



# Physical activity, sedentary behaviour and sleep in autistic children and youth:

## Highlights from the 2019 Canadian Health Survey on Children and Youth

### Overview

Autism, also known as autism spectrum disorder, is a lifelong neuro-developmental condition. Autistic people may communicate and connect with other people differently, have sensory processing differences, or focus intensely on certain interests or activities.<sup>1</sup> They may also have other disabilities or conditions that affect learning, cognitive functioning, and physical or mental health, which can introduce complexities and challenges.

To support healthy development, children and youth are encouraged to live an active lifestyle with a daily balance of physical activities, sedentary behaviours and sleep.<sup>2</sup> The [Canadian 24-Hour Movement Guidelines](#), an integration of these movement behaviours over the course of a whole day, recommend children and youth achieve high levels of physical activity, low levels of sedentary behaviour (e.g., recreational screen time), and sufficient sleep.

Children and youth with autism may differ in their movement behaviours compared to children and youth without autism.<sup>3</sup> According to the Canadian 24-Hour Movement Guidelines, children and youth aged 5 to 17 years should adhere to the following recommendations:



#### Physical activity

**5 to 17 years**

An accumulation of at least 60 mins/day of moderate to vigorous physical activity



#### Sedentary behaviour

**5 to 17 years**

No more than 2 hours/day of recreational screen time



#### Sleep

**5 to 13 years**

9-11 hours/night of uninterrupted sleep

**14 to 17 years**

8-10 hours/night of uninterrupted sleep

Using data from the 2019 [Canadian Health Survey on Children and Youth \(CHSCY\)](#), this fact sheet compares the proportion of children and youth aged 5 to 17 years meeting these movement behaviour recommendations among those with diagnosed autism (80% were male) and those without diagnosed autism (51% were male). To further explore differences in sleep between these autistic and non-autistic children and youth, sleep quality (difficulties in getting to sleep) was also investigated.

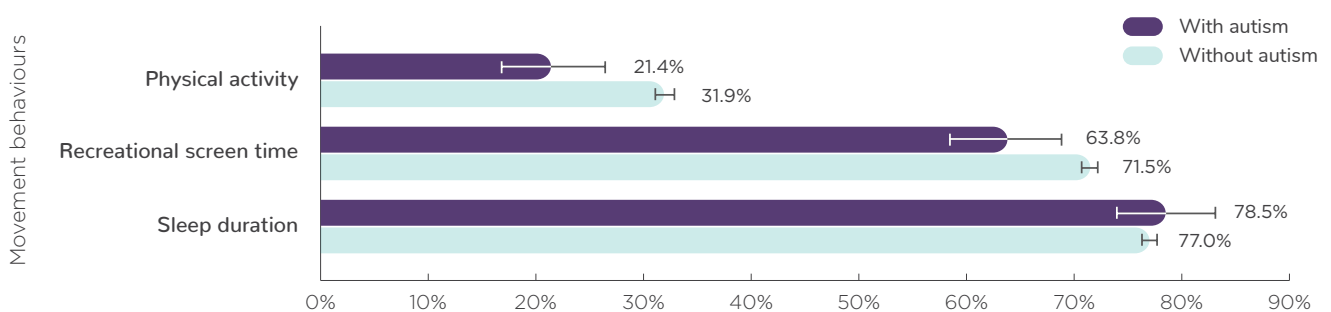


## Movement behaviour recommendations

Less than one-quarter (21.4%) of children and youth with autism met the recommendation for physical activity, while most met recommendations for recreational screen time (63.8%) and sleep duration (78.5%) (Figure 1).

Compared to children and youth without autism, those with autism were less likely to meet the recommendation for physical activity, less likely to meet the recommendation for recreational screen time,<sup>a</sup> and as likely to meet the recommendation for sleep duration.

**Figure 1.** Percentage of children and youth aged 5-17 years with and without autism that met recommendations for physical activity, recreational screen time, and sleep duration, Canada, 2019



Note: The 95% confidence interval shows an estimated range of values that is likely to include the true value 19 times out of 20.

Source: Public Health Agency of Canada, using data from the 2019 Canadian Health Survey on Children and Youth.

## Autistic children and youth

### By sex

Autistic males and females met movement behaviour recommendations in similar proportions, respectively:

- physical activity (21.9% vs. 22.9%)<sup>b</sup>
- recreational screen time (62.5% vs. 68.9%)<sup>c</sup>
- sleep duration (79.6% vs. 74.0%)<sup>c</sup>

### By age

Autistic children aged 5 to 11 years were more likely to meet movement behaviour recommendations compared to autistic youth aged 12 to 17 years, respectively:

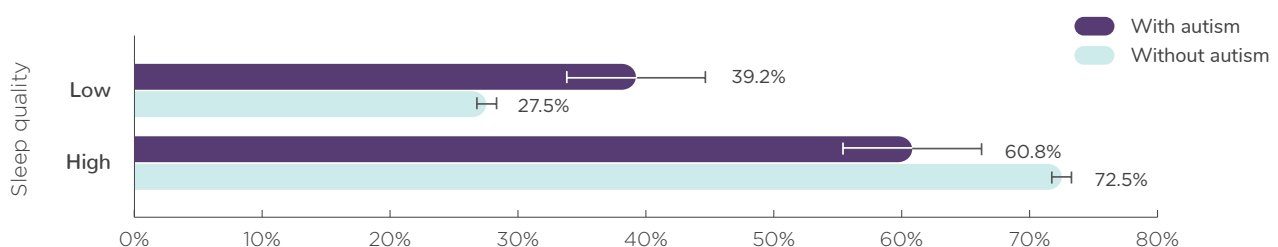
- physical activity (28.2% vs. 10.5%)<sup>b</sup>
- recreational screen time (72.8% vs. 49.6%)
- sleep duration (83.1% vs. 71.4%)

## Sleep quality

Autistic children and youth were more likely to experience low sleep quality (difficulties in getting to sleep), compared to those without autism (Figure 2).

While children and youth with autism met sleep duration recommendations in similar proportions to those without autism, more autistic children and youth reported experiencing low sleep quality (39.2% vs. 27.5% reported difficulties in getting to sleep more than once per week). This suggests that, in addition to sleep duration, measures of sleep quality are important to comprehensively assess sleep in children and youth.

**Figure 2.** Percentage of children and youth aged 5 to 17 years with and without autism that reported low vs. high sleep quality, Canada, 2019



Notes: Low quality sleep = difficulties in getting to sleep more than once per week. High quality sleep = difficulties in getting to sleep once per week or less. The 95% confidence interval shows an estimated range of values that is likely to include the true value 19 times out of 20.

Source: Public Health Agency of Canada, using data from the 2019 Canadian Health Survey on Children and Youth.

## Supports and resources

Early promotion of movement behaviours for children and youth who are not meeting physical activity, sedentary behaviour, and sleep recommendations may improve long-term health outcomes.<sup>3</sup> To help all children and youth meet movement behaviour recommendations, especially those with autism aged 12 to 17 years, barrier-free access to supports and resources that are neuro-affirming and inclusive would be beneficial. For resources aimed to support select movement behaviours in those with autism, visit [AIDE Canada](#) or [Autism Community Training](#) and search “physical activity”, “screen time” or “sleep”.

COVID-19 may have affected opportunities for a daily balance of physical activities, sedentary behaviours and sleep in children and youth with and without autism.<sup>4</sup> Data from the 2019 CHSCY were collected prior to the pandemic. The information presented within this fact sheet reflects movement behaviours in these children and youth at the time of data collection.

## Language statement

The Government of Canada recognizes that preferences differ on the use of person-first (‘children and youth with autism’) vs. identity-first (‘autistic children and youth’) language. To acknowledge these diverse views, this fact sheet uses both identity-first and person-first language.

## Methods

The 2019 CHSCY is a national, cross-sectional survey that collected health-related information on children and youth aged 1 to 17 years living in private dwellings in Canada’s 10 provinces and 3 territories.

This fact sheet uses variables from the 2019 CHSCY to identify children and youth with reported diagnosed autism and to serve as substitutes for indicators from the Public Health Agency of Canada’s [Physical Activity, Sedentary Behaviour and Sleep \(PASS\) Indicators](#). Movement behaviour estimates presented in this fact sheet may differ from those reported in the PASS Indicators due to differences in data sources used.

Movement behaviour questions in the 2019 CHSCY were not asked of children under the age of 5 for physical activity and sleep quality, or under the age of 3 for recreational screen time and sleep duration. To harmonize the age of the populations studied across these movement behaviours, children under the age of 5 were excluded from this fact sheet.

The person most knowledgeable about the child (aged 5 to 11 years) reported on the child’s movement behaviours, whereas youth (aged 12 to 17 years) self-reported their movement behaviours. Age, sex and autism diagnosis were reported by the person most knowledgeable for children and youth of all ages.

The unweighted sample size of all children and youth aged 5 to 17 was 27,765, with 660 reported as having an autism diagnosis. All estimates were weighted to be representative of the child and youth population living in Canada. All estimates reported in this fact sheet are crude. Additional analyses adjusting for differences in the age and sex distribution between those with versus without autism were conducted, and any differences in findings between these two groups were noted. Age and sex adjustments were carried out using Statistics Canada’s 2011 Canadian Census of Population utilizing 5-year age groups. The bootstrap method was used to calculate variance estimates, including 95% confidence intervals and coefficients of variation. All differences noted in this fact sheet were statistically significant at a p-value of 0.05 or less, based on chi-square tests.

More information about the CHSCY can be found on [Statistics Canada’s website](#).

### Notes:

- <sup>a</sup> After adjusting for differences in age and sex, estimates compared were no longer statistically different. This indicates that although a significant difference was observed in the proportion of autistic and non-autistic children and youth meeting the recommendation for recreational screentime, this was in part due to differences in the demographic compositions of these two groups.
- <sup>b</sup> High sampling variability (coefficient of variation between 25.0% and 35.0%).
- <sup>c</sup> The small sample of autistic females may limit the statistical power required to detect statistical differences.

### References:

- (1) Canadian Academy of Health Sciences. Autism in Canada: considerations for future public policy development—weaving together evidence and lived experience. Ottawa (ON): The Oversight Panel on the Assessment on Autism, Canadian Academy of Health Sciences; 2022 [cited 2024 June]. Available from: <https://cahs-acss.ca/autism-assessment>
- (2) Tremblay MS, Carson V, Chaput JP, 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–S327. <https://doi.org/10.1139/apnm-2016-0151>
- (3) Li C, Haegele JA, Sun F, et al. Meeting the 24-h movement guidelines and health-related outcomes among youth with autism spectrum disorder: a seven-country observational study. *Child Adolesc Psychiatry Ment Health*. 2022;16(50). <https://doi.org/10.1186/s13034-022-00488-5>
- (4) Demirci N, Pinru Phytanza DT. Investigation of obesity, physical activity and sedentary behaviors of individuals with and without autism spectrum disorder during the COVID-19 pandemic process. *JUMORA*. 2021;1(02), 45–55.