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# Objectively measured sedentary behavior in secondary school physical education lessons

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# Objectively measured sedentary behavior in secondary school physical education lessons

## **Abstract**

Abstract presented at the 2014 Global Summit on the Physical Activity of Children, held in Toronto, May 19-22, 2014.

## **Keywords**

lessons, education, physical, behavior, school, measured, secondary, sedentary, objectively

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## **Authors**

Rachel Sutherland, Elizabeth Campbell, David Lubans, Philip Morgan, Anthony D. Okely, Nicole Nathan, Luke Wolfenden, Karen Gillham, and John Wiggers

liaises with thousands of local, regional and provincial partners in different sectors: daycare centres, schools, municipalities, healthcare facilities, community groups and associations seeking to positively influence individual behaviours, social norms and environments. Since 2002, Québec en Forme has encouraged government officials, decision-makers, professionals and numerous stakeholders to pool and coordinate their resources, knowledge and skills in order to help kids acquire and develop motor skills: a) Offer children a wide range of opportunities to move, explore and gain proficiency at the earliest stage possible; b) Implement effective initiatives guided by qualified staff; c) Increase access to a variety of affordable services, parks and public areas; d) Promote a better understanding of the relevance and importance of motor skills in the overall development of children and their academic success. **Conclusion/Perspectives:** This poster will present the ways in which local communities, regional authorities, NGOs, government departments and their networks are working together to take concerted, complementary action. Québec en Forme supports all of these players in their efforts to promote lasting change. **Funding:** Québec en Forme is a non-profit organization founded through a partnership agreement between the Lucie and André Chagnon Foundation and the Quebec government.

### Mobilizing People Across Quebec to Promote Daily Physical Activity Among Youth

Mathilde St-Louis-Deschênes<sup>1</sup>, Kim Lalanne<sup>1</sup>

<sup>1</sup> Québec en Forme, Trois-Rivières, Canada

**Objective:** Québec en Forme is a non-profit organization that encourages all Quebecers to promote healthy eating habits and active lifestyles, essential to the full development of our young people. **Findings/Outcomes:** Some negative trends with regard to physical activity: a) Only 33% of young people get 60 minutes of physical activity per day; b) Girls get 15% to 30% less physical activity than boys; c) Physical activity levels drop significantly from age 13 or 14; d) Teens identify lack of time as the most important barrier to engaging in physical activities; however, 67% spend more than two hours a day in front of a screen. Québec en Forme liaises with thousands of local, regional and provincial partners in different sectors: daycare centres, schools, municipalities, healthcare facilities, community groups and associations seeking to positively influence individual behaviours, social norms and environments. Québec en Forme encourages government officials, decision-makers, professionals and numerous stakeholders to pool and coordinate their resources, knowledge and skills in order to keep kids physically active every day: a) Offer children and parents a wide range of opportunities to learn and try out new physical activities; b) Implement effective initiatives; c) Increase access to a variety of affordable services, parks and public areas; d) Create built environments and foster positive social norms to encourage physical activity. **Conclusion/Perspectives:** This poster will present the ways in which local communities, regional authorities, NGOs, government departments and their networks are working together to take concerted, complementary action. Québec en Forme supports all of these players in their efforts to promote lasting change. **Funding:** Québec en Forme is a non-profit organization founded through a partnership agreement between the Lucie and André Chagnon Foundation and the Quebec government.

### Lowering Intimidation and Competitiveness for Maximum Participation: Case Study of The Aussie X

Emile Studham, CEO and co-owner of Aussie X

**Objective:** To demonstrate the positive relationship between children and physical activity in schools using the Aussie X Active Learning Method. Aussie X activates even the most disengaged kids and makes exercise and healthy lifestyles accessible and fun. Programs provide a level playing field that helps build confidence and self-esteem while promoting inclusiveness. Traditional North American elite sports model can alienate kids and prevent them from enjoying sport and physical activity. Emile Studham shows that removing the evaluation component from physical activity in schools fosters an atmosphere which activates ALL students in participation. **Methods:** Australian sports programming and coaching to actively engage kids. The sports of Aussie X create a level playing field as they are not already popular sports in Canada. Using a charismatic Australian coaching team, Aussie X helps kids who would normally be too shy to participate find common ground with their classmates. **Results:** Kids see that just “havin’ a go” is cause for celebration. They feel valued and encouraged to try something new instead of feeling judged or critiqued. The outcome is kids view physical activity as a mechanism to feel better and more energized. Kids come together as a team of mates and learn that the energy you give off is the energy you get back, anchored through the term “Goodonya Mate”. **Conclusion:** Develop the physical and emotional connection that exercise makes you feel good.

### Objectively Measured Sedentary Behavior in Secondary School Physical Education Lessons

Rachel Sutherland<sup>1,2,3</sup>, Elizabeth Campbell<sup>1,2,3</sup>, David R. Lubans<sup>4</sup>, Philip J. Morgan<sup>4</sup>, Anthony D. Okely<sup>5</sup>, Nicole Nathan<sup>1,2,3</sup>, Luke Wolfenden<sup>1,2,3</sup>, Karen Gillham<sup>1,3</sup>, John Wiggers<sup>1,2,3</sup>

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**Objective:** Physical Education (PE) should provide an important opportunity for young people to engage in health enhancing physical activity, yet reviews demonstrate PE lessons may not be providing young people with the recommended 50% of a lesson in moderate-to-vigorous physical activity (MVPA). This cross-sectional study examined the levels of objectively measured sedentary activity in secondary school PE lessons. A secondary aim was to determine if student characteristics were associated with sedentary activity levels. **Methods:** Grade 7 students (12-13 years of age) from 10 Australian secondary schools in low socio-economic areas were invited to wear an accelerometer for 1 week. Data represent recordings for students that wore their accelerometer for at least 3 days, including 100% of at least one PE lesson. The Everson cut-points were used to determine the average minutes and percentage of PE lesson time per student spent in sedentary, light, and moderate-to-vigorous physical activity (MVPA). After adjustments were made for clustering, mean

minutes of sedentary activity for student subgroups were compared using t tests. **Results:** 1028 students undertook on average 2.2 PE lessons (range 1-5) during the measurement period. On average, students were sedentary for 21.0 minutes, representing 50.2% of the lesson whilst participating in only 6.31 minutes of MVPA, representing 14.7% of the lesson. Girls engaged in significantly more sedentary activity than boys (52.5% v's 49.3%  $P < 0.001$ ). There was no significant difference in sedentary behaviour by weight status. **Conclusion:** In addition to encouraging a minimal level of MVPA, limiting sedentary activity throughout PE should be a priority. Strategies targeting teaching methods and students' participation and motivation are needed to ensure sedentary activity throughout PE in minimised.

## A Systematic Review of Dropout From Soccer Among Children and Youth

Vivienne A. Temple, Jeff R. Crane

School of Exercise Science, Physical and Health Education, University of Victoria, BC, Canada

**Objective:** Bronfenbrenner's ecological systems theory of development was used as a framework to systematically review factors associated with dropout from soccer among children and youth. **Methods:** Keyword searches for the population, and construct of interest (dropout or attrition or quit) identified scholarly peer reviewed publications from seven databases to 30 June, 2013. The initial search bore 102 studies, 13 met the inclusion criteria. **Results:** 11 studies were conducted in Europe and 2 in the US. The proportion of dropout from one season to the next was typically in the range of 20 - 35%; but as high as 60% among players who travelled a great deal to compete. Common microsystem factors (that the individual experiences in a face-to-face setting e.g. at training) were: high demands on time, feeling unsupported by the coach, a lack of teamwork or team spirit, and insufficient game time. The foremost mesosystem factor (linkages between settings the individual operates in e.g. between school and sport) was competing demands. The high time commitment identified as a dominant microsystem factor interacted with the players' commitments to academic pursuits, other sports, and time to be with their friends. The relative age effect was the only exosystem factor (factors from settings that the individual does not directly interact with, but is influenced by) identified. **Conclusions:** This study synthesizes what is known about dropout from soccer among children and youth and demonstrates the need to systematically examine multiple levels of context to better understand why children and youth discontinue with soccer.

## Investigating the Impact of School Scheduling on Patterns of Physical Activity and Behaviour in Kindergarten Students

L.J. Thirkill, C.A. Dinnes, D.D. Duguay, A.P. Gauthier, M. Laurence, S.C. Dorman

School of Human Kinetics, Laurentian University, Sudbury, Canada

**Objective:** Physical activity is an important component of children's health and is related to classroom behaviour. Since children spend 6 hours in school daily, the contribution of school-time to energy expenditure deserves attention. The effects of ELK scheduling on

student activity and behaviour has never been examined; therefore we compared traditional and ELK scheduling on physical activity and behavior in kindergarten. **Methods:** Participation was requested of all kindergarten children attending two schools: one using the traditional kindergarten schedule; and one using the ELK schedule. Schools were matched for socioeconomic status and geographic proximity. Data was collected over five days using pedometers to estimate physical activity and Direct Behaviour Rating Scales to measure student behavior during class time. **Results:** Five-day averages were calculated and student t-tests were performed based on schedule and gender. A total of 133 students participated; 72 girls and 61 boys for a response rate of 70%. The results showed that the students in the traditional kindergarten schedule achieved significantly more steps than the ELK schedule. The results also showed that regardless of schedule, boys achieve more steps per day than girls. Data is currently being analyzed to also assess the impact of scheduling on classroom behaviour. **Conclusion:** This data suggests that the new ELK program does not provide students with the same amount of physical activity as the traditional kindergarten program and highlights the importance of a structured approach to physical activity. **Funding:** Louise Picard Public Health Research Grant.

## Physical Activity and Watching TV, but not Cardiorespiratory Fitness, are Related to Metabolic Risk Among Children: The Physical Activity and Nutrition in Children (PANIC) Study

Tuomo Tompuri<sup>1,2</sup>, Juuso Väistö<sup>2</sup>, Niina Lintu<sup>2</sup>, Eero A. Haapala<sup>2</sup>, Virpi Lindi<sup>2</sup>, Timo A. Lakka<sup>1,2,3</sup>

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**Objective:** Physical activity (PA), watching TV and cardiorespiratory fitness (CRF) have been linked to metabolic risk in children. However, few studies have investigated the independent associations of PA and watching TV with metabolic risk. Moreover, most previous studies have used weight-proportional CRF measures that are confounded by adiposity. **Methods:** We investigated the independent associations of PA, watching TV and CRF with metabolic risk. Participants were 479 children aged 6–8 years. We assessed PA and watching TV using questionnaire and maximal CRF using maximal workload scaled by lean mass (LM) from maximal cycle ergometer exercise test. LM and fat percentage (%BF) were assessed by DXA. Metabolic risk score (MetS) was computed using Z-scores of waist circumference, fasting glucose, fasting insulin, HDL cholesterol, triglycerides and mean of systolic and diastolic blood pressure. Data were analyzed using linear stepwise regression and adjusted for sex and growth maturation index (GMI) and additionally for %BF. **Results:** Among all children, PA was inversely ( $\beta = -0.139$ ,  $P = 0.002$ ) and watching TV was directly ( $\beta = 0.092$ ,  $P = 0.035$ ) associated with MetS whereas CRF was not related to MetS after adjustment for sex and GMI and by including these measures in same stepwise linear regression model. However, the association of PA was no longer statistically significant and the relationship of watching TV was attenuated ( $\beta = 0.078$ ,  $P = 0.046$ ) after further adjustment for %BF. **Conclusions:** Lower levels of PA and larger amounts of watching TV were related to higher MetS, but these associations were partly