The Association Between Active Transportation to School and Daily Physical Activity Among Elementary Students Living in Northeastern Ontario

V. Confesor, BPHE¹, B. Bruner, PhD¹, S. Scharoun, PhD¹, G. Raymer, R.Kin, PhD¹, D. Hay, PhD¹, K. Karvinen, PhD¹, L. Lévesque, PhD², S. Mantha, MSc³, A. Mayer, MPA³, G. Rickwood, PhD¹¹

¹School of Physical and Health Education, Nipissing University; ²School of Kinesiology & Health Studies, Queen's University; ³North Bay Parry Sound District Health Unit

BACKGROUND

- Only 9% of 5- to 17-year-old children and youth in Canada accumulate the minimum recommendation of 60 minutes of moderate to vigorous physical activity (MVPA) on ATS days (1).
- Active transportation to school (ATS) can provide an opportunity to increase daily physical activity (PA); however, rates of ATS have declined over time (2).
- Most data examining ATS and its impact on PA has been from urban/suburban contexts with limited literature in other settings.

PURPOSE

- To assess the contribution of ATS to total daily PA and MVPA among students living in a small city in Northeastern Ontario.

METHODS

Participants and Procedures

- Elementary students in a Northeastern Ontario city (population ~ 55,000) (N=36) ages 5-12 years (M_age = 8.81, SD = 2.03) participated at 3 time points (April/May 2015, April 2016, and June 2016).
- Participants were each fitted with an Actical wGT3X-BT accelerometer (Phillips – Respironics, OR USA) over their right hip on an elasticized waist belt during their waking hours for 7 consecutive days.
- Accelerometer counts were summed and recorded on the devices every 2 seconds.
- Data representing each valid wear day (≥ 10 hours wear time) were obtained from school days only (158 total valid wear days; active transportation to school: n=76, passive transportation to school: n=82; wear days/participant: M=2.99, SD = 1.33, range: 1-7).
- The accelerometer data were downloaded from each device and analysed in Matlab (Mathworks, MA USA) to determine the time (in minutes) spent as sedentary or active (light-, moderate-, and vigorous-intensity activity) during the entire day, and during the 50-minute window before school, using previously established accelerometer count ‘cut points’ (3).

Data Analysis

- Analysis of covariance (ANCOVA) was performed with “age” as a covariate, and “transportation: active vs. passive” as a fixed factor.

RESULTS

- MVPA on the trip to school on ATS days (F (1, 155) = 49.442, p < .001, η²_p = .242). Age was a positive predictor of MVPA (F (1, 155) = 11.980, p = .001, η²_p = .072).
- Active minutes on the trip to school of total daily active minutes were significantly greater on ATS days (F (1, 155) = 24.007, p < .001, η²_p = .134). Age was not a positive predictor of active minutes.

CONCLUSIONS

- Active minutes, and more specifically MVPA minutes accumulated on the trip to school via ATS, are important contributors to daily PA.
- These findings align with research in larger urban and suburban areas, that report students who actively commute to school are generally more active and accumulate more PA throughout the whole day (4,5).
- Walking and cycling to school may be associated with overall higher levels of daily PA in school-aged children when compared with children who travel to school by car or bus.
- The findings contribute to our understanding of the relationship of ATS and PA levels of students in a different geographical area (i.e., Northern).

IMPLICATIONS FOR POLICY AND PRACTICE

- This study provides good evidence to support policy initiatives to promote ATS as it is a valuable way to help elementary students meet their recommended daily PA levels.
- It is important for elementary schools and key ATS stakeholders in communities to work collaboratively to implement effective strategies that encourage ATS among students at an early age.

REFERENCES