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ENHANCED EPIDEMIOLOGICAL SUMMARY

Physical Activity Indicators using Data from the Canadian Health Survey on Children and Youth

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Highlights

- In Ontario, 94.2% of children ages 3-4 years played outside for a median time of 4.6 hours per week and 61.5% participated in physical activities with a coach/instructor in the past 12 months for a median time of 1.0 hour per week.
- Using average physical activity time (PAT), 34.7% of children ages 5-11 years adhered to national physical activity (PA) guidelines of 60 minutes of moderate intensity physical activity per day and 78.3% participated in physical activities with a coach/instructor in the past 12 months for a median time of 2.9 hours per week. Moderate-to-vigorous physical activity (MVPA) was not measured in this age group.
- Only 10.0% of youth ages 12-17 years adhered to national PA guidelines (60 minutes of MVPA per day) while 26.4% adhered to guidelines using PAT (60 minutes of moderate intensity PA). In the past 12 months, 66.3% of youth participated in physical activities with a coach/instructor for a median time of 4.4 hours per week.
- Physical activity significantly differed across income categorizations (i.e., household income, income quintiles, and low-income cut-offs), race and ethnic origin, sex at birth, Indigenous identity, and immigration status.
- Physical activity participation and time spent in PA tended to increase as income increased. Children and youth who identified as White/Non-racialized or non-immigrants tended to have greater PA participation and time spent in PA compared to children who identified as racialized or immigrants.

Contents

Introduction

This report provides an overview of physical activity (PA) in children and youth ages 3-17 years as measured by Statistics Canada's 2019 Canadian Health Survey on Children and Youth (CHSCY).[1] Physical activity participation, time spent being physically active, and the prevalence of meeting PA recommendations from the Canadian 24-Hour Movement Guidelines[2] (24-HMG) are reported by socio-demographic characteristics. Physical activity indicators were also examined by Peer Groups, geographic region, and Public Health Unit/Health Region. For more information about the CHSCY data and Ontario population characteristics, please refer to the CHSCY Technical Report.[3]

Being physically active is associated with many positive health outcomes. In early childhood (0-4 years), PA is associated with improved motor and cognitive development, increased cardiometabolic health, and improved psychosocial health.[4] In children and youth (5-17 years), PA is associated with lower adiposity, decreased cardiometabolic risk, greater physical fitness, increased bone health, faster motor development, and improved mental health and cognition.[5,6] Supporting healthy PA habits in early life promotes healthy growth and development and these behaviours are noted to predict engagement across the life course[7] and shown to track into adulthood.[8]

Canadian 24-HMGs provide time and intensity targets for PA, sedentary behaviour, and sleep to comprehensively account for these integrative movements throughout the day.[9,10] For children 3-4 years, the Canadian 24-HMGs recommend averaging at least 180 minutes of various physical activities per day, 60 minutes of which includes "energetic play", such as hopping, playing tag, or bike riding.[11] In the 5-17 year old age group, the Canadian 24-HMGs recommend averaging at least 60 minutes of moderate-to-vigorous physical activity (MVPA) per day,[2] where MVPA is defined as an activity that makes someone sweat or breathe harder than at rest, or activities that require 3 or more metabolic equivalent of tasks (METs).[12]

Prior to the COVID-19 pandemic, 61.8% of Canadian children ages 3-4 years met the PA recommendations according to pooled data from the 2009-2011, 2012-2013, and 2014-2015 cycles of the Canadian Health Measures Survey (CHMS).[13] Among children and youth in Canada between the ages 5-17 years, only 43.9% met the PA guidelines in the 2018-2019 CHMS.[14] During the COVID-19 pandemic, public health restrictions including lockdowns, school closures, physical distancing, and the postponement of sports and PA programs drastically changed the PA landscape.[15,16] For example, 50.8% of youth ages 12-17 reported meting the PA recommendations in 2018, but only 37.2% met similar recommendations in 2020.[16]

In the CHSCY, PA indicators are only measured starting at the age of three years, and due to differences in measurement methodologies and available indicators between age groups, these estimates are reported stratified by age group (3-4, 5-11, and 12-17 years). There are four main types of PA measured in the 2019 CHSCY: outdoor play or outdoor PA (other physical activity [OPA]), physical activities with a coach/instructor (organized sports and clubs ([OSC]), PA time of moderate intensity (PAT), and moderate to vigorous PA (MVPA) time. For children ages 3-11 years the person most knowledgeable (PMK) of the child answered PA-related questions, and youth ages 12-17 years self-reported their PA. For those ages 5-17 years, using continuous PAT averaged over the past week, a dichotomous variable was created to calculate the proportion of children and youth meeting the Canadian 24-HMG for PA. This indicator can be used to assess the levels of inactivity of children in the community.

Provincially representative PA data on children younger than 12 years are lacking. Understanding the socio-demographic and geographic factors related to PA during childhood will help public health practitioners and their community partners target interventions towards disproportionately affected

people living in Ontario. This report provides a baseline overview of PA indicators prior to the COVID-19 pandemic and will assist in PA investigations using future releases of the CHSCY.

Race-based and Indigenous Identity Data

The CHSCY utilizes the following socio-demographic terms to describe its variables: "Population Group", "Visible Minority", and "Aboriginal Identity". To stay current with health equity language preferred by impacted communities and to reduce unintentional harms when discussing and utilizing findings of the CHSCY, we have replaced the CHSCY terminology with the following terms in this report, where possible: "race and ethnic origin", "racialized groups", and "Indigenous".

'Race' is a social construct without a biological basis and created to categorize people into different groups based on visual traits in ways that create and maintain power differentials within society.[17] 'Ethnic origin' refers to communities' learned or adopted characteristics such as language, practices, and beliefs.[18,19] Note that the categorization of people as Indigenous, Black, and other racial categories has been historically and currently used to mark certain groups for exclusion, discrimination, and oppression. Racism, racial categorization, and racial discrimination; therefore, continue to shape the lives and opportunities of those who are categorized as "racialized people".[19] For more information on socio-demographic terminology, please refer to the Technical Notes and Technical Report.

Race-based and Indigenous identity data are vital for the identification and monitoring of health inequities that stem from racism, bias, and discrimination[20] and to inform the design of programs and services to promote the health and well-being of racialized populations and Indigenous peoples. Public Health Ontario (PHO) includes data and analyses on Indigenous peoples to advance understanding and support action to enhance Indigenous people's health.

PHO recognizes the importance of Indigenous data sovereignty and the First Nations principles of Ownership, Control, Access and Possession (OCAP) and Métis Principles of Ownership, Control, Access and Stewardship (OCAS). We continue to strive to build processes and relationships to respectfully and meaningfully analyze and report on Indigenous data.

Results

Age groups

- Physical activity patterns significantly differed by age.
    - Time spent in outdoor play/outdoor physical activity was greatest in children 3-4 years and decreased with increasing age.
    - Time participating in physical activity with a coach/instructor was lowest in children 3-4 years and increased with increasing age (Figure 1).
- Overall, 71.2% (95% CI: 70.3-72.1) of children and youth ages 3-17 years participated in physical activity with a coach/instructor in the past 12-months for a median time of 3.0 hours week (95% CI: 2.7-3.2) (Table 1).

Figure 1: Median hours of weekly outdoor physical activity and physical activities with a coach/instructor by age group; Ontario, 2019

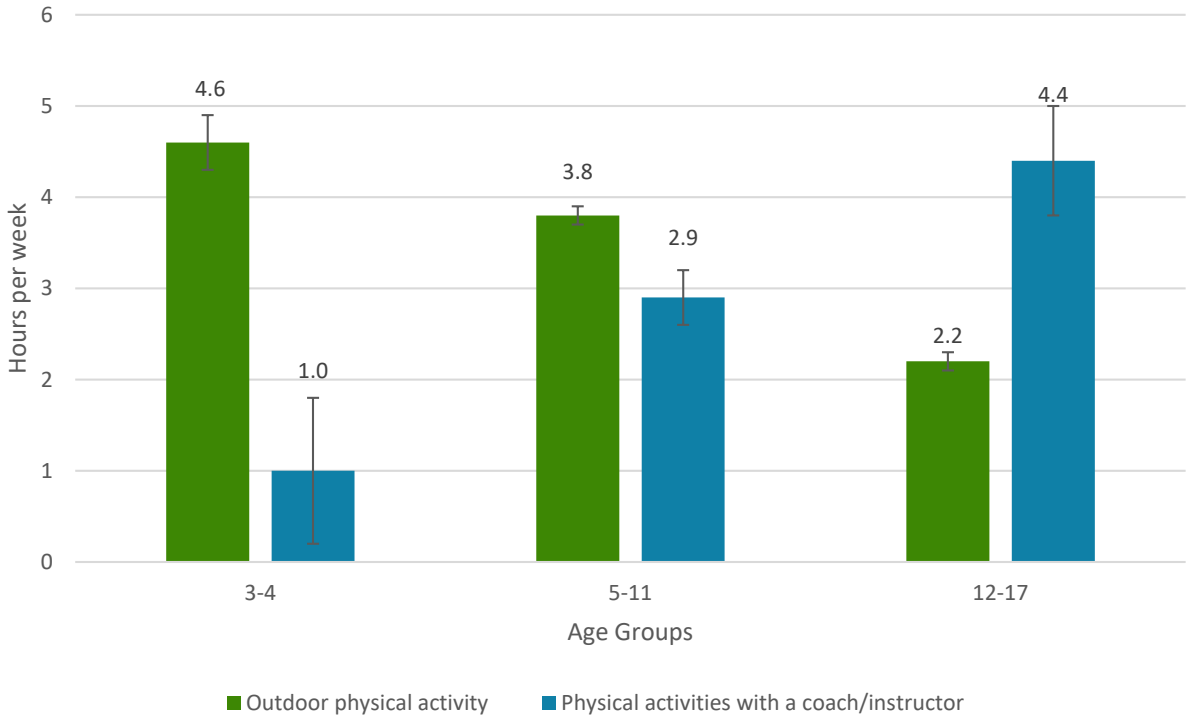


Table 1: Weighted percentages and medians of selected physical activity indicators across age groups; Ontario, 2019

Physical Activity Indicators	Ages 3-4	Ages 5-11	Ages 12-17	Total
Participated in PAT – 7d – Weighted percentage (95% CI)	NA	81.7 (80.6-82.8)	78.6 (77.2-79.9)	80.2 (79.4-81.1)
PAT – Total minutes – 7d – Median (95% CI)	NA	265.4 (251.9-278.8)	205.3 (192.2-218.5)	235.7 (226.8-244.5)
PAT – average minutes/day – 7d – Median (95% CI)	NA	37.9 (36.0-39.8)	29.3 (27.4-31.2)	33.7 (32.4-34.9)
Participated in PA with coach/instructor – 12 months – Weighted percentage (95% CI)	61.5 (59.2-63.8)	78.3 (77.2-79.4)	66.3 (64.8-67.8)	71.2 (70.3-72.1)

Physical Activity Indicators	Ages 3-4	Ages 5-11	Ages 12-17	Total
Weekly hours participating in PA with coach/instructor – Median (95% CI)	1.0 (0.2-1.9)	2.9 (2.6-3.2)	4.4 (3.8-5.0)	3.0 (2.7-3.2)
Played outside/participated in outdoor physical activity in the past week – Weighted percentage (95% CI)	94.2 (93.2-95.1)	90.3 (89.5-91.0)	61.2 (59.7-62.7)	NA
Weekly hours of outdoor physical activity – Median (95% CI)	4.6 (4.3-4.9)	3.8 (3.7-4.0)	1.9 (1.8-1.9)	NA

NA values for PAT participation, total PAT, and daily average PAT were due to a lack of data availability for children ages 3-4 years. NA values for outdoor play/outdoor physical activity was due to different conceptualizations of outdoor play in children ages 3-11 years and outdoor physical activity in youth ages 12-17 years.

Age 3-4 years

- Most children ages 3-4 years reported playing outside in the past seven days for 3-14 hours.
- Only 4.7% (95% CI: 3.7-5.7) played outside for less than 1 hour, and 19.0% (95% CI: 17.2-20.7) played for 1-2 hours (Table 2).
- The percentage of 3-4 year-olds who participated in PA with a coach/instructor in the past 12 months was (61.5%; 95% CI: 59.2-63.8) for a median time of 1 hour (Table 2).

Table 2: Percentages and medians of physical activity indicators among children ages 3-4 years; Ontario, 2019

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Child played outside – 7d	
Yes	94.2 (93.2-95.1)
No	5.8 (4.9-6.8)
Child played outside – time spent – 7d	
Less than 1 hour	4.7 (3.7-5.7)

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
1 hour to less than 3 hours	19.0 (17.2-20.7)
3 hours to less than 7 hours	30.4 (28.0-32.8)
7 hours to less than 14 hours	29.0 (26.7-31.3)
14 or more hours	16.9 (14.9-18.9)
Child played outside – hours spent – 7d – Median	4.6 (4.3-4.9)
Participated in physical activities with a coach/instructor – 12 mo	
Yes	61.5 (59.2-63.8)
No	38.5 (36.2-40.8)
Participated in physical activities with a coach/instructor – time spent (hours) – 7d	1.0 (0.2-1.9)

SOCIO-ECONOMIC STATUS – PARENTAL EDUCATION AND INCOME

- Weekly hours of outdoor play significantly differed across parental education.
    - Children with parents educated at the college/trades level played outdoors longer than children with parents with a high school diploma or less and with a university degree or more (Table 3).
- The percentage of children that played outdoors in the past 7 days and time spent playing outside significantly differed by income.
    - Children from higher income households tended to report higher levels of outdoor play (Figure 2; Table 3).

Figure 2: Percentage that played outside in the past week and time spent (median) across income categories in children ages 3-4; Ontario, 2019

- The percentage of children who participated in PA with a coach/instructor in the past 12 months significantly differed by parental education and income.
    - Participation increased as measures of socio-economic status (SES) increased.
    - Hours spent in the past week also significantly differed by income quintiles; children in households of either highest or lowest income quintile participated more than children in the middle-income levels (quintiles 2-4; Figure 3; Table 3).

Figure 3: Participation in PA with a coach/instructor in the past 12 months and time spent in the past week across income quintiles in children ages 3-4; Ontario, 2019

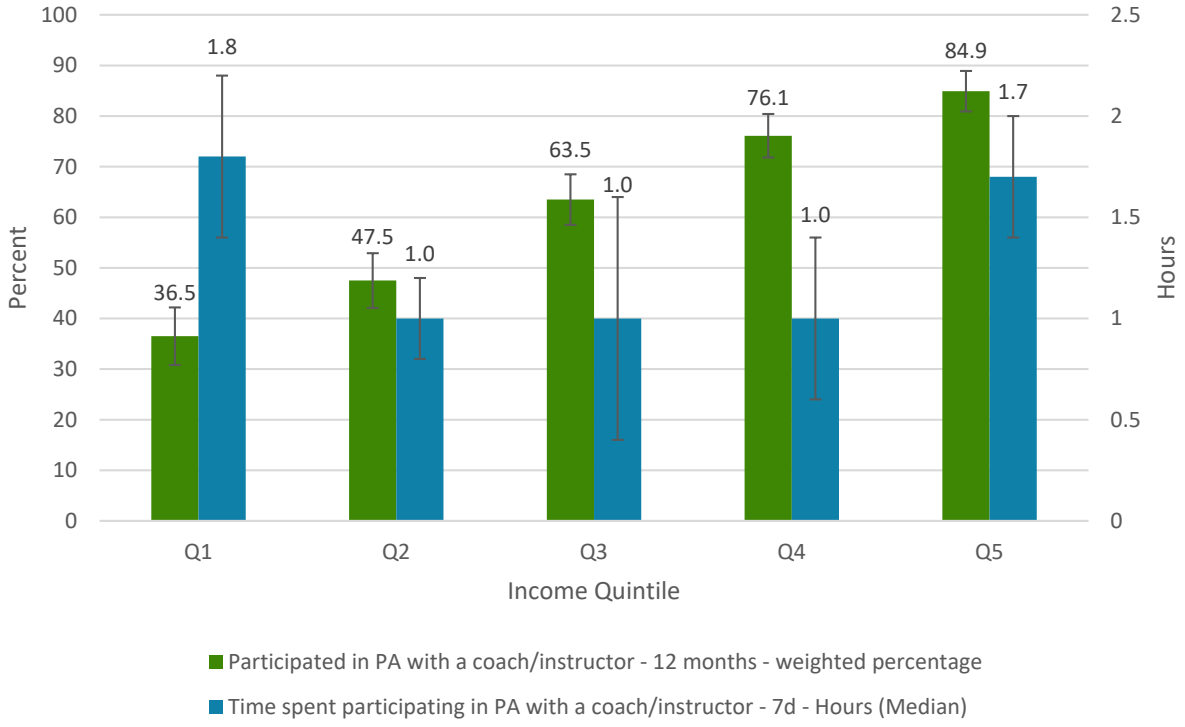


Table 3: Percentages and medians of physical activity indicators by highest parental education and income in children ages 3-4 years; Ontario, 2019

Socio-Demographic Variables	Played Outside (Yes) % (95% CI)	Played Outside (hours; 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (hours; 7 days) Median (95% CI)
Highest Parental Education Attained				
High school or less	91.3 (87.6-94.9)	4.5 (3.6-5.4)ϵ	30.8 (24.8-36.8)*	1.8 (1.3-2.2)
College/Trades	95.1 (93.8-96.5)	5.2 (4.6-5.8)ϵ	61.5 (57.6-65.3)*	1.0 (0.3-1.7)
University or more	94.3 (93.0-95.6)	4.3 (4.0-4.7)ϵ	68.9 (65.8-71.9)*	1.0 (0.4-1.6)
Household Income				
≤$24,999	89.0 (84.9-93.1)*	4.2 (3.2-5.1)ϵ	35.0 (27.4-42.7)*	1.2[C] (0.9-1.5)

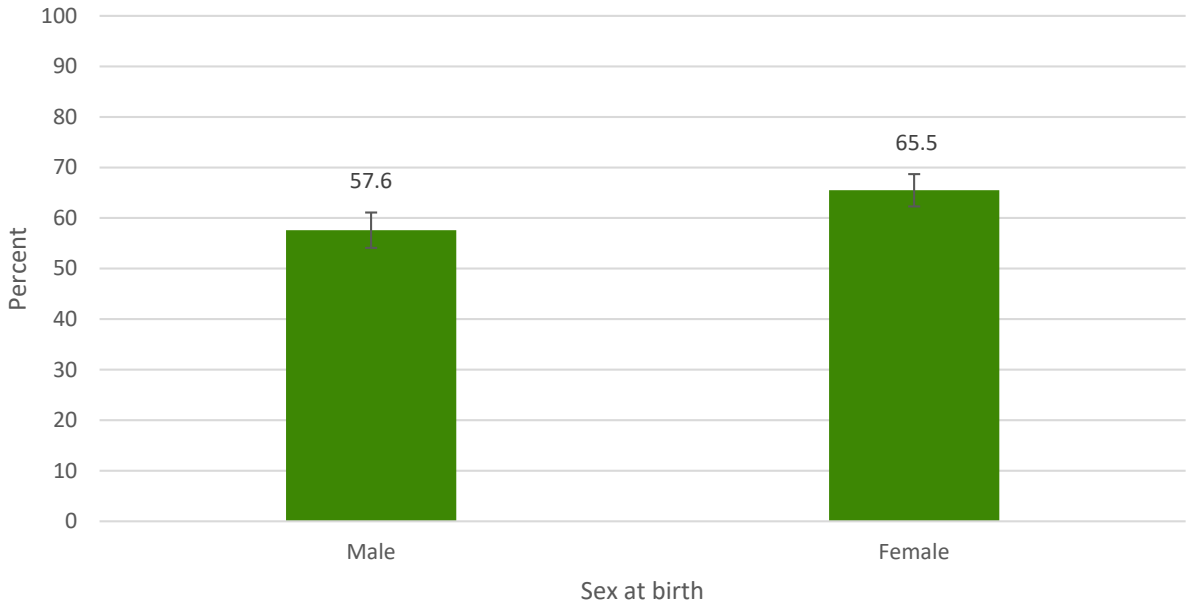
Socio-Demographic Variables	Played Outside (Yes) % (95% CI)	Played Outside (hours; 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (hours; 7 days) Median (95% CI)
$25,000 to 49,999	92.3 (89.7-94.9)*	4.2 (3.4-5.0)ϵ	40.5 (34.2-46.8)*	1.6[C] (1.1-2.1)
$50,000 to 74,999	92.3 (89.3-95.4)*	4.1 (3.4-4.7)ϵ	48.3 (42.1-54.6)*	1.0 (0.8-1.2)
$75,000 to 99,999	94.5 (92.3-96.6)*	4.5 (3.8-5.3)ϵ	60.2 (54.1-66.3)*	1.0 (0.6-1.4)
$100,000 to 149,999	96.4 (94.9-98.0)*	5.7 (5.0-6.4)ϵ	72.4 (67.6-77.1)*	1.0 (0.6-1.4)
$150,000 to 199,999	96.2 (93.6-98.8)*	4.9 (4.1-5.6)ϵ	81.3 (76.3-86.3)*	1.0 (0.8-1.3)
$200,000 and higher	96.4 (94.1-98.8)*	4.6 (3.7-5.4)ϵ	88.7 (84.0-93.5)*	1.6 (1.3-1.9)
Income Quintiles				
Q1	91.4 (89.0-93.8)*	4.0 (3.4-4.7)ϵ	36.5 (30.9-42.2)*	1.8 (1.4-2.2)σ
Q2	91.8 (89.2-94.4)*	4.2 (3.6-4.8)ϵ	47.5 (42.2-52.9)*	1.0 (0.8-1.2)σ
Q3	95.3 (93.7-96.9)*	4.8 (4.0-5.5)ϵ	63.5 (58.5-68.5)*	1.0 (0.4-1.5)σ
Q4	96.6 (95.0-98.1)*	5.7 (5.0-6.4)ϵ	76.1 (71.8-80.4)*	1.0 (0.6-1.3)σ
Q5	96.0 (93.8-98.1)*	4.6 (4.0-5.2)ϵ	84.9 (80.9-88.9)*	1.7 (1.4-2.0)σ
Low Income Cut-Off (LICO)				
Above cut off	95.1 (94.0-96.2)*	4.8 (4.5-5.1)ϵ	69.3 (66.8-71.9)*	1.0 (0.2-1.8)
Below cut off	91.0 (88.7-93.3)*	3.9 (3.4-4.4)ϵ	35.0 (30.0-40.0)*	1.3[C] (1.0-1.6)

C, D – This estimate should be interpreted with caution due to high sampling variability
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05)
ϵ indicates a significantly different mean in at least one subgroup (ANOVA p<0.05 or T-Test p<0.05 for socio-demographics with two levels)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two subgroups)

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

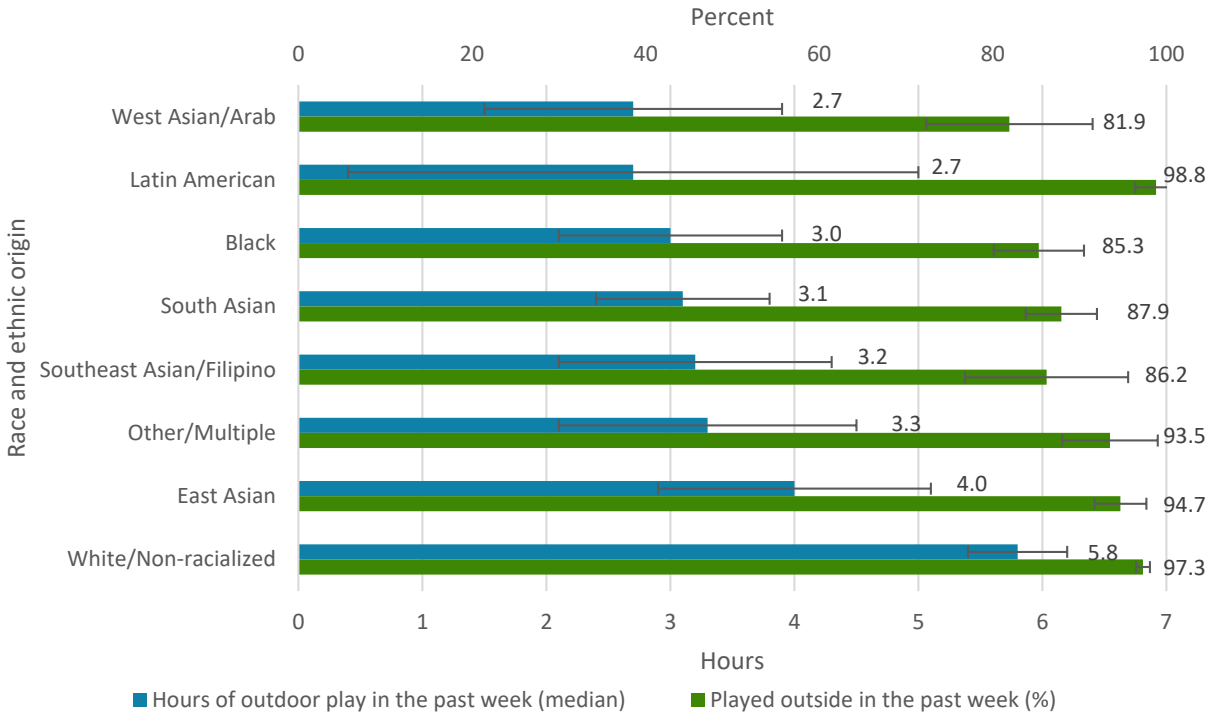
- In children ages 3-4, a significantly greater proportion of girls participated in PA with a coach/instructor in the past 12 months compared to boys (Figure 4; Table 4).

Figure 4: Participation in PA with a coach/instructor in the past 12 months by sex at birth in children ages 3-4 years; Ontario, 2019



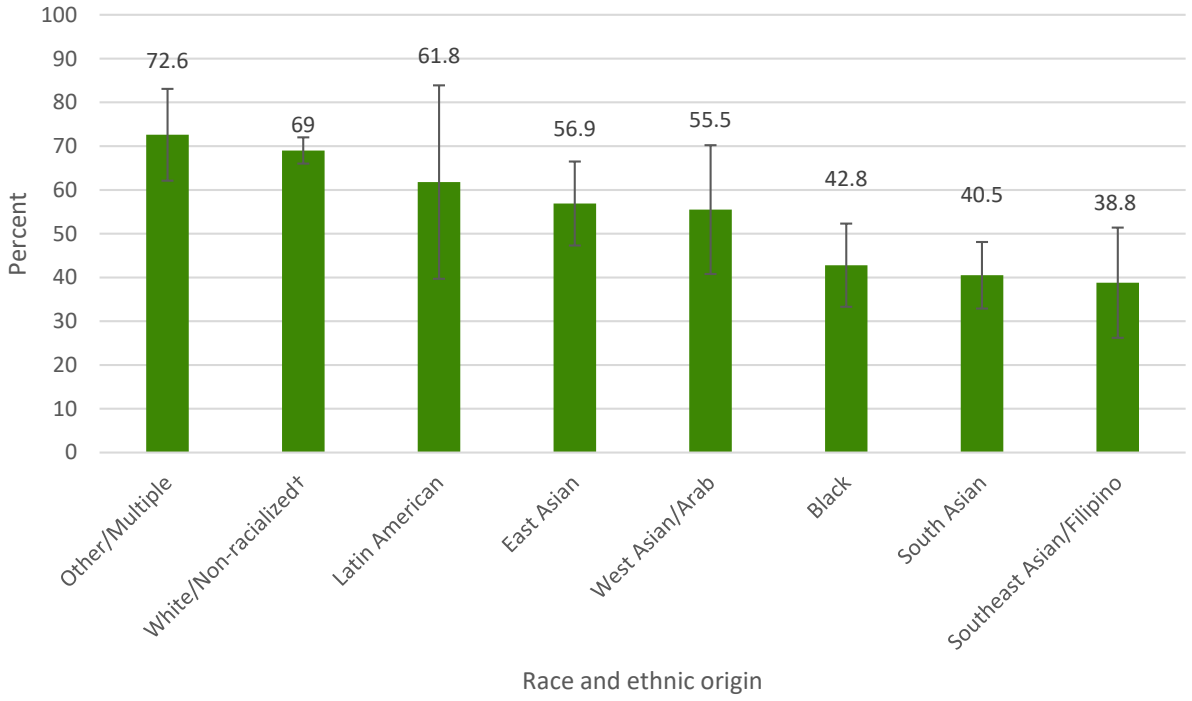
- Participation and time spent in outdoor play within the past week and participation in PA with a coach/instructor in the past 12 months significantly differed by race and ethnic origin.
    - Children who identified as White/Non-racialized had the longest outdoor play times and high participation.
    - Children who identified as Latin American had the highest proportion of participation in outdoor play and children who identified as other/multiple ethnicities had the highest proportion of participation in PA with a coach/instructor (Figure 5, 6; Table 4).

Figure 5: Played outside in the past week and time spent playing outside in the past week by race and ethnic origins in children ages 3-4; Ontario, 2019



Note: White/Non-racialized excludes those identifying as Indigenous

Figure 6: Participation in PA with a coach/instructor in the 12 months by race and ethnic origins in children ages 3-4; Ontario, 2019



†Excludes those identifying as Indigenous

- Children who identified as Indigenous played outside for significantly more time than children who identified as non-Indigenous (Table 4).
- A significantly greater percentage of children who identified as non-immigrants played outside in the past week and participated in PA with a coach/instructor in the past 12 months compared to children identified as immigrants.
- Longer periods of time spent playing outside was also significantly reported among children who identified as non-immigrants vs. children who identified as immigrants (Table 4).

Table 4: Percentages and medians of physical activity indicators by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in children ages 3-4 years; Ontario, 2019

Socio-Demographic Variables	Played Outside (Yes) % (95% CI)	Played Outside (Hours, 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7d) Median (95% CI)
Sex at birth				
Male	94.0 (92.6-95.5)	4.7 (4.3-5.1)	57.6 (54.2-61.1)*	1.1 (0.2-2.0)
Female	94.3 (93.0-95.6)	4.5 (4.1-4.9)	65.5 (62.3-68.7)*	1.0 (0.4-1.6)
Race and Ethnic Origin				
White/Non-racialized†	97.3 (96.5-98.1)*	5.8 (5.4-6.2)ϵ	69.0 (66.0-72.0)*	1.0 (0.3-1.7)
Black	85.3 (80.2-90.5)*	3.0 (2.1-3.9)ϵ	42.8 (33.2-52.3)*	1.4 (0.9-1.9)
East Asian	94.7 (91.7-97.6)*	4.0 (3.0-5.1)ϵ	56.9 (47.3-66.5)*	1.0[C] (0.6-1.4)
Southeast Asian/Filipino	86.2 (76.9-95.6)*	3.2 (2.1-4.3)ϵ	38.8[C] (26.3-51.4)*	NR
South Asian	87.9 (83.8-91.9)*	3.1 (2.4-3.7)ϵ	40.5 (32.9-48.0)*	1.2 (0.8-1.6)
Latin American	98.8 (96.4-100.0)*	2.7[C] (0.4-5.0)ϵ	61.8[C] (39.7-83.9)*	NR
West Asian/Arab	81.9 (72.3-91.5)*	2.7 (1.5-3.9)ϵ	55.5 (40.9-70.2)*	1.3[C] (0.3-2.3)
Other/Multiple	93.5 (88.0-99.0)*	3.3 (2.1-4.4)ϵ	72.6 (62.1-83.1)*	1.0 (0.8-1.3)
Indigenous Identity				
Yes	96.4 (91.8-100.0)	6.1 (4.6-7.6)ϵ	57.7 (44.9-70.5)*	1.0[C] (0.7-1.3)
No	94.1 (93.1-95.1)	4.6 (4.3-4.9)ϵ	61.7 (59.3-64.1)*	1.1 (0.3-1.9)
Immigration Status				
Non-immigrant	94.6 (93.6-95.6)*	4.7 (4.4-5.0)ϵ	62.5 (60.1-64.9)*	1.0 (0.2-1.8)
Immigrant	87.3 (81.3-93.3)*	1.8 (0.2-3.5)ϵ	46.6 (35.0-58.2)*	1.2[C] (0.5-1.8)

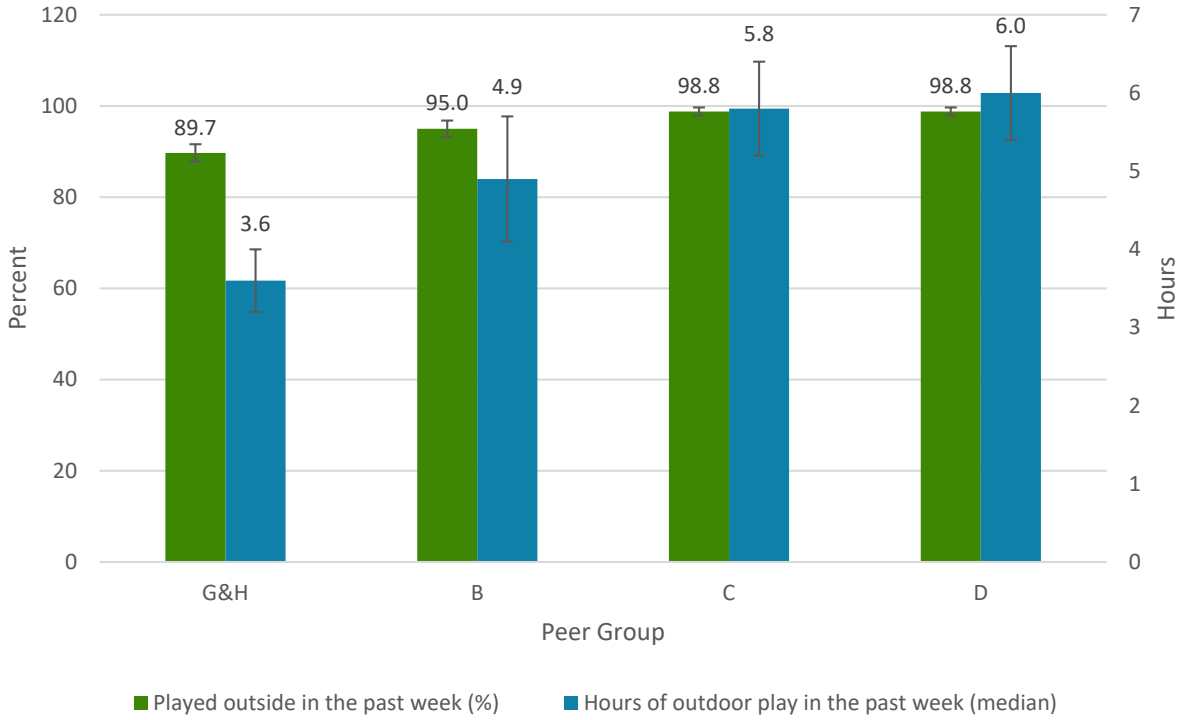
Socio-Demographic Variables	Played Outside (Yes) % (95% CI)	Played Outside (Hours, 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7d) Median (95% CI)
Non-permanent resident	NR	NR	NR	NR

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test $p<0.05$)
ϵ indicates a significantly different mean in at least one subgroup (ANOVA $p<0.05$ or T-Test $p<0.05$ for socio-demographics with two levels)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two subgroups)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

PEER GROUP

- There were significant differences in the percentage of children that played outside, and time spent playing outside in the past 7 days across Peer Groups.
    - The lowest percentage and time spent playing outside was observed in Peer Groups G & H and the highest percentages and time spent playing outside were observed in Peer Groups C and D (Figure 7; Table 5).

Figure 7: Participation and time spent in outdoor play by Peer Group in children ages 3-4 years; Ontario, 2019



- The percentage of children who participated in PA with a coach/instructor in the past 12 months significantly differed across Peer Groups. The lowest percentage was observed in Peer Groups G & H. The highest percentage observed was in Peer Group B (Figure 8; Table 5).

Figure 8: Participation in PA with a coach/instructor by Peer Group in children ages 3-4 years; Ontario, 2019

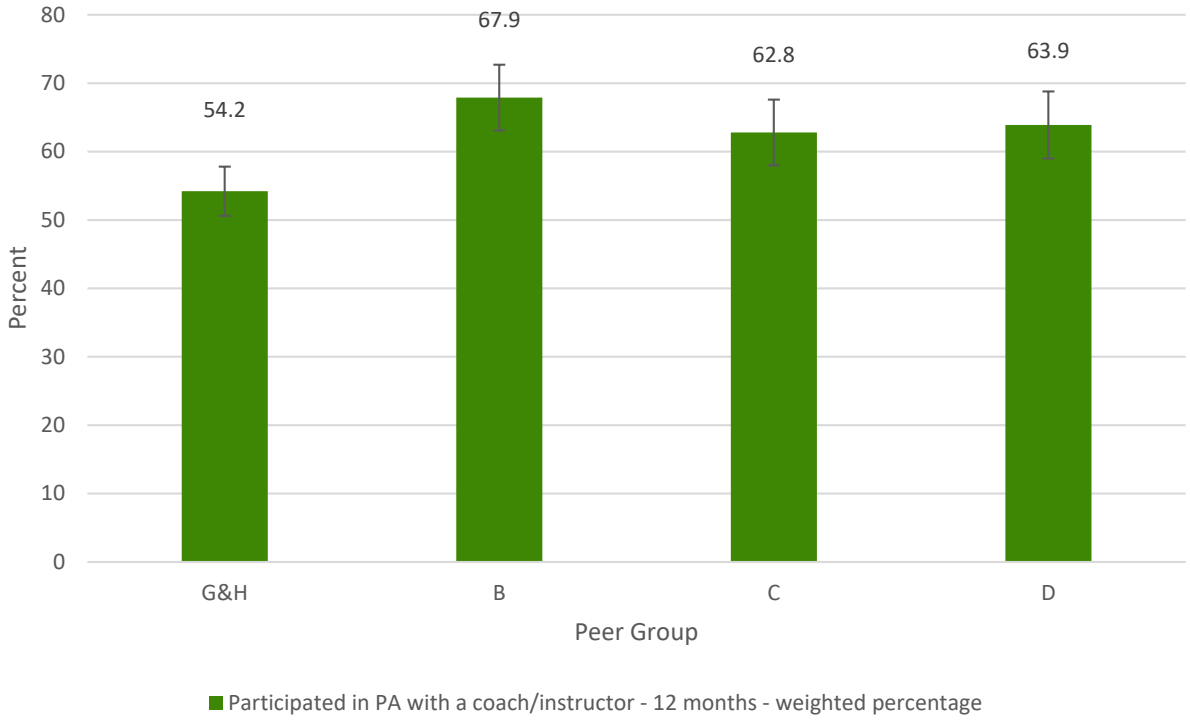


Table 5: Percentages and medians of physical activity indicators by Peer Group in children ages 3-4 years; Ontario, 2019

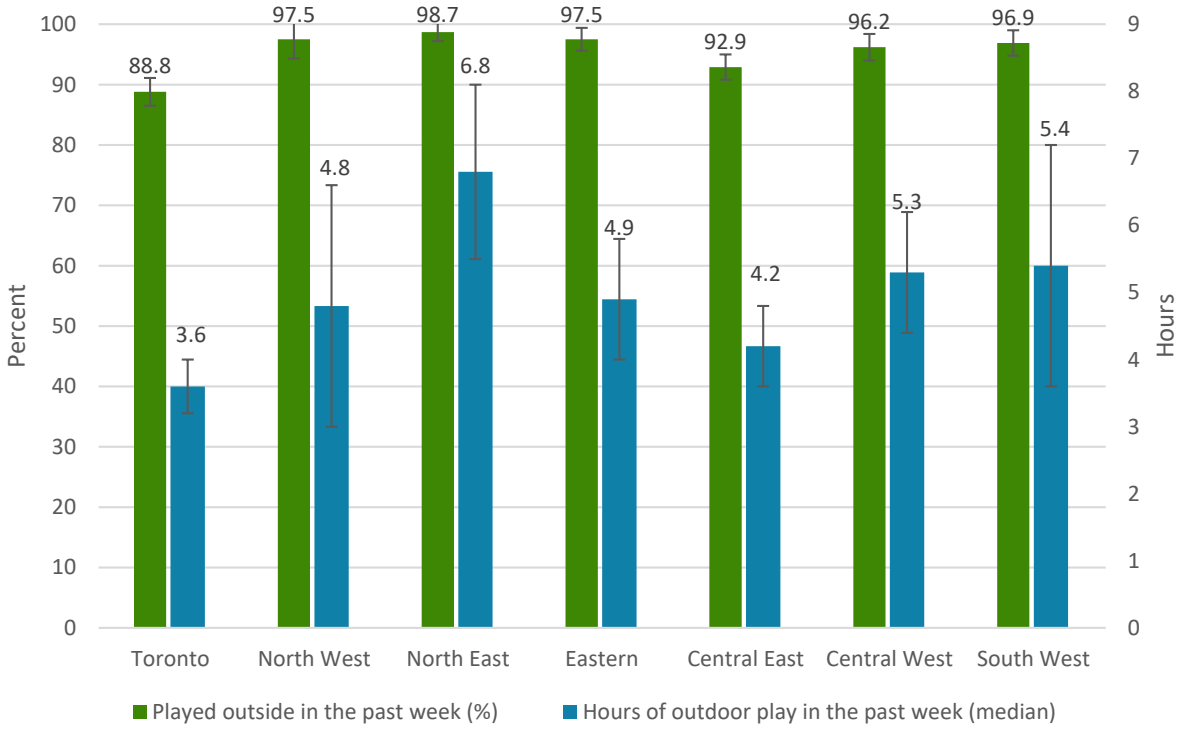
Peer Groups	Played Outside (Yes) % (95% CI)	Played Outside (Hours; 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Group G & H	89.7 (87.8-91.5)*	3.6 (3.2-3.9)ϵ	54.2 (50.7-57.8)*	1.2 (0.8-1.5)
Group B	95.0 (93.2-96.8)*	4.9 (4.2-5.7)ϵ	67.9 (63.1-72.6)*	1.0 (0.5-1.5)
Group C	98.8 (98.0-99.7)*	5.8 (5.2-6.4)ϵ	62.8 (58.0-67.6)*	1.0 (0.4-1.6)
Group D	98.8 (98.0-99.7)*	6.0 (5.4-6.6)ϵ	63.9 (59.0-68.7)*	1.1[C] (0.8-1.3)

*indicates a significant difference across Peer Groups (Rao-Scott Chi-Square Test p<0.05)
ϵ indicates a significantly different mean in at least one Peer Group (ANOVA p<0.05)

GEOGRAPHIC REGION

- There were significant differences in the percentage of children who played outside, and the time spent playing outside in the past week by geographic regions in Ontario.
    - The lowest percentage and time spent playing outside was observed in Toronto.
    - The highest percentage and time spent playing outside was observed in the North East (Figure 9; Table 6).

Figure 9: Outdoor play participation in the past week and time spent in the past week by geographic region in children ages 3-4 years; Ontario, 2019



- The percentage of children who participated in PA with a coach/instructor in the past 12 months significantly differed across geographic regions in Ontario.
    - The North West, Central West, and South West regions exhibited similar percentage estimates to each other.
    - Toronto and Eastern regions also had similar percentages to each other (Figure 10; Table 6).

Figure 10: Participation in PA with a coach/instructor in the past 12 months by geographic region in children ages 3-4 years; Ontario, 2019

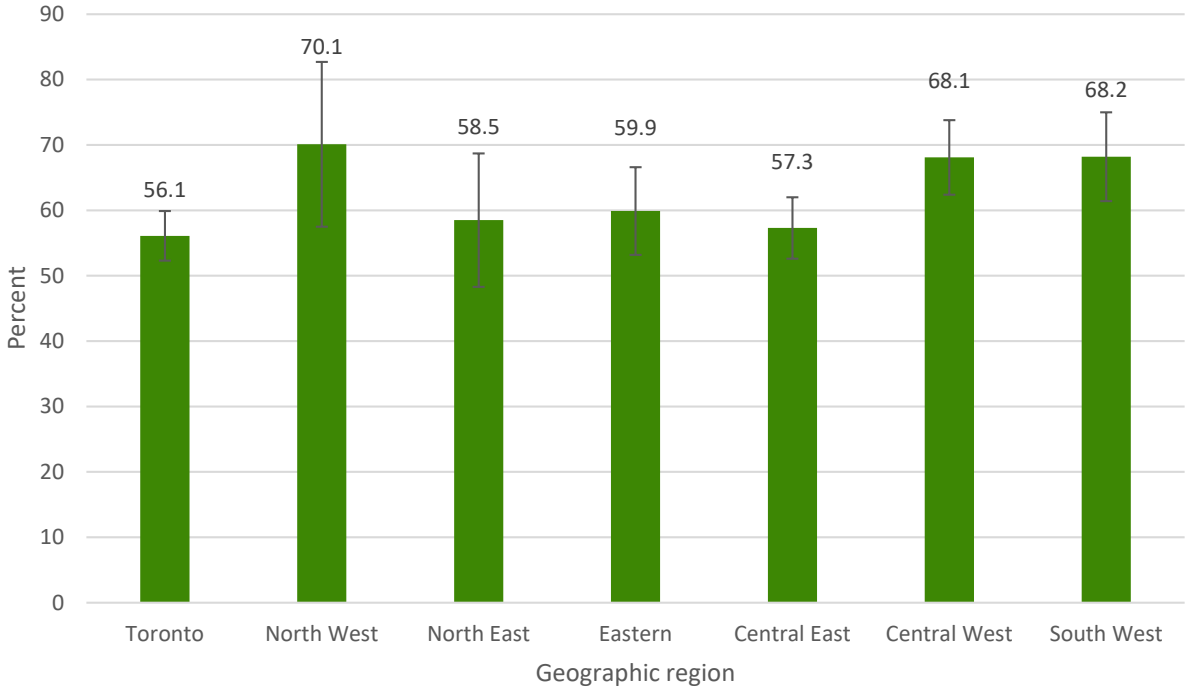


Table 6: Percentages and medians of physical activity indicators by geographic region in children ages 3-4 years; Ontario, 2019

Geographic Regions	Played Outside (Yes) % (95% CI)	Played Outside (Hours; 7 days) Median (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Toronto	88.8 (86.5-91.1)*	3.6 (3.3-4.0)ϵ	56.1 (52.2-59.9)*	1.3 (1.1-1.6)
North West	97.5 (94.3-100.0)*	4.8 (3.0-6.6)ϵ	70.1 (57.6-82.7)*	1.6 (1.1-2.1)
North East	98.7 (97.2-100.0)*	6.8 (5.5-8.0)ϵ	58.5 (48.3-68.7)*	1.0 (0.7-1.3)
Eastern	97.5 (95.6-99.3)*	4.9 (4.0-5.8)ϵ	59.9 (53.3-66.6)*	1.0 (0.8-1.2)
Central East	92.9 (90.9-95.0)*	4.2 (3.7-4.8)ϵ	57.3 (52.6-62.0)*	1.0 (0.5-1.5)
Central West	96.2 (94.0-98.3)*	5.3 (4.5-6.2)ϵ	68.1 (62.3-73.8)*	1.0 (0.5-1.5)
South West	96.9 (94.8-99.0)*	5.4 (4.6-6.3)ϵ	68.2 (63.3-75.0)*	1.0[C] (0.7-1.4)

C – This estimate should be interpreted with caution due to high sampling variability
*indicates a significant difference across geographic regions (Rao-Scott Chi-Square Test p<0.05)
ϵ indicates a significantly different mean in at least geographic region (ANOVA p<0.05)

PUBLIC HEALTH UNIT

Due to lack of indicators on adherence to guidelines for this age group, analysis of outcomes by Public Health Unit were not performed.

ACTIVE TRANSPORT

- Please refer to the Technical Notes section for a description of active transport indicators.
- Active transport times significantly differed by race and ethnic origin; however, estimates should be interpreted with caution due to high sampling variability (Table 7).

Table 7: Weekly active transport time by socio-demographics in children ages 3-4 years; Ontario, 2019

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Sex at birth	
Male	23.9 (20.3-27.5)
Female	28.0 (22.9-33.0)
Highest Parental Education	
High school or less	24.7 (17.9-31.5)
College/Trades	21.7 (17.3-26.2)
University or more	28.1 (22.2-34.1)
Household Income	
<$24,999	28.1 (14.5-41.7)
$25,000 to 49,999	20.9 (8.3-33.5)
$50,000 to 74,999	20.3 (15.6-24.9)
$75,000 to 99,999	30.9 (22.8-39.0)
$100,000 to 149,999	27.3 (20.6-34.0)
$150,000 to 199,999	27.3[C] (13.4-41.2)
$200,000 and higher	28.7 (19.7-37.8)
Income Quintiles	
Q1	25.4 (16.4-34.4)

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Q2	20.0 (15.6-24.5)
Q3	30.1 (21.5-38.8)
Q4	26.7 (18.7-34.8)
Q5	28.6 (19.5-37.7)
Low Income Cut Off (LICO)	
Above cut off	26.3 (22.8-29.8)
Below cut off	23.0 (15.1-31.0)
Race and Ethnic Origin – Child	
White/Non-racialized†	26.8 (22.4 -31.3)σ
Black	21.9[C] (9.4-34.4)σ
East Asian	19.0[C] (3.5-34.6)σ
Southeast Asian/Filipino	17.0[C] (5.7-28.3)σ
South Asian	26.4 (18.2-34.7)σ
Latin American	NR
West Asian/Arab	NR
Other/Multiple	59.8[D] (23.6-96.1)σ
Indigenous Identity	
Yes	NR
No	25.9 (22.6-29.2)
Immigration Status	
Non-immigrant	25.5 (22.0-29.1)
Immigrant	27.0[C] (14.8-39.2)
Non-permanent resident	NR

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two subgroups)

NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

- In children ages 3-4 years, weekly active transport time did not significantly differ across Peer Groups (Table 8)

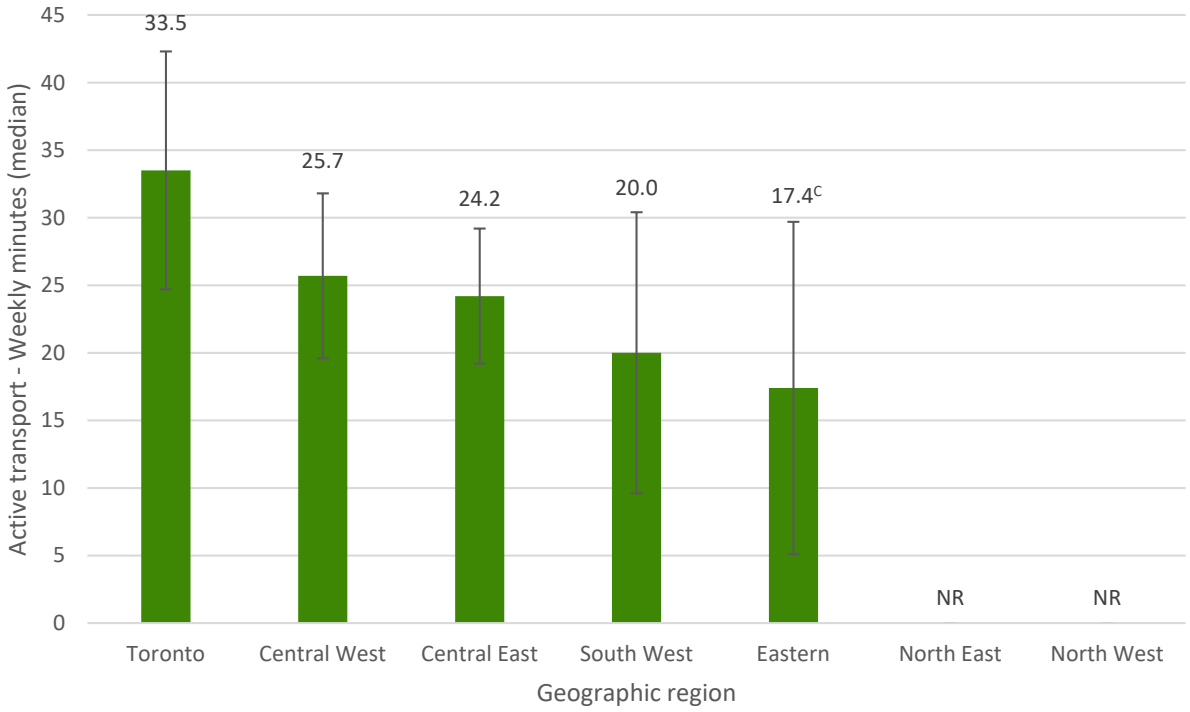
Table 8: Weekly active transport time by Peer Group in children ages 3-4 years; Ontario, 2019

Peer Groups	Weekly Active Transport Time (Minutes) Median (95% CI)
Group G & H	27.9 (20.4-35.4)
Group B	23.9 (18.5-29.3)
Group C	18.7[C] (9.7-27.7)
Group D	25.8 (18.1-33.5)

C – This estimate should be interpreted with caution due to high sampling variability
σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response $p<0.05$)

- In children ages 3-4 years, weekly active transport time significantly differed across geographic regions.
    - Children living in Toronto spent the longest in active transport whereas children living in the Eastern region spent the least amount of time in active transport (Figure 11; Table 9).

Figure 11: Weekly active transport time by geographic region in children ages 3-4; Ontario, 2019



NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

Table 9: Weekly active transport time by geographic region in children ages 3-4 years; Ontario, 2019

Geographic Regions	Weekly Active Transport Time (Minutes) Median (95% CI)
Toronto	33.5 (24.8-42.3)σ
North West	NR
North East	NR
Eastern	17.4[C] (5.1-29.7)σ
Central East	24.2 (19.1-29.2)σ
Central West	25.7 (19.6-31.8)σ
South West	20.0 (9.6-30.4)σ

C – This estimate should be interpreted with caution due to high sampling variability
σ indicates a significantly different mean in at least one geographic region (ANOVA on Box-Cox transformed response $p<0.05$)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

Age 5-11 years

- The majority of children ages 5-11 years spent 1-14 hours playing outside in the past 7 days.
    - Only 5.5% (95% CI: 4.9-6.2) played outside for less than one hour, and 13.0% (95% CI: 12.1-13.9) played outside for 14 hours or more (Table 10).
- The percentage of children ages 5-11 years who participated in physical activities with a coach or instructor in the past 12 months was 78.3% (95% CI: 77.2-79.4) for 2.9 hours weekly (Table 10).
- Less than half of children ages 5-11 years met PA guidelines, participating in 265.4 minutes of PAT per week, for a median daily average of 37.9 minutes (Table 10).

Table 10: Percentages and medians of physical activity indicators among children ages 5-11 years; Ontario, 2019

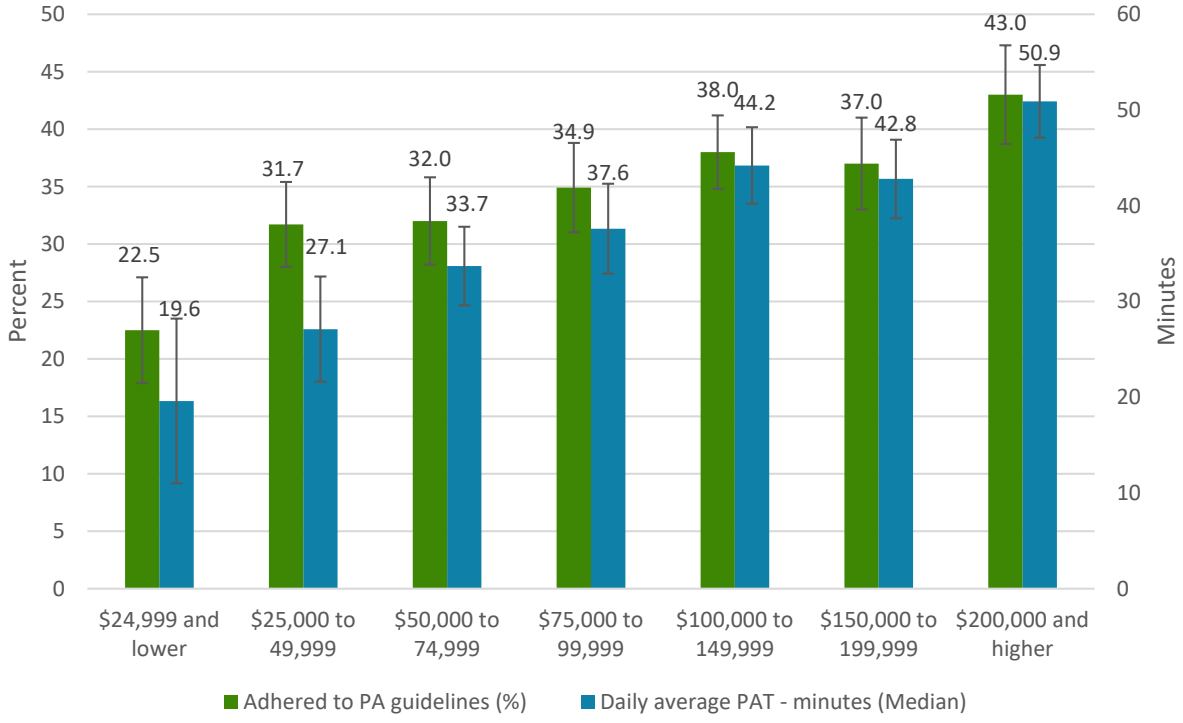
Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Child played outside – 7d	
Yes	90.3 (89.5-91.0)
No	9.7 (9.0-10.5)
Child played outside – time spent – 7d	
Less than 1 hour	5.5 (4.9-6.2)
1 hour to less than 3 hours	24.8 (23.6-26.1)
3 hours to less than 7 hours	31.9 (30.6-33.3)
7 hours to less than 14 hours	24.7 (23.4-26.0)
14 or more hours	13.0 (12.1-13.9)
Child played outside – hours spent – 7d – Median	3.8 (3.7-4.0)
Participated in physical activities with coach/instructor – 12 mo	
Yes	78.3 (77.2-79.4)
No	21.7 (20.6-22.8)
Participated in physical activities with coach/instructor – time spent – 7d	2.9 (2.6-3.2)
Total PAT – min – 7d	265.4 (251.9-278.8)

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Physical activity time – average/day – minutes – 7d	37.9 (36.0-39.8)
Active for 60 min/day using PAT – 7d	
No activity	22.2 (20.9-23.4)
Active each day for at least 60 minutes	14.3 (13.1-15.4)
Not active each day for at least 60 minutes	63.6 (62.1-65.1)
Adherence to physical activity guidelines using daily average PAT	
Meets the guidelines	34.7 (33.2-36.1)
Did not meet the guidelines	65.3 (63.9-66.8)
Number of days meeting or exceeding 60 min – using PAT – 7d	1.8 (1.7-2.0)

SOCIO-ECONOMIC STATUS – PARENTAL EDUCATION AND INCOME

- In children ages 5-11 years, daily average PAT and adherence to PA guidelines significantly differed across highest parental education and income such that PA increased with increased income (Figure 12; Table 11).

Figure 12: Daily average PAT and adherence to PA guidelines using daily average PAT by household income in children ages 5-11; Ontario, 2019



- Children living in households where the highest parental education was College/Trades had the greatest daily average PAT and adherence to PA guidelines (Table 11).
- In children ages 5-11 years, participation in PA with a coach/instructor within the past 12 months significantly differed across highest parental education and income such that participation increased as highest parental education level or income increased. Time spent also significantly differed by income (Figure 13; Table 11).

Figure 13: Participation in PA with a coach/instructor in the past 12 months and time spent participating in the past 7 days by household income in children ages 5-11; Ontario, 2019

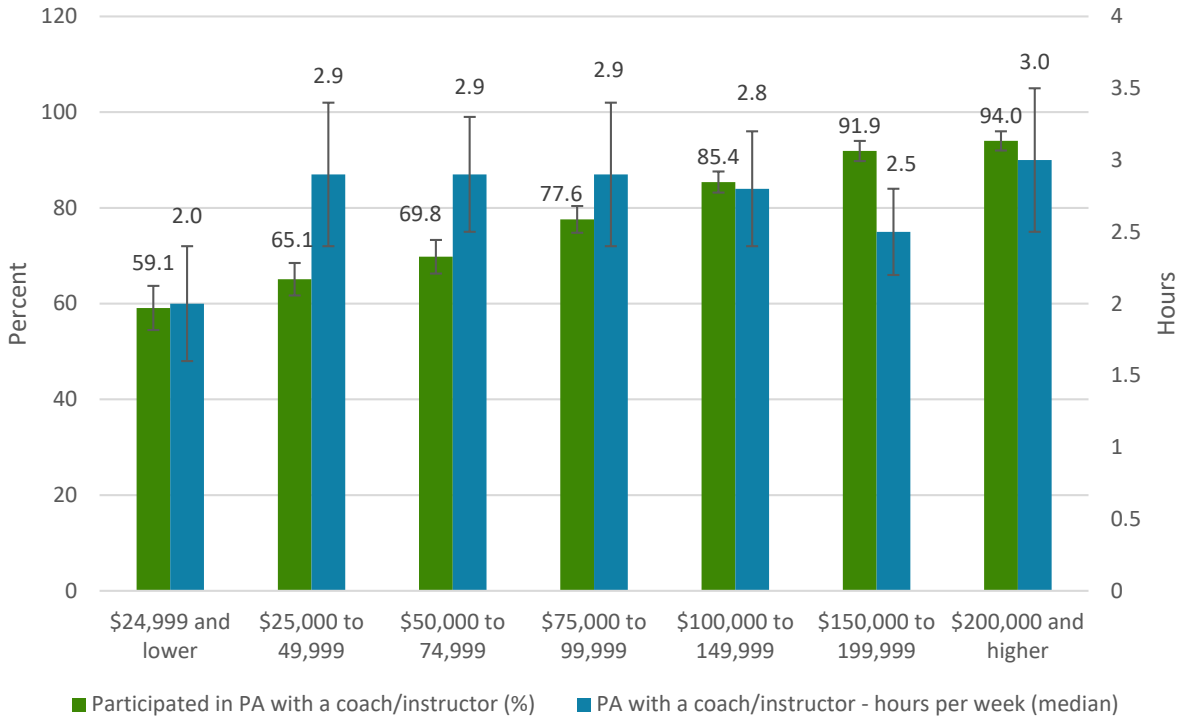


Table 11: Percentages and medians of physical activity indicators by highest parental education and income in children ages 5-11 years; Ontario, 2019

Socio-Demographic Variables	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Highest Parental Education Obtained				
High school or less	26.6 (20.9-32.3)σ	32.9 (29.0-36.8)*	56.4 (52.7-60.2)*	2.4 (2.0-2.8)
College/Trades	42.1 (39.3-44.9)σ	37.5 (35.0-39.9)*	76.5 (74.5-78.4)*	2.9 (2.6-3.3)

Socio-Demographic Variables	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
University or more	37.7 (35.6-39.8)σ	33.1 (31.0-35.2)*	85.9 (84.5-87.4)*	2.9 (2.6-3.2)
Household Income				
<$24,999	19.6 (11.2-28.0)σ	22.5 (17.9-27.0)*	59.1 (54.5-63.7)*	2.0 (1.6-2.4)σ
$25,000 to 49,999	27.1 (21.7-32.5)σ	31.7 (28.1-35.4)*	65.1 (61.7-68.5)*	2.9 (2.5-3.4)σ
$50,000 to 74,999	33.7 (29.7-37.7)σ	32.0 (28.3-35.8)*	69.8 (66.4-73.3)*	2.9 (2.5-3.3)σ
$75,000 to 99,999	37.6 (33.0-42.2)σ	34.9 (31.1-38.8)*	77.6 (74.7-80.4)*	2.9 (2.4-3.4)σ
$100,000 to 149,999	44.2 (40.3-48.2)σ	38.0 (34.7-41.2)*	85.4 (83.2-87.6)*	2.8 (2.5-3.2)σ
$150,000 to 199,999	42.8 (38.8-46.8)σ	37.0 (33.0-41.0)*	91.9 (89.9-94.0)*	2.5 (2.2-2.8)σ
$200,000 and higher	50.9 (47.1-54.7)σ	43.0 (38.7-47.3)*	94.0 (91.9-96.0)*	3.0 (2.5-3.4)σ
Income Quintiles				
Q1	24.7 (20.1-29.2)σ	27.1 (23.9-30.2)*	60.5 (57.3-63.7)*	2.3 (2.1-2.6)σ
Q2	33.7 (29.9-37.4)σ	32.3 (29.2-35.4)*	70.0 (67.2-72.9)*	2.9 (2.5-3.3)σ
Q3	40.0 (36.1-43.8)σ	35.8 (32.6-39.1)*	79.4 (77.0-81.7)*	2.5 (1.5-3.4)σ
Q4	42.2 (37.5-46.8)σ	38.2 (34.8-41.7)*	87.8 (85.6-90.0)*	2.8 (2.5-3.1)σ
Q5	48.5 (45.7-51.2)σ	40.1 (37.0-43.3)*	92.8 (91.2-94.4)*	3.0 (2.6-3.3)σ
Low Income Cut Off (LICO)				
Above cut off	42.1 (40.0-44.3)σ	37.1 (35.5-38.8)*	83.2 (82.1-84.4)*	2.9 (2.6-3.2)
Below cut off	23.8 (19.4-28.3)σ	27.1 (24.2-30.0)*	62.1 (59.2-65.0)*	2.5 (2.1-2.9)

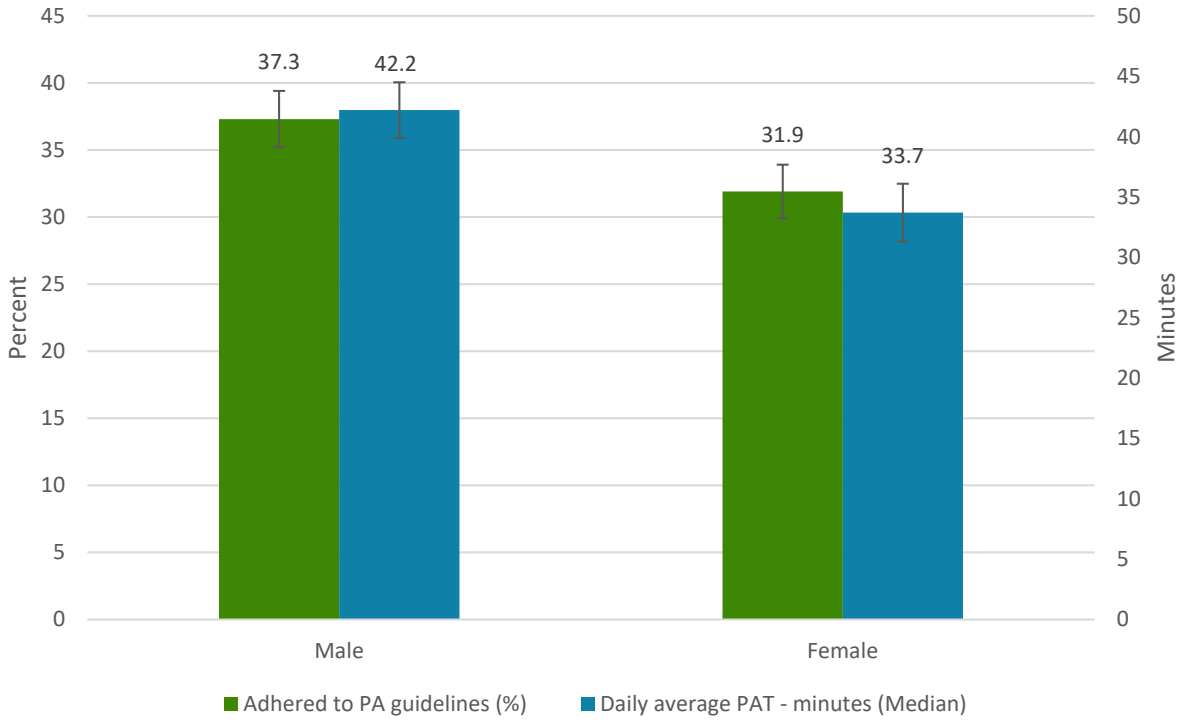
C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous

*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two subgroups)

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

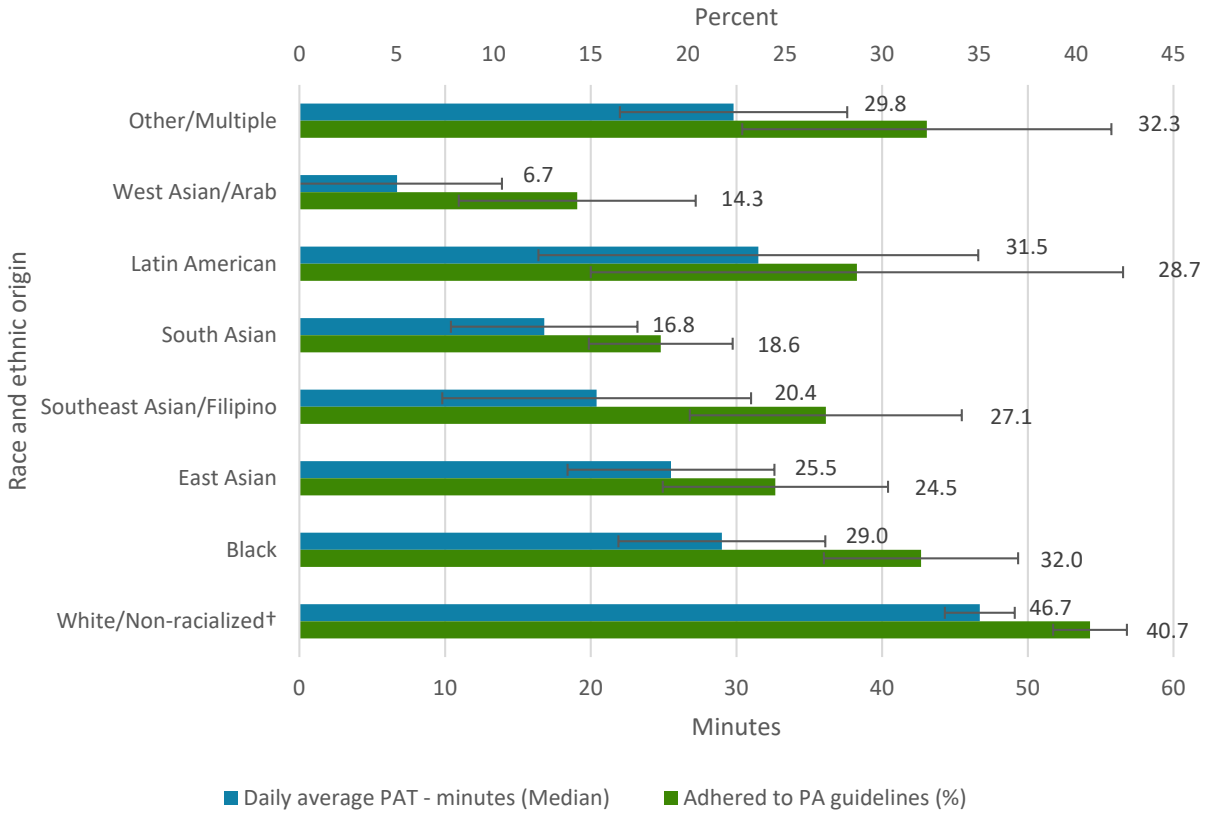
- Daily average PAT and adherence to PA guidelines significantly differed across sex at birth, race and ethnic origin, Indigenous identity, and child immigration status (Table 12).
    - In children ages 5-11 years, boys reported significantly greater daily average PAT and adherence to PA guidelines compared to girls (Figure 14; Table 12).

Figure 14: Daily average PAT and adherence to PA guidelines by sex at birth in children ages 5-11 years; Ontario, 2019



- Children who identified as White/Non-racialized had significantly longer daily average PAT and a higher proportion adhered to PA guidelines compared to children who identified as Black, East Asian, Southeast Asian/Filipino, South Asian, or West Asian/Arab (Figure 15; Table 12).

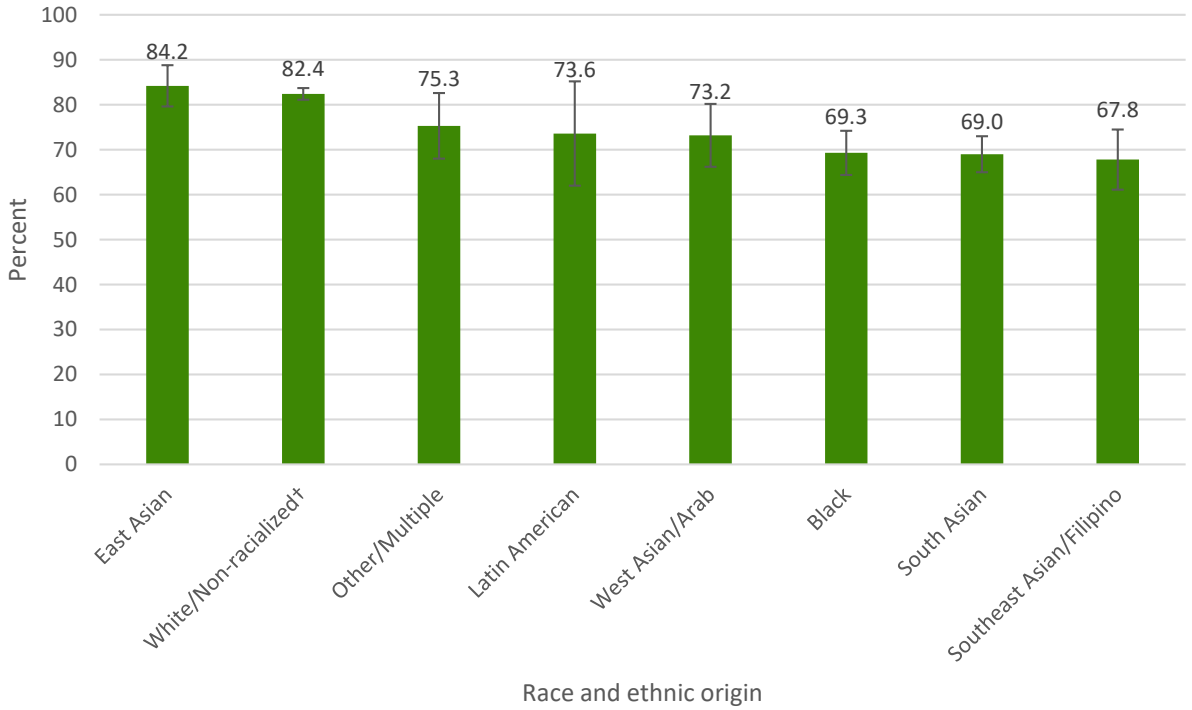
Figure 15: Daily average PAT and adherence to PA guidelines using daily average PAT in children ages 5-11 years; Ontario, 2019



†Excludes those identifying as Indigenous

- The percentage of children who participated in PA with a coach/instructor in the past 12 months significantly differed across race and ethnic origin.
    - Percent participation was relatively high in children who identified as White/Non-racialized or East Asian (Figure 16; Table 12).

Figure 16: Participation in PA with a coach/instructor in the past 12 months by race and ethnic origin in children ages 5-11 years; Ontario, 2019



†Excludes those identifying as Indigenous

- Children who identified as Indigenous had significantly greater daily average PAT and adherence to PA guidelines than children who identified as non-Indigenous; however, non-Indigenous children had significantly greater participation in PA with a coach/instructor (Table 12).
- Children who identified as non-immigrants had significantly greater daily average PAT, adherence to PA guidelines, and participation in PA with a coach/instructor than children who identified as immigrants (Table 12).

Table 12: Percentages and medians of physical activity indicators by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in children ages 5-11 years; Ontario, 2019

Socio-Demographic Variables	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Sex at birth				
Male	42.2 (39.9-44.5)σ	37.3 (35.2-39.3)*	79.0 (77.5-80.6)	2.9 (2.6-3.3)σ
Female	33.7 (31.4-36.1)σ	31.9 (29.9-33.9)*	77.5 (75.8-79.2)	2.9 (2.6-3.3)σ

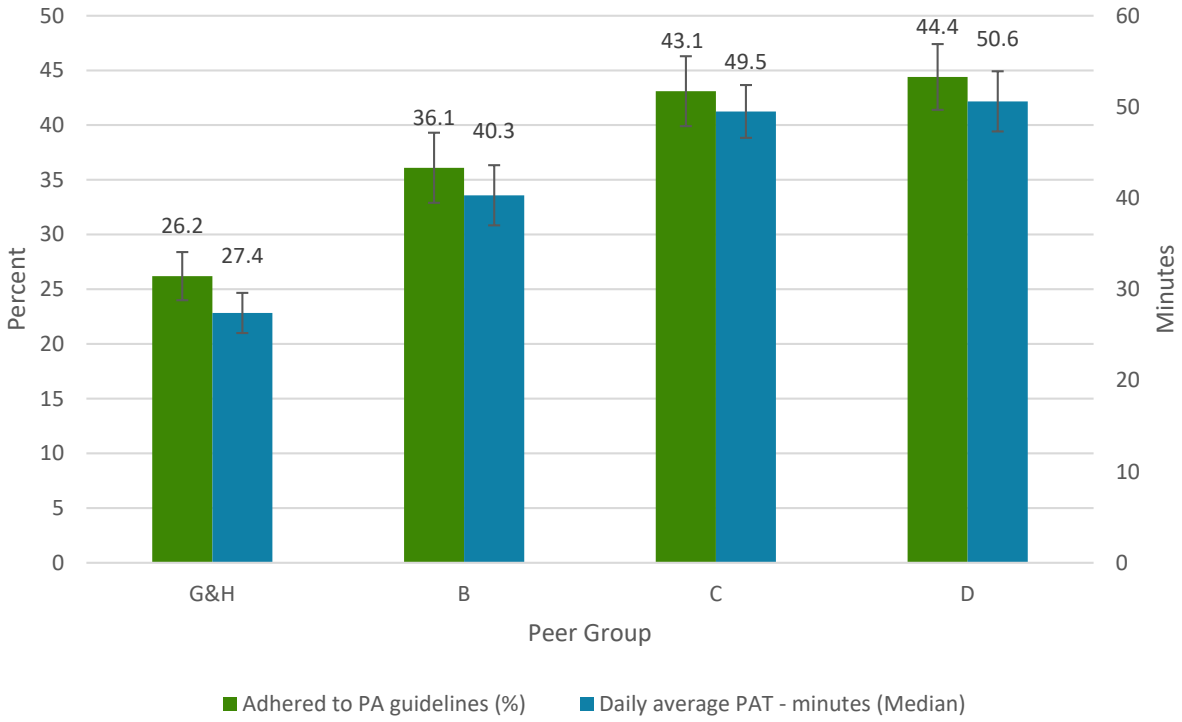
Socio-Demographic Variables	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Race and Ethnic Origin – Child				
White/Non-racialized†	46.7 (44.4-49.1)σ	40.7 (38.8-42.6)*	82.4 (81.1-83.7)*	2.9 (2.6-3.3)
Black	29.0 (22.0-36.1)σ	32.0 (26.0-37.9)*	69.3 (64.4-74.2)*	2.3 (1.9-2.7)
East Asian	25.5 (18.4-32.6)σ	24.5 (18.7-30.3)*	84.2 (79.6-88.7)*	2.5 (2.0-2.9)
Southeast Asian/Filipino	20.4 (9.8-31.0)σ	27.1 (20.1-34.0)*	67.8 (61.1-74.5)*	2.8 (2.4-3.3)
South Asian	16.8 (10.3-23.2)σ	18.6 (15.0-22.3)*	69.0 (65.1-73.0)*	2.5 (2.1-2.9)
Latin American	31.5[C] (16.4-46.6)σ	28.7[C] (15.0-42.3)*	73.6 (62.1-85.2)*	2.6 (1.4-3.8)
West Asian/Arab	6.7 (0.0-13.9) σ	14.3[C] (8.2-20.4)*	73.2 (66.3-80.2)*	2.5 (1.8-3.2)
Other/Multiple	29.8 (22.0-37.6)σ	32.3 (22.8-41.7)*	75.3 (68.0-82.6)*	2.4 (1.8-3.1)
Indigenous Identity				
Yes	46.9 (35.0-58.7)σ	45.2 (37.3-53.1)*	66.6 (60.0-73.3)*	2.7 (2.1-3.3)
No	37.8 (36.0-39.7)σ	34.4 (32.9-35.8)*	78.7 (77.6-79.9)*	2.9 (2.6-3.2)
Immigration Status				
Non-immigrant	41.0 (39.2-42.7)σ	36.4 (34.9-37.9)*	79.3 (78.2-80.5)*	2.9 (2.6-3.2)
Immigrant	17.0 (9.5-24.5)σ	19.5 (14.9-24.2)*	68.9 (64.3-73.5)*	2.3 (2.0-2.7)
Non-permanent resident	NR	NR	66.4 (49.1-83.6)*	2.5[D] (1.5-3.5)

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test $p<0.05$)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two subgroups)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

PEER GROUPS

- In children ages 5-11 years, daily average PAT, adherence to PA guidelines, and the percentage of children who participated in PA with a coach/instructor in the past 12 months significantly differed across Peer Groups.
    - Children living in Peer Groups C and D had significantly greater daily average PAT and adherence to PA guidelines than children living in Peer Groups G & H or B (Figure 17; Table 13).

Figure 17: Daily average PAT and adherence to PA guidelines by Peer Group in children ages 5-11 years; Ontario, 2019



- Participation in PA with a coach/instructor over the past 12 months significantly differed across Peer Groups; however, the differences were relatively small. The greatest participation was observed in Peer Group B, followed by Peer Groups D, G & H, and C (Figure 18; Table 13).

Figure 18: Participation in PA with a coach/instructor in the past 12 months by Peer Group in children ages 5-11 years; Ontario, 2019

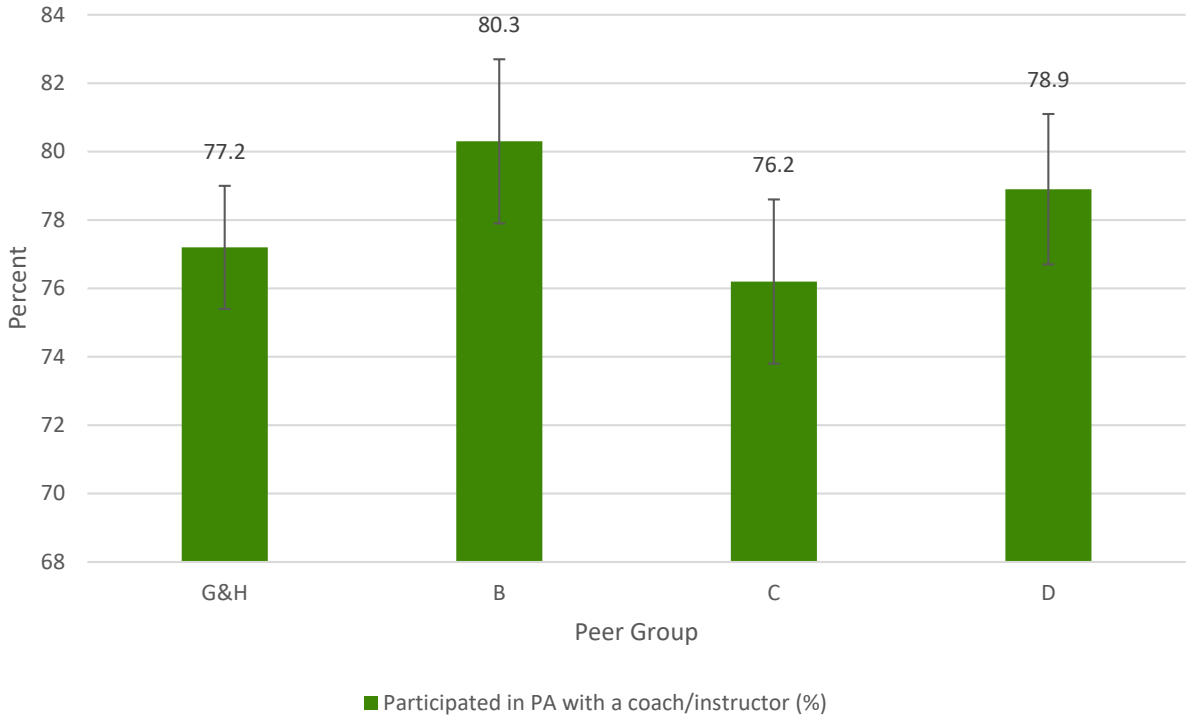


Table 13: Percentages and medians of physical activity indicators by Peer Group in children ages 5-11 years; Ontario, 2019

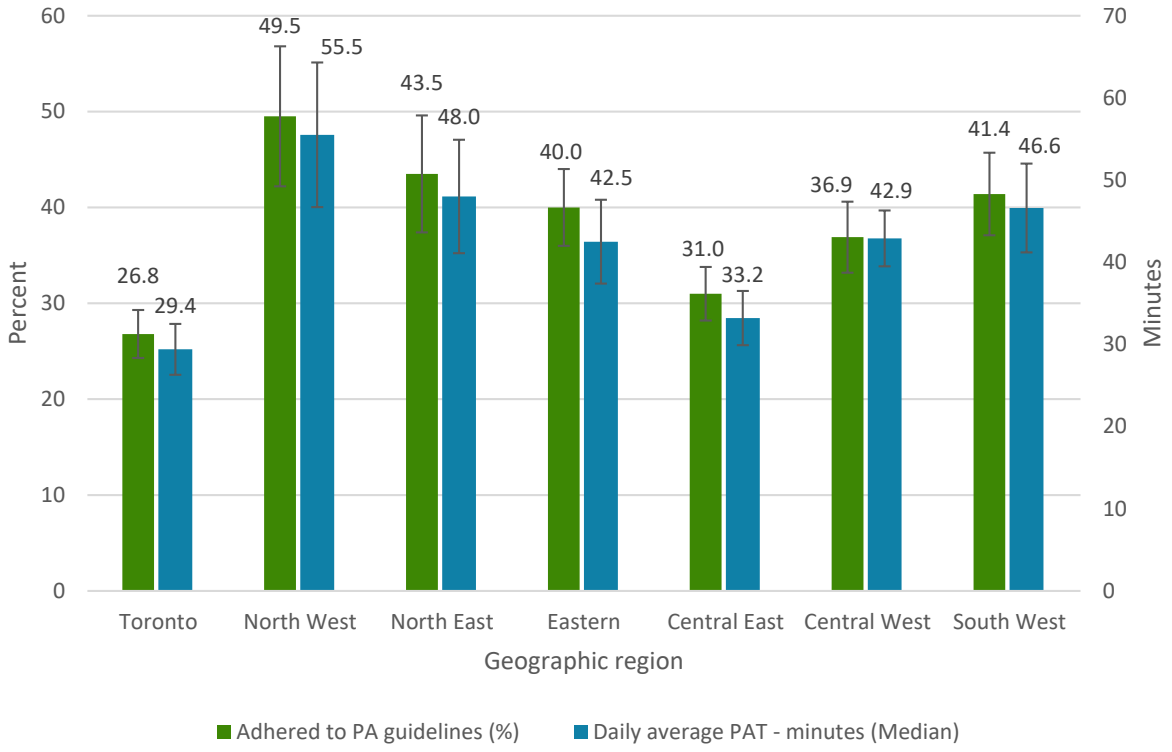
Peer Groups	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Group G & H	27.4 (25.2-29.5)σ	26.2 (24.0-28.3)*	77.2 (75.5-79.0)*	2.9 (2.6-3.2)
Group B	40.3 (37.1-43.6)σ	36.1 (32.9-39.3)*	80.3 (77.9-82.7)*	2.9 (2.6-3.3)
Group C	49.5 (46.6-52.4)σ	43.1 (40.0-46.3)*	76.2 (73.8-78.6)*	2.5 (2.1-2.8)
Group D	50.6 (47.3-53.9)σ	44.4 (41.5-47.4)*	78.9 (76.8-81.1)*	2.8 (2.5-3.0)

*indicates a significant difference across Peer Groups (Rao-Scott Chi-Square Test p<0.05)
σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response p<0.05)

GEOGRAPHIC REGION

- Daily average PAT and adherence to PA guidelines significantly differed across geographic regions in Ontario.
    - Children living in Toronto and the Central East had the lowest adherence to PA guidelines and daily average PAT compared to all other regions, while children living in the North West had the greatest adherence to PA guidelines and daily average PAT (Figure 19; Table 14).

Figure 19: Daily average PAT and adherence to PA guidelines using daily average PAT by geographic region in children ages 5-11 years; Ontario, 2019



- Participation in PA with a coach/instructor over the past 12 months significantly differed across geographic regions in Ontario; however, the differences were again small (Figure 20; Table 14).

Figure 20: Participation in PA with a coach/instructor in the past 12 months by geographic region in children ages 5-11 years; Ontario, 2019

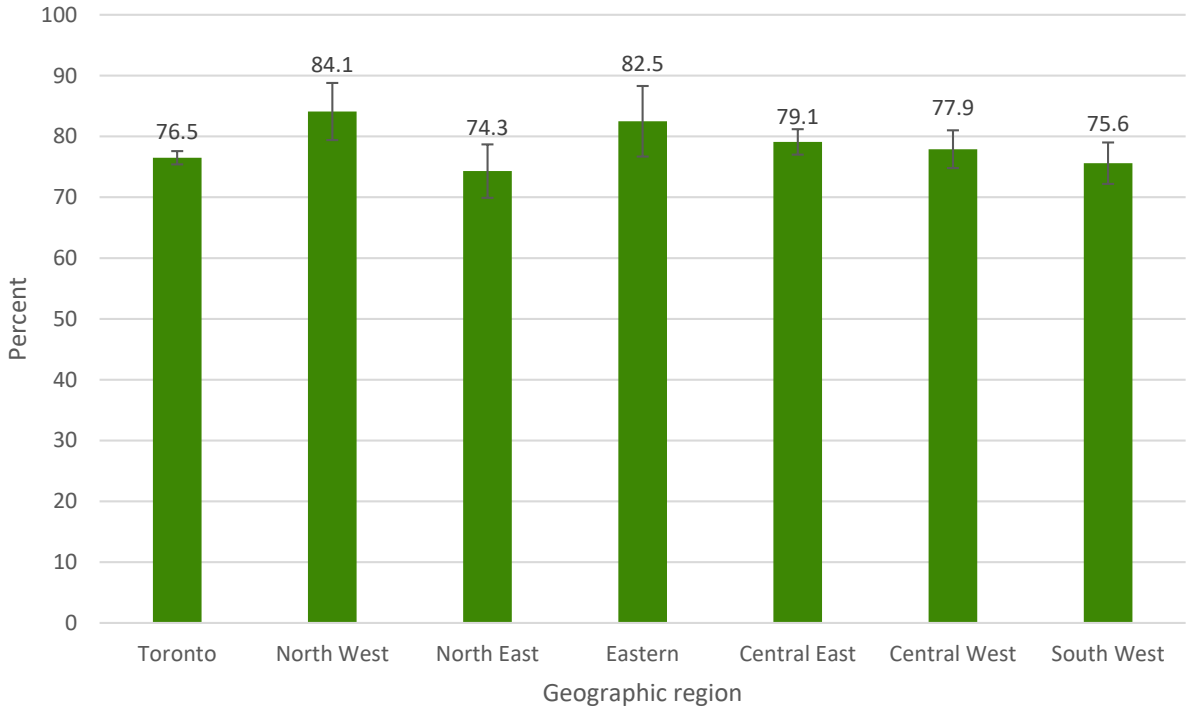


Table 14: Percentages and medians of physical activity indicators by geographic region in children ages 5-11 years; Ontario, 2019

Geographic Regions	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Toronto	29.4 (26.3-32.5)σ	26.8 (24.3-29.3)*	76.5 (74.4-78.6)*	2.9 (2.6-3.3)
North West	55.5 (46.7-64.3)σ	49.5 (42.2-56.8)*	84.1 (79.5-88.8)*	2.9 (2.1-3.6)
North East	48.0 (41.1-54.8)σ	43.5 (37.4-49.5)*	74.3 (69.9-78.7)*	2.5 (2.2-2.9)
Eastern	42.5 (37.4-47.6)σ	40.0 (36.0-43.9)*	82.5 (79.7-85.2)*	2.8 (2.5-3.2)
Central East	33.2 (30.9-35.5)σ	31.0 (28.2-33.8)*	79.1 (77.0-81.2)*	2.9 (2.6-3.3)
Central West	42.9 (39.5-46.3)σ	36.9 (33.2-40.6)*	77.9 (74.8-80.9)*	2.9 (2.4-3.5)
South West	46.6 (41.2-52.0)σ	41.4 (37.1-45.7)*	75.6 (72.2-79.0)*	2.8 (2.4-3.2)

*indicates a significant difference across geographic regions (Rao-Scott Chi-Square Test $p<0.05$)
σ indicates a significantly different mean in at least one geographic region (ANOVA on Box-Cox transformed response $p<0.05$)

PUBLIC HEALTH UNIT

- In children ages 5-11 years, daily average PAT and adherence to PA guidelines significantly differed across Public Health Units/Health Regions.

Table 15: Daily average PAT and adherence to PA guidelines using daily average PAT by Public Health Unit in children ages 5-11 years; Ontario, 2019

Public Health Unit	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)
District of Algoma Health Unit	43.8 (33.2-54.3)σ	40.2 (29.6-50.7)*
Brant County Health Unit	48.8 (38.7-59.0)σ	36.4[C] (25.7-47.2)*
Durham Regional Health Unit	36.2 (28.0-44.3)σ	35.6 (27.5-43.8)*
Grey Bruce Health Unit	42.5 (33.1-51.9)σ	38.5 (28.6-48.5)*
Haldimand-Norfolk Health Unit	38.7 (28.3-49.0)σ	33.7[C] (22.9-44.4)*
Haliburton, Kawartha, Pine Ridge District Health Unit	45.9 (38.7-53.2)σ	39.5 (31.9-47.2)*
Halton Regional Health Unit	38.9 (32.8-45.0)σ	36.5 (30.5-42.4)*
City of Hamilton Health Unit	40.9 (30.7-51.1)σ	32.7[C] (21.5-43.8)*
Hastings and Prince Edward Counties Health Unit	42.6 (33.1-52.1)σ	40.9 (32.4-49.5)*
Chatham-Kent Health Unit	49.9 (40.9-59.0)σ	42.7 (35.0-50.5)*
Kingston, Frontenac and Lennox and Addington Health Unit	49.4 (40.9-58.0)σ	44.9 (36.6-53.2)*
Lambton Health Unit	58.0 (47.8-68.3)σ	50.5 (39.6-61.3)*
Leeds. Grenville and Lanark District Health Unit	56.6 (48.4-64.8)σ	47.1 (37.2-57.1)*
Middlesex-London Health Unit	35.2 (21.9-48.4)σ	35.7[C] (24.7-46.7)*
Niagara Regional Area Health Unit	48.3 (39.6-56.9)σ	40.2 (30.0-50.3)*
North Bay Parry Sound District Health Unit	49.8 (35.7-64.0)σ	47.6 (35.3-59.8)*
Northwestern Health Unit	56.9 (47.2-66.6)σ	48.9 (40.7-57.0)*

Public Health Unit	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)
Huron Perth Health Unit	53.0 (39.5-66.5)σ	49.5 (39.1-60.0)*
City of Ottawa Health Unit	37.9 (31.4-44.4)σ	35.0 (28.8-41.3)*
Peel Regional Health Unit	22.6 (18.7-26.5)σ	23.0 (19.4-26.6)*
Peterborough County-City Health Unit	56.0 (39.4-72.7)σ	50.5 (38.6-62.3)*
Porcupine Health Unit	54.5 (41.4-67.6)σ	46.9 (35.1-58.7)*
Renfrew County and District Health Unit	64.9 (51.1-78.6)σ	57.7 (44.6-70.7)*
Eastern Ontario Health Unit	49.4 (35.5-63.4)σ	43.5 (32.9-54.2)*
Simcoe Muskoka Health Unit	50.7 (44.0-57.5)σ	45.3 (39.2-51.4)*
Sudbury and District Health Unit	48.7 (35.7-61.7)σ	43.5 (32.1-54.9)*
Thunder Bay District Health Unit	52.3 (41.4-63.3)σ	49.8 (39.8-59.8)*
Timiskaming Health Unit	38.1[C] (16.6-59.6)σ	NR
Waterloo Health Unit	44.1 (34.1-54.0)σ	37.7 (28.6-46.7)*
Wellington-Dufferin-Guelph Health Unit	46.7 (40.6-52.8)σ	40.1 (33.9-46.4)*
Windsor-Essex County Health Unit	42.7 (32.7-52.7)σ	41.7 (34.3-49.0)*
York Regional Health Unit	31.9 (25.8-38.0)σ	29.0 (22.3-35.7)*
Southwestern Public Health	46.7 (37.1-56.4)σ	44.6 (36.9-52.3)*
City of Toronto Health Unit	29.4 (26.3-32.5)σ	26.8 (24.3-29.3)*

C – This estimate should be interpreted with caution due to high sampling variability
*indicates a significant difference across Public Health Units (Rao-Scott Chi-Square Test $p<0.05$)
σ indicates a significantly different mean in at least one Public Health Unit (ANOVA on Box-Cox transformed response $p<0.05$)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

ACTIVE TRANSPORT

- Children who identified as Indigenous used active transportation for significantly less time per week than children who did not identify as Indigenous (Table 16).

Table 16: Weekly active transport time by socio-demographics in children ages 5-11 years; Ontario, 2019

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Sex at birth	
Male	24.9 (21.2-28.7)
Female	23.9 (22.5-25.3)
Highest Parental Education	
High school or less	26.5 (20.9-32.2)
College/Trades	24.7 (21.6-27.7)
University or more	24.6 (22.1-27.0)
Household Income	
<$24,999	22.8 (19.8-25.7)
$25,000 to 49,999	26.0 (23.7-28.3)
$50,000 to 74,999	24.4 (21.4-27.3)
$75,000 to 99,999	25.7 (22.3-29.1)
$100,000 to 149,999	24.3 (21.4-27.2)
$150,000 to 199,999	25.8 (22.4-29.2)
$200,000 and higher	24.2 (21.8-26.7)
Income Quintiles	
Q1	24.6 (22.5-26.8)
Q2	24.6 (21.5-27.6)
Q3	24.8 (21.5-28.2)
Q4	24.4 (21.6-27.3)
Q5	24.8 (22.9-26.6)

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Low Income Cut Off (LICO)	
Above cut off	24.7 (21.0-28.5)
Below cut off	24.6 (22.5-26.7)
Race and Ethnic Origin – Child	
White/Non-racialized†	24.9 (21.6-28.3)
Black	23.3 (19.1-27.5)
East Asian	28.0 (20.1-35.9)
Southeast Asian/Filipino	24.2 (18.9-29.5)
South Asian	24.5 (21.4-27.7)
Latin American	19.8[C] (8.2-31.5)
West Asian/Arab	21.7 (16.1-27.3)
Other/Multiple	24.6 (15.9-33.4)
Indigenous Identity	
Yes	15.8 (6.8-24.8)σ
No	24.7 (20.6-28.9)σ
Immigration Status	
Non-immigrant	24.7 (21.0-28.5)
Immigrant	24.8 (21.5-28.1)
Non-permanent resident	12.5[D] (0.0-31.2)

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two subgroups)

- In children ages 5-11 years, weekly active transport time significantly differed across Peer Groups.
    - Children living in Peer Groups G & H had the longest active transport time whereas children living in Peer Group C had the shortest active transport time (Figure 21; Table 17).

Figure 21: Weekly active transport time by Peer Group in children ages 5-11 years; Ontario, 2019

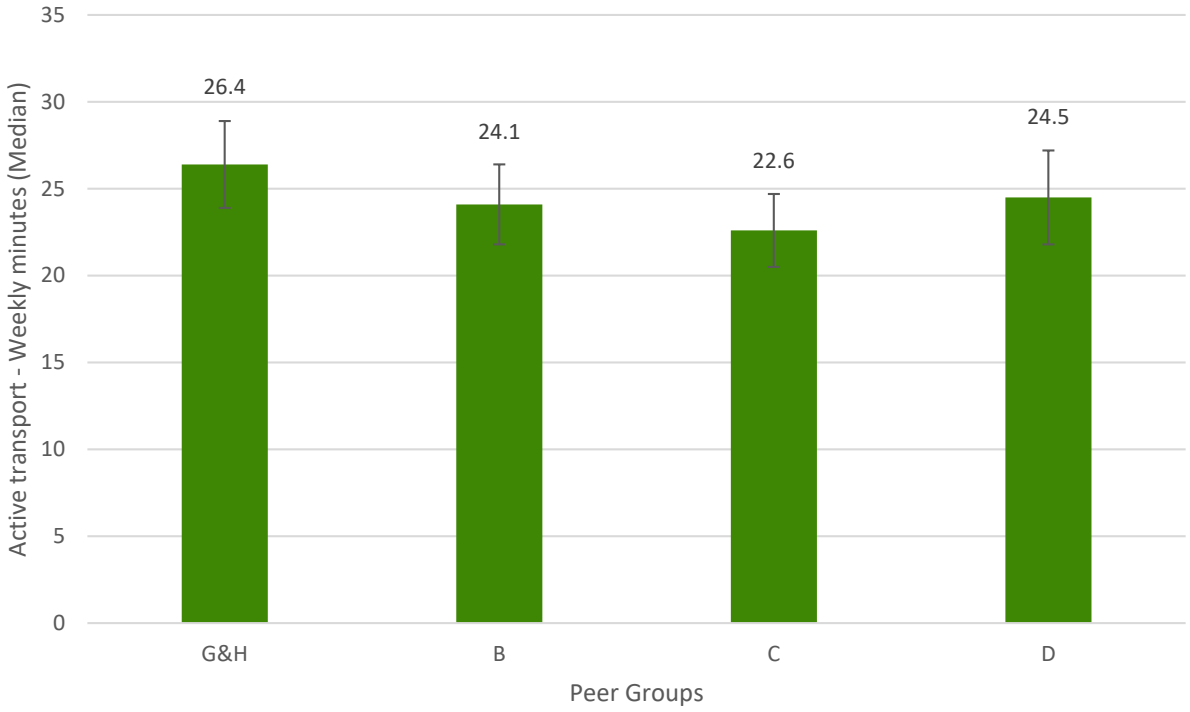


Table 17: Weekly active transport time by Peer Group in children ages 5-11 years; Ontario, 2019

Peer Groups	Weekly Active Transport Time (Minutes) Median (95% CI)
Group G & H	26.4 (23.8-28.9)σ
Group B	24.1 (21.9-26.4)σ
Group C	22.6 (20.5-24.7)σ
Group D	24.5 (21.8-27.2)σ

σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response $p<0.05$)

- In children ages 5-11 years, weekly active transport time significantly differed across geographic regions in Ontario.
    - Children living in Toronto had the longest active transport times whereas children living in the North East had the shortest active transport times (Figure 22; Table 18).

Figure 22: Weekly active transport time by geographic region in children ages 5-11 years; Ontario, 2019

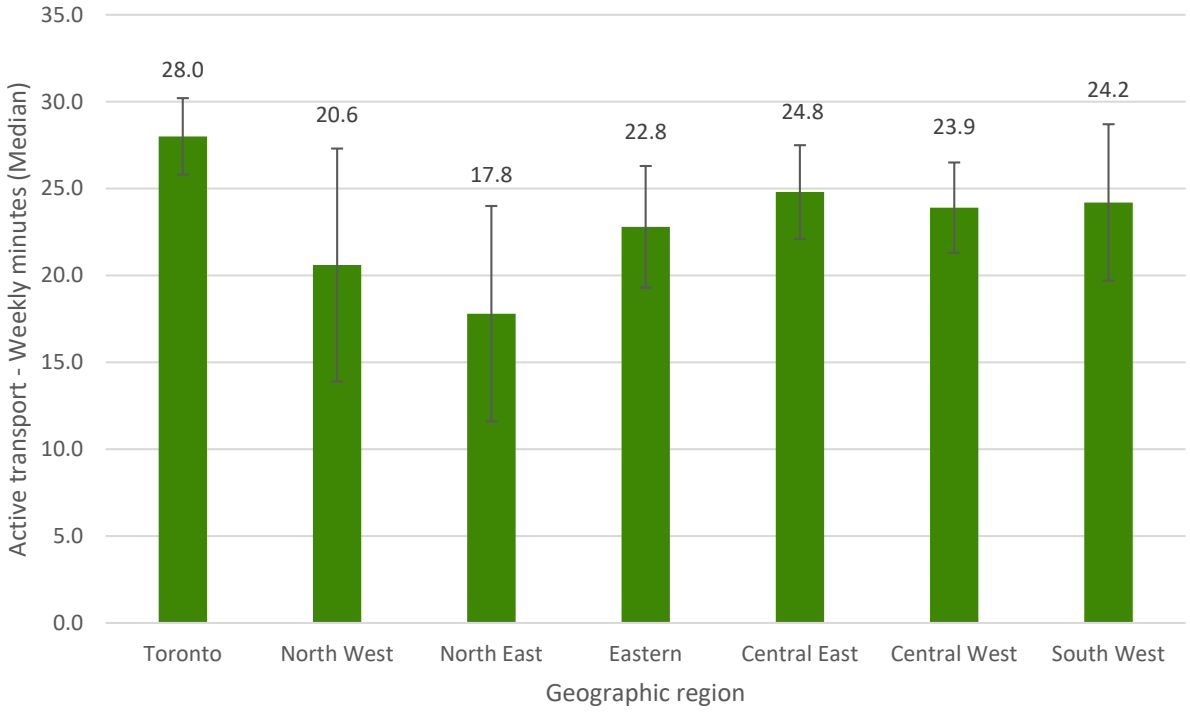


Table 18: Weekly active transport time by geographic region in children ages 5-11 years; Ontario, 2019

Geographic Regions	Weekly Active Transport Time (Minutes) Median (95% CI)
Toronto	28.0 (25.8-30.2)σ
North West	20.6 (13.8-27.3)σ
North East	17.8 (11.6-24.0)σ
Eastern	22.8 (19.3-26.3)σ
Central East	24.8 (22.1-27.5)σ
Central West	23.9 (21.2-26.5)σ
South West	24.2 (19.7-28.7)σ

σ indicates a significantly different mean in at least one geographic region (ANOVA on Box-Cox transformed response $p<0.05$)

Age 12-17 years

- The majority of youth ages 12-17 years participated in outdoor physical activities between 1-7 hours weekly.
    - 10.1% (95% CI: 9.0-11.3) participated for less than 1 hour, and only 4.0% (95% CI: 3.3-4.8) participated for 14 hours or more (Table 19).
- The percentage of youth ages 12-17 years who participated in PA with a coach/instructor in the past 12 months was 66.3% (95% CI: 64.8-67.8) for a median time of 4.4 hours per week (Table 19).
- The median time spent participating in moderate to vigorous physical activities was 205.3 minutes per week (average of 29.3 minutes daily).
    - Using daily average PAT, 26.4% (95% CI: 24.9-27.8) of youth met PA guideline recommendations (Table 19).
- The median time sweating or breathing harder during moderate to vigorous physical activities (MVPA) was 74.1 minutes per week (averaged of 10.6 minutes daily).
    - Using daily average MVPA, 10.0% (95% CI: 9.0-11.0) met PA guideline recommendations of ≥60 minutes of physical activity per day (Table 19).

Table 19: Percentages and medians of physical activity indicators among youth ages 12-17 years; Ontario, 2019

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Participated in outdoor physical activities – 7d	
Yes	61.2 (59.7-62.7)
No	38.8 (37.3-40.3)
Participated in outdoor physical activities – time spent – 7d	
Less than 1 hour	10.1 (9.0-11.3)
1 hour to less than 3 hours	43.1 (41.3-45.0)
3 hours to less than 7 hours	31.3 (29.4-33.2)
7 hours to less than 14 hours	11.4 (10.1-12.7)
14 hours or more	4.0 (3.3-4.8)
Participated in outdoor physical activities – hours spent – 7d – Median	1.9 (1.8-1.9)

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Participated in indoor physical activities – 7d	
Yes	52.8 (51.2-54.3)
No	47.2 (45.7-48.8)
Participated in indoor physical activities – time spent – 7d	
Less than 1 hour	14.7 (13.1-16.3)
1 hour to less than 3 hours	44.5 (42.3-46.6)
3 hours to less than 7 hours	29.2 (27.2-31.1)
7 hours to less than 14 hours	9.3 (8.0-10.6)
14 hours or more	2.4 (1.7-3.1)
Participated in physical activities with coach/instructor – 12 mo.	
Yes	66.3 (64.8-67.8)
No	33.7 (32.2-35.2)
Participated in physical activities with coach/instructor – time spent – 7d	4.4 (3.9-5.0)
Total MVPA – min – 7d	74.1 (65.9-82.4)
MVPA – average/day – min – 7d	10.6 (9.4-11.8)
Adherence to physical activity guidelines using daily average MVPA – 7d	
Met the guidelines	10.0 (9.0-11.0)
Did not meet the guidelines	90.0 (89.1-91.0)
Active for 60 min/day using MVPA	
No activity	25.5 (23.9-27.0)
Active each day for at least 60 minutes	2.0 (1.5-2.5)
Not active each day for at least 60 minutes	72.5 (71.0-74.1)
Number of days meeting or exceeding 60 min – using MVPA – 7d	0 (0-0.1)

Physical Activity Indicators	Weighted Percentage or Median (95% CI)
Physical activity – special weekly guideline 1 – MVPA	
Level 1 (100% active)	10.0 (9.0-10.9)
Level 2 (>=50% and <100% active)	18.0 (16.7-19.3)
Level 3 (>=25% and <50% active)	16.2 (15.0-17.5)
Level 4 (>0% and <25% active)	30.4 (28.7-32.1)
Level 5 (0% active)	25.5 (23.9-27.0)
MVPA – special weekly guideline 3 – MVPA	
Active	8.3 (7.4-9.2)
Moderately active	18.9 (17.6-20.1)
A bit active	13.6 (12.5-14.8)
Very little activity	33.8 (32.1-35.5)
Sedentary	25.5 (23.9-27.0)
Total PAT – min – 7d	205.3 (192.2-218.5)
PAT – average/day – minutes – 7d	29.3 (27.4-31.2)
Adherence to physical activity guidelines using daily average PAT	
Met the guidelines	26.4 (24.9-27.8)
Did not meet the guidelines	73.6 (72.2-75.1)
Active for 60 min/day using PAT – 7d	
No activity	25.2 (23.6-26.7)
Active each day for at least 60 minutes	5.4 (4.6-6.2)
Not active each day for at least 60 minutes	69.5 (67.8-71.1)
Number of days meeting or exceeding 60 min – using PAT – 7d	1.3 (1.1-1.4)

SOCIO-ECONOMIC STATUS – PARENTAL EDUCATION AND INCOME

- In youth ages 12-17 years, daily average MVPA, daily average PAT, adherence to PA guidelines, and participation in PA with a coach/instructor in the past 12 months, and time spent in PA with a coach/instructor in the past 7 days significantly differed across highest parental education, income categories, income quintiles, and an adjusted low-income cut-off (Table 20).
- Daily average MVPA, daily average PAT, and adherence to PA guidelines using both measures significantly differed by parental education and income.
    - Generally, PA increased as parental education level or income increased.
    - PA indicators were greater in the lowest income category and quintile than the second lowest category or quintile (Figure 23-24; Table 20).

Figure 23: Daily average MVPA and adherence to PA guidelines using daily average MVPA by household income in youth ages 12-17 years; Ontario, 2019

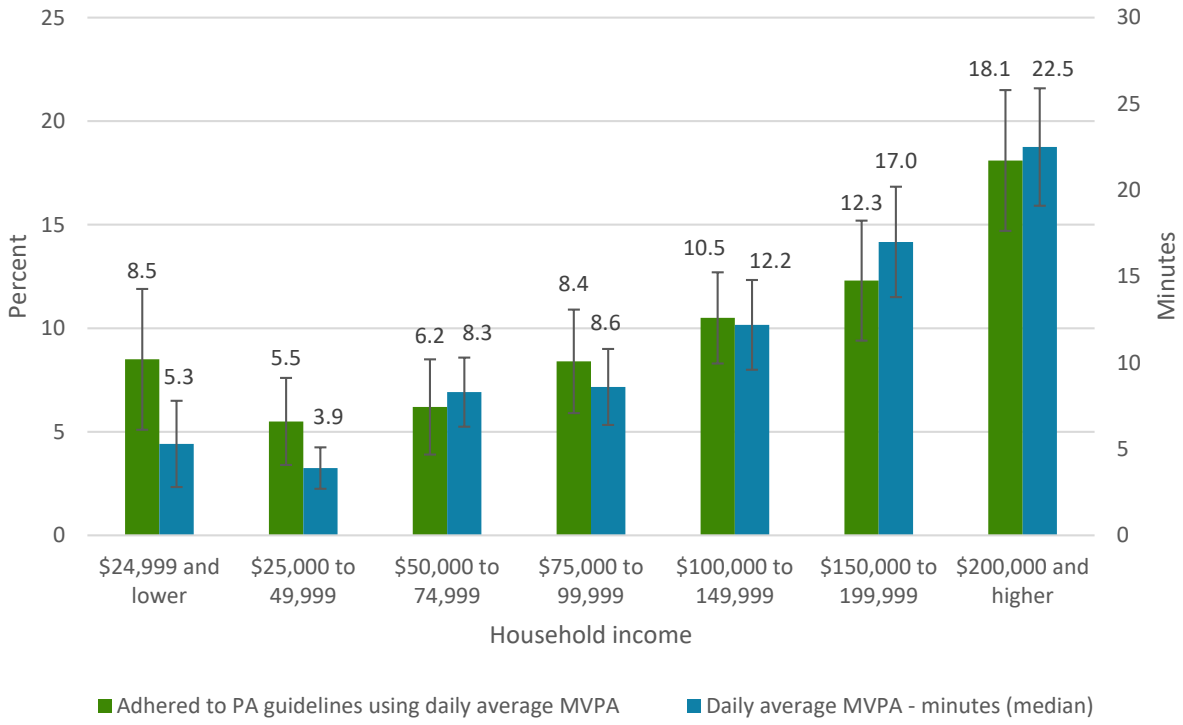
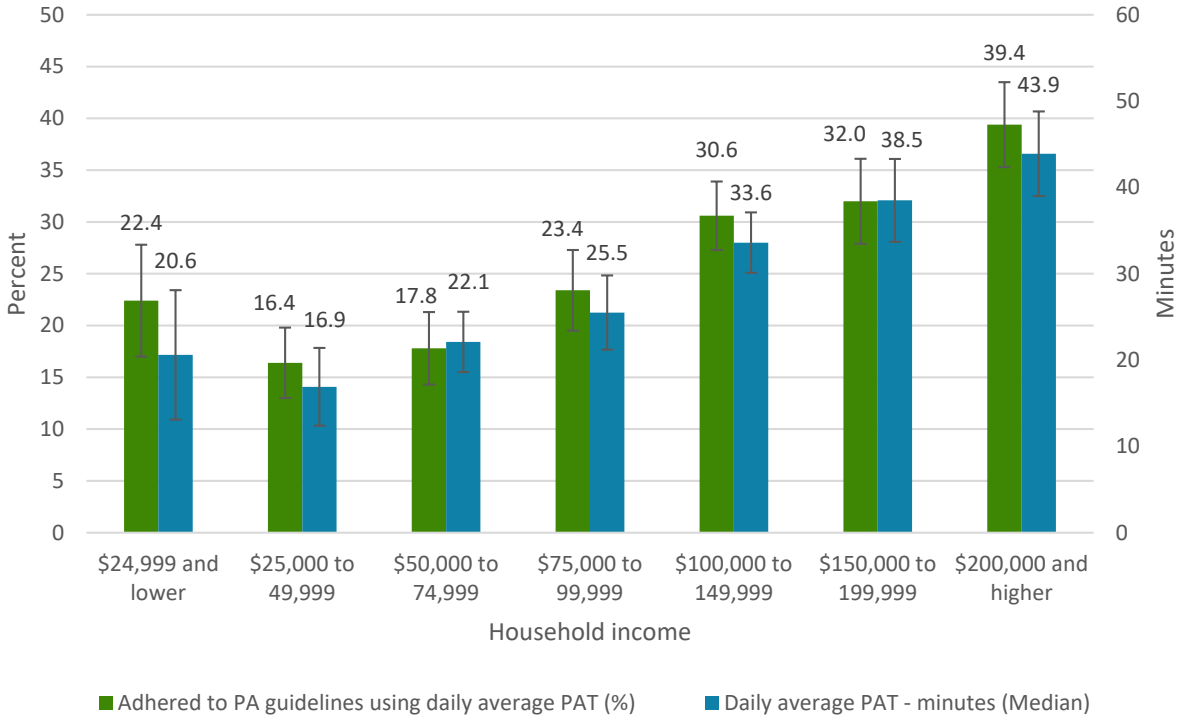


Figure 24: Daily average PAT and adherence to PA guidelines using daily average PAT by household income in youth ages 12-17 years; Ontario, 2019



- There were trends of increased participation in physical activities with a coach/instructor over the past 12 months as highest parental education or income increased.
    - Time spent participating in PA with a coach/instructor in the past week also increased as income increased. By highest parental education, children whose parents were educated at the college/trades level spent the greatest amount of time participating in PA (Figure 25; Table 20).

Figure 25: Participation in PA with a coach/instructor in the past 12 months and time spent participating in the past week by household income in youth ages 12-17 years; Ontario, 2019

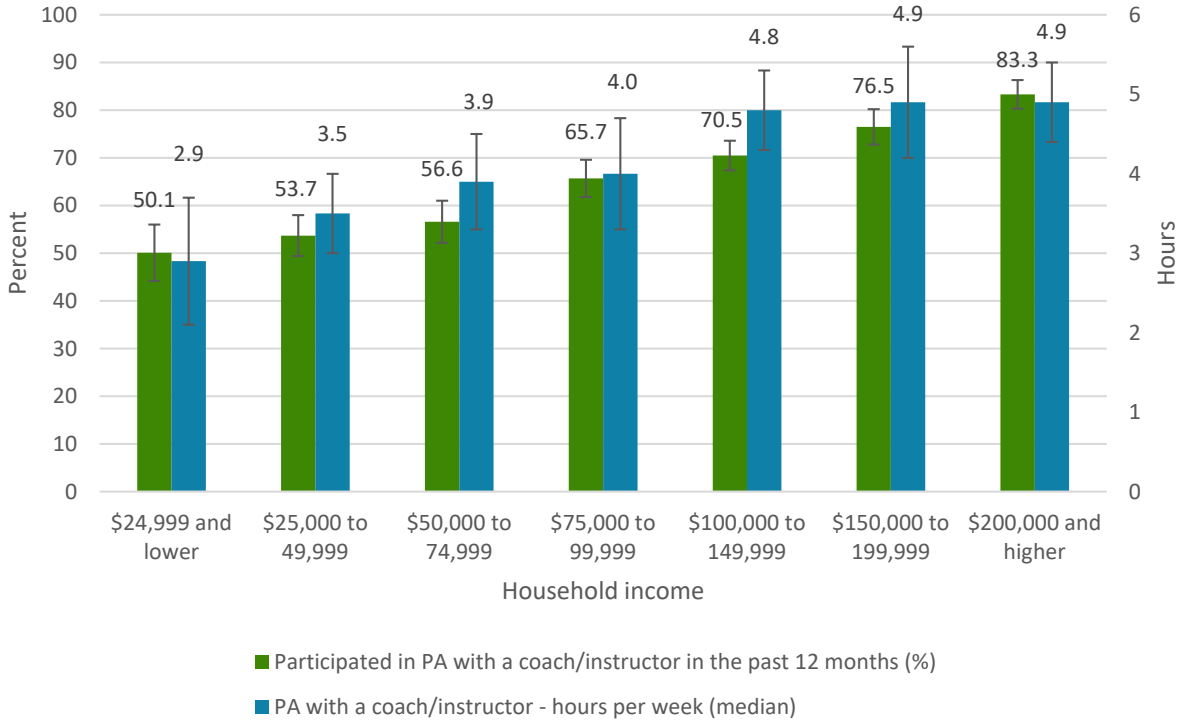


Table 20: Percentages and medians of physical activity indicators by highest parental education and income in youth ages 12-17 years; Ontario, 2019

Socio-Demographic Variables	Daily Average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Highest Parental Education Attained						
High school or less	6.0 (4.2-7.8)σ	7.1[C] (4.8-9.4)*	20.6 (16.3-24.9)σ	20.2 (16.5-23.9)*	52.9 (48.7-57.2)*	3.8 (3.1-4.5)σ
College/ Trades	8.4 (6.8-10.1)σ	8.3 (6.8-9.7)*	25.3 (22.1-28.6)σ	23.0 (20.6-25.4)*	61.1 (58.5-63.7)*	4.9 (4.6-5.3)σ
University or more	13.8 (12.1-15.5)σ	12.0 (10.5-13.5)*	33.9 (31.2-36.5)σ	30.7 (28.5-32.8)*	74.1 (72.1-76.1)*	4.4 (4.0-4.9)σ
Household Income						
<$24,999	5.3 (2.8-7.8)σ	8.5[C] (5.1-11.9)*	20.6 (13.1-28.0)σ	22.4 (17.0-27.8)*	50.1 (44.2-56.0)*	2.9 (2.1-3.7)σ
$25,000 to 49,999	3.9 (2.8-5.1)σ	5.5[C] (3.5-7.6)*	16.9 (12.5-21.4)σ	16.4 (13.0-19.8)*	53.7 (49.4-57.9)*	3.5 (3.0-4.0)σ
$50,000 to 74,999	8.3 (6.3-10.2)σ	6.2[C] (3.9-8.5)*	22.1 (18.7-25.6)σ	17.8 (14.3-21.2)*	56.6 (52.2-61.0)*	3.9 (3.4-4.5)σ
$75,000 to 99,999	8.6 (6.5-10.8)σ	8.4 (5.9-10.8)*	25.5 (21.3-29.8)σ	23.4 (19.6-27.3)*	65.7 (61.8-69.6)*	4.0 (3.3-4.6)σ
$100,000 to 149,999	12.2 (9.6-14.8)σ	10.5 (8.3-12.7)*	33.6 (30.1-37.0)σ	30.6 (27.3-33.9)*	70.5 (67.4-73.6)*	4.8 (4.3-5.3)σ
$150,000 to 199,999	17.0 (13.8-20.2)σ	12.3 (9.5-15.2)*	38.5 (33.7-43.3)σ	32.0 (27.9-36.0)*	76.5 (72.7-80.2)*	4.9 (4.3-5.6)σ
$200,000 and higher	22.5 (19.1-25.9)σ	18.1 (14.7-21.4)*	43.9 (39.0-48.8)σ	39.4 (35.4-43.5)*	83.3 (80.3-86.3)*	4.9 (4.4-5.4)σ
Income Quintiles						

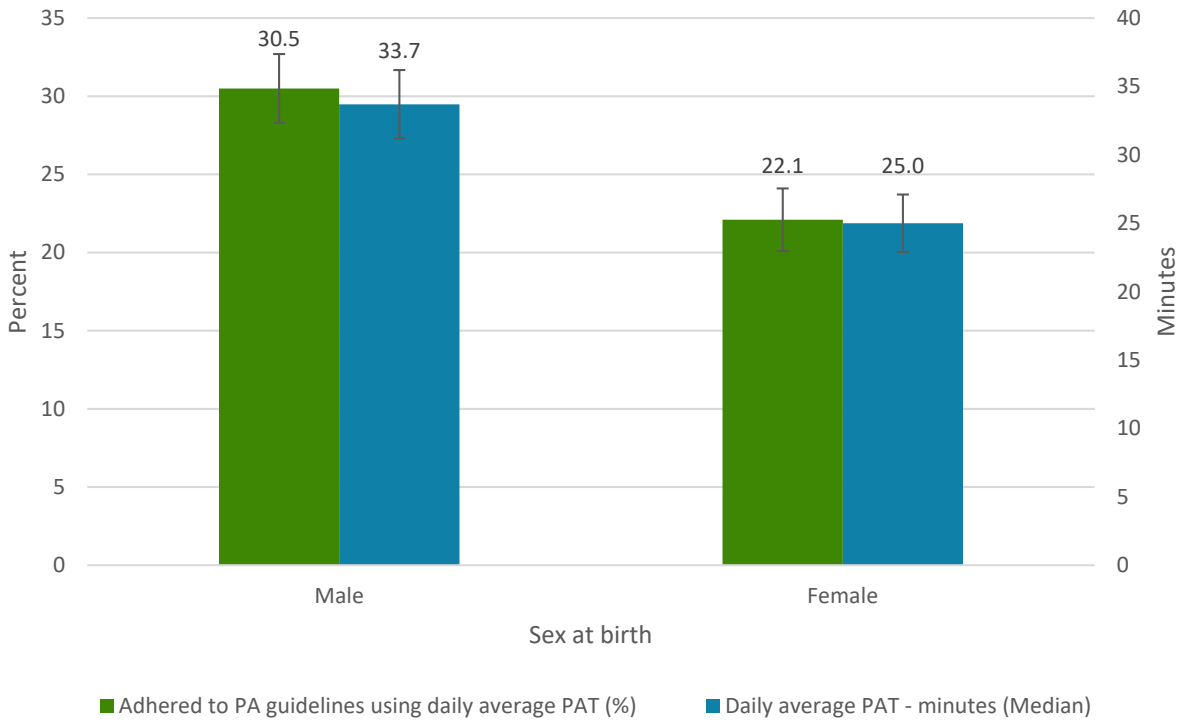
Socio-Demographic Variables	Daily Average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 days) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Q1	4.3 (2.9-5.7)σ	7.8[C] (5.4-10.2)*	18.5 (13.5-23.5)σ	20.3 (16.7-23.8)*	51.4 (47.3-55.5)*	3.2 (2.7-3.6)σ
Q2	7.1 (5.6-8.5)σ	5.3[C] (3.6-7.0)*	20.9 (18.1-23.7)σ	16.5 (13.8-19.2)*	56.2 (52.6-59.7)*	3.9 (3.4-4.4)σ
Q3	8.5 (6.6-10.5)σ	9.2 (7.1-11.2)*	26.0 (21.8-30.3)σ	24.8 (21.5-28.1)*	66.9 (63.7-70.2)*	4.0 (3.4-4.6)σ
Q4	15.2 (12.5-17.9)σ	10.5 (8.3-12.7)*	34.2 (30.2-38.3)σ	31.7 (28.1-35.4)*	71.6 (68.5-74.7)*	4.8 (4.4-5.2)σ
Q5	20.6 (18.0-23.1)σ	16.3 (13.8-18.8)*	42.6 (38.8-46.3)σ	36.9 (33.8-40.1)*	81.4 (78.9-84.0)*	5.0 (4.5-5.4)σ
Low Income Cut Off (LICO)						
Above cut off	12.5 (11.4-13.5)σ	10.7 (9.6-11.8)*	31.9 (30.1-33.7)σ	28.2 (26.6-29.9)*	69.9 (68.2-71.5)*	4.9 (4.6-5.3)σ
Below cut off	4.7 (3.5-5.8)σ	7.2 (5.2-9.2)*	19.2 (15.7-22.7)σ	19.5 (16.3-22.6)*	52.6 (48.8-56.3)*	3.2 (2.8-3.6)σ

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two subgroups)

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

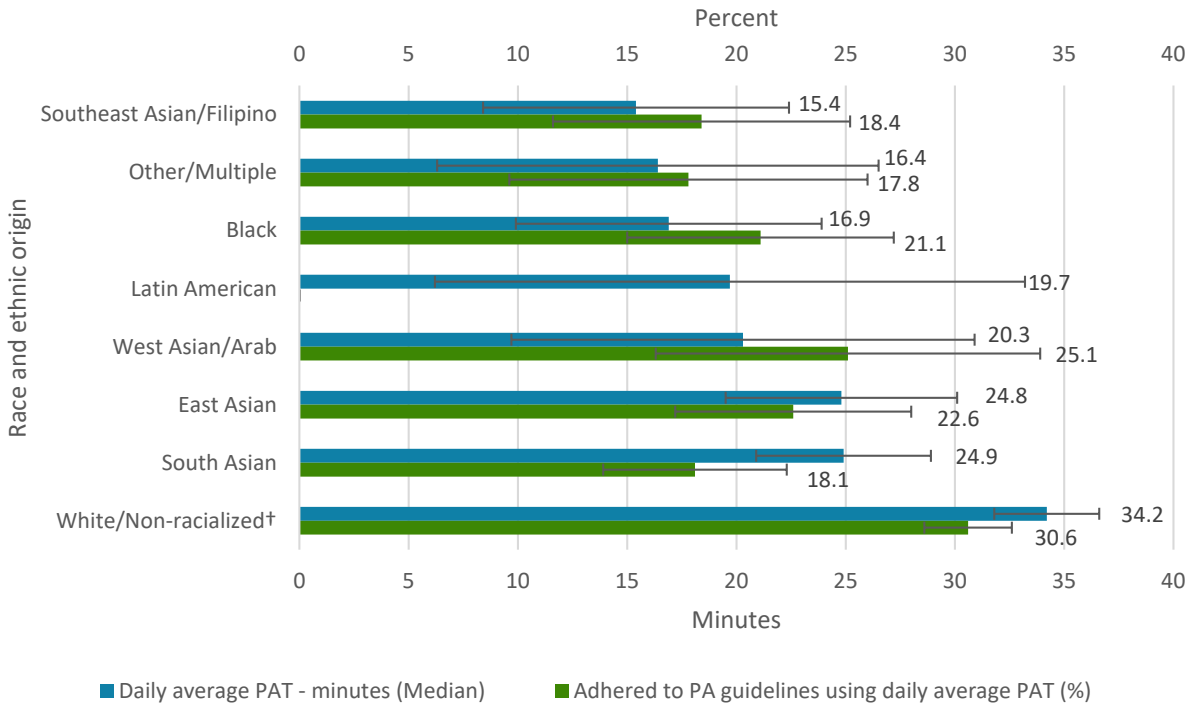
- In youth ages 12-17, there were significant differences in physical activity indicators by sex at birth, race and ethnic origin, and immigration status (Table 21).
- Boys had significantly greater daily average MVPA, daily average PAT, adherence to PA guidelines, and time spent in PA with a coach/instructor in the past 7 days than girls (Figure 26; Table 21).

Figure 26: Daily average PAT and adherence to PA guidelines by sex at birth in youth ages 12-17 years; Ontario, 2019



- Daily average MVPA, daily average PAT, and adherence to PA guidelines significantly differed by race and ethnic origin.
    - Youth who identified as White/Non-racialized had the greatest MVPA, PAT times, and adherence to guidelines.
    - The shortest times and lowest PA guideline adherence were observed in youth who identified as Southeast Asian/Filipino (Figure 27; Table 21).

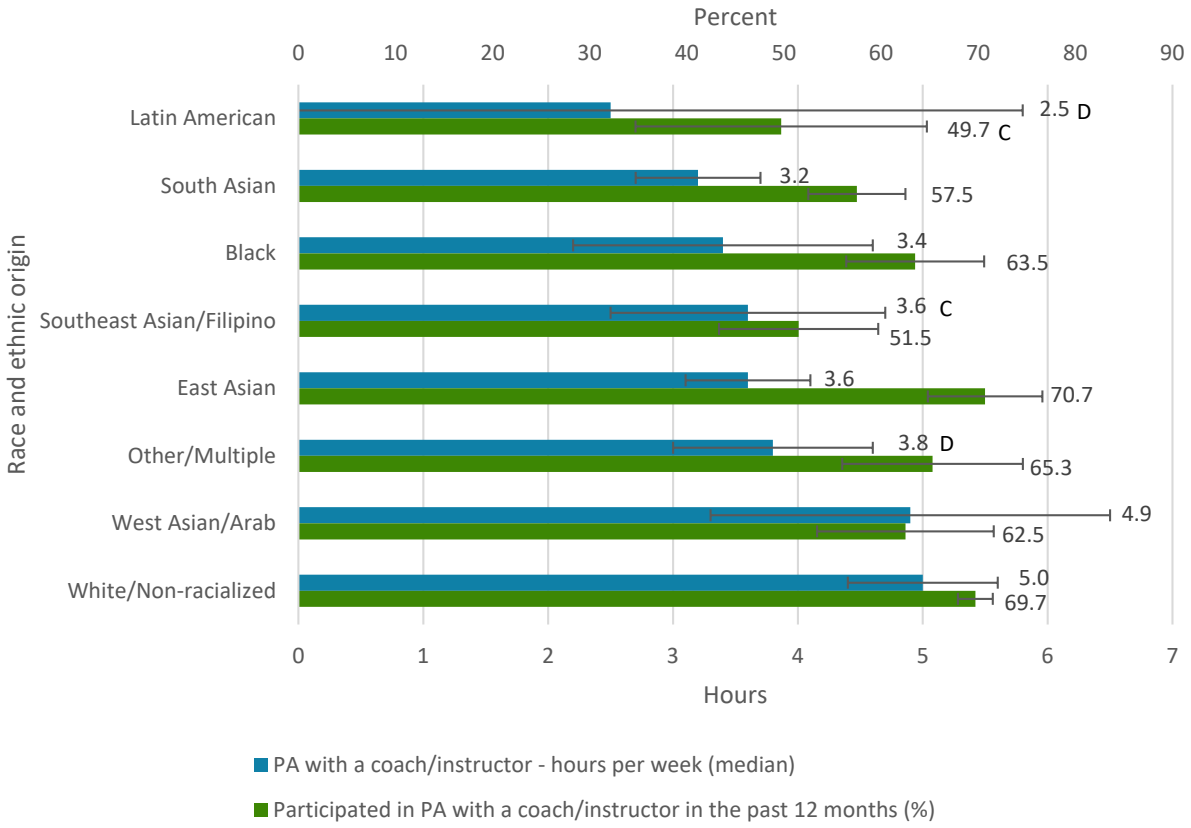
Figure 27: Daily average PAT and adherence to PA guidelines by race and ethnic origin in youth ages 12-17 years; Ontario, 2019



†Excludes those identifying as Indigenous

- Youth who identified as White/Non-racialized spent significantly more time participating in PA with a coach/instructor peer week than youth who identified as East Asian or South Asian (Figure 28) (Table 21).

Figure 28: Participation in PA with a coach/instructor in the past 12 months and time spent participating in the past week by race and ethnic origin in youth ages 12-17 years; Ontario, 2019



†Excludes those identifying as Indigenous

- Youth who identified as non-immigrants had significantly greater daily average MVPA, daily average PAT, adherence to PA guidelines, participation in PA with a coach/instructor and time spent participating in PA with a coach/instructor than youth who identified as immigrants (Table 21).

Table 21: Percentages and medians of PA indicators by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in youth ages 12-17 years; Ontario, 2019

Socio-Demographic Variables	Daily average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 day) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Sex at birth						
Male	13.6 (11.8-15.5)σ	11.9 (10.4-13.5)*	33.7 (31.2-36.3)σ	30.5 (28.3-32.7)*	67.0 (64.8-69.2)	4.9 (4.6-5.3)σ
Female	7.9 (6.9-8.9)σ	7.9 (6.7-9.1)*	25.0 (22.9-27.0)σ	22.1 (20.1-24.0)*	65.5 (63.4-67.6)	4.0 (3.6-4.4)σ
Race and Ethnic Origin – Child						
White/Non-racialized†	14.3 (12.7-15.9)σ	12.2 (10.9-13.5)*	34.2 (31.8-36.7)σ	30.6 (28.7-32.6)*	69.7 (67.9-71.5)*	5.0 (4.4-5.5)σ
Black	6.3 (3.5-9.0)σ	5.3[D] (2.0-8.5)*	16.9 (10.0-23.9)σ	21.1 (15.1-27.2)*	63.5 (56.4-70.6)*	3.4 (2.3-4.6)σ
East Asian	9.2 (6.4-12.0)σ	6.8[C] (4.0-9.7)*	24.8 (20.5-29.1)σ	22.6 (17.2-28.0)*	70.7 (64.8-76.6)*	3.6 (3.1-4.1)σ
Southeast Asian/Filipino	3.6[C] (1.3-5.8)σ	8.2[D] (3.2-13.2)*	15.4 (8.4-22.3)σ	18.4[C] (11.6-25.1)*	51.5 (43.3-59.7)*	3.6[C] (2.5-4.7)σ
South Asian	6.5 (4.7-8.2)σ	5.2[C] (2.7-7.7)*	24.9 (20.9-28.9)σ	18.1 (13.9-22.3)*	57.5 (52.6-62.5)*	3.2 (2.7-3.6)σ
Latin American	4.3[C] (0.0-10.8)σ	NR	19.7[C] (6.3-33.2)σ	NR	49.7[C] (34.7-64.7)*	2.5[D] (0.0-5.8)σ
West Asian/Arab	7.1[C] (1.5-12.8)σ	14.3[D] (7.3-21.3)*	20.3[C] (9.8-30.9)σ	25.1[C] (16.4-33.9)*	62.5 (53.3-71.6)*	4.9 (3.4-6.5)σ

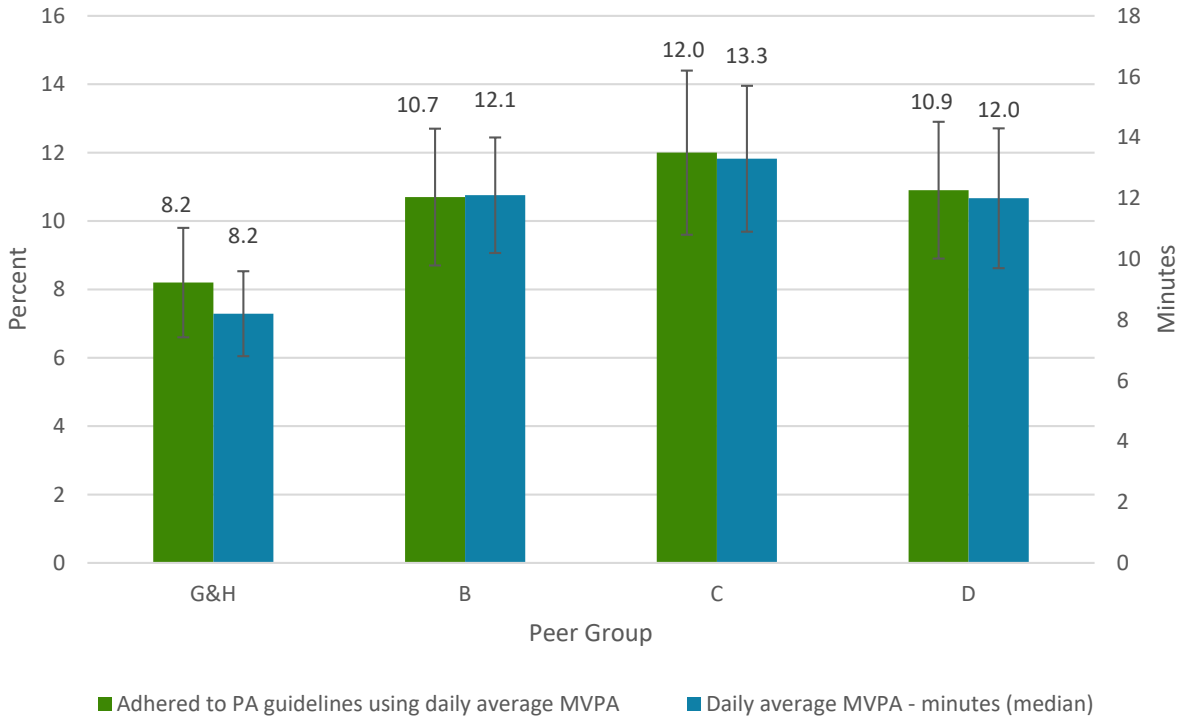
Socio-Demographic Variables	Daily average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 day) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Other/Multiple	5.7 (2.2-9.1)σ	NR	16.4 (6.3-26.5)σ	17.8[C] (9.6-25.9)*	65.3 (55.9-74.6)*	3.8[D] (3.0-4.6)σ
Indigenous Identity						
Yes	10.1 (7.0-13.3)	8.1[D] (3.9-12.2)	28.5 (21.2-35.9)	25.2 (18.8-31.7)	60.4 (53.3-67.5)	4.5 (3.3-5.6)
No	10.6 (9.4-11.8)	10.0 (9.0-11.0)	29.3 (27.4-31.3)	26.4 (24.9-27.9)	66.4 (64.9-68.0)	4.5 (3.9-5.0)
Immigration Status						
Non-immigrant	12.1 (11.1-13.1)σ	10.7 (9.6-11.8)*	31.3 (29.3-33.4)σ	27.9 (26.2-29.5)*	67.6 (66.0-69.2)*	4.9 (4.6-5.3)σ
Immigrant	5.7 (4.2-7.2)σ	6.3[C] (4.2-8.4)*	20.6 (16.3-24.9)σ	19.6 (16.0-23.3)*	60.8 (56.6-65.1)*	3.5 (3.2-3.8)σ
Non-permanent resident	NR	NR	14.3[D] (0.0-29.4)σ	NR	46.9[D] (22.1-71.7)*	4.0[C] (0.1-7.8)σ

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05)
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two subgroups)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

PEER GROUP

- Daily average MVPA, daily average PAT, and adherence to PA guidelines using MVPA significantly differed by Peer Group. Youth living in Peer Group C had the greatest daily average MVPA, PAT, and adherence to PA guidelines whereas youth living in Peer Groups G & H had the lowest daily average MVPA, PAT, and adherence to PA guidelines (Figure 29; Table 22).

Figure 29: Daily average MVPA and adherence to PA guidelines by Peer Group in youth ages 12-17 years; Ontario, 2019



- The percentage of youth that participated in physical activities with a coach/instructor in the past 12 months significantly differed across Peer Groups. Groups B, C, and D had greater participation than group G & H (Figure 30; Table 22).

Figure 30: Participation in PA with a coach/instructor by Peer Group in youth ages 12-17 years; Ontario, 2019

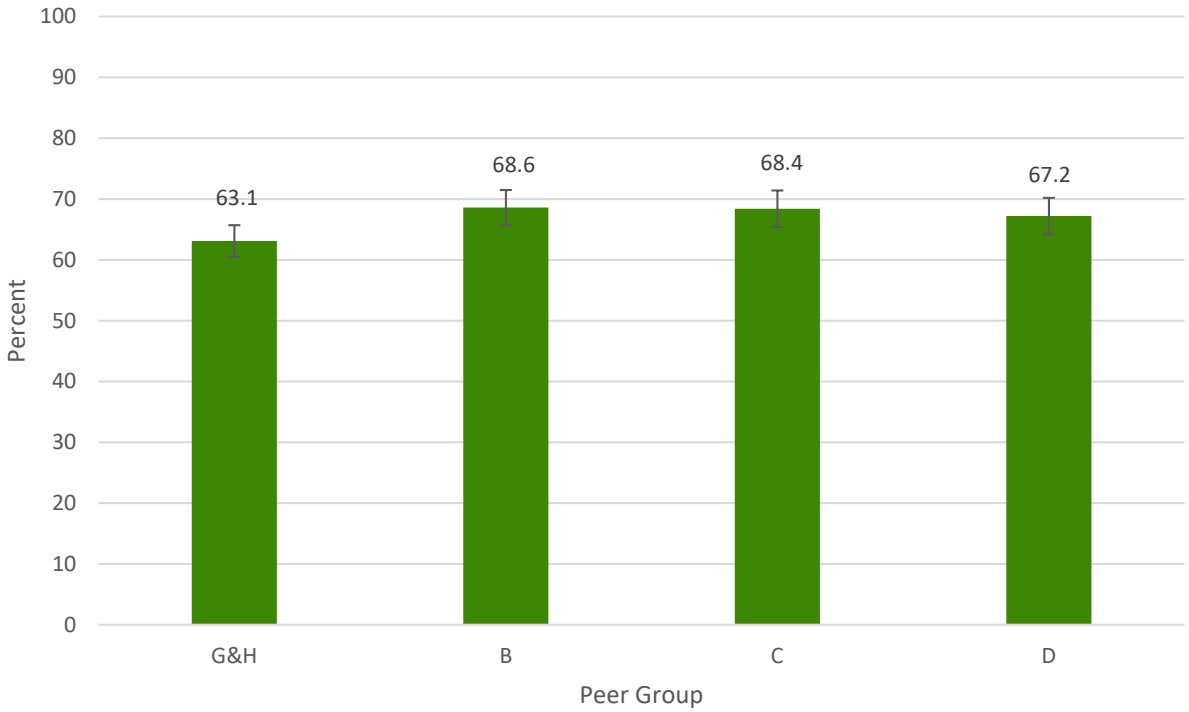


Table 22: Percentages and medians of physical activity indicators by Peer Group in youth ages 12-17 years; Ontario, 2019

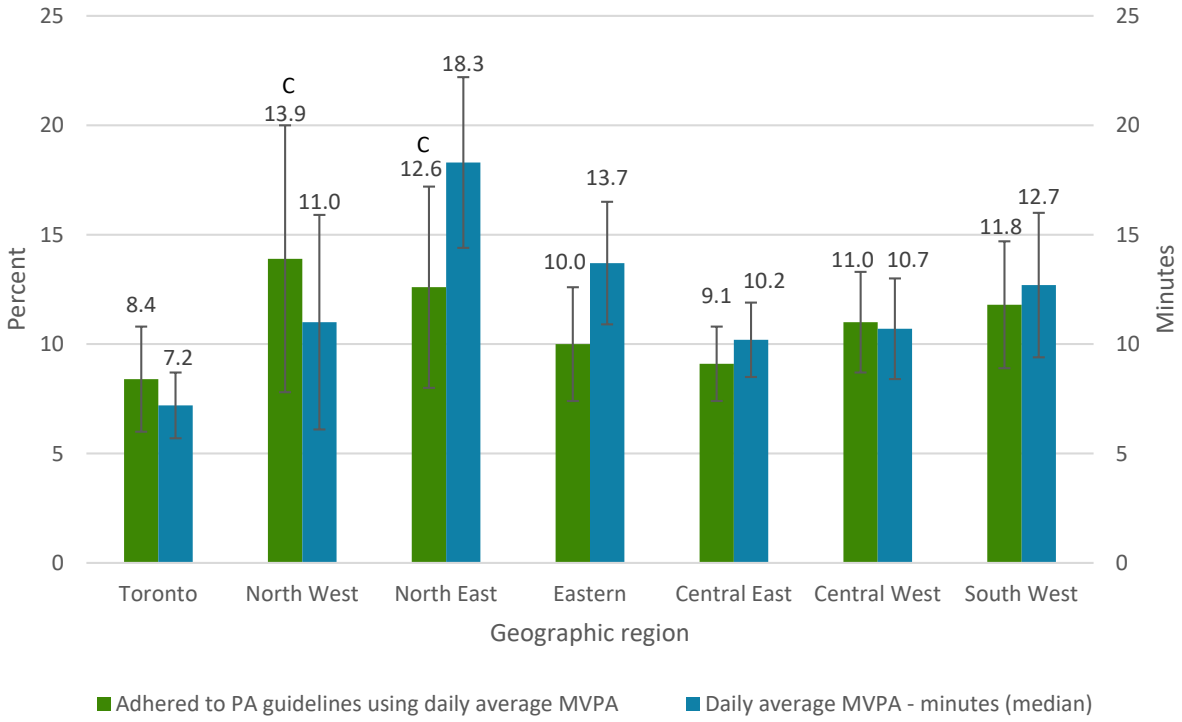
Peer Groups	Daily average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 day) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Group G & H	8.2 (6.8-9.6)σ	8.2 (6.6-9.8)*	25.3(22.7-27.8)σ	23.4 (21.0-25.9)	63.1 (60.5-65.7)*	3.9 (3.4-4.3)
Group B	12.1(10.2-14.0)σ	10.7 (8.8-12.7)*	31.9 (28.2-35.6)σ	28.6 (25.5-31.7)	68.6 (65.7-71.4)*	4.9 (4.5-5.4)
Group C	13.3 (10.9-15.7)σ	12.0 (9.7-14.4)*	32.0 (28.4-35.7)σ	29.4 (26.4-32.4)	68.4 (65.4-71.4)*	4.6 (4.2-5.0)
Group D	12.0 (9.7-14.2)σ	10.9 (8.9-12.9)*	30.4 (27.5-33.3)σ	26.1 (23.3-28.8)	67.2 (64.2-70.2)*	4.9 (4.5-5.4)

*indicates a significant difference across Peer Groups (Rao-Scott Chi-Square Test $p<0.05$)
σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response $p<0.05$)

GEOGRAPHIC REGION

- Daily average MVPA, PAT, and adherence to PA guidelines using daily average PAT significantly differed across geographic regions in Ontario. PA measures were greatest in the North East and lowest in Toronto (Figure 31; Table 23).

Figure 31: Daily average MVPA and adherence to PA guidelines by geographic region in youth ages 12-17 years; Ontario, 2019



- The percentage of youth that participated in physical activity with a coach/instructor in the past 12 months significantly differed across geographic regions in Ontario. Participation was greatest in the Eastern region and lowest in Toronto (Figure 32; Table 23).

Figure 32: Participation in PA with a coach/instructor in the past 12 months by geographic region in youth ages 12-17 years; Ontario, 2019

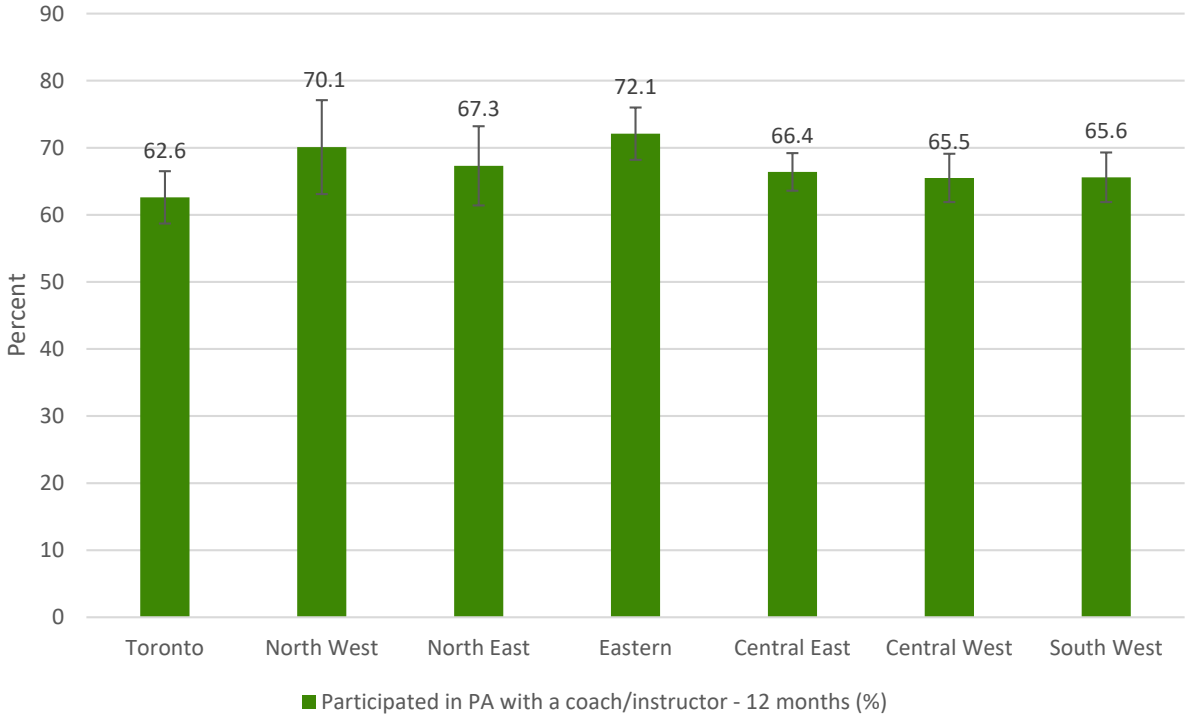


Table 23: Percentages and medians of physical activity indicators by geographic region in youth ages 12-17 years; Ontario, 2019

Geographic Regions	Daily average MVPA (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average MVPA (7 days) % (95% CI)	Daily average PAT (Minutes; 7 days) Median (95% CI)	Adhered to PA Guidelines using Daily Average PAT (7 day) % (95% CI)	Participated in PA with a Coach/Instructor (12 months) % (95% CI)*	Participated in PA with a Coach/Instructor (Hours; 7 days) Median (95% CI)
Toronto	7.2 (5.7-8.7)σ	8.4 (6.0-10.8)	25.2 (21.7-28.8)σ	22.7 (19.0-26.3)*	62.6 (58.7-66.5)*	3.9 (3.4-4.4)
North West	11.0 (6.0-15.9)σ	13.9[C] (7.8-20.0)	32.3 (23.4-41.1)σ	29.4 (22.0-36.9)*	70.1 (63.1-77.1)*	4.8 (3.9-5.6)
North East	18.3 (14.3-22.2)σ	12.6[C] (8.0-17.2)	39.9 (31.6-48.2)σ	34.1 (27.6-40.5)*	67.3 (61.5-73.2)*	4.9 (3.6-6.3)
Eastern	13.7 (11.0-16.5)σ	10.0 (7.4-12.5)	33.6 (28.5-38.7)σ	31.2 (26.8-35.5)*	72.1 (68.2-76.0)*	4.4 (4.0-4.7)
Central East	10.2 (8.5-11.9)σ	9.1 (7.3-10.8)	25.5 (21.9-29.2)σ	24.5 (21.9-27.1)*	66.4 (63.6-69.1)*	4.0 (3.7-4.3)
Central West	10.7 (8.4-13.0)σ	11.0 (8.6-13.3)	29.0 (24.5-33.4)σ	26.8 (23.4-30.1)*	65.5 (62.0-69.1)*	4.9 (4.4-5.4)
South West	12.7 (9.3-16.0)σ	11.8 (8.9-14.7)	33.6 (28.8-38.5)σ	28.7 (24.5-32.8)*	65.6 (62.0-69.3)*	5.0 (4.3-5.6)

*indicates a significant difference across geographic regions (Rao-Scott Chi-Square Test $p<0.05$)
σ indicates a significantly different mean in at least one geographic region (ANOVA on Box-Cox transformed response $p<0.05$)

PUBLIC HEALTH UNIT

- In youth ages 12-17 years, daily average PAT and adherence to PA guidelines significantly differed across Public Health Units/Health Regions.

Table 24: Daily average PAT and adherence to PA guidelines using daily average PAT by Public Health Unit in youth ages 12-17 years; Ontario, 2019

Public Health Unit	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adherence to PA Guidelines Using Daily Average PAT (7 days)– % Adherence (95% CI)
District of Algoma Health Unit	40.1 (27.5-52.6)σ	33.3[C] (20.3-46.3)
Brant County Health Unit	34.4 (19.5-49.4)σ	28.9[C] (18.3-39.6)
Durham Regional Health Unit	25.4 (16.4-34.4)σ	24.4[C] (17.0-31.7)
Grey Bruce Health Unit	28.6 (19.4-37.8)σ	23.4[C] (13.8-33.1)
Haldimand-Norfolk Health Unit	21.4[C] (8.5-34.3)σ	21.4[D] (10.5-32.4)
Haliburton, Kawartha, Pine Ridge District Health Unit	27.9 (16.4-39.3)σ	31.0 (22.5-39.4)
Halton Regional Health Unit	34.2 (27.5-40.9)σ	29.1 (23.5-34.7)
City of Hamilton Health Unit	17.9[C] (5.2-30.6)σ	23.2[C] (12.7-33.6)
Hastings and Prince Edward Counties Health Unit	34.5 (22.4-46.7)σ	28.8[C] (19.2-38.4)
Chatham-Kent Health Unit	17.3 (6.9-27.7)σ	26.4[C] (18.2-34.6)
Kingston, Frontenac and Lennox and Addington Health Unit	41.6 (31.5-51.7)σ	36.9 (28.0-45.8)
Lambton Health Unit	31.2 (18.8-43.7)σ	26.4[C] (15.6-37.2)
Leeds. Grenville and Lanark District Health Unit	40.8 (29.8-51.9)σ	36.2 (25.6-46.7)
Middlesex-London Health Unit	42.5 (30.3-54.7)σ	33.9[C] (22.6-45.2)
Niagara Regional Area Health Unit	30.6 (20.6-40.6)σ	28.8[C] (19.2-38.5)
North Bay Parry Sound District Health Unit	32.3[C] (17.3-47.3)σ	33.6[C] (20.0-47.2)

Public Health Unit	Daily Average PAT (Minutes; 7 days) Median (95% CI)	Adherence to PA Guidelines Using Daily Average PAT (7 days)– % Adherence (95% CI)
Northwestern Health Unit	34.2 (24.3-44.2)σ	32.7 (23.3-42.0)
Huron Perth Health Unit	29.7[C] (18.3-41.1)σ	24.9[C] (14.1-35.7)
City of Ottawa Health Unit	33.4 (26.5-40.4)σ	33.2 (26.5-39.9)
Peel Regional Health Unit	25.2 (20.7-29.7)σ	19.9 (16.4-23.4)
Peterborough County-City Health Unit	24.3[C] (9.2-39.5)σ	26.3[C] (15.2-37.4)
Porcupine Health Unit	23.6[C] (10.2-36.9)σ	21.8[C] (11.2-32.3)
Renfrew County and District Health Unit	23.1[C] (9.3-36.8)σ	NR
Eastern Ontario Health Unit	28.4 (19.2-37.5)σ	17.7[D] (8.5-27.0)
Simcoe Muskoka Health Unit	30.4 (25.6-35.2)σ	25.2 (20.0-30.4)
Sudbury and District Health Unit	52.0 (39.6-64.5)σ	39.7[C] (26.4-53.1)
Thunder Bay District Health Unit	25.6 (14.1-37.2)σ	27.9[C] (17.9-37.9)
Timiskaming Health Unit	10.1[D] (0.0-48.0)σ	NR
Waterloo Health Unit	29.4 (20.3-38.6)σ	26.7 (19.3-34.1)
Wellington-Dufferin-Guelph Health Unit	33.3 (26.6-40.0)σ	26.3 (19.4-33.1)
Windsor-Essex County Health Unit	30.4 (23.9-36.9)σ	28.6 (21.3-35.8)
York Regional Health Unit	25.3 (18.3-32.3)σ	29.1 (22.9-35.3)
Southwestern Public Health	21.4 (10.4-32.5)σ	26.6 (18.8-34.4)
City of Toronto Health Unit	25.2 (21.7-28.8)σ	22.7 (19.0-26.3)

C, D – This estimate should be interpreted with caution due to high sampling variability
*indicates a significant difference across Public Health Units (Rao-Scott Chi-Square Test p<0.05)
σ indicates a significantly different mean in at least one Public Health Unit (ANOVA on Box-Cox transformed response p<0.05)
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

ACTIVE TRANSPORT

- Weekly time spent using active transport to school did not significantly differ by socio-demographics or Peer Groups (Tables 25, 26).

Table 25: Weekly active transport time by socio-demographics in youth ages 12-17 years; Ontario, 2019

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Sex at birth	
Male	37.4 (32.0-42.9)
Female	37.2 (32.5-41.8)
Highest Parental Education Attained	
High school or less	36.1 (29.4-42.9)
College/Trades	37.3 (32.0-42.6)
University or more	37.2 (32.1-42.2)
Household Income	
<$24,999	45.5 (38.5-52.6)
$25,000 to 49,999	33.5 (26.2-40.8)
$50,000 to 74,999	35.3 (27.0-43.6)
$75,000 to 99,999	37.8 (30.6-45.0)
$100,000 to 149,999	32.6 (25.9-39.2)
$150,000 to 199,999	38.3 (31.3-45.2)
$200,000 and higher	38.1 (31.6-44.5)
Income Quintiles	
Q1	40.9 (35.4-46.5)
Q2	29.7 (22.2-37.1)
Q3	37.9 (31.0-44.7)
Q4	30.4 (24.3-36.4)
Q5	38.9 (34.1-43.6)

Socio-Demographic Variables	Weekly Active Transport Time (Minutes) Median (95% CI)
Low Income Cut Off (LICO)	
Above cut off	36.8 (32.6-41.0)
Below cut off	37.8 (31.8-43.7)
Race and Ethnic Origin – Child	
White/Non-racialized†	38.1 (34.0-42.2)
Black	35.0 (26.1-43.9)
East Asian	24.0 (12.0-36.0)
Southeast Asian/Filipino	26.4[C] (16.2-36.5)
South Asian	37.5 (30.0-45.0)
Latin American	31.3[D] (0.0-63.1)
West Asian/Arab	45.0 (30.7-59.3)
Other/Multiple	48.3 (31.8-64.7)
Indigenous Identity	
Yes	29.5 (19.9-39.1)
No	37.4 (33.2-41.6)
Immigration Status	
Non-immigrant	36.6 (32.4-40.7)
Immigrant	43.1 (37.6-48.6)
Non-permanent resident	22.6[D] (4.7-40.5)

C, D – This estimate should be interpreted with caution due to high sampling variability
†Excludes those identifying as Indigenous
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two subgroups)

Table 26: Weekly active transport time by Peer Group in youth ages 12-17 years; Ontario, 2019

Peer Groups	Weekly Active Transport Time (Minutes) Median (95% CI)
Group G & H	38.4 (33.2-43.6)
Group B	37.7 (32.9-42.5)
Group C	28.4 (21.5-35.4)
Group D	35.9 (29.8-42.1)

- Weekly active transport time was significantly lower for youth living in the North West compared to youth living in Toronto, Eastern, Central East, Central West, and South West regions (Figure 33; Table 27).

Figure 33: Weekly active transport time by geographic region in youth ages 12-17 years; Ontario, 2019

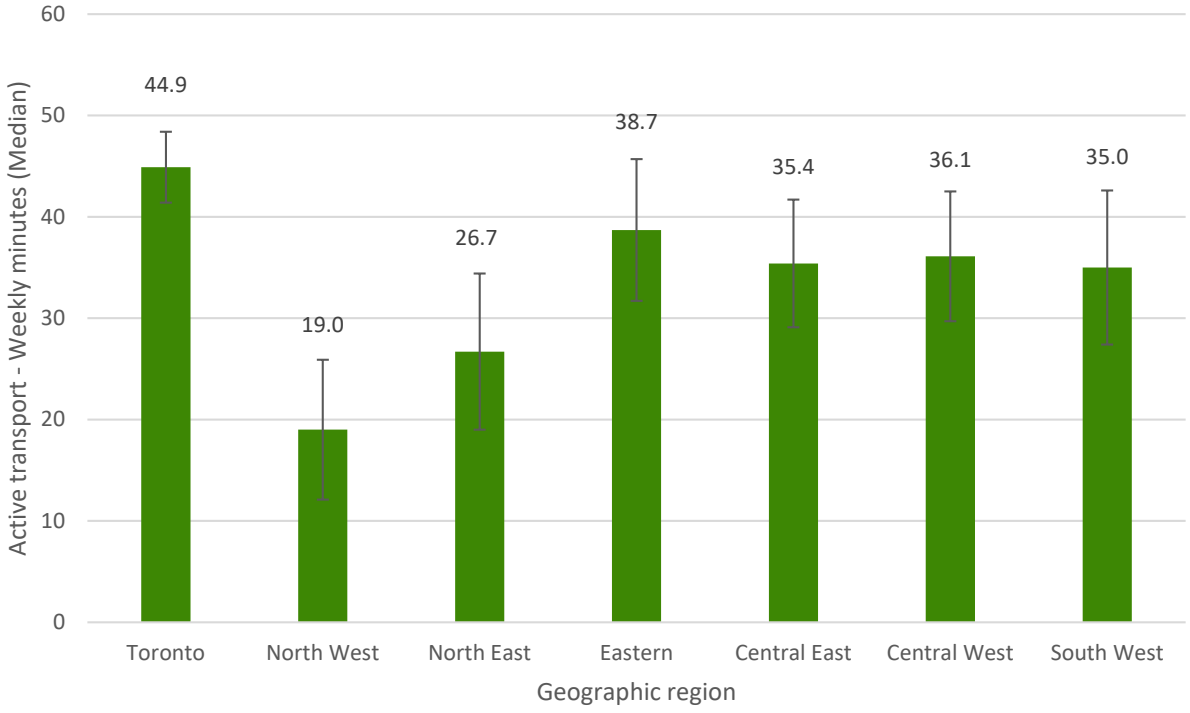


Table 27: Weekly active transport time by geographic region in youth ages 12-17 years; Ontario, 2019

Geographic Regions	Weekly Active Transport Time (Minutes) Median (95% CI)
Toronto	44.9 (41.4-48.4)σ

Geographic Regions	Weekly Active Transport Time (Minutes) Median (95% CI)
North West	19.0 (12.2-25.9)σ
North East	26.7 (18.9-34.4)σ
Eastern	38.7 (31.7-45.7)σ
Central East	35.4 (29.1-41.7)σ
Central West	36.1 (29.7-42.5)σ
South West	35.0 (27.4-42.6)σ

σ indicates a significantly different mean in at least one geographic region (ANOVA on Box-Cox transformed response $p<0.05$)

Discussion

The CHSCY data helps address several key gaps in surveillance data for PA in children under 12 years of age. Previously, the most recent representative data for this age group was the 2018-19 cycle of the Canadian Health Measures Survey (CHMS), but that survey only sampled a small number of children, and is only representative at the national level.[13]

Overall, children and youth in Ontario are getting less PA than recommended according to the 2019 CHSCY. Less than half of all children and youth adhered to PA guidelines; 34.7% of children ages 5-11 years and 26.4% of youth ages 12-17 years adhered to PA guidelines using daily average PAT. Adherence among youth was even lower when using daily average MVPA, with only 10% meeting guidelines. These adherence estimates are lower than PA estimates measured by ActiGraph™ (i.e., a motion-sensing measurement device) from the CHMS (43.9% of children and youth ages 5-17 years)[14] and survey measures from the CCHS (50.8% of youth ages 12-17 years).[16] Note that MVPA in CHSCY has a stricter definition than MVPA in other surveys.[21] The percentage of children and youth ages 3-17 years that participated in PA with a coach/instructor in the past 12 months was 71.2%, similar to estimates of pre-COVID sports participation.[22]

Higher educational attainment of parent(s) and higher income were both associated with increased PA in children and youth. This is consistent with numerous previous studies that have investigated the relationship between SES and different forms of PA.[23,24] This may be explained by the high cost of organized sports including registration, transportation, and equipment costs.[23] Furthermore, children living in lower SES households are more likely to be situated in lower SES neighbourhoods associated with reduced safety, fewer green spaces, and decreased funding for school programs.[24] Additionally, low SES is also associated with increased sedentary behaviours and poorer sleep, which may further impact PA levels per the 24-hour movement paradigm.[25-27]

Sex at birth and gender differences in PA are well-characterized in the literature and findings from the present analyses examining daily average PAT, MVPA, and adherence to PA guidelines are consistent with previous research.[28] Interestingly, girls ages 3-4 were more likely to have participated in PA with a coach/instructor in the past 12 months than boys, which contrasts data from older age groups. Other significant sex differences in PA with a coach/instructor were consistent with previous research.[22,29]

Greater participation and time spent in PA was generally observed in children and youth who identified as White/Non-racialized and non-immigrants compared to those who identified as racialized or as immigrants. Several previous studies have observed similar findings in adults and youth using Canadian data.[30,31] These findings may be influenced by cultural differences surrounding "adequate" PA and the ongoing oppression of and disparities noted among racialized children and families which may negatively influence opportunities for PA.

Significant differences in PA by Indigenous identity were observed in children, but not youth. Participation in PA with a coach/instructor in the past 12 months was lower in children who identified as Indigenous compared to those who identified as non-Indigenous. Conversely, time spent playing outdoors, any participation in PAT, and PAT time was significantly greater in those who identified as Indigenous compared to those who identified as non-Indigenous. Findings for PAT are consistent with one previous study in adults.[32] These trends could be influenced by participation in traditional modes of PA such as hunting, fishing, trapping, and other traditional activities.[32,33]

Differences in PA were noted across Peer Groups and geographic regions in Ontario. Generally, children living in mainly urban centres with moderately high population density, sparsely populated urban-rural mix, or mainly rural areas (Peer Groups B, C, and D) had greater PA participation, time, and adherence to PA guidelines than children living in large metropolitan centers with high population density (Peer Groups G & H). This is consistent with a global systematic review that observed children living in rural regions had greater PA than children living in urban regions, potentially due to differences in perceived neighbourhood safety, prevalence of outdoor spaces, access to sports facilities, and engagement in domestic tasks.[34] There were significant differences in active transport to school. Weekly active transport times were generally longer in more populated urban regions compared to less populated rural regions, potentially due to increased school travel distance.[35]

Sedentary Behaviours and Sleep

This report can be examined with the report on sedentary behaviour and sleep for a snapshot of adherence to the Canadian 24-hour Movement Guidelines for the Early Years[11] and Children and Youth.[2] In children ages 3-4 years, 54.1% adhered to screen time guidelines, 87.5% adhered to sleep guidelines, and 60.7% adhered to both guidelines. In children ages 5-11 years, 34.7% adhered to PA guidelines, 65.9% adhered to screen time guidelines, 85.4% adhered to sleep guidelines, and 24.9% adhered to all three guidelines. In youth, 26.4% adhered to PA guidelines, 51.5% adhered to screen time guidelines, 62.0% adhered to sleep guidelines, and 10.4% adhered to all three guidelines. These estimates can be compared to CHMS estimates where 9.5% of Canadian children and youth ages 5-17 years met all three guidelines during the 2014-2015 cycle[14] and 43.9% met the PA guidelines in the 2018-2019 cycle.[14]

Limitations

Several limitations should be considered when interpreting these results. Retrospective self- or person-most-knowledgeable (PMK) reported data collection in CHSCY may be subject to recall errors and biases. Similar surveys such as the PA in youth questionnaire exhibited weak correlations with objectively measured PA on an individual basis; however, survey and objective PA measures generally agreed at the population level. Additionally, the cross-sectional design of the CHSCY and the bivariate analyses performed precludes the identification of any causal relationships. The 2019 CHSCY data were collected over a five-month period and seasonal variations in PA might impact PA measurements.[36] Heterogeneous measures of PA by age group in CHSCY precluded the analysis of most PA indicators across all age groups. Another limitation arose from the positively skewed time variables for PAT, MVPA, PA with a coach/instructor, and active transport. This skew in data dispersion informed the analytical

transformations and presentation of continuous data as medians in this report rather than means. Finally, due to how movement behaviours are collected in CHSCY, exact adherence to the 24-hour movement guidelines is not possible with this dataset

Conclusions

Overall, while the CHSCY may underestimate PAT and MVPA time among children and youth compared to more objective measures, its focus on the specific age group of children and youth and the health measures included in the survey increases our understanding the relationship between PA, socio-demographic characteristics, geographic characteristics and child health, particularly for younger children. Furthermore, comparisons of equivalent indicators can be conducted with future releases of the CHSCY which can provide information about changes in PA, inclusive of temporal changes before and during the COVID-19 pandemic.

Technical Notes

Data Source

This report examined the Ontario portion of the 2019 Canadian Health Survey on Children and Youth (CHSCY). This survey used the Canadian Child Tax Benefit (CCB) as the sampling frame to select children and youth between the ages of 1 to 17 years old as of January 31, 2019.

- Children living in private dwellings across 10 provinces and 3 territories were eligible.
- Children living on First Nation reserves or other Indigenous settlements were excluded from the survey. Further, children living in foster care and children and youth who were institutionalized were excluded.

Indicators

PHYSICAL ACTIVITY VARIABLES

Continuous physical activity (PA) indicators, such as number of hours of PA per day, were set to an upper cut-off of 8 hours. Due to a lack of non-parametric survey analysis methods in SAS EG 8.2, continuous PA indicators with non-normal residuals were Box-Cox transformed with the SAS macro boxcox_survey.macro.v1.1.sas to facilitate parametric analyses.[33] This macro incorporates sampling weights to choose an offset that minimizes mean square error relative to the best linear line on a QQ plot resulting in transformation of data into an approximately normal distribution. Daily average PAT and MVPA were unable to be fully normalized due to roughly 25% of respondents who answered zero PAT or MVPA over the past week. ANOVAs or T-tests by socio-demographic and geographic variables were then conducted on the transformed data.

AGES 3-4 YEARS

Note: Physical activity time (PAT) and moderate to vigorous physical activity time (MVPA) is unavailable for participants ages 3-4 years.

- Physical activity – played outside – 7d (OPA_005): In the past 7 days, did this child play outside? (Y/N/Not stated).
- Physical activity – played outside – time spent – 7d (OPA_010): In the past 7 days, how much time did he spend playing outside? (<1 hour, 1 hour to <3 hours, 3 hours to <7 hours, 7 hours to <14 hours, ≥14 hours).

- Converted to a continuous variable by taking midpoints from all categories except for the upper and lower bounds. "<1 hour" was defined as 0 hours and "≥14 hours" was defined as 14 hours.

- Participated in physical activities with coach/instructor – 12 mo (OSC_005): In the past 12 months, has this child participated in a sport of physical activity with a coach or instructor? (Y/N/Not stated).

- Participated physical activities with coach/instructor – time spent – 7d (OSCDVSWC).
    - Reported as medians and 95% CIs as data was highly skewed.

AGES 5-11 YEARS

Note: PAT = physical activity time: Represents time spent participating in moderate or vigorous physical activities.

- PAT – average/day – min – 7d (PAIDVAV7): Excludes school activities in children ages 5-11 years. (Continuous, range: [0.0-420.0])

- Adherence to PA guidelines using PAT – 7d (PHO-derived): Uses average PAT/day over the past seven days to determine adherence to physical activity guidelines.
    - Excluded if DHH_AGE < 5 or PAIDVAV7 = NS
    - Adheres to guidelines if 59 < PAIDVAV7 < 9999.6
    - Did not meet guidelines if PAI_005 = 2 or PAIDVAV7 < 60

- Participated physical activities with coach/instructor – time spent – 7d (OSCDVSWC).
    - Reported as medians and 95% CIs as data was positively skewed

AGES 12-17 YEARS

Note: MVPA data is only available from children ages 12 to 17.

MVPA = moderate to vigorous physical activity. MVPA represents the amount of time actually spent breathing harder or sweating during PAT.

- MVPA – average/day – min – 7d (PAIDVADS): includes activities during the school day. (Continuous, range: [0.0-420.0]).

- Adherence to PA guidelines using MVPA – 7d (PAIDVGMV): Uses average MVPA per day over the past seven days to determine adherence to this guideline.
    - Excluded if years of age < 12 or daily average MVPA = Not stated
    - Adhered to guidelines if 59 < daily average MVPA < 9999.6
    - Did not meet guidelines if they did not participate in moderate intensity physical activity in the past week or daily average MVPA < 60

- PAT – average/day – min – 7d (PAIDVAV7): includes activities during the school day. (Continuous, range: [0.0-420.0])
- Adherence to PA guidelines using PAT – 7d (PHO-derived): Uses average PAT/day over the past seven days to determine adherence to physical activity guidelines.
    - Excluded if years of age < 5 or daily average PAT = Not stated
    - Adheres to guidelines if 59 < daily average PAT < 9999.6
    - Did not meet guidelines if they did not participate in moderate intensity physical activity in the past week or daily average PAT < 60 minutes
- Participated in physical activities with coach/instructor – 12 months (OSC_005): In the past 12 months, has this child participated in a sport of physical activity with a coach or instructor? (Y/N/Not stated).
- Participated physical activities with coach/instructor – time spent (hours) – 7d (OSCDVSWC): (Continuous, range: [0.0-168.92])

ACTIVE TRANSPORT

- Time travelling to school – minutes – active transportation – 7d (TTSDV025): Includes time spent travelling to school by walking, bicycling, or any other active way in the past seven days.

SOCIO-DEMOGRAPHIC VARIABLES

The socio-demographic variables used in this analysis include age, sex at birth, household income, highest educational attainment of the person most knowledgeable (PMK) of the child and their spouse, race and ethnic origin (including Indigenous identity), and immigration status. For more information on these socio-demographic variables and how they were recoded please see the Technical Report.

- Age was categorized as 3-4, 5-11, and 12-17 years.
- Sex at birth was categorized as male or female.
- Household income was categorized into 7 levels (<$24,999, $25,000-$49,999, $50,000-$74,999, $75,000-$99,999, $100,000-$149,999, $150,000-$199,999, and $200,000+).
- Low income cut-off (LICO) is a dichotomous variable describing low or high income. It was calculated using Canadian 2019 before-tax income adjusted for community and household size
- Highest educational attainment of the PMK or PMK spouse was categorized into three groups (high-school or less, college/trades, and university or more).
- Race and ethnic origin were categorized as South Asian, Black, East Asian, Southeast Asian/Filipino, West Asian/Arab, White/Non-racialized Group, Latin American, and other (or multiple).
- Indigenous identity (First Nations, Inuit or Métis) was defined as ‘Yes’ or ‘No’
- Immigration status was categorized as non-immigrant, immigrant, and non-permanent residents.

GEOGRAPHIC VARIABLES

The proportion of children across PA groups was categorized by Statistics Canada Peer Groups and by major geographic regions.

Statistics Canada Peer Groups are based on the following list:

- Group B – Mainly urban centres with moderate population density
    - Durham Region Health Department, Halton Region Public Health, City of Hamilton Public Health Services, Middlesex-London Health Unit, Ottawa Public Health, Region of Waterloo Public Health and Emergency Services, Windsor-Essex County Health Unit
- Group C – Sparsely populated urban-rural mix
    - Algoma Public Health, Brant County Health Unit, Chatham-Kent Public Health, Eastern Ontario Health Unit, Haliburton, Kawartha, Pine Ridge District Health Unit, Hastings Prince Edward Public Health, Kingston, Frontenac and Lennox & Addington Public Health, Lambton Public Health, Niagara Region Public Health, North Bay Parry Sound District Health Unit, Porcupine Health Unit, Peterborough Public Health, Public Health Sudbury & Districts, Thunder Bay District Health Unit, Timiskaming Health Unit
- Group D – Mainly rural
    - Grey Bruce Health Unit, Haldimand-Norfolk Health Unit, Huron Perth Public Health, Leeds, Grenville & Lanark District Health Unit, Northwestern Health Unit, Renfrew County and District Health Unit, Simcoe Muskoka District Health Unit, Southwestern Public Health, Wellington-Dufferin-Guelph Public Health
- Group G & H – Largest population centres with high population density
    - City of Toronto, Peel Public Health, York Region Public Health

The major **geographic regions** are the following:

- North West – Northwestern Health Unit, Thunder Bay District Health Unit
- North East – Porcupine Health Unit, Timiskaming Health Unit, Public Health Sudbury & Districts, Algoma Public Health, North Bay and Parry Sound District Health Unit
- South West – Windsor-Essex County Health Unit, Chatham-Kent Public Health, Southwestern Public Health, Lambton Public Health, Middlesex-London Health Unit, Huron Perth Public Health, Grey Bruce Health Unit
- Central West – Wellington-Dufferin-Guelph Public Health, Halton Region Public Health, City of Hamilton Public Health Services, Niagara Region Public Health, Region of Waterloo Public Health and Emergency Services, Haldimand-Norfolk Health Units, Brant County Health Unit
- Toronto Public Health
- Central East – Peel Public Health, York Region Public Health, Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peterborough Public Health, Simcoe-Muskoka District Health Unit

- East – Renfrew County and District Health Unit, Hastings Prince Edward Public Health, Kingston, Frontenac and Lennox & Addington Public Health, Leeds, Grenville & Lanark District Health Unit, Ottawa Public Health, Eastern Ontario Health Unit

Data Analysis

SAS 8.2 Enterprise Guide was used to conduct all statistical analysis. Bivariate analyses were conducted between the covariates and PA indicators.

- PROC SURVEY commands were used with bootstrap replications (n=1,000) and bootstrap weights provided by Statistics Canada. Using these, point estimates and 95% confidence intervals were calculated.

- Statistics Canada approved guidelines were used to report outcomes, where estimates with coefficients of variation (CV) with less than 0.15% were reported without warnings.

- Skewed continuous variables with non-normal error distributions were Box-Cox transformed using the SAS macro boxcox_survey.v1.1 which calculated the best offset that minimized mean-square error MSE.[37]

References

1. Statistics Canada. Canadian Health Survey on Children and Youth (CHSCY) [Internet]. Ottawa, ON: Government of Canada; 2019 [updated 2019 Feb 11; cited 2023 Jun 14]. Available from: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5233

2. Canadian Society for Exercise Physiology (CSEP). Canadian 24-hour movement guidelines for the children and youth (5-17 years): an integration of physical activity, sedentary behaviour, and sleep [Internet]. Ottawa, ON: CSEP; c2021 [cited 2023 Oct 27]. Available from: https://csepguidelines.ca/guidelines/children-youth/

3. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Examining the health and well-being of Ontario Children 1-17 years: using the Canadian Health Survey on Children and Youth: technical report. Toronto, ON:King's Printer of Ontario; 2023. Available from: https://www.publichealthontario.ca/-/media/Documents/H/2023/health-well-being-ontario-children-1-17-chscy.pdf?rev=0f0a4b1e24dc42a49b9f74aef88c5b5a&la=fr

4. Chaput JP, Colley RC, Aubert S, Carson V, Janssen I, Roberts KC, et al. Proportion of preschool-aged children meeting the Canadian 24-hour movement guidelines and associations with adiposity: results from the Canadian Health Measures Survey. BMC Public Health. 2017;17(Suppl 5):829. Available from: https://doi.org/10.1186/s12889-017-4854-y

5. Chaput J-P, Willumsen J, Bull F, Chou R, Ekelund U, Firth J, et al. 2020 WHO guidelines on physical activity and sedentary behaviour for children and adolescents aged 5–17 years: summary of the evidence. Int J Behav Nutr Phys Act. 2020;17(1):141. Available from: https://doi.org/10.1186/s12966-020-01037-z

6. Poitras VJ, Gray CE, Borghese MM, Carson V, Chaput JP, Janssen I, et al. Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. Appl Physiol Nutr Metab. 2016;41(6 Suppl 3):S197-239. Available from: https://doi.org/10.1139/apnm-2015-0663

7. Hayes G, Dowd KP, MacDonncha C, Donnelly AE. Tracking of physical activity and sedentary behavior from adolescence to young adulthood: a systematic literature review. J Adolesc Health. 2019;65(4):446-54. Available from: https:/doi.org/10.1016/j.jadohealth.2019.03.013

8. Telama R, Yang X, Viikari J, Välimäki I, Wanne O, Raitakari O. Physical activity from childhood to adulthood: a 21-year tracking study. Am J Prev Med. 2005;28(3):267-73. Available from: https://doi.org/10.1016/j.amepre.2004.12.003

9. Tremblay MS, Carson V, Chaput JP, Connor Gorber S, Dinh T, Duggan M, et al. Canadian 24-hour movement guidelines for children and youth: an integration of physical activity, sedentary behaviour, and sleep. Appl Physiol Nutr Metab. 2016;41(6 Suppl 3):S311-27. Available from: https://doi.org/10.1139/apnm-2016-0151

10. Tremblay MS, Chaput JP, Adamo KB, Aubert S, Barnes JD, Choquette L, et al. Canadian 24-hour movement guidelines for the early years (0-4 years): an integration of physical activity, sedentary behaviour, and sleep. BMC Public Health. 2017;17(Suppl 5):874. Available from: https://doi.org/10.1186/s12889-017-4859-6

11. Canadian Society for Exercise Physiology (CSEP). Canadian 24-hour movement guidelines for the early years (0-4 years): an integration of physical activity, sedentary behaviour, and sleep. Ottawa, ON: CSEP; c2021. Available from: https://csepguidelines.ca/guidelines/early-years/

12. MacIntosh BR, Murias JM, Keir DA, Weir JM. What Is moderate to vigorous exercise intensity? Front Physiol. 2021;12:682233. Available from: https://doi.org/10.3389/fphys.2021.682233

13. Statistics Canada. Canadian Health Measures Survey (CHMS). Ottawa, ON: Government of Canada; 2023 [updated 2023 Jun 28; cited 2023 Oct 27]. Available from: https://www.statcan.gc.ca/en/survey/household/5071

14. Public Health Infobase. Physical activity, sedentary behaviour and sleep (PASS) indicators, 2023 edition [Internet]. Ottawa, ON: Government of Canada; 2023 [cited 2023 Oct 27]. Available from: https://health-infobase.canada.ca/pass/

15. Neville RD, Lakes KD, Hopkins WG, Tarantino G, Draper CE, Beck R, et al. Global changes in child and adolescent physical activity during the COVID-19 pandemic: a systematic review and meta-analysis. JAMA Pediatr. 2022;176(9):886-94. Available from: https://doi.org/10.1001/jamapediatrics.2022.2313

16. Watt J, Colley RC; Statistics Canada. Youth—but not adults—reported less physical activity during the COVID-19 pandemic [Internet]. Ottawa, ON: Government of Canada; 2021 [archived; cited 2023 Oct 27]. Available from: https://www150.statcan.gc.ca/n1/pub/45-28-0001/2021001/article/00032-eng.htm

17. Government of Ontario. Anti-racism directorate: data standards for the identification and monitoring of systemic racism [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Feb 22]. Available from: https://www.ontario.ca/document/data-standards-identification-and-monitoring-systemic-racism

18. Iwamoto DK, Liu WM. The impact of racial identity, ethnic identity, Asian values, and race-related stress on Asian Americans and Asian international college students' psychological well-being. J Counsel Psychol. 2010;57(1):79-91. Available from: https://doi.org/10.1037/a0017393

19. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Collecting information on ethnic origin, race, income, household size, and language data: a resource for data collectors [Internet]. Toronto, ON: Queen's Printer for Ontario; 2021 [cited 2023 Oct 25]. Available from: https://www.publichealthontario.ca/-/media/documents/ncov/he/2021/03/aag-race-ethnicity-income-language-data-collection.pdf?la=en

20. Canadian Institute for Health Information (CIHI). Guidance on the use of standards for race-based and Indigenous identity data collection and health reporting in Canada. Ottawa, ON: CIHI; 2022. Available from: https://www.cihi.ca/sites/default/files/document/guidance-and-standards-for-race-based-and-indigenous-identity-data-en.pdf

21. Statistics Canada. Canadian Community Health Survey - annual somponent (CCHS) [Internet]. Ottawa, ON: Government of Canada; 2023 [cited 2023 Oct 27]. Available from: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226

22. ParticipACTION. Lost & found: pandemic-related challenges and opportunities for physical activity: the 2022 ParticipACTION report card on physical activity for children and youth [Internet]. Toronto, ON: ParticipACTION; 2022 [cited 2023 Oct 27]. Available from: https://www.participaction.com/wp-content/uploads/2022/10/2022-Children-and-Youth-Report-Card.pdf

23. Cairney J, Joshi D, Kwan M, Hay JA, Faught B. Children's participation in organized sport and physical activities and active free play: exploring the impact of time, gender and neighbourhood

household income using longitudinal data. Sociol Sport J. 2015;32(3):266-83. Available from: https://doi.org/10.1123/ssj.2014-0100

24. Owen KB, Nau T, Reece LJ, Bellew W, Rose C, Bauman A, et al. Fair play? Participation equity in organised sport and physical activity among children and adolescents in high income countries: a systematic review and meta-analysis. Int J Behav Nutr Phys Act. 2022;19(1):27. Available from: https://doi.org/10.1186/s12966-022-01263-7

25. Etindele Sosso FA, Holmes SD, Weinstein AA. Influence of socioeconomic status on objective sleep measurement: a systematic review and meta-analysis of actigraphy studies. Sleep health. 2021;7(4):417-28. Available from: https://doi.org/10.1016/j.sleh.2021.05.005

26. Mielke GI, Brown WJ, Nunes BP, Silva ICM, Hallal PC. Socioeconomic correlates of sedentary behavior in adolescents: systematic review and meta-analysis. Sports Med. 2017;47(1):61-75. Available from: https://doi.org/10.1007/s40279-016-0555-4

27. Saunders TJ, Gray CE, Poitras VJ, Chaput JP, Janssen I, Katzmarzyk PT, et al. Combinations of physical activity, sedentary behaviour and sleep: relationships with health indicators in school-aged children and youth. Appl Physiol Nutr Metab. 2016;41(6 Suppl 3):S283-93. Available from: https://doi.org/10.1139/apnm-2015-0626

28. Statistics Canada. Physical activity and screen time among Canadian children and youth, 2016 and 2017: health fact sheets [Internet]. Ottawa, ON: Government of Canada; 2019 [cited 2023 Oct 27]. Available from: https://www150.statcan.gc.ca/n1/pub/82-625-x/2019001/article/00003-eng.htm

29. Mandic S, Bengoechea EG, Stevens E, de la Barra SL, Skidmore P. Getting kids active by participating in sport and doing it more often: focusing on what matters. Int J Behav Nutr Phys Act. 2012;9:86. Available from: https://doi.org/10.1186/1479-5868-9-86

30. Bryan SN, Tremblay MS, Pérez CE, Ardern CI, Katzmarzyk PT. Physical activity and ethnicity: evidence from the Canadian Community Health Survey. Can J Public Health. 2006;97(4):271-6. Available from: https://doi.org/10.1007/bf03405602

31. Kukaswadia A, Pickett W, Janssen I. Time since immigration and ethnicity as predictors of physical activity among Canadian youth: a cross-sectional study. PloS One. 2014;9(2):e89509. Available from: https://doi.org/10.1371/journal.pone.0089509

32. Findlay LC; Statistics Canada. Physical activity among First Nations people off reserve, Métis and Inuit [Internet]. Ottawa, ON: Government of Canada; 2011 [archived; cited 2023 Oct 27]. Available from: https://www150.statcan.gc.ca/n1/pub/82-003-x/2011001/article/11403-eng.pdf

33. Wilson K, Rosenberg MW. Exploring the determinants of health for First Nations peoples in Canada: can existing frameworks accommodate traditional activities? Soc Sci Med. 2002;55(11):2017-31. Available from: https://doi.org/10.1016/s0277-9536(01)00342-2

34. Vieira D, Gomes EC, Negrão Â S, Thuany M. Movement behaviour and health outcomes in rural children: a systematic review. Int J Environ Res Public Health. 2023;20(3):2514. Available from: https://doi.org/10.3390/ijerph20032514

35. Rothman L, Macpherson AK, Ross T, Buliung RN. The decline in active school transportation (AST): a systematic review of the factors related to AST and changes in school transport over time in North America. Int J Environ Res Public Health. 2018;111:314-22. Available from: https://doi.org/10.3390/ijerph2003251410.1016/j.ypmed.2017.11.018

36. Carson V, Spence JC. Seasonal variation in physical activity among children and adolescents: a review. Pediatr Exerc Sci. 2010;22(1):81-92. Available from: https://doi.org/10.1123/pes.22.1.81

37. National Cancer Institute. SAS macros for estimating ratios of two dietary components that are consumed nearly every day [Internet]. Bethesda, MD: National Cancer Institute; 2010 [cited 2023 Oct 27]. Available from: https://epi.grants.cancer.gov/diet/usualintakes/users_guide_ratio_macros_v1_1.pdf

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