviour, Canadian youth.

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Background

Regular participation in physical activity is recommended for children and adolescents in order for them to achieve and maintain a healthy lifestyle. For North American children and youth, it is recommended that they engage in at least 60 min of moderate - to vigorous - intensity physical activity each day [1, 2]. Simultaneously, health practitioners recommend that children and youth reduce the time spent being sedentary by limiting screen time to no more than 2 hours a day in Canada [1], and less than one to 2 hours a day in the United States [3].

There are many factors that contribute to the achievement of a healthy, active lifestyle and meeting physical activity guidelines (PAG) and sedentary behaviour guidelines (SBG); however, one area that has recently gained attention in the field of healthy active living is physical literacy (PL). The International Physical Literacy Association defines PL as “the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life” [4]. Children who are physically literate are capable of moving with confidence and competence in a wide variety of physical activities in multiple environments (e.g., land, snow, water, ice) [5]. Possessing an elevated level of PL may enable children to engage in habitual physical activity and reduce their sedentary time. Conversely, children with low levels of PL may engage in insufficient physical activity to receive the health benefits associated with meeting PAG [6] and may potentially experience the deleterious effects of excessive sedentary behaviour [3].

PL is considered a dynamic concept, and has been regarded as a “lifelong journey” [7]. However, the assessment of PL levels in children may be a key period for both research and intervention, as this stage in a child’s life is a critical period for the development of important physical activity correlates (i.e., gross-motor skills, fine-motor skills, coordination, preferences, and confidence). The Canadian Assessment of Physical Literacy (CAPL) [8] was developed to comprehensively and accurately measure PL, while adhering to the internationally accepted definition of the concept [4]. The CAPL’s development was guided and finalized by a three-round Delphi expert review process to ensure that the model, evaluation metrics, and measurement procedures effectively and reliably assess PL [8].

coordinating centre (Ottawa, Ontario). Specifically, this involved all Site Investigators attending a two-day training workshop at the coordinating centre, where the overall Project Coordinator explained the development of the CAPL and how each measure was to be administered and scored, and where each Site Investigator was trained by performing mock data collection on volunteers. Data were collected at each site by trained Site Investigators, research assistants and/or post-secondary students following standardized procedures for each of the CAPL

1.7, 2.5) and Motivation and Confidence (OR 1.2; 95% CI: 1.0, 1.5). No significant findings were identified for the Knowledge and Understanding domain. Girls were at decreased odds (OR 0.4; 95% CI: 0.3, 0.5) of meeting PAG compared to boys. Age was also a significant predictor of PAG adherence; with each one-year increment increase in age, participants had slightly lower odds (OR 0.9; 95% CI: 0.8, 0.9) of meeting PAG. Significant effects for seasonality were observed, demonstrating that participants who were tested in the spring (OR 1.6; 95% CI:

limitations, Canadian children from the Northern territories (Yukon, Northwest Territories, Nunavut), Saskatchewan, New Brunswick, and Newfoundland & Labrador were not captured in this study. Consequently, this limits the applicability of the findings relative to Canadian children. Moreover, the data obtained from this study were from a cross-sectional design using convenience sampling methods, limiting the conclusions regarding the directionality of the associations. Pedometry was used to capture PA data instead of accelerometry, due to the surveillance study design, and this limited us from gathering any information on detailed movement counts (i.e., sedentary time, light PA, moderate to vigorous PA, etc.). Additionally, socio-economic status was not a measure of this study and could have influenced the findings.

Conclusions

The primary outcome of this study was that children were at increased odds of meeting PAG and SBG if they achieved the minimum recommended level of PL domain

