PARTICIPACTION

2024 ParticipACTION Report Card on
Physical Activity for Children and Youth

Rallying for Resilience

Keeping Children and Youth Active in a Changing Climate

The 2024 ParticipACTION Report Card on Physical Activity for Children and Youth

The 2024 ParticipACTION Report Card on Physical Activity for Children and Youth is the most comprehensive assessment of child and youth physical activity in Canada. It synthesizes data from multiple sources, including the best available peer-reviewed research, to assign evidence-informed grades across 14 indicators. The Report Card has been replicated in over 70 cities, provinces/states and countries, where it has served as a blueprint for collecting and sharing knowledge about the physical activity of young people around the world.

ParticipACTION's strategic partner, the Healthy Active Living and Obesity Research Group at the Children's Hospital of Eastern Ontario Research Institute (HALO-CHEO), played a critical role in the research and development of the 2024 Report Card.

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Healthy Active Living and Obesity Research Group
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The Report Card is based on the best available data, primarily from the previous two calendar years and earlier years where necessary. If you have data that could inform future grades for one or more indicators, please contact ParticipACTION at info@participaction.com.

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Indicators & Grades

Grades are common to every Report Card. The 2024 Report Card Research Committee assigned letter grades to 14 different indicators grouped into four categories (Figure 1): Daily Behaviours (Overall Physical Activity, Active Play, Active Transportation, Organized Sport, Physical Education, Sedentary Behaviours, Sleep, 24-Hour Movement Behaviours), Individual Characteristics (Physical Literacy, Physical Fitness), Spaces & Places (Household, School, Community & Environment), and Strategies & Investments (Government). Letter grades were based on an examination of current data for each indicator against a benchmark(s). Together, the indicators provide a complete and robust assessment of how we are doing as a country regarding the promotion and facilitation of physical activity among children and youth living in Canada. While grades are informed by the general population of children and youth in Canada, efforts were made to gather data specific to equity-denied children and youth to present a more fulsome picture of children and youth's physical activity in Canada.

There are a number of terms that can be used to describe equity-denied groups of children and youth since there is no universally accepted term. "Equity-denied groups" are defined as "groups of people who, because of systemic discrimination, face barriers that prevent them from having the same access to the resources and opportunities that are available to other members of society and that are necessary for them to attain just outcomes." The process of reflecting on the language used to operationalize key definitions is not only beneficial but crucial. Future initiatives undergoing a similar process can consult the Government of Canada's Guide on Equity, Diversity and Inclusion Terminology for many informative definitions, including "equity-denied", "equity-deserving" and "equity-seeking" groups.

Attempts were made to gather data related to Indigenous children and youth; however, for some datasets, custom analyses and data sharing could not be conducted for the Report Card. Data were not shared due to Article 9.1 of the Tri-Council Policy Statement (Requirement of Community Engagement in Indigenous Research), which specifies that engaging with the relevant Indigenous communities is a requirement for research or interpretation of research using Indigenous identity as a variable.

Regardless of efforts to gather relevant data, there was a lack of available data for equity-denied groups. Looking at all equity-denied groups where at least one data source was available within the daily behaviour indicators, most intersections of indicators and equity-denied groups relied on a single data source (Figure 2). Absent from this figure are the numerous equity-denied groups where no data were available for any of the daily behaviour indicators. Further research through expanded data collection efforts is essential to provide representativeness across the intersections of equity-denied groups.

Figure 1. Summary of 2024 Report Card Indicators

2024 Report Card Indicators

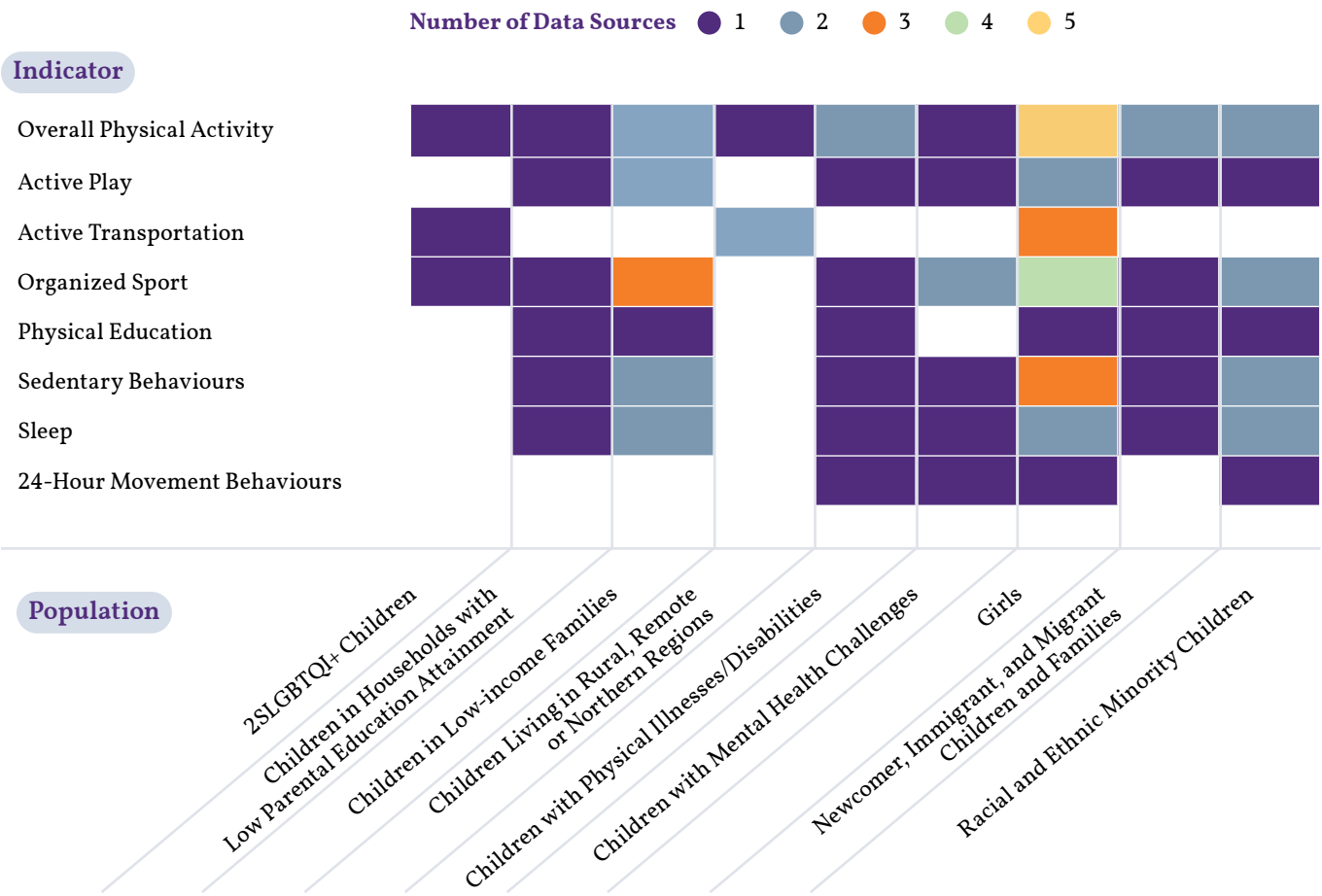
Daily Behaviours
- Overall Physical Activity
- Active Play
- Active Transportation
- Organized Sport
- Physical Education
- Sedentary Behaviours
- Sleep
- 24-Hour Movement Behaviours

Individual Characteristics
- Physical Literacy
- Physical Fitness

Spaces & Places
- Household
- School
- Community & Environment

Strategies & Investments
- Government

Figure 2. Data Gaps Across Daily Behaviour Indicators for Equity-Denied Groups



Rallying for Resilience:

Keeping Children and Youth Active in a Changing Climate

Barriers to getting active have varied for children and youth in Canada. Some of the well-known contributing factors include increased screen time, decreased opportunities for active transportation, limited access to green spaces in which to play, costs and financial commitments, and over-programming contributing to time constraints. But with the number of annual weather alerts in Canada having more than doubled in the past 10 years,[1] it's time for Canada to recognize the impacts of a changing climate as an added barrier to getting children and youth active where they live, learn and play.

Climate change has been a topic of debate for decades, and recent increases in extreme weather events and natural disasters across the country – like forest fires, floods and heatwaves – have brought the impacts of a changing climate and the need for mitigation, as well as community and individual resilience, to the forefront of discussions.

These events have also called attention to the fact that the impacts of climate change have become something that people can now see, feel, touch, smell and hear in their daily lives, and that the current and impending effects of climate change could be particularly harmful for children and youth's physical activity.

Children face special risks from air pollution due to their smaller airways and their need to breathe more rapidly, inhaling more (polluted) air compared to adults.[2] This potentially puts them at greater risk of developing lung disease as they age. Unfavourable weather and climate conditions, such as heatwaves, heavy rain and smoke-filled air, lead to recesses and outdoor sport and recreation activities being cancelled, and more time spent indoors being sedentary with increased exposure to screens. With overall physical fitness having a direct impact on heat tolerance,[3] it's possible that children being less fit than ever before could also impact their ability to acclimate to, and tolerate, the rising temperatures of a changing climate. Further, given that children cannot regulate their temperature in extremely hot and cold climates as well as adults can because of their greater body surface area relative to weight,[3] this puts them at greater health risk in extreme temperatures before physical fitness levels are even taken into account.

The 2024 ParticipACTION Report Card on Physical Activity for Children and Youth reveals higher grades compared to the 2022 Report Card in some areas, including Overall Physical Activity coming in at a D+, an increase from a D at the height of the COVID-19 pandemic. While the overall physical activity grade has improved, a D+ is still an undesirable grade. As Canada continues to slowly recover from the pandemic's residual effects on physical activity (e.g., lockdowns, physical distancing and pausing of organized sports), the impacts of climate change continue to build upon pandemic-related challenges for kids.

Like the pandemic, challenges and barriers to physical activity resulting from climate change increase the potential for even greater disparities among equity-denied groups. The 2022 Report Card revealed that activity levels of racialized and Indigenous children and youth decreased at a greater rate than those of other children and youth during the pandemic. Studies have also shown that kids from low-income neighbourhoods rely more on outdoor spaces and play for physical activity due to a lack of family resources,[4] and it's imaginable that rising temperatures and unpredictable weather events affiliated with a changing climate could potentially reduce access to close-to-home outdoor recreation spaces like parks, sidewalks and even driveways.

If equity is overlooked during the global climate crisis, it could further complicate the advancements of communities that already faced systemic barriers before and during the COVID-19 pandemic, and whose ability to be active depends heavily on favourable weather and environmental conditions.

Resilience is the result of successfully adapting to or withstanding challenging life experiences. But in a world where existing and new barriers to physical activity are redefining the scope of work required to address each one, and the climate is changing at a rate that could provoke the worst of our possible futures, how can *we* (the adults, the policy- and decision-makers, the educators, the family and support networks, the organized sport organizations and others) help children and youth face adversity, move more and build resilience?

We can rally.

A Coordinated Approach

Physical activity can help mitigate the negative health impacts of climate change, and concerted efforts from multiple sectors and people are needed to get and keep children and youth physically active in a changing climate – inside and outside, rain or shine.

1. Government investments to increase access to active and public transportation to school and other daily commitments can improve physical activity levels and reduce carbon emissions and air pollution.
2. School boards' creation of policies to safeguard active play when recess cannot be held outdoors can reduce sedentary and screen time.
3. Communities and their local politicians can ensure indoor recreational facilities have high-quality air filtration and purification systems and develop plans to open facilities for free or at reduced costs to the public during weather and air quality alerts. Outdoor playgrounds can also rely on more natural components (e.g., wood pieces, sensory gardens) that are environmentally friendly to produce and enhance neighbourhood greenness.
4. Families facilitating discussions about climate change and getting children active outdoors can reduce eco-anxiety and lead to a greater understanding and appreciation of nature and environmental conservation—helping create the next generation of environmental stewards and champions.
5. Organized sport programs for children and youth can have heat warning systems, develop clear, easy-to-action guidelines and policies for adverse weather events, use temperature-dependent scheduling, and consider changing existing rules and regulations regarding water breaks and sun protection.
6. Most importantly, comprehensive investments and health promotion initiatives that consider climate implications on physical activity among children and youth – with specific emphasis on disadvantaged and equity-denied communities – can help address inequities, making physical activity more accessible for all and a constant asset in a changing climate.

A coordinated, multi-sectoral approach could proactively prevent further climate-related impacts on children and youth physical activity, and by rallying for resilience, Canada can begin to future-proof the next generation.

References

1. Environment and Climate Change Canada (2023). Canadian Environmental Sustainability Indicators: Temperature change in Canada. Consulted on Mar 7, 2024. Available at: www.canada.ca/en/environment-climate-change/services/environmental-indicators/temperature-change.html
2. American Lung Association (2024). Who is at Risk from Climate Change? Consulted on Mar 7, 2024. Available at https://www.lung.org/clean-air/climate-change/who-is-at-risk-climate
3. Foster J, Hodder SG, Lloyd AB, Havenith G. Individual responses to heat stress: Implications for hyperthermia and physical work capacity. Frontiers in Physiology. 2020 Sep 11;11:541483.
4. McKenzie TL, Moody JS, Carlson JA, Lopez NV, Elder JP. Neighborhood income matters: disparities in community recreation facilities, amenities, and programs. Journal of Park and Recreation Administration. 2013;31(4):12.

Why is Physical Activity Important?

The benefits of physical activity for children and youth between the ages of five and 17 years are well known and span nearly every conceivable health and well-being indicator (e.g., adiposity, cardiometabolic biomarkers, physical fitness, bone health, quality of life/well-being, motor skill development, psychological distress and pro-social behaviour).[1] Reflecting the depth and breadth of these benefits, many public health efforts have been employed over the years to improve the physical activity levels of children and youth.[2-4]

Physical activity is also important when it comes to climate change. Specifically, we can consider the impact that physical activity has on the health of our planet while also thinking about how climate change may be impacting physical activity levels. For instance, regular physical activity can help individuals with climate change adaptation and resilience by improving their ability to tolerate heat[5] – a pressing issue given rising global temperatures and extreme weather events (Figure 3). Further, with increased exposure to days with poor air quality, physical activity may pose health risks unless equitable access to indoor spaces with filtered air is available.[6]

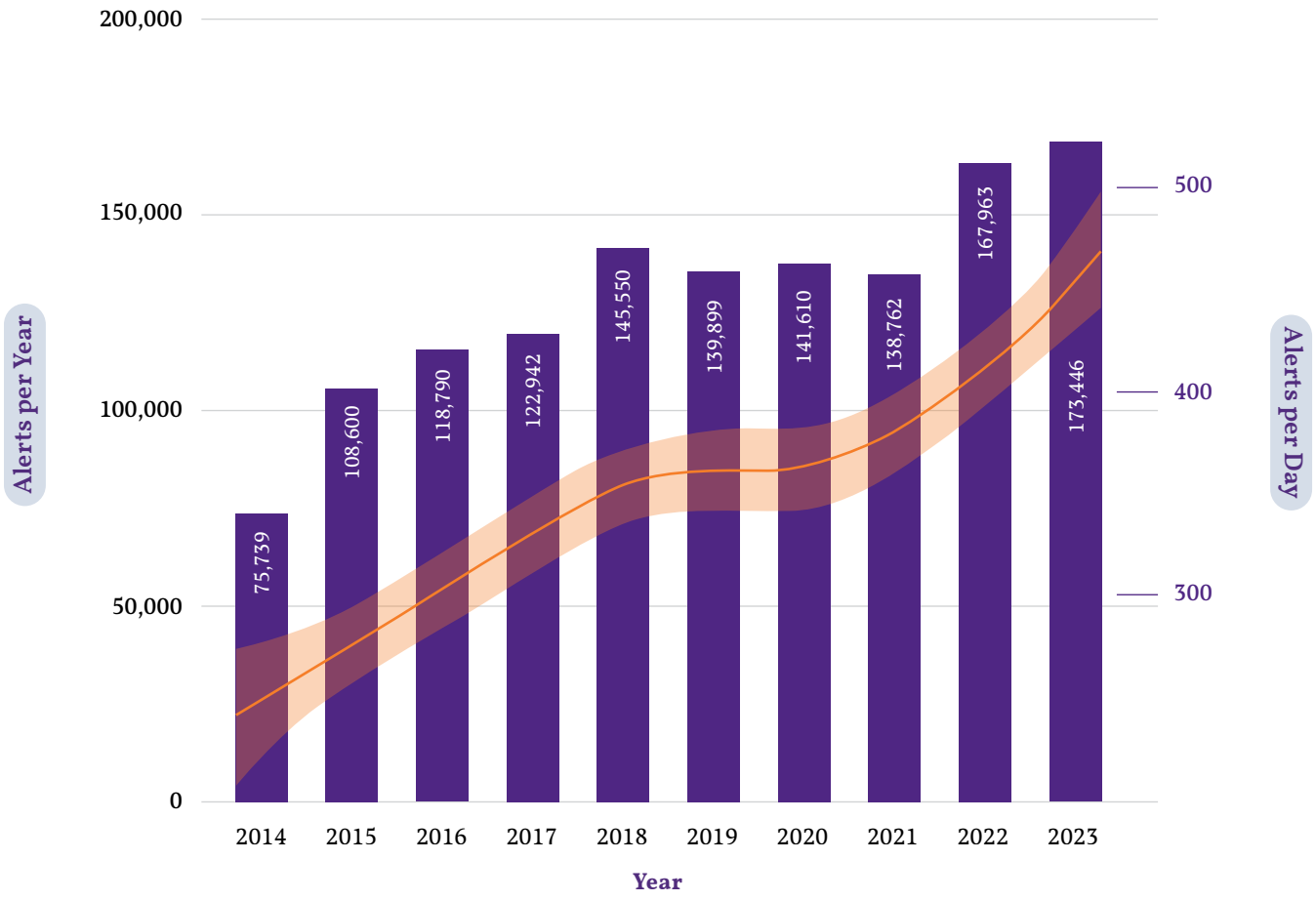
While individual behaviours are a very small component of mitigating climate change, some types of physical activity, such as active transportation and gardening, can also provide benefits to planetary health.[7] Recent research has demonstrated that people living in Canada support policies that are mutually beneficial for physical activity and planetary health (mitigating climate change), such as creating more active transportation infrastructure.[8] Moreover, spending time outdoors increases children and youth's sense of connection with nature, which can improve their pro-environmental behaviours as they grow into adulthood.[9,10]

In contrast, sedentary behaviours can detrimentally impact planetary health. For instance, relying on motorized vehicles for transportation as opposed to engaging in active modes of transportation is linked to adverse effects on both personal well-being and the environment.[7] Even the shift towards vehicle electrification has its downsides, with production necessitating resource extraction from less economically developed countries and contributing to carbon emissions.[11] Additionally, the proliferation of data centres storing screen-based media content such as live streaming and social media not only promotes sedentary habits but also generates a tremendous amount of heat and carbon emissions, further exacerbating climate change.[12]

Canada (and the rest of the world) needs to take serious steps towards improving climate action (i.e., policies and funding related to climate change and climate preparedness) while preparing for potential climate risks. The Climate Action Tracker (2022) scored Canada as highly insufficient for its consistency of policies and commitments within the Paris Agreement's limit of no more than 1.5°C of warming by 2030.[13] The Climate Change Performance Index (CCPI) 2024 also ranked Canada 62 out of 67 countries (very low) based on greenhouse gas emissions, renewable energy, energy use categories and climate policy.[14] "Climate preparedness" is a country's ability to adapt to climate change. The Notre Dame Global Adaptation Initiative (ND-GAIN) provides rank scores for countries based on climate readiness and vulnerability, of which Canada scores as having low vulnerability and high readiness.[15]

Specifically, in 2021, Canada received an ND-GAIN overall rank score of 68.1 (14 out of 185 countries), which included a readiness score of 0.650 and a vulnerability score of 0.288. "Readiness" measures a country's ability to leverage investments and convert them into actions, with overall readiness considering three components: economic, governance and social readiness. "Vulnerability" in the ND-GAIN measures a country's exposure, sensitivity and ability to adapt to the negative impacts of climate change. Overall vulnerability is considered in six life-supporting sectors: food, water, health, ecosystem service, human habitat and infrastructure. Additionally, "climate risks" can be defined as current risks of climate change (e.g., weather phenomena, wildfires, risks to physical activity) and future risks that will increase climate change (e.g., greenhouse gas emissions). With the number of weather alerts in Canada increasing (Figure 3), potentially indicating added exposure to climate risks, now is a critical time to think about how climate change might impact physical activity among children and youth, as well as strategies to safeguard and improve upon active lifestyles.

Figure 3. Weather Alerts in Canada Over Time



References

1. Poitras VJ, Gray CE, Borghese MM, Carson V, Chaput JP, Janssen I, Katzmarzyk PT, Pate RR, Connor Gorber S, Kho ME, Sampson M. Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. Applied Physiology, Nutrition, and Metabolism. 2016;41(6):S197-239.
2. Faulkner G, Ramanathan S, Plotnikoff RC, Berry T, Deshpande S, Latimer-Cheung AE, Rhodes RE, Tremblay MS, Spence JC. ParticipACTION after 5 years of relaunch: a quantitative survey of Canadian organizational awareness and capacity regarding physical activity initiatives. Health Promotion & Chronic Disease Prevention in Canada: Research, Policy & Practice. 2018 Apr 1;38:162-169.
3. Ramanathan S, Faulkner G, Berry T, Deshpande S, Latimer-Cheung AE, Rhodes RE, Spence JC, Tremblay MS. Perceptions of organizational capacity to promote physical activity in Canada and ParticipACTION's influence five years after its relaunch: a qualitative study. Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice. 2018 Apr 1;38(4):170-8.
4. Keadle SK, Bustamante EE, Buman MP. Physical activity and public health: Four decades of progress. Kinesiology Review. 2021 Jun 30;10(3):319-30.
5. Deshayes TA, Périard JD. Regular physical activity across the lifespan to build resilience against rising global temperatures. EBioMedicine. 2023 Oct 1;96.
6. Tainio M, Andersen ZJ, Nieuwenhuijsen MJ, Hu L, De Nazelle A, An R, Garcia LM, Goenka S, Zapata-Diomedi B, Bull F, de Sá TH. Air pollution, physical activity and health: A mapping review of the evidence. Environment International. 2021 Feb 1;147:105954.
7. Abu-Omar K, Chevance G, Tcymbal A, Gelius P, Messing S. Physical activity promotion, human and planetary health–a conceptual framework and suggested research priorities. The Journal of Climate Change and Health. 2023 Sep 1;13:100262.
8. Fagan MJ, Vanderloo LM, Banerjee A, Ferguson LJ, Lee EY, O'Reilly N, Rhodes RE, Spence JC, Tremblay MS, Faulkner G. Assessing Support for Policy Actions With Co-Benefits for Climate Change and Physical Activity in Canada. Journal of Physical Activity and Health. 2023;21(3):256-265.
9. Martin L, White MP, Hunt A, Richardson M, Pahl S, Burt J. Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours. Journal of Environmental Psychology. 2020 Apr 1;68:101389.
10. Chawla L. Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. People and Nature. 2020 Sep;2(3):619-42.
11. Dall-Orsoletta A, Ferreira P, Dranka GG. Low-carbon technologies and just energy transition: prospects for electric vehicles. Energy Conversion and Management: X. 2022 Dec 1;16:100271.
12. Jones N. How to stop data centres from gobbling up the world's electricity. Nature. 2018 Sep 12;561(7722):163-6.
13. Climate Action Tracker, Canada [Internet]. Climate Action Tracker [updated 2022 Dec 20; cited 2024 Feb 14]. Available from: https://climateactiontracker.org/countries/canada/.
14. Climate Change Performance Indicator, Canada [Internet]. CCPI 2024 [updated 2023 Dec 8; cited 2024 Feb 14]. Available from: https://ccpi.org/country/can/
15. Notre Dame Global Adaptation Initiative's (ND-GAIN) Country Index, Canada [Internet]. ND-GAIN 2021 [updated 2023 Aug 8; cited 2024 Feb 14]. Available from: https://gain-new.crc.nd.edu/country/canada

Report Card Indicators

Overall Physical Activity

This year's grade is a D+, as **39%** (bolded numbers in the discussion throughout indicate values used to derive the average) of children and youth met the Canadian 24-Hour Movement Guidelines' physical activity recommendation of at least 60 minutes of moderate- to vigorous-intensity physical activity (MVPA) per day on average.

This grade increased from a D in 2022. This is the second Report Card in a row to incorporate self-report data to determine the Overall Physical Activity grade, a departure from the historical reliance on device-measured data alone – the preferred data source based on improved accuracy and reliability compared to self-report.

Benchmark

The percentage of children and youth who meet the physical activity recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (at least 60 minutes of daily MVPA on average).*,**

* Tremblay et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2016;41:S311-S327.

**Canadian Society for Exercise Physiology. Canadian 24-Hour Movement Guidelines for Children and Youth (5-17 years): An integration of physical activity, sedentary behaviour, and sleep. Ottawa: Canadian Society for Exercise Physiology; 2017. URL: https://csepguidelines.ca/guidelines/children-youth/.

Grades by Year

Year	Grade
2010	F
2011	F
2012	F
2013	D-
2014	D-
2015	D-
2016	D-
2018	D+
2020	D+
2022	D
2024	**D+**

Key Findings

- According to self-reported data from the Canadian Community Health Survey (CCHS), prior to the COVID-19 pandemic (2018), 50% of youth in Canada adhered to the MVPA recommendation of engaging in at least 60 minutes of MVPA per day. This figure dropped during the first year of the pandemic, reaching 37% from September to December 2020, before slightly recovering to **44%** in 2021.[2]
  - While adherence to the MVPA recommendation recovered slightly in 2021, it was mainly due to a rebound of activity levels in boys, not girls. Boys met the MVPA recommendation at rates of 60% pre-pandemic, 40% in fall 2020 and 52% in 2021. The percentage of girls meeting the physical activity recommendation dropped from 47% pre-pandemic to 35% in fall 2020 and remained at 35% in 2021.[2]
  - Some geographic differences were observed: all regions of Canada, except for Atlantic Canada and British Columbia, experienced significant reductions in the proportion of youth meeting physical activity recommendations during fall 2020 when compared with before the pandemic in 2018. All regions returned to baseline by 2021, except for Ontario.[3]
- Youth between the ages of 15 and 17 years who reported non-heterosexual attraction were less likely to meet the MVPA benchmark (16.8%) compared to youth reporting heterosexual attraction.[4] **24%** of children five to 11 years of age and **10%** of youth 12 to 17 years of age met the MVPA recommendation, according to self-reported data from a nationally representative sample surveyed in May 2021 (ParticipACTION COVID-19 Survey).Custom analysis
  - At the beginning of the pandemic in April 2020, 24% of children and 13% of youth met the recommendation. In contrast, 18% of children and 12% of youth met the recommendation in October 2020. In May 2021, 25% of boys and 12% of girls five to 11 years of age met the recommendation, compared to 23% of boys and 7% of girls 12 to 17 years of age (ParticipACTION COVID-19 Survey).Custom analysis
- Accelerometer data from the Canadian Health Measures Survey (CHMS) Cycle 6 (2018-2019) indicated that **49%** of children five to 11 years of age and **36%** of youth 12 to 17 years of age met the MVPA recommendation (CHMS Cycle 6).Custom analysis
  - Only 27% of all girls (five to 17 years of age) met the MVPA recommendation, compared to 57% of all boys (CHMS Cycle 6).Custom analysis
- **72%** of students in grades 7 to 12 from Alberta, British Columbia, Ontario and Quebec met the MVPA recommendation[1] according to self-report data (2022-23 Cohort Study for Obesity, Marijuana Use, Physical Activity, Alcohol Use, Smoking and Sedentary Behaviour [COMPASS], University of Waterloo).Custom analysis
  - On average, students engaged in 1.9 hours per day of MVPA. Additionally, 66% of students with relatively lower household incomes met the MVPA recommendation (2022-23 COMPASS, University of Waterloo).Custom analysis
  - 52% of students adhered to the muscle- and bone-strengthening recommendation of three or more days per week.[1] Interestingly, 60% of Latin American students met the strength-training recommendation, and only 45% and 46% of students with clinically relevant symptoms of depression and anxiety, respectively, met the strength-training recommendation (2022-23 COMPASS, University of Waterloo).Custom analysis

- Combined, 45% of the student population met both the MVPA and muscle- and bone-strengthening recommendations. Comparatively, only 38% of students with relatively lower household incomes met both recommendations (2022-23 COMPASS, University of Waterloo).[Custom analysis]

- Combining 13 years of CHMS data (2007 to 2019), data disaggregation by population groups was possible (CHMS Cycles 1 to 6, 2007-2019):[Custom analysis]

  - There was an 11% gap in the adherence to the MVPA recommendation between children five to 11 years of age in the lowest income households (46%) and the highest income households (57%). No differences existed for youth 12 to 17 years of age (CHMS Cycles 1 to 6, 2007-2019).[Custom analysis]

  - The main differences among racial groups were lower adherence to the MVPA recommendation among South Asian boys (43%) and Chinese girls (23%) five to 11 years of age, compared to White boys (62%) and girls (40%) in the same age group. Among youth 12 to 17 years of age, South Asian boys (57%) had a higher prevalence of adhering to the MVPA recommendation when compared to White boys (40%) (CHMS Cycles 1 to 6, 2007-2019).[Custom analysis]

  - Newcomer girls between the ages of five and 17 years were less likely to meet the MVPA recommendation (18%) compared to non-newcomer girls (28%) (CHMS Cycles 1 to 6, 2007-2019).[Custom analysis]

Research Gaps

- Larger sample sizes in national surveys with targeted oversampling of equity-denied groups and specifically targeted studies led by members of that equity-denied group (e.g., Indigenous research led by Indigenous researchers) are required to examine how physical activity varies across equity-denied groups (e.g., racialized, Indigenous, 2SLGBTQI+ children), and among the intersections of population sub-groups (e.g., income, education, geography, gender).

- Increased surveillance is required for all of the physical activity recommendations (e.g., muscle- and bone-strengthening) of the 24-Hour Movement Guidelines, and not just the MVPA recommendation of an average of 60 minutes per day.

- More research is needed to determine the ideal amount of light-intensity physical activity within a 24-hour period for optimal health.

- Development, validation and refinement of questionnaires are needed to capture physical activity in different domains (including home, school, sport, leisure time, work, employment and volunteering) to better understand the context of when, how, and where children and youth accumulate physical activity.

- More research is needed to determine how to effectively promote physical activity among equity-denied groups (e.g., children and youth living with medical conditions).

Recommendations

- While 60 minutes of MVPA has substantial health benefits, it is important for public health strategies to emphasize the importance of light-intensity physical activity and all movements for the health of children and youth.
- Physical activity promotion efforts should focus on reducing inequalities and inequities, such as the consistently lower levels of physical activity recommendation adherence among girls compared to boys.
- Harmonized physical activity questionnaires should be used to facilitate comparison across groups and studies.
- Funding from various levels of government should continue to be committed for the surveillance of physical activity in children and youth by province/territory.
- Surveillance protocols should be improved with consistent criteria for meeting the 24-hour movement guidelines implemented to allow for better comparisons across years.
- Physical activity should be promoted early in life and often, while identifying many ways to incorporate purposeful and incidental daily physical activity, to better equip children and youth to face climate-related changes, such as heatwaves and air pollution.

Grade-informing and Notable Citations

1. Tremblay et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2016;41:S311-S327.
2. Colley RC, Saunders TJ. The ongoing impact of the COVID-19 pandemic on physical activity and screen time among Canadian youth. Health Reports. 2023 Oct 18;34(10):3-12.
3. Saunders TJ, Colley RC. Regional trends in the moderate-to-vigorous intensity in physical activity and screen time of Canadians before and during the COVID-19 pandemic. PeerJ. 2024, DOI 10.7717/peerj.16913.
4. Wang C, Butler G, Szczepanowski MRJ, Betancourt MT, Roberts KT. Physical activity, organized sport participation and active transportation to school among Canadian youth by gender identity and sexual attraction. Health Promotion and Chronic Disease Prevention in Canada. 2024 Feb;44(2):47-55.
5. Ames ME, Robillard CL, Turner BJ, Garcia-Barrera M, Rush J, Craig SG. Associations between physical activity, affect regulation difficulties, and mental health among Canadian adolescents at two different points of the COVID-19 pandemic. Journal of Health Psychology. 2022 Oct 3;1-17.
6. Arbour-Nicitopoulos KP, Bremer E, Leo J, Wright FV. A pragmatic approach to measuring physical literacy and behavioural outcomes in youth with and without disabilities. Leisure/Loisir. 2023;47(2):209-33.
7. Arbour-Nicitopoulos KP, James ME, Moore SA, Sharma R, Martin Ginis KA. Movement behaviours and health of children and youth with disabilities: Impact of the 2020 COVID-19 pandemic. Paediatrics & Child Health. 2022 Apr 23;1(27):S66-S71.

8. Bremer E, Arbour-Nicitopoulos KP, Tsui B, Ginis KAM, Moore SA, Best KL, Voss C. Feasibility and utility of a Fitbit tracker among ambulatory children and youth with disabilities. Pediatric Exercise Science. 2023 May 26;35(4):249-57.

9. Caldwell HA, Faulkner G, Tremblay MS, Rhodes RE, de Lannoy L, Kirk SF, Rehman L, Moore SA. Regional differences in movement behaviours of children and youth during the second wave of the COVID-19 pandemic in Canada: Follow-up from a national study. Canadian Journal of Public Health. 2022 Aug;113(4):535-46.

10. Campbell JE, Stone MR, Mitra R, Locke M, MacDonald C, Preston A, Feicht RA, Rehman L, Kirk SFL, Faulkner G, Tremblay MS, Moore SA. Children and youth's movement behaviours differed across phases and by geographic region throughout the COVID-19 pandemic in Nova Scotia, Canada: An explanatory sequential mixed-methods study. Journal of Activity, Sedentary and Sleep Behaviours. 2023;2(1):25.

11. Colley RC, Watt J. The unequal impact of the COVID-19 pandemic on the physical activity habits of Canadians. Health Reports. 2022 May 18;33(5):22-33.

12. Colley RC, Saunders TJ. The ongoing impact of the COVID-19 pandemic on physical activity and screen time among Canadian youth. Health Reports. 2023 Oct 18;34(10):3-12.

13. da Costa BG, Bruner B, Raymer GH, Benson SMS, Chaput JP, McGoey T, Rickwood G, Robertson-Wilson J, Saunders TJ, Law B. Association of daily and time-segmented physical activity and sedentary behaviour with mental health of school children and adolescents from rural Northeastern Ontario, Canada. Frontiers in Psychology. 2022 Oct 25;(13):1025444.

14. Duncan MJ, Riazi NA, Faulkner G, Gilchrist JD., Leatherdale ST, Patte KA. Changes in Canadian adolescent time use and movement guidelines during the early COVID-19 outbreak: A longitudinal prospective natural experiment design. Journal of Physical Activity and Health. 2022 Jul 28;19(8):566-77.

15. Fagan MJ, Duncan MJ, Bedi RP, Puterman E, Leatherdale ST, Faulkner G. Physical activity and substance use among Canadian adolescents: Examining the moderating role of school connectedness. Frontiers in Public Health. 2023 Nov 10;10:889987.

16. Guerrero MD, Moore S, Faulkner G, Roberts KC, Mitra R, Vanderloo LM, Rhodes RE, Tremblay MS. Identifying risk profiles for nonadherence to the 24-Hour Movement Guidelines for children and youth 6 months into the COVID-19 pandemic. Pediatric Exercise Science. 2023 Jan 11;35(3):155-64.

17. Hammami N, Da Silva MA, Elgar FJ. Trends in gender and socioeconomic inequalities in adolescent health over 16 years (2002–2018): Findings from the Canadian health behaviour in school-aged children study. Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice. 2022 Feb;42(2):68.

18. Khan A, Khan SR, Lee EY. Association between lifestyle behaviours and mental health of adolescents: Evidence from the Canadian HBSC surveys, 2002–2014. International Journal of Environmental Research and Public Health. 2022 Jun 4;19(11):6899.

19. Lane G, Nisbet C, Johnson S, Candow D, Chilibeck PD, Vatanparast H. Barriers and facilitators to meeting recommended physical activity levels among new immigrant and refugee children in Saskatchewan, Canada. Applied Physiology, Nutrition, and Metabolism. 2021 Jul;46(7):797-807.

20. Mahmood B, Nettlefold L, Ashe MC, Puyat JH, Tang TS. Device-worn measures of sedentary time and physical activity in South Asian adults at high risk for type 2 diabetes in Metro-Vancouver, Canada. PLoS One. 2022 May 5;17(5),e0266599.

21. Manyanga T, Pelletier C, Prince SA, Lee EY, Sluggett L, Lang JJ. A comparison of meeting physical activity and screen time recommendations between Canadian youth living in rural and urban communities: A nationally representative cross-sectional analysis. International Journal of Environmental Research and Public Health. 2022 Apr 6;19(7):4394.

22. Maximova K, Khan MK, Dabravolskaj J, Maunula L, Ohinmaa A, Veugelers PJ. Perceived changes in lifestyle behaviours and in mental health and wellbeing of elementary school children during the first COVID-19 lockdown in Canada. Public Health. 2022 Jan;202:35-42.

23. Patel P, Li X, Keown-Stoneman CD, Vanderloo LM, Kinlin LM, Maguire JL, Birken CS. Changes in pediatric movement behaviors during the COVID-19 pandemic by stages of lockdown in Ontario, Canada: A longitudinal cohort study. Journal of Physical Activity and Health. 2023 Feb 27;20(4):292-302.

24. Pirrie M, Carson V, Dubin JA, Leatherdale ST. Do school characteristics, based on the Comprehensive School Health framework, contribute to youth meeting national physical activity recommendations over time? Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice. 2022 Sep;42(9):408.

25. Smith KL, Bélanger M, Chittle L, Dixon JC, Horton S, Weir PL. Does relative age influence organized sport and unorganized physical activity participation in a cohort of adolescents? Sports. 2022 Jun 23;10(7):97.

26. Szpunar M, Driediger M, Johnson AM, Vanderloo LM, Burke SM, Irwin JD, Shelley J, Timmons BW, Tucker. Impact of the childcare physical activity (play) policy on young children's physical activity and sedentary time: a pilot clustered randomized controlled trial. International Journal of Environmental Research and Public Health. 2021 Jul 13;18(14):7468.

27. Szpunar M, Bourke M, Vanderloo LM, Bruijns BA, Truelove S, Burke SM, Gilliland J, Irwin JD, Tucker P. Parent-reported changes in Ontario children's physical activity levels during the COVID-19 pandemic. Children. 2023 Jan 26;10(2):221.

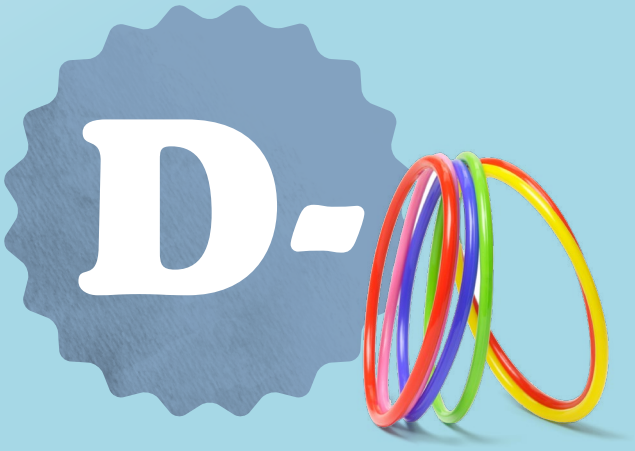
28. Tugault-Lafleur CN, De-Jongh González O, Macdonald J, Bradbury J, Warshawski T, Ball GD, Morrison K, Ho J, Hamilton J, Buchholz A, Mâsse L. Efficacy of the Aim2Be intervention in changing lifestyle behaviors among adolescents with overweight and obesity: Randomized controlled trial. Journal of Medical Internet Research. 2023 Apr 25;25:e38545.

29. Wahi G, Wilson J, Oster R, Rain P, Jack SM, Gittelsohn J, Kandasamy S, de Souza RJ, Martin CL, Toth E, Anand SS. Strategies for promoting healthy nutrition and physical activity among young children: Priorities of two indigenous communities in Canada. Current Developments in Nutrition. 2019 Nov 28;4(1):nzz137.

Daily Behaviours

Active Play

This year's grade is a D-, as only 22% of children and youth accumulate more than two hours per day of indoor and outdoor unstructured play. There was no change in the grade from 2022 to 2024.



Benchmark

The percentage of children and youth who engage in active play and non-organized/unstructured leisure activities for several hours (more than two) per day.*

*It should be noted that the target of several hours of active play per day is arbitrary, and further research is required to establish a benchmark that is linked to health outcomes.

Grades by Year

Year	Grade
2010	F
2011	F
2012	F
2013	INC
2014	INC
2015	INC
2016	D+
2018	D
2020	F
2022	D-
2024	**D-**

Key Findings

- **22%** of children and youth between the ages of five and 17 years engaged in more than two hours per day of indoor and outdoor unstructured play, encompassing physical activities and sports both at home and in various outdoor settings such as schools, communities, parks and green spaces (2022 Parent Survey on Physical Activity and Sport [PSPAS], CFLRI).[Custom analysis]
  - Parents reported that a higher percentage of children five to 11 years of age (29%) met the active play benchmark, compared to youth 12 to 17 years of age (16%; 2022 PSPAS, CFLRI).[Custom analysis]
  - 28% of parents from households in the lowest income tertile indicated that their children achieved this benchmark, compared to 18% of parents from households in the highest income tertile (2022 PSPAS, CFLRI).[Custom analysis]

- Among children five to 11 years of age, 15% were found to accumulate two hours or more per day of outdoor active time, while among youth between the ages of 12 and 17 years, this figure was only to 4.9% (Canadian Health Survey on Children and Youth [CHSCY], 2019).[Custom analysis]
    - Additionally, a subset of children and youth with functional limitations, as defined by the Washington Group on Disability Statistics, showed varying rates of meeting the active play benchmark. Specifically, 16% of five- to 11-year-olds and 7% of 12- to 17-year-olds with any functional limitations reported meeting this benchmark. Comparatively, among those with no limitations, 15% of five- to 11-year-olds and 4.7% of 12- to 17-year-olds met the active play standard (CHSCY, 2019).[Custom analysis]
- Children who spoke a non-official language at home spent less time outdoors per day (1.4 hours) compared to those who spoke English or French at home (1.7 hours).[1]
    - Girls who lived in suburban or rural areas were twice as likely to spend over two hours outside on weekdays, but these associations were not found in boys. Boys and girls in the lower socioeconomic status areas were less likely to spend more than two hours outside on weekend days (girls' odds ratio: 0.48; boys' odds ratio: 0.63).[2]
    - Girls living in rural areas were twice as likely to spend over two hours outside on weekend days than those living in urban areas. Again, no differences were observed for boys.[2]

Research Gaps

- The benchmark of more than two hours per day of indoor and outdoor unstructured active play should be examined to ensure this is the ideal duration for optimal health and development of children and youth.
- Given the varied environments where active play occurs, additional research on the influential role of different environments (e.g., home, school, childcare, built environment) on active play is needed.
- We have a limited understanding of unstructured active play indoors, both in terms of what the behaviour entails and the extent to which children participate, if at all. This would also likely be influenced by developmental stage, similar to that of outdoor unstructured active play.
- It would be helpful to find out from parents, teachers and childcare providers whether the lack of outdoor active play is a consequence of safety concerns or a result of participation in more organized sports/activities.
- Children with disabilities may face additional barriers to participation in outdoor unstructured active play (especially in nature).
- Currently, no data are available about how rates of both indoor and outdoor unstructured active play may differ for children from equity-denied groups.

Recommendations

- More high-quality studies on outdoor active play are needed, with attention to detection and selection bias, transparent reporting and study pre-registration.
- Outdoor and, when possible, nature-based play opportunities should be promoted and supported, not only given their association with increased physical activity levels and improved mental health outcomes but also to promote children's planetary connection and environmental stewardship.
- The importance of indoor active play, especially for those with barriers to outdoor play (e.g., limited mobility, limited accessibility) and during extreme climate events (e.g., poor air quality alerts, heat warnings), should be promoted.
- Remind parents, guardians and other caregivers of children and youth (e.g., teachers) about the value of unstructured active play for inclusion within the childcare, school and home settings.
- The Play, Learn and Teach Outdoors Network (PLaTO-Net) provides international consensus definitions on outdoor play, learning and teaching. Using these terms to define outdoor play may help unify the outdoor play sector.
- Frequent active play opportunities should be nurtured. Given that children learn through play, this will not only support their development but also keep them healthy.

Grade-informing and Notable Citations

1. Nayakarathna R, Patel NB, Currie C, Faulkner G, Riazi NA, Tremblay MS, et al. Correlates of Outdoor Time in Schoolchildren from Families Speaking Nonofficial Languages at Home: A Multisite Canadian Study. Journal of Physical Activity and Health 2022 Dec 1;19(12):828–36.
2. Bremer E, Martin Ginis KA, Bassett-Gunter RL, Arbour-Nicitopoulos KP. Factors associated with participation in physical activity among Canadian school-aged children with autism spectrum disorder: An application of the International Classification of functioning, disability and health. International Journal of Environmental Research and Public Health. 2020 Aug 14;17(16):5925.
3. Nayakarathna R, Patel NB, Currie C, Faulkner G, Riazi NA, Tremblay MS, et al. Correlates of Outdoor Time in Schoolchildren from Families Speaking Nonofficial Languages at Home: A Multisite Canadian Study. Journal of Physical Activity and Health 2022 Dec 1;19(12):828–36.
4. Moore SA, Faulkner G, Rhodes RE, Brussoni M, Chulak-Bozzer T, Ferguson LJ, Mitra R, O'Reilly N, Spence JC, Vanderloo LM, Tremblay MS. Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: A national survey. International Journal of Behavioral Nutrition and Physical Activity. 2020 Jul 6;17(1):85.
5. Buckler EJ, Mâsse LC, Faulkner GE, Puterman E, McConnell-Nzunga J, Naylor P-J. Implementing active play standards: A qualitative study with licensed childcare providers in British Columbia, Canada. Health Promotion International. 2023 Jun 1;38(3):daac036.
6. Ames M, Robillard CL, Turner B, Garcia-Barrera M, Rush J, Craig S. Associations between physical activity, affect regulation difficulties, and mental health among Canadian adolescents at two different points of the COVID-19 pandemic. Psychology and Health. 2022 Oct 3;1-17.

7. Arbour-Nicitopoulos KP, Mitra R, Sharma R, Moore SA. Outdoor physical activity and play among Canadian children and youth with disabilities during the COVID-19 pandemic: Findings from the National Physical Activity Measurement Study. Adapted Physical Activity Quarterly. 2023 Feb 7;40(4):571–86.

8. Bauer ME, Pike I. What children's perspectives on safe and dangerous outdoor play can tell us about their risk-seeking and injury experiences: 'You don't feel right doing the thing that got you hurt.' Injury Prevention. 2023 Oct;29(5):367–70.

9. Beauchamp AA, Lacoste Y, Kingsbury C, Gadais T. When are you taking us outside? An exploratory study of the integration of outdoor learning in preschool and primary education in Quebec. Frontiers in Psychology. 2022 Oct 20;13.

10. Beaulieu É, Beno S, Canadian Paediatric Society Injury Prevention Committee. Healthy childhood development through outdoor risky play: Navigating the balance with injury prevention [Internet]. Canadian Paediatric Society [Internet]. CPS.ca. 2024 [Updated 2024 Jan 25; cited 2024 Feb 14]. Available from: https://cps.ca/en/documents/position/outdoor-risky-play

11. de Lannoy L, Barbeau K, Seguin N, Tremblay MS. Scoping review of children's and youth's outdoor play publications in Canada. Health Promotion and Chronic Disease Prevention in Canada. 2023 Jan;43(1):1–13.

12. Guerrero MD, Moore S, Faulkner G, Roberts KC, Mitra R, Vanderloo LM, et al. Identifying risk profiles for nonadherence to the 24-Hour Movement Guidelines for Children and Youth 6 months into the COVID-19 pandemic. Pediatric Exercise Science. 2023 Jan 11;35(3):155–64.

13. Hwang Y, Boyd M, Davenport C, Carson V. The relative contributions of center demographic, director, parental, social, environmental, and policy factors to changes in outdoor play in childcare centers during the COVID-19 pandemic. Journal of Physical Activity and Health. 2023 Apr 13;20(6):508–21.

14. Li X, Vanderloo LM, Maguire JL, Keown-Stoneman CD, Aglipay M, Anderson LN, Cost KT, Charach A, Vanderhout SM, Birken CS, TARGet Kids! Collaboration. Public health preventive measures and child health behaviours during COVID-19: A cohort study. Canadian Journal of Public Health. 2021 Oct;112(5):831–42.

15. Michaelson V, King N, Janssen I, Lawal S, Pickett W. Electronic screen technology use and connection to nature in Canadian adolescents: A mixed methods study. Canadian Journal of Public Health. 2020 Aug;111(4):502–14.

16. Mitra R, Moore SA, Gillespie M, Faulkner G, Vanderloo LM, Chulak-Bozzer T, Rhodes RE, Brussoni M, Tremblay MS. Healthy movement behaviours in children and youth during the COVID-19 pandemic: Exploring the role of the neighbourhood environment. Health & Place. 2020 Sep;65:102418.

17. Naish C, McCormack GR, Blackstaffe A, Frehlich L, Doyle-Baker PK. An observational study on play and physical activity associated with a recreational facility-led park-based "loose parts" play intervention during the COVID-19 pandemic. Children. 2023 Jun 12;10(6):1049.

18. Nayakarathna R, Patel N, Currie C, Faulkner G, Riazi N, Tremblay MS, Trudeau F, Larouche R. Correlates of physical activity in children from families speaking non-official languages at home: A multi-site Canadian study. Journal of Racial and Ethnic Health Disparities. 2024;11(2):815-825.

19. Patel P, Li X, Keown-Stoneman CDG, Vanderloo LM, Kinlin LM, Maguire JL, Birken CS. Changes in pediatric movement behaviors during the COVID-19 pandemic by stages of lockdown in Ontario, Canada: A longitudinal cohort study. Journal of Physical Activity and Health. 2023 Feb 27;20(4):292–302.

20. Smith KL, Bélanger M, Chittle L, Dixon JC, Horton S, Weir PL. Does relative age influence organized sport and unorganized physical activity participation in a cohort of adolescents? Sports. 2022 Jun 23;10(7):97.

21. Stienwandt S, Cameron EE, Soderstrom M, Casar M, Le C, Roos LE. Family factors associated with hands-on play and screen time during the COVID-19 pandemic. Child & Youth Care Forum. 2022;51(6):1091–115.

22. Szpunar M, Saravanamuttoo K, Vanderloo LM, Bruijns BA, Truelove S, Burke SM, Gilliland J, Irwin JD, Tucker P. Children's physical activity during COVID-19 in Ontario, Canada: Parents' perspectives. International Journal of Environmental Research and Public Health. 2022 Nov 16;19(22):15061.

23. Szpunar M, Vanderloo LM, Bruijns BA, Truelove S, Burke SM, Gilliland J, Irwin JD, Tucker P. Children and parents' perspectives of the impact of the COVID-19 pandemic on Ontario children's physical activity, play, and sport behaviours. BMC Public Health. 2021 Dec 13;21(1): 2271

24. Wang C, Toigo S, Zutrauen, S, McFaull, SR, Thompson W. Injuries among Canadian children and youth: An analysis using the 2019 Canadian Health Survey on Children and Youth. Health Promotion and Chronic Disease Prevention in Canada. 2023 Feb;43(2):98–102.

Active Transportation

This year's grade remains a C-, as **43%** of children and youth typically used active modes of transportation to and from school.

Benchmark

The percentage of children and youth who typically use active transportation to get to and from places (e.g., school, park, mall, friend's house).

Grades by Year

Year	Grade
2010	D
2011	D
2012	D+
2013	D
2014	D
2015	D
2016	D
2018	D-
2020	D-
2022	C-
2024	**C-**

Key Findings

- **43%** of children between the ages of five and 17 years attending in-person school either solely use active transportation to commute to school or combine active modes of commuting with non-active options based on parental reporting in the Parent Survey on Physical Activity and Sport (PSPAS).
  - 50% of parents living in larger municipalities (10,000 residents or more) report that their child actively commutes to or from school (either exclusively or in combination with non-active options), compared to 32% of parents with children living in smaller communities (2022 PSPAS, CFLRI).[Custom analysis]
- According to the CCHS, during fall 2020, levels of active transportation experienced a decline, with an average of 20 minutes per day spent engaging in this mode of travel. This reduction persisted into 2021, with an average of 20 minutes per day again. In comparison, the average was 25 minutes per day in 2018.[1]

- A greater decrease in active transportation between 2018 and 2021 was observed among girls compared with boys. Among girls, average active transportation time in 2018 was 24 minutes per day, while in 2021, it was 18 minutes per day; this represents a decrease of 42 minutes per week on average. Among boys, average active transportation time in 2018 was 26 minutes per day, while in 2021, it was 23 minutes per day – a decrease of 21 minutes per week on average.[1]
- Some variation by province was evident in how the pandemic affected active transportation: Quebec, Ontario and the Prairie provinces (Manitoba, Saskatchewan and Alberta) all saw reduced time spent engaging in active transportation during fall 2020, while in 2021, this remained reduced in Ontario only. There was no change in active transportation in either Atlantic Canada or British Columbia between 2018 and 2021.[2]
- Youth 15 to 17 years of age who reported non-heterosexual attraction engaged in more active transportation to get to school (169 minutes per week) compared to heterosexual youth (126 minutes per week).[3]

- Nationally representative data collected in the Active Transport and Independent Mobility (ATIM) study indicated that children with disabilities or long-standing illnesses had lower independent mobility than those who did not (β = -0.23; 95% CI: -0.43; -0.03).[3] As well, lower household income was associated with higher independent mobility (IM), though the difference was only significant when comparing children in families earning $40,000 to $99,999 vs. $100,000 or more per year.[4]
  - "Children's IM"[7] is described as the freedom to move around in public spaces without adult supervision. Previous research shows that children with higher IM are more likely to engage in active transportation.[5]

Research Gaps

- National-level surveillance is needed on the frequency and duration with which children and youth engage in active travel to and from destinations other than school, including an understanding of what those destinations are.
- Research should continue to monitor the prevalence and correlates of active transportation among children and youth to guide policy and practice initiatives.
- There is a need for evaluations to assess the impact of changes to neighbourhood infrastructure on active transportation among children and youth. In particular, longitudinal research is required to identify whether creating more parks and protecting greenspaces within communities could be beneficial to facilitating active travel to school.[6]
- Gender differences in levels of active transportation should be explored to determine potential explanatory factors (e.g., perceptions related to safety).
- There are unique accessibility-related challenges and barriers that may impede the opportunity for active school travel among children and youth with disabilities (e.g., having to take a bus to a specialized school that is not within walking or wheeling distance from the child's home). As such, there is a need to examine how to support active transportation among children and youth with disabilities.[6]
- A child is more likely to walk to school if a parent actively travels to their workplace. Future research could examine whether interventions to increase active transportation to work indirectly supports children's active school travel.[7]

Recommendations

- Children's IM can be fostered by enhancing their sense of autonomy and reinforcing trust from parents (e.g., letting them help choose routes).
- Parents should consider letting their children walk, wheel or bicycle to destinations that are within a few kilometres of their homes rather than driving them to those destinations.
- A culture of active transportation, similar to many European, African and East Asian nations where active transportation is the norm, should be created. This may involve alleviating parental safety concerns (e.g., "stranger danger") by informing them of the low risks involved and providing strategies to overcome barriers such as winter weather and generally larger distances between where children live and places to which they could actively travel.
- To reduce vehicle congestion, motor vehicle collisions, carbon emissions and exposure to air pollution, schools should develop a school travel plan that encourages children and youth to use active transportation.

Grade-informing and Notable Citations

1. Colley RC, Saunders TJ. Ongoing impact of the COVID-19 pandemic on the physical activity of Canadian children and youth. Health Reports 2023;34(10):3-12.
2. Saunders TJ, Colley RC. Regional trends in the moderate-to-vigorous intensity physical activity and screen time of Canadians before and during the COVID-19 pandemic. PeerJ. 2024, DOI 10.7717/peerj.16913.
3. Wang C, Butler G, Szczepanowski MRJ, Betancourt MT, Roberts KT. Physical activity, organized sport participation and active transportation to school among Canadian youth by gender identity and sexual attraction. Health Promotion and Chronic Disease Prevention in Canada. 2024 Feb;44(2):47-55.
4. Larouche R, Bélanger M, Brussoni M, Faulkner G, Gunnell K, Tremblay MS. Canadian children's independent mobility during the COVID-19 pandemic: A national survey. Health & Place. 2023 May;81:103019.
5. Schoeppe S, Duncan MJ, Badland H, Oliver M, Curtis C. Associations of children's independent mobility and active travel with physical activity, sedentary behaviour and weight status: a systematic review. Journal of Science in Medicine & Sport. 2013 Jul;16(4):312–9.
6. Duffy RT, Larsen K, Bélanger M, Brussoni M, Faulkner G, Gunnell K, et al. Children's Independent Mobility, School Travel, and the Surrounding Neighborhood. American Journal of Preventive Medicine. 2023 Dec 10;S0749-3797(23)00502-0.
7. Cottagiri SA, De Groh M, Srugo SA, Jiang Y, Hamilton HA, Ross NA, Villeneauve PJ. Are school-based measures of walkability and greenness associated with modes of commuting to school? Findings from a student survey in Ontario, Canada. Canadian Journal of Public Health. 2021 Apr;112(2):331–41.

8. Blanchette S, Larouche R, Tremblay MS, Faulkner G, Riazi NA, Trudeau F. Associations between school environments, policies and practices and children's physical activity and active transportation. Journal of School Health. 2021 Jan;92(1):31–41.

9. Blanchette S, Larouche R, Tremblay MS, Faulkner G, Riazi NA, Trudeau F. Influence of weather conditions on children's school travel mode and physical activity in 3 diverse regions of Canada. Applied Physiology, Nutrition, and Metabolism. 2021 Jun;46(6):552–60.

10. Branion-Calles M, Teschke K, Koehoorn M, Espin-Garcia O, Harris MA. Estimating walking and bicycling in Canada and their road collision fatality risks: The need for a national household travel survey. Preventive Medicine Reports. 2021 Mar 26;22:101366.

11. Caldwell HA, Yusuf J, Arthur M, Friesen CL, Kirk SF. Play-friendly communities in Nova Scotia, Canada: A content analysis of physical activity and active transportation strategies. International Journal of Environmental Research and Public Health. 2022 Mar 3;19(5):2984.

12. Han CS, Brussoni MJ, Mâsse LC. Parental autonomy support in the context of parent–child negotiation for children's independent mobility: 'I always feel safer with my parents' to 'boom! bust down those walls!' The Journal of Early Adolescence. 2022 Jun;42(6):737–64.

13. Larouche R, Moore SA, Bélanger M, Brussoni M, Faulkner G, Gunnell K, Tremblay MS. Parent-perceived changes in active transportation and independent mobility among Canadian children in relation to the COVID-19 pandemic: Results from two national surveys. Children, Youth and Environments. 2022;32(3):25–52.

14. Morningstar B, Clayborne Z, Wong SL, Roberts KC, Prince SA, Gariépy G, Goldfield GS, Janssen I, Lang JJ. The association between social media use and physical activity among Canadian adolescents: A health behaviour in school-aged children (HBSC) study. Canadian Journal of Public Health. 2023 Aug;114(4):642–50.

15. Nayakarathna R, Patel N, Currie C, Faulkner G, Riazi N, Tremblay MS, Trudeau F, Larouche R. Correlates of physical activity in children from families speaking non-official languages at home: A multi-site Canadian study. Journal of Racial and Ethnic Health Disparities. 2024;11(2)815-825.

16. Pelletier CA, Cornish K, Sanders C. Children's independent mobility and physical activity during the COVID-19 pandemic: A qualitative study with families. International Journal of Environmental Research and Public Health. 2021 Apr 23;18(9):4481.

17. Rothman L, Hagel B, Howard A, Cloutier MS, Macpherson A, Aguirre AN, McCormack GR, Fuselli P, Buliunng R, HubkaRao T, Ling R, Zanotto M, Rancourt M, Winters M. Active school transportation and the built environment across Canadian cities: Findings from the Child Active Transportation Safety and the Environment (CHASE) study. Preventive Medicine. 2021 May;146:106470.

18. Riazi NA, Wunderlich K, Yun L, Paterson DC, Faulkner G. Social-ecological correlates of children's independent mobility: A systematic review. International Journal of Environmental Research and Public Health. 2022 Jan 30;19(3):1604.

19. Wolfe M, McDonald N, Ussery E, George S, Watson K. Systematic review of active travel to school surveillance in the United States and Canada. Journal of Healthy Eating and Active Living. 2021 Sep 23;1(3):127–41.

20. Winters M, Beairsto J, Mitra R, Zanotto M, Walker K, Laberee K, Soucy A, Swanson A, Mahmoud H, Pincott B, Firth CL, Kirk SFL. Pedal Poll/Sondo Vélo 2021: A community science project on who cycles in Canada. Journal of Transport & Health. 2023;30:101606.

Organized Sport

This year's grade is a B, an increase from the 2022 grade of C+, based on an average of **68%** of children and youth (73% of children and 64% of youth) participating in organized sport programs.

Benchmark

The percentage of children and youth who participate in organized sport programs.

Grades by Year

Year	Grade
2010	C
2011	C
2012	C
2013	C
2014	C+
2015	B-
2016	B
2018	B
2020	B
2022	C+
2024	**B**

Key Findings

- **68%** of children five to 11 years of age and **67%** of youth 12 to 17 years of age engaged in sports within the last year (2022 PSPAS, CFLRI).[Custom analysis]
  - A higher proportion of parents reported their sons participated in sports (71%) compared to their daughters (64%). As well, 73% of parents from households within the highest income tertile stated that their child had participated in sports within the past year, compared to 60% of parents from lower-income households (2022 PSPAS, CFLRI).[Custom analysis]
- According to COMPASS results from the 2022 to 2023 school year, **59%** of students in grades seven to 12 participated in organized sports, including school intramural sports, school varsity sports or community sports (2022-23 COMPASS, University of Waterloo).[Custom analysis]
  - 61% of students with average or higher household income participated in organized sports, compared to 46% of students with lower household income (2022-23 COMPASS, University of Waterloo).[Custom analysis]

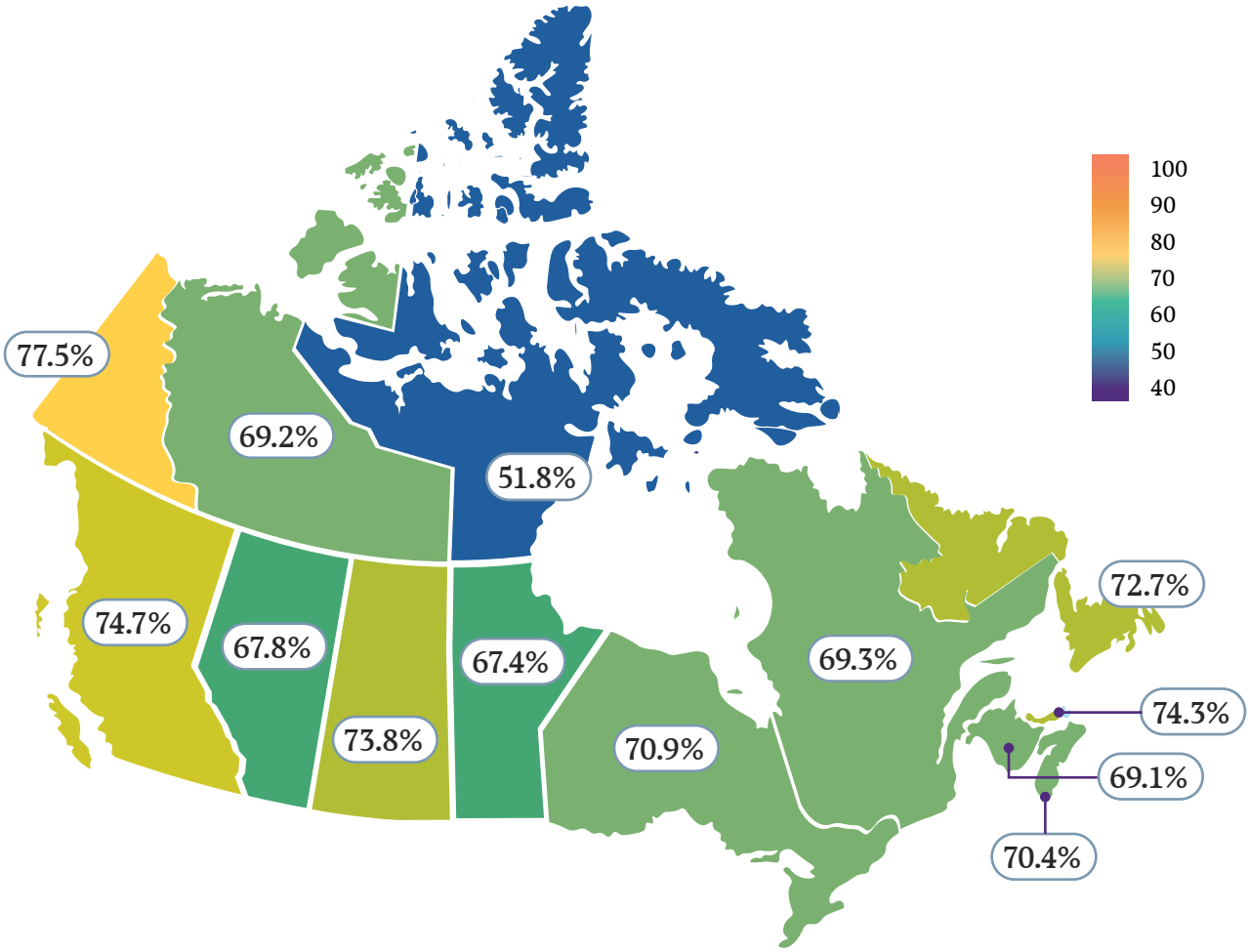
- 38% of students participated in intramural sports or non-competitive sport clubs, and 40% took part in league or team sports outside of school (2022-23 COMPASS, University of Waterloo).[Custom analysis]

- Within the CHSCY, **77%** of children five to 11 years of age and **67%** of youth 12 to 17 years of age participated in a sport or physical activity with a coach or instructor, with some variability across provinces and territories (Figure 4; CHSCY, 2019).[Custom analysis]

  - 55% of children and youth from the lowest income households, compared to 86% from the highest income households, participated in a sport or physical activity with a coach or instructor (CHSCY, 2019).[Custom analysis]

- The CCHS indicated that 49% of transgender youth 15 to 17 years of age participated in organized sports in the past year, compared to 67% of cisgender youth. Transgender youth also averaged significantly less time engaged in organized sport participation (96 minutes per week) compared to cisgender youth (214 minutes per week). Further, youth reporting non-heterosexual attraction were less likely to participate in organized sports in the past year (49%) and engaged in less organized sport participation time (130 minutes per week) than youth reporting heterosexual attraction (63% and 216 minutes per week).[1]

Figure 4. The Percentage of Children and Youth Participating in a Sport or Physical Activity with a Coach or Instructor Across Canada (CHSCY, 2019)[Custom analysis]



Research Gaps

- More research is needed to examine the effectiveness of programs that subsidize sport participation for children and youth living in low-income households (e.g., KidSport).
- More recent data are required for national sport participation, broken down by sport.
- Considering that tax incentives to date have been inequitable and ineffective for promoting sport participation, there is a need to better understand how policy and monetary tax incentives could enhance levels of sport participation among children and youth.
- There is a need to understand the long-term implications of delayed sport enrollment (in younger children) and higher sport drop-out rates (in adolescence) during COVID-19.
- More research is needed to understand the impact of climate change on children and youth's sport participation, including how sport officials and coaches navigate weather alerts and the perspectives of participants, parents and guardians.
- Information is required on the effectiveness of initiatives and programs to promote sport participation among girls.

Recommendations

- Ensure organized sport offerings for children and youth have heat warning systems and guidelines in place, temperature-dependent scheduling, and built-in sun protection strategies.
- Provide sport policymakers and practitioners with tools and information on applying shared principles, strategies and interventions across community sport and recreation, education, and public health.
- Expose children to a variety of different sports ("sport sampling") as opposed to early sport specialization, given that data show that sport sampling is more favourable for lifelong physical activity.
- Ensure sport offerings are inclusive of the needs of children and youth with disabilities. The Quality Participation in Sport Blueprints that were created by the Canadian Disability Participation Project are resources that sport and recreation organizations can consider implementing within their practices.
- Provide culturally relevant sport offerings that are attractive to children of newcomer families and those from a variety of ethnic, socio-economic and cultural backgrounds (e.g., Indigenous or Northern traditional sports and games).
- Financial support schemes should be in place and promoted to ensure low-income households have access to organized sport programs.

Grade-informing and Notable Citations

1. Wang C, Butler G, Szczepanowski MRJ, Betancourt MT, Roberts KT. Physical activity, organized sport participation and active transportation to school among Canadian youth by gender identity and sexual attraction. Health Promotion and Chronic Disease Prevention in Canada. 2024 Feb;44(2):47-55.
2. Bruno N, Richardson A, Kauffeldt KD, Tomasone JR, Arbour-Nicitopoulos K, Latimer-Cheung AE. Exploring experiential elements, strategies and outcomes of quality participation for children with intellectual and developmental disabilities: A systematic scoping review. Journal of Applied Research in Intellectual Disabilities. 2022 May;35(3):691–718.
3. Fagan MJ, Duncan MJ, Bedi RP, Puterman E, Leatherdale ST, Faulkner G. Physical activity and substance use among Canadian adolescents: Examining the moderating role of school connectedness. Frontiers in Public Health. 2022 Nov 10;10:889987.
4. Gallant F, Murray RM, Sabiston CM, Bélanger M. Description of Sport Participation Profiles and transitions across profiles during adolescence. Journal of Sports Sciences. 2022 Aug;40(16):1824–36.
5. Gurgis JJ, Kerr G, Darnell S. 'Safe sport is not for everyone': Equity-deserving athletes' perspectives of, experiences and recommendations for safe sport. Frontiers in Psychology. 2022 Mar 7;13.
6. Harlow M, Fraser-Thomas J. Describing early years sport: Take-up, pathways, and engagement patterns amongst preschoolers in a major Canadian city. Sport in Society. 2023;27(1):68–90.
7. Hasani T, Warwick L, Hernandez T, Séguin B, O'Reilly N. Barriers to youth sport participation in dense urban centres. International Journal of Sport Management and Marketing. 2023;23(3):175.
8. Hopkins CS, Hopkins C, Kanny S, Watson A. A systematic review of factors associated with sport participation among adolescent females. International Journal of Environmental Research and Public Health. 2022 Mar 12;19(6):3353.
9. Huard Pelletier V, Lemoyne J. Early sport specialization and relative age effect: Prevalence and influence on perceived competence in ice hockey players. Sports. 2022 Apr 18;10(4):62.
10. Irvine DS, Lee E-Y, Janssen I, Leatherdale ST. Gendered associations between e-cigarette use, cigarette smoking, physical activity, and sedentary behaviour in a sample of Canadian adolescents. Dialogues in Health. 2022;1:100029.
11. Irvine DS, McGarity-Shipley E, Lee E-Y, Janssen I, Leatherdale ST. Longitudinal associations between e-cigarette use, cigarette smoking, physical activity, and recreational screen time in Canadian adolescents. Nicotine & Tobacco Research. 2021 Jun 15;24(7):978–85.
12. Joseph J, Tajrobehkar B, Estrada G, Hamdonah Z. Racialized women in sport in Canada: A scoping review. Journal of Physical Activity and Health. 2022 Nov 12;19(12):868–80.
13. LaForge-MacKenzie K, Tombeau Cost K, Tsujimoto KC, Crosbie J, Charach A, Anagnostou E, Birken CS, Monga S, Kelley E, Burton CL, Nicolson R, Georgiades S, Korczak DJ. Participating in extracurricular activities and school sports during the COVID-19 pandemic: Associations with child and youth mental health. Frontiers in Sports and Active Living. 2022 Aug 29;4:936041.
14. Larson HK, Young BW, McHugh T-LF, Rodgers WM. Visual representations of single- and multi-sport participation in a youth swimming sample: Implications for definitions and discussions of early specialization. PLos One. 2023;18(9):e0292038.
15. Manitowabi K. Indigenous youth and sport participation. Western University. 2022.
16. Nachman JR, Hayhurst LMC, Giles AR, Stewart-Withers R, Henhawk DA. Indigenous Youth (non)participation in Euro-Canadian sport: Applying theories of refusal. Sociology of Sport Journal. 2023;40(1):3–10.
17. Nelson HJ, Spurr S, Bally JM. The benefits and barriers of sport for children from low-income settings: An integrative literature review. SAGE Open. 2022;12(1):215824402210872.
18. Owen KB, Nau T, Reece LJ, Bellew W, Rose C, Bauman A, Halim NK, Smith BJ. Fair play? Participation equity in organized sport and physical activity among children and adolescents in high income countries: A systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity. 2022 Mar 18;19(1).
19. Rich K, Misener L. Playing on the periphery: Troubling sport policy, systemic exclusion and the role of sport in rural Canada. Sport in Society. 2019;22(6):1005–24.
20. Sabourin C, Turgeon S, Martin L, Rathwell S, Bruner M, Cairney J, Camiré M. Sport participation, extracurricular activity involvement, and psychological distress: A latent class analysis of Canadian high school student-athletes. Journal of Clinical Sport Psychology. 2023;17(3):327–45.

21. Shwed A, Bruner B, Law B, Bruner MW. Investigating the impact of food rewards on children's motivation to participate in Sport. Children. 2023 Feb 23;10(3):432.

22. Sick K, Sabiston CM, Maharaj A, Pila E. Body image and disordered eating prevention in girls' sport: A partner-driven and stakeholder-informed scoping review of interventions. Psychology of Sport and Exercise. 2022;61:102215.

23. Sit C, Aubert S, Carty C, Silva DA, López-Gil JF, Asunta P, Palad T, Guisihan R, Lee J, Arbour Nicitopoulos KP, Vanderloo LM, Stanish H, Haegele J, Urbański PK, Pozeriene J, Hutzler Y, Ng K. Promoting physical activity among children and adolescents with disabilities: The translation of policy to practice internationally. Journal of Physical Activity and Health. 2022 Oct 22;19(11):758–68.

24. Smith KL, Bélanger M, Chittle L, Dixon JC, Horton S, Weir PL. Does relative age influence organized sport and unorganized physical activity participation in a cohort of adolescents? Sports. 2022 Jun 23;10(7):97.

25. Smith A, Saewyc EM, CoronelVillalobos M. Is it really getting better? Changing disparities in sexual minority adolescents' sport participation. Journal of Adolescent Health. 2022;70(4).

26. Sulz LD, Gleddie DL, Kinsella C, Humbert ML. The health and educational impact of removing financial constraints for school sport. European Physical Education Review. 2022 Feb;29(1):3–21.

Physical Education

This year's grade is a C, based on an average of **53%** of students meeting the physical education benchmarks of children in grades K to 8 receiving at least 150 minutes of physical education per week (35%) and high school students taking physical education (70%).

Benchmarks

- The percentage of students in grades K to 8 receiving at least 150 minutes of physical education per week.
- The percentage of high school students taking physical education.
- The percentage of students receiving daily physical activity (DPA) in provinces that have DPA policies.

Grades by Year

Year	Grade
2010	–
2011	–
2012	–
2013	–
2014	–
2015	–
2016	–
2018	C-
2020	D+
2022	INC
2024	**C**

Key Findings

- According to the Opportunities for Physical Activity at School Study (OPASS), school administrators reported that **35%** of grades K to 8 students received at least 150 minutes of physical education per week, and an average of **69%** of students in grades 9 to 12 took physical education (2021-22 OPASS, CFLRI).[Custom analysis]
- Within the CHSCY, **71%** of youth 12 to 17 years of age reported taking a physical education class at school (CHSCY, 2019).[Custom analysis]
  - The highest percentage of youth taking a physical education class was in Quebec (95%), and the lowest percentage was in New Brunswick (57%) (Figure 5; CHSCY, 2019).[Custom analysis]
  - Compared to all youth, a lower percentage of girls with any functional limitations (62%), defined according to the Washington Group on Disability Statistics, and a higher percentage of boys with parents who had a post-secondary education (74%) were taking a physical education class (Figure 6; CHSCY, 2019).[Custom analysis]

Figure 5. The Percentage of Youth Taking a Physical Education Class Across Canada (CHSCY, 2019)[Custom analysis]

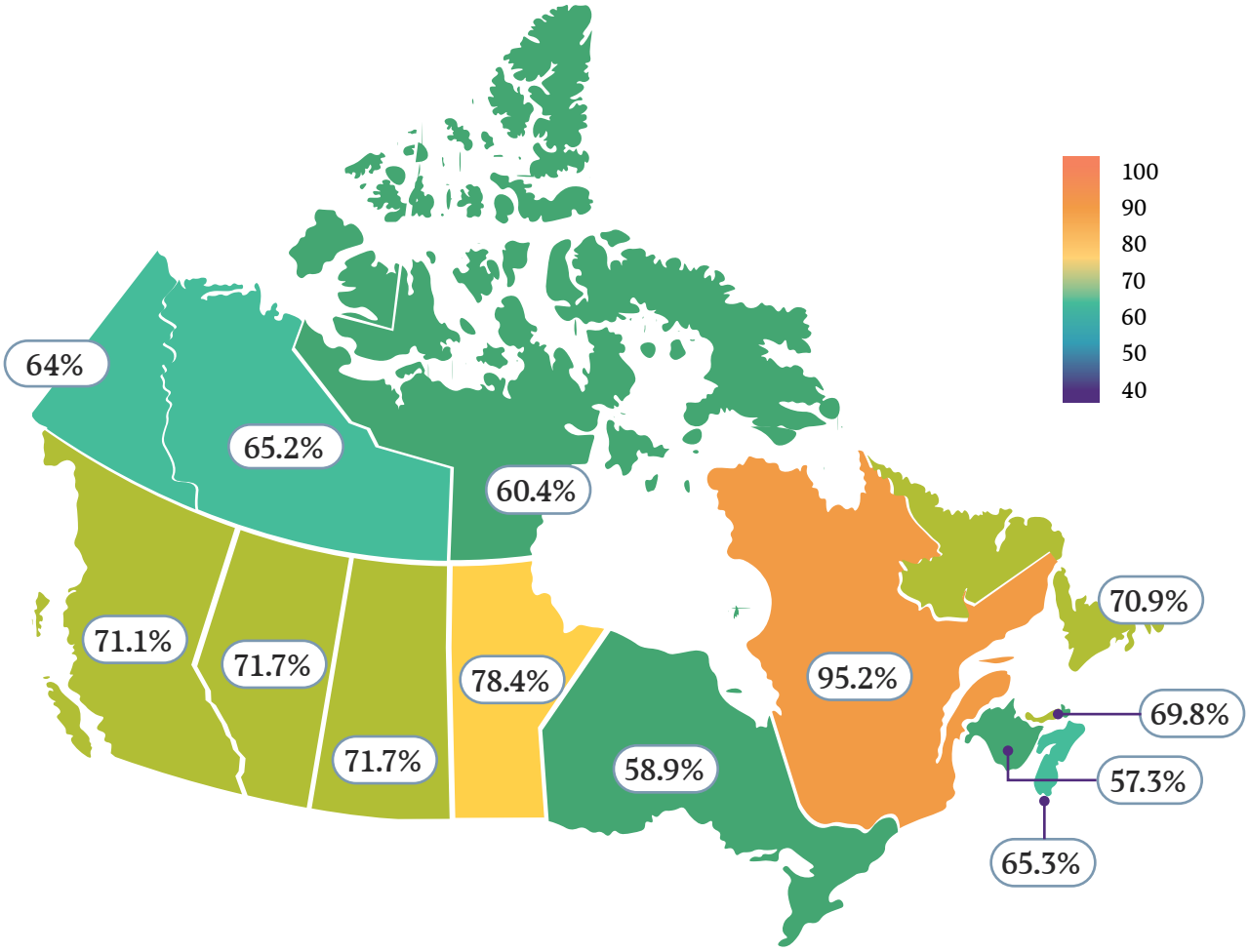
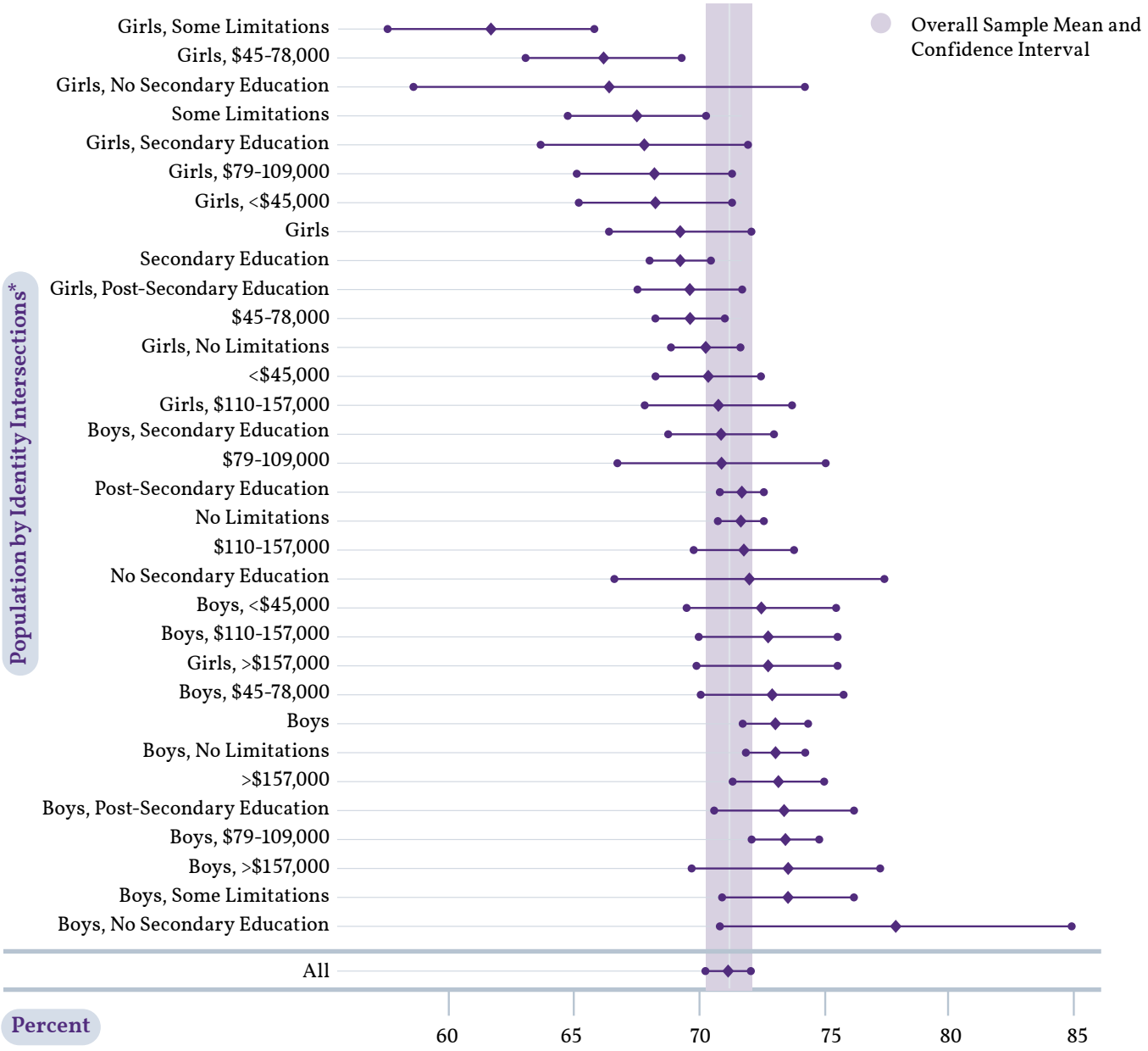


Figure 6. The Percentage of Youth 12 to 17 Years of Age Across Identity Intersections Taking a Physical Education Class (CHSCY, 2019)[Custom analysis]



*Identity intersections included sex, child functional limitations (defined according to the Washington Group on Disability Statistics), household income ($), and highest household education (i.e., highest education of an individual in the household).

- Within the CCHS, school-related physical activity was significantly lower in both fall 2020 (13 minutes per day) and in 2021 (14 minutes per day) when compared to 2018 (19 minutes per day).[1]
  - The differences in school-related physical activity over time were similar among boys and girls.[1]
  - In fall 2020 but not in 2021, school-related activity was significantly reduced in Ontario, the Prairie provinces and British Columbia. In Quebec, it was only significantly reduced in 2021. However, school-related physical activity did not change from baseline levels in Atlantic Canada.[2]

Research Gaps

- Studies are needed to examine device-measured physical activity levels in physical education classes to better understand if students who take physical education are indeed more physically active than students who elect to not take physical education. Further, it would help quantify the amount of active time in physical education classes.
- Research should assess whether there are differences in physical activity levels of students in schools with mandated DPA policies compared to students in schools without these policies.
- Research is needed to explore if participation in physical education differs in equity-denied populations.
- Research is needed to examine the disconnect between the existence of DPA policies and their adherence rates.

Recommendations

- Follow Physical and Health Education (PHE) Canada's guidelines for quality physical education (e.g., qualified, enthusiastic teachers).
- Focus on enjoyment and inclusiveness rather than on competition and specialization while ensuring high-quality physical education by trained and competent physical education teachers.
- Prioritize physical education and DPA with the same respect as core subjects such as math, science and social studies.
- Emphasize efforts to increase physical education frequency and enhance the physical education curriculum to support children and youth's movement behaviours and learning.
- Embrace opportunities to use the outdoors for physical education.
- Integrate the topic of physical education and climate change into the curriculum, including the causes, health effects and possible prevention measures.

Grade-informing and Notable Citations

1. Colley RC, Saunders TJ. Ongoing impact of the COVID-19 pandemic on the physical activity of Canadian children and youth. Health Reports. 2023 Oct 1;34(10):3-12.
2. Saunders TJ, Colley RC. Regional trends in the moderate-to-vigorous intensity physical activity and screen time of Canadians before and during the COVID-19 pandemic. PeerJ. 2024, DOI 10.7717/peerj.16913.
3. Arufe-Giráldez V, Sanmiguel-Rodríguez A, Ramos-Álvarez O, Navarro-Patón R. Gamification in physical education: A systematic review. Education Sciences. 2022;12(8):540.
4. Baena-Morales S, González-Víllora S. Physical education for sustainable development goals: Reflections and comments for contribution in the educational framework. Sport, Education and Society. 2023;28(6):697-713.
5. Bigelow H, Fenesi B. Pre-Service teachers' perceptions of and experiences with classroom physical activity. International Journal of Environmental Research and Public Health. 2023;20(2):1049.
6. Bradford B, Trudel LE, Katz J, Sokal L, Loreman T. Promising practices for preparing Canadian teachers for inclusive classrooms: Analysis through a transformative learning lens. International Journal of Inclusive Education. 2023;27(11):1191-206.
7. Dudley D, Mackenzie E, Van Bergen P, Cairney J, Barnett L. What drives quality physical education? A systematic review and meta-analysis of learning and development effects from physical education-based interventions. Frontiers in Psychology. 2022 Jun 23;13:799330.
8. Fernandez-Rio J, Iglesias D. What do we know about pedagogical models in physical education so far? An umbrella review. Physical Education and Sport Pedagogy. 2022:1-16.
9. Girard S, Lemoyne J, Blais D, St-Amand J. An analysis of mechanisms underlying social goals in physical education: A comparison between ordinary and special classes. Physical Education and Sport Pedagogy. 2022;27(3):320-37.
10. Leo FM, Mouratidis A, Pulido J, López-Gajardo M, Sánchez-Oliva D. Perceived teachers' behavior and students' engagement in physical education: The mediating role of basic psychological needs and self-determined motivation. Physical Education and Sport Pedagogy. 2022;27(1):59-76.
11. Leo FM, Pulido JJ, Sánchez-Oliva D, López-Gajardo MA, Mouratidis A. See the forest by looking at the trees: Physical education teachers' interpersonal style profiles and students' engagement. European Physical Education Review. 2022;28(3):720-38.
12. Li H, Cheong JPG. Using the ADDIE model to design and develop physical education lessons incorporated with a functional training component. Frontiers in Public Health. 2023 Sep 22;11:1201228.
13. Ostermeier E, Tucker P, Tobin D, Clark A, Gilliland J. Parents' perceptions of their children's physical activity during the COVID-19 pandemic. BMC Public Health. 2022 Aug 1;22(1):1459.
14. Popowczak M, Rokita A, Koźlenia D, Domaradzki J. The high-intensity interval training introduced in physical education lessons decreases systole in high blood pressure adolescents. Scientific Reports. 2022 Feb 7;12(1):1974.
15. Preece S, Bullingham R. Gender stereotypes: The impact upon perceived roles and practice of in-service teachers in physical education. Sport, Education and Society. 2022;27(3):259-71.
16. Robinson DB, Harenberg S, Walters W, Barrett J, Cudmore A, Fahie K, Zakaria T. Game Changers: A participatory action research project for/with students with disabilities in school sport settings. Frontiers in Sports and Active Living. 2023 Apr 6;5:1150130.
17. Silva DR, Araujo RH, Werneck AO, Ballarin G, Andricciola F, Dos Santos L, Brazo-Sayavera J. Are more physical education classes related to less time in leisure-time sedentary behavior? An analysis including adolescents from 73 countries. BMC Public Health. 2023 Oct 7;23(1):1-7.
18. Varea V, Gonzalez-Calvo G, García-Monge A. Exploring the changes of physical education in the age of COVID-19. Physical Education and Sport Pedagogy. 2022;27(1):32-42.

Sedentary Behaviours

This year's grade is a D, based on an average of 27% of children and youth meeting the screen time recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth. This is an increase from an F in the 2022 Report Card.

Benchmark

The percentage of children and youth who meet the screen time recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (i.e., no more than two hours of recreational screen time per day on average).**, ***

* In 2011 and 2012, there were two separate indicators: Screen-Based Sedentary Behaviours and Non-Screen-Based Sedentary Behaviours. Following 2012, these indicators were combined into a single indicator.

** Tremblay et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2016;41:S311-S327.

***Canadian Society for Exercise Physiology. Canadian 24-Hour Movement Guidelines for Children and Youth (5-17 years): An integration of physical activity, sedentary behaviour, and sleep. Ottawa: Canadian Society for Exercise Physiology; 2017. URL: csepguidelines.ca/children-and-youth-5-17.

Grades by Year

Year	Grade
2010	F
2011	F/INC*
2012	F/INC*
2013	F
2014	F
2015	D-
2016	F
2018	D
2020	D+
2022	F
2024	**D**

Key Findings

- **73%** of children five to 11 years of age and **31%** of youth 12 to 17 years of age were meeting the screen time recommendation of no more than two hours per day of recreational screen time in the CHMS Cycle 6 (2018-2019).[1]
    - Screen time guideline adherence was similar for girls (55%) and boys (52%). 49% of children and youth from low-income households, compared to 56% of those from high-income households, met the sedentary behaviour benchmark.[1]
- **25%** of youth met the screen time recommendations in 2021, compared to 35% in 2018. Youth spent more time on screens during the pandemic on both school and non-school days.[2]
    - The percentage of youth meeting the screen time recommendation on school days dropped from 41% in 2018 to 29% in 2021 and from 21% in 2018 to 13% on non-school days in 2021. These trends were mirrored in Atlantic Canada, Ontario, the Prairies and British Columbia, although the magnitude of change varied considerably across regions. Quebec saw no change in screen time among youth on school or non-school days.[3]
    - Overall, a shift in youth accumulating two hours or less per day of screen time (and meeting the screen time recommendation) (-12%) to four or more hours per day of screen time (+13%) occurred on both school and non-school days, and among both boys and girls. Fewer youth met the screen time recommendation on non-school days (weekends) compared to school days in 2018 and 2021.[2]
    - The decrease in meeting the screen time recommendation was more pronounced among girls than among boys on both school and non-school days.[2]
- **3%** of students in grades 7 to 12 met the screen time recommendations. This includes 3% of White students, 1% of Latin American students, 3% of Asian students, 5% of Black students and 3% of other/multi-ethnic students (2022-23 COMPASS, University of Waterloo).Custom analysis
    - In addition, 2% of students with clinically relevant symptoms of anxiety and depression, and 4% of students with no clinically relevant symptoms met the screen time recommendation (2022-23 COMPASS, University of Waterloo). Custom analysis
    - Students in grades 7 to 12 spent an average of eight hours per day on screens (excluding school and homework), including time spent watching TV, playing video games, surfing the internet, texting, browsing/scrolling through social media, and video calling (2022-23 COMPASS, University of Waterloo).Custom analysis
- **24%** of children and **8%** of youth in the ParticipACTION COVID-19 Survey met the screen time recommendations in May 2021. 22% of boys and 25% of girls five to 11 years of age, and 7% of boys and 9% of girls 12 to 17 years of age met the screen time recommendation (ParticipACTION COVID-19 Survey).Custom analysis

Research Gaps

- Initiatives to restrict smartphone use in schools should be evaluated for their impact on screen time use before, during and after school.
- Current data on daily screen use are based on self- or parent-report surveys, which have a high risk of bias. New technologies allow for the device-based measurement of screen-based sedentary behaviours, which could lead to more accurate measurement of these behaviours among children and youth.
- Research is needed to understand the benefits and harms of different policy approaches to regulating internet use and social media for children and youth.
- More research is needed on the health impact of replacing screen-based sedentary behaviours with non-screen-based sedentary behaviours such as reading or playing boardgames.
- Researchers need to develop and validate a standardized questionnaire that captures aspects of sedentary behaviour such as screen time, passive travel, inactive time at school, etc.
- Most of the available data focuses on TV, computer and video game use, and little is known about the amount, context and purpose of time children and youth spend on smartphones and specific applications.

Recommendations

- Implement recent International School-Related Sedentary Behaviour Recommendations, which suggest limiting classroom screen use and incorporating frequent breaks in sedentary behaviour throughout the school day.[4]
- Encourage parents and guardians to adopt the Canadian Pediatric Society's four evidence-based principles—minimizing, mitigating, mindfully using and modelling healthy screen use.[5]
- Introduce legislation that promotes healthy screen use behaviours in children and youth, such as ensuring social media age-verification and enhancing children's privacy and safety.
- Involve all family members in the creation of a family media plan that includes setting limits around screen viewing, prioritizing screen-free family time, removing screens from children's bedrooms and having screen-free family meals.
- Be present and engaged when viewing screens and avoid using multiple screens at once ("stacking").
- Parents, guardians and caregivers should set device limits and avoid creating passive screen use opportunities, instead using screens to connect with others.

Grade-informing and Notable Citations

1. Center for Surveillance and Applied Research, Public Health Agency of Canada. Physical Activity, Sedentary Behaviour and Sleep (PASS) Indicators, 2023 Edition [Internet]. Public Health Infobase. Ottawa (ON): Public Health Agency of Canada, 2023. [updated 2023 Mar 27; cited 2024 Feb 14]. Available from: https://health-infobase.canada.ca/pass/data-tool?index=2025
2. Colley RC, Saunders TJ. Ongoing impact of the COVID-19 pandemic on the physical activity of Canadian children and youth. Health Reports 2023;34(10):3-12
3. Saunders TJ, Colley RC. Regional trends in the moderate-to-vigorous intensity physical activity and screen time of Canadians before and during the COVID-19 pandemic. PeerJ. 2024, DOI 10.7717/peerj.16913.
4. Saunders TJ, Rollo S, Kuzik N, Demchenko I, Bélanger S, Brisson-Boivin K, Carson V, da Costa BGG, Davis M, Hornby S, Huang WY, Law B, Ponti M, Markham C, Salmon J, Tomasone JR, Van Rooij AJ, Wachira L-J, Wijndaele K, Tremblay MS. International school-related sedentary behaviour recommendations for children and youth. International Journal of Behavioral Nutrition and Physical Activity 19(39):1-14, 2022.
5. Ponti M. Screen time and preschool children: Promoting health and development in a digital world. Paediatrics & Child Health. 2023 Jun 1;28(3):184-92.
6. Arbour-Nicitopoulos KP, James ME, Moore SA, Sharma R, Martin Ginis KA. Movement behaviours and health of children and youth with disabilities: Impact of the 2020 COVID-19 pandemic. Paediatrics & Child Health. 2022 Apr 23;27(Supplement_1).
7. Brodersen K, Hammami N, Katapally TR. Is excessive smartphone use associated with weight status and self-rated health among youth? A smart platform study. BMC Public Health. 2023 Feb 3;23(1):234.
8. Caldwell HAT, Faulkner G, Tremblay MS, Rhodes RE, de Lannoy L, Kirk SFL, Rehman L, Moore SA. Regional differences in movement behaviours of children and youth during the second wave of the COVID-19 pandemic in Canada: Follow-up from a national study. Canadian Journal of Public Health. 2022 Aug;113(4):535–46.
9. Campbell JE, Stone MR, Mitra R, Locke M, MacDonald C, Preston A, Feicht RA, Rehman L, Kirk SFL, Faulkner G, Tremblay MS, Moore SA. Children and youth's movement behaviours differed across phases and by geographic region throughout the COVID-19 pandemic in Nova Scotia, Canada: An explanatory sequential mixed-methods study. Journal of Activity, Sedentary and Sleep Behaviors. 2023;2(1).
10. Carson V, Zhang Z, Predy M, Pritchard L, Hesketh KD. Longitudinal associations between infant movement behaviours and development. International Journal of Behavioral Nutrition and Physical Activity. 2022 Jan 28;19(1).
11. Colley RC, Saunders TJ. The ongoing impact of the COVID-19 pandemic on physical activity and screen time among Canadian youth. Health Reports. 2023 Oct 18;34(10):3-12.
12. Cost KT, Unternaehrer E, Tsujimoto K, Vanderloo LL, Birken CS, Maguire JL, Szatmari P, Charach A. Patterns of parent screen use, child screen time, and child socio-emotional problems at 5 years. Journal of Neuroendocrinology. 2023 Jul;35(7):e13246.
13. da Costa BG, Bruner B, Raymer GH, Benson SM, Chaput J-P, McGoey T, Rickwood G, Robertson-Wilson J, Saunders TJ, Law B. Association of daily and time-segmented physical activity and sedentary behaviour with mental health of school children and adolescents from rural Northeastern Ontario, Canada. Frontiers in Psychology. 2022;13:1025444.
14. Duncan MJ, Riazi NA, Faulkner G, Gilchrist JD, Leatherdale ST, Patte KA. Changes in Canadian adolescent time use and movement guidelines during the early COVID-19 outbreak: A longitudinal prospective natural experiment design. Journal of Physical Activity and Health. 2022 Jul 28;19(8): 566–77.
15. Fitzpatrick C, Almeida ML, Harvey E, Garon-Carrier G, Berrigan F, Asbridge M. An examination of bedtime media and excessive screen time by Canadian preschoolers during the COVID-19 pandemic. BMC pediatrics. 2022 Apr 18;22(1): 1-11
16. Fitzpatrick C, Harvey E, Cristini E, Laurent A, Lemelin JP, Garon-Carrier G. Is the association between early childhood screen media use and effortful control bidirectional? A prospective study during the COVID-19 pandemic. Frontiers in psychology. 2022 Jun 27;13:918834.
17. Kerr S, Kingsbury M. Online digital media use and adolescent mental health. Health Reports. 2023 Feb;34(2):17-28.

18. Khan A, Khan SR, Lee EY. Association between lifestyle behaviours and mental health of adolescents: Evidence from the Canadian HBSC Surveys, 2002–2014. International Journal of Environmental Research and Public Health. 2022 Jun 4;19(11):6899.

19. Khan A, Gomersall S, Stylianou M. Associations of Passive and Mentally Active Screen Time with Perceived School Performance of 197,439 Adolescents Across 38 Countries. Academic Pediatrics. 2023 Apr;23(3):651-8.

20. MacDonald KB, Patte KA, Leatherdale ST, Schermer JA. Loneliness and screen time usage over a year. Journal of Adolescence. 2022 Apr;94(3):318-32.

21. Mahmood B, Nettlefol L, Ashe MC, Puyat JH, Tang TS. Device-worn measures of sedentary time and physical activity in South Asian adults at high risk for type 2 diabetes in Metro-Vancouver, Canada. PloS One. 2022 May 5;17(5):e0266599.

22. Manyanga T, Pelletier C, Prince SA, Lee EY, Slugget L, Lang JJ. A comparison of meeting physical activity and screen time recommendations between Canadian youth living in rural and urban communities: A nationally representative cross-sectional analysis. International Journal of Environmental Research and Public Health. 2022 Apr 6;19(7), 4394.

23. Morningstar B, Clayborne Z, Wong SL, Roberts KC, Prince SA, Gariépy G, Goldfield GS, Janssen I, Lang JJ. The association between social media use and physical activity among Canadian adolescents: A Health Behaviour in School-aged Children (HBSC) study. Canadian Journal of Public Health. 2023 Aug;114(4):642-50.

24. Patel P, Li X, Keown-Stoneman CD, Vanderloo LM, Kinlin LM, Maguire JL, Birken CS. Changes in pediatric movement behaviors during the COVID-19 pandemic by stages of lockdown in Ontario, Canada: A longitudinal cohort study. Journal of Physical Activity and Health. 2023 Feb 27;20(4):292-302.

25. Paterson D, Beauchamp MR, Masse LC, Moore SA, Faulkner G. "I'm going to change the WIFI password if you don't go outside!": a qualitative examination of changes in parenting practices over the course of the COVID-19 pandemic. Frontiers in Sports & Active Living. 2023 Dec 12;5:1270516.

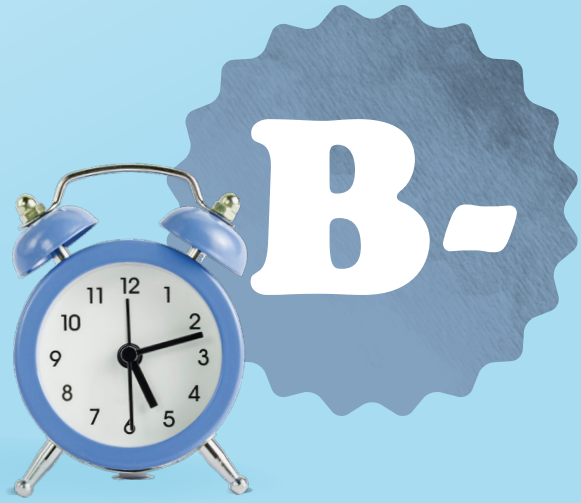
26. Sampasa-Kanyinga H, Hamilton HA, Mougharbel F, Chaput JP. Heavy social media use and posting regret are associated with lower self-esteem among middle and high school students. Canadian Journal of Public Health. 2023 Dec;114(6):906-15.

27. Vézina-Im LA, Beaulieu D, Turcotte S, Roussel-Ouellet J, Labbé V, Bouchard D. Association between recreational screen time and sleep quality among adolescents during the third wave of the COVID-19 pandemic in Canada. International Journal of Environmental Research and Public Health. 2022 Jul 25;19(15):9019.

28. Wong SL, King N, Gariépy G, Michaelson V, Canie O, King M, Craig W, Pickett W. Adolescent social media use and its association with relationships and connections: Canadian Health Behaviour in School-aged Children, 2017/2018. Health Reports. 2022 Dec 21;33(12):14-23.

Sleep

This year's grade is a B- based on 65% of children and youth meeting the age-specific sleep duration recommendation.



Benchmark

The percentage of children and youth who meet the sleep duration recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (five- to 13-year-olds: nine to 11 hours per night on average; 14- to 17-year-olds: eight to 10 hours per night on average).*,**

*Tremblay et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2016;41:S311-S327.

**Canadian Society for Exercise Physiology. Canadian 24-Hour Movement Guidelines for Children and Youth (5-17 years): An integration of physical activity, sedentary behaviour, and sleep. Ottawa: Canadian Society for Exercise Physiology; 2017. URL: csepguidelines.ca/children-and-youth-5-17.

Grades by Year

Year	Grade
2010	–
2011	–
2012	–
2013	–
2014	–
2015	–
2016	B
2018	B+
2020	B
2022	B
2024	**B-**

Key Findings

- **56%** of students in grades 7 to 12 met the sleep duration recommendation of eight to 10 hours per night (2022-23 COMPASS, University of Waterloo).[Custom analysis]
    - Students in these grades slept an average of 8.3 (1.4 SD) hours per night in a week. 59% of White students met the recommendation, compared to 48% of Latin American, 49% of Asian, 44% of Black and 51% for other/multi-ethnic students. Further, 47% of students with clinically relevant symptoms of anxiety and of depression, compared to 61% and 60% of those without symptoms of anxiety and of depression, respectively, met the guideline (2022-23 COMPASS, University of Waterloo). [Custom analysis]
- Findings from the CCHS indicate that **41%** of youth met the sleep duration recommendation, including 45% of boys and 36% of girls (CCHS, 2021).[Custom analysis]
- **86%** of children five to 11 years of age and **66%** of youth 12 to 17 years of age within the CHSCY met the sleep duration recommendation (CHSCY, 2019).[Custom analysis]
- **71%** of children and **71%** of youth from a nationally representative sample (n=1,585) surveyed in May 2021 met the sleep duration recommendations (ParticipACTION COVID-19 Survey).[Custom analysis]
    - This included 70% of boys and 72% of girls five to 11 years of age, and 74% of boys and 67% of girls 12 to 17 years of age (ParticipACTION COVID-19 Survey).[Custom analysis]

Research Gaps

- Sleep is multi-dimensional and involves many other characteristics beyond sleep duration, such as quality, timing, regularity, satisfaction and daytime alertness. Studies should better integrate all sleep health components rather than keeping the focus on sleep duration only. This will help inform intervention strategies and public health guidelines.
- Many studies have highlighted the adverse effects of insufficient sleep on various health outcomes. However, there is a need to conduct sleep improvement interventions in the pediatric population to determine the best modalities for improving sleep and whether such interventions impact health outcomes.
- Research is needed to understand whether climate change (e.g., severe weather, increased heat, air quality) affects sleep quality or quantity among children and youth.
- Research should be conducted on medication use (e.g., for those experiencing anxiety and depression) and sleep, especially in relation to subsequent physical activity and sedentary behaviours in a 24-hour day.
- There is a need to harmonize the monitoring of sleep for global sleep health surveillance. National surveys that assess sleep use different instruments and methodologies, making the comparisons between countries very challenging.
- It is important to examine disparities as they relate to the prevalence of children and youth in Canada who meet the sleep duration recommendations (e.g., by age, sex, gender, socio-economic background, ethnic/racial background, immigration status, disability status, language spoken and/or sexual orientation).
- Researchers need to quantify the burden of poor sleep health in Canada, similar to what is done for physical inactivity, to increase the recognition of poor sleep health in the global burden of diseases.

Recommendations

- Delay high school start times, if needed, so that students do not start school before 8:30 a.m.
- Integrate sleep health literacy into school curricula, alongside healthy eating and physical activity, to make sure people understand, starting at a young age, that sleep behaviours are foundational for health and well-being.
- Parents should encourage children to expose themselves to sunlight in the morning, go outside as much as possible during the day, remove televisions and electronic screen devices from bedrooms, and ensure a consistent bedtime routine each night.
- Regulate napping practices in childcare settings. To this effect, a position statement on napping recommendations in the daycare setting should be developed in partnership with the Canadian Sleep Society.
- Work toward changing the social norm that considers sleep to be a waste of time. Sleep should be seen as a critical daily behaviour that is as important as physical activity and healthy eating for health and wellness.
- Continue to fund the Sleep on It! campaign for sleep health advocacy and dissemination of research findings to the general population across Canada. This campaign is a valuable tool for knowledge mobilization; it is pan-Canadian in reach and composed of many stakeholders working together to demystify sleep, offer solutions to deal with sleep problems, and make healthy sleep a public health priority.

Grade-informing and Notable Citations

1. Bird M, Neely KC, Montemurro G, Mellon P, MacNeil M, Brown C, Sulz L, Storey K. Parental perspectives of sleep in the home: Shaping home–school partnerships in school-based sleep promotion initiatives. Preventing Chronic Disease. 2023 May 11;20:E38.
2. Blinder H, Narang I, Chaput J-P, Katz SL. Canadian Sleep and Circadian Network. Sleep quality, physical activity, screen time, and substance use in children with obesity: Associations with obstructive sleep apnea. Journal of Clinical Sleep Medicine. 2023 Mar 1;19(3):511–8.
3. Bragazzi NL, Garbarino S, Puce L, Trompetto C, Marinelli L, Currà A, Jahrami H, Mellado B, Asgary A, Wu J, Kong JD. Planetary sleep medicine: Studying sleep at the individual, population, and planetary level. Frontiers in Public Health. 2022 Oct 18;10:1005100.
4. Brautsch LAS, Lund L, Andersen MM, Jennum PJ, Folker AP, Andersen S. Digital Media use and sleep in late adolescence and young adulthood: A systematic review. Sleep Medicine Reviews. 2023 Apr;68:101742.
5. Burkart S, Parker H, Weaver RG, Beets MW, Jones A, Adams EL, Chaput JP, Armstrong B. Impact of the COVID-19 pandemic on elementary schoolers' physical activity, sleep, screen time and diet: A quasi-experimental interrupted time series study. Pediatric Obesity. 2022 Jan;17(1):e12846.
6. Chaput JP, Carrier J, Bastien C, Gariépy G, Janssen I. Years of life gained when meeting sleep duration recommendations in Canada. Sleep Medicine. 2022 Dec;100:85–8.

7. Chaput JP, Gariépy G, Pendharkar SR, Ayas NT, Samuels C, Vallières A, Davidson JR, Morin CM, Simonelli G, Bourguinat C, Gruber R, Petit D, Narang I, Viau V, Carrier J. National strategy on the integration of sleep and circadian rhythms into public health research and policies: Report from the Canadian Sleep and Circadian Network. Sleep Health. 2022 Oct;8(5):551–63.

8. Duncan MJ, Mitchell J, Riazi NA, Belita E, Vanderloo LM, Carsley S, Carson V, Chaput JP, Faulkner G, Leatherdale ST, Patte KA. Sleep duration change among adolescents in Canada: Examining the impact of COVID-19 in worsening inequity. SSM Population Health. 2023 Jul 28;23:101477.

9. Dutil C, Podinic I, Sadler CM, da Costa BG, Janssen I, Ross-White A, Saunders TJ, Tomasone JR, Chaput JP. Sleep timing and health indicators in children and adolescents: A systematic review. Health Promotion and Chronic Disease Prevention in Canada. 2022 Apr;42(4):150–69.

10. Gaston SA, Singh R, Jackson CL. The need to study the role of sleep in climate change adaptation, mitigation, and resiliency strategies across the life course. Sleep. 2023 Jul 11;46(7).

11. Gruber R, Salamon L, Tauman R, Al-Yagon M. Sleep disturbances in adolescents with attention-deficit/hyperactivity disorder. Nature and Science of Sleep. 2023 Apr 20;15:275–86.

12. Lim DC, Najafi A, Afifi L, Bassetti CL, Buysse DJ, Han F, Högl B, Melaku YA, Morin CM, Pack AI, Poyares D, Somers VK, Eastwood PR, Zee PC, Jackson CL. The need to promote sleep health in public health agendas across the globe. The Lancet Public Health. 2023 Oct;8(10):e820-6.

13. MacKenzie NE, Keys E, Hall WA, Gruber R, Smith IM, Constantin E, Godbout R, Stremler R, Reid GJ, Hanlon-Dearman A, Brown CA, Shea S, Weiss SK, Ipsiroglu O, Witmans M, Chambers CT, Andreou P, Begum E, Corkum P. Children's sleep during COVID-19: How sleep influences surviving and thriving in families. Journal of Pediatric Psychology. 2021 Sep 27;46(9):1051–62.

14. Newton AT, Reid GJ. Regular, intermittent, and spontaneous: Patterns of preschool children's nap behavior and their correlates. Sleep Medicine. 2023 Feb;102:105–16.

15. Petit D, Touchette E, Pennestri M, Paquet J, Côté S, Tremblay RE, Boivin M, Montplaisir JY. Nocturnal sleep duration trajectories in early childhood and school performance at age 10 years. Journal of Sleep Research. 2023 Oct;32(5):e13893.

16. Sampasa-Kanyinga H, Lien A, Hamilton HA, Chaput J-P. Cyberbullying involvement and short sleep duration among adolescents. Sleep Health. 2022 Apr;8(2):183–90.

17. Sampasa-Kanyinga H, Lien A, Hamilton HA, Chaput J-P. The Canadian 24-Hour Movement Guidelines and self-rated physical and mental health among adolescents. Canadian Journal of Public Health. 2021 Apr;113(2):312–21.

18. Touchette E, Rousseau M, Simard V, St-Amand A. Portrait of sleep in preschoolers involved with Child Protective Services and from the community. Sleep Medicine. 2023 Oct;110:166–71.

19. Wang C, Dopko RL, Clayborne ZM, Capaldi CA, Roberts KC, Betancourt MT. Investigating the association between sleep and aspects of mental health in children: Findings from the Canadian Health Survey on Children and Youth. Health Promotion and Chronic Disease Prevention in Canada. 2022 Nov;42(11/12):466–78.

20. Wu LC, Hattangadi N, Keown-Stoneman CDG, Maguire JL, Birke CS, Stremler R, Constantin E, Charach A. Sleep duration and internalizing symptoms in children. Journal of the Canadian Academy of Child and Adolescent Psychiatry 2022 Aug;31(3):115–123.

24-Hour Movement Behaviours

This year's grade remains an F based on an average of 4% of children and youth in Canada meeting the physical activity, screen time and sleep duration recommendations within the Canadian 24-Hour Movement Guidelines.

Benchmark

The percentage of children and youth who meet the physical activity, screen time and sleep duration recommendations within the Canadian 24-Hour Movement Guidelines for Children and Youth. *, **

* Tremblay et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2016;41:S311-S327.

**Canadian Society for Exercise Physiology. Canadian 24-Hour Movement Guidelines for Children and Youth (5-17 years): An integration of physical activity, sedentary behaviour, and sleep. Ottawa: Canadian Society for Exercise Physiology; 2017. URL: csepguidelines.ca/children-and-youth-5-17.

Grades by Year

Year	Grade
2010	–
2011	–
2012	–
2013	–
2014	–
2015	–
2016	–
2018	F
2020	F
2022	F
2024	**F**

Key Findings

- According to the CCHS, only **6%** of youth 12 to 17 years of age met all the recommendations within the Canadian 24-Hour Movement Guidelines (CCHS, 2021).[Custom analysis]
  - Adherence was far lower among girls (4%) than among boys (8%) (CCHS, 2021).[Custom analysis]
- **7%** of children and **1%** of youth from a nationally representative sample (n=1,585) surveyed in May 2021 were meeting all the Canadian 24-Hour Movement Guidelines (ParticipACTION COVID Survey).[Custom analysis]
  - This included 8% of boys and 5% of girls five to 11 years of age, and 1% of both boys and girls 12 to 17 years of age (ParticipACTION COVID Survey).[Custom analysis]
- **1%** of students in grades 7 to 12 met all the Canadian 24-Hour Movement Guidelines, with or without the strength-training recommendation (2022-23 COMPASS, University of Waterloo). [Custom analysis]
  - This included 2% of Black and less than 1% of Latin American students, compared to 1% of all other ethnicities. Further, 2% of students in these grades with no clinically relevant symptoms of anxiety or depression, compared to 1% of students with clinically relevant symptoms of anxiety or depression, met the recommendation (2022-23 COMPASS, University of Waterloo).[Custom analysis]
- A systematic review and meta-analysis of 63 studies, comprising 387,437 individuals three to 18 years of age from 23 countries, found that overall, 7% of children and youth met all three 24-hour movement guidelines, and 19% met none of the three recommendations.[1]
  - The adherence to all recommendations was significantly lower among girls (4%) compared to boys (7%).[1]
  - Meeting all recommendations decreased with age group: 11% of preschoolers (three to four years of age), 10% of children (five to 11 years of age) and 3% of youth (12 to 17 years of age) met all recommendations.[18] Conversely, 9% of preschoolers, 16% of children and 29% of youth did not meet any of the recommendations.[1]

Research Gaps

- Valid and reliable methods of directly measuring all three movement behaviours simultaneously are needed.
- The optimal amounts and combinations of physical activity, sedentary behaviour and sleep across all domains of health and well-being are still unknown.
- Research is needed to determine the impact of climate change (e.g., severe weather, increasing heat, air quality) on 24-hour movement behaviours of children and youth.

Recommendations

- Teachers, clinicians and researchers should educate students and parents or guardians on the importance of achieving adequate levels of all three movement behaviours for children and youth's healthy growth and development.
- Health promotion efforts should consider an integrated versus siloed approach when targeting movement behaviours.
- Encourage parents or guardians to implement specific plans (how, when, where) that support children and youth's movement behaviours.

Grade-informing and Notable Citations

1. Tapia-Serrano MÁ, López-Gil JF, Sevil-Serrano J, García-Hermoso A, Sánchez-Miguel PA. What is the role of adherence to 24-hour movement guidelines in relation to physical fitness components among adolescents?. Scandinavian Journal of Medicine & Science in Sports. 2023 Aug;33(8):1373-83.
2. Caldwell HA, Faulkner G, Tremblay MS, Rhodes RE, de Lannoy L, Kirk SF, Rehman L, Moore SA. Regional differences in movement behaviours of children and youth during the second wave of the COVID-19 pandemic in Canada: Follow-up from a national study. Canadian Journal of Public Health. 2022 Aug;113(4):535-46.
3. Campbell JE, Janssen I. The neighborhood physical environment and the 24-hour movement behavior composition among children. International Journal of Environmental Health Research. 2023 Jun;33(6):575-87.
4. Campbell JE, Stone MR, Mitra R, Locke M, MacDonald C, Preston A, Feicht RA, Rehman L, Kirk SF, Faulkner G, Tremblay MS. Children and youth's movement behaviours differed across phases and by geographic region throughout the COVID-19 pandemic in Nova Scotia, Canada: An explanatory sequential mixed-methods study. Journal of Activity, Sedentary and Sleep Behaviors. 2023;2(1):25.
5. Carson V, Zhang Z, Predy M, Pritchard L, Hesketh KD. Adherence to Canadian 24-Hour Movement Guidelines among infants and associations with development: A longitudinal study. International Journal of Behavioral Nutrition and Physical Activity. 2022 Dec 15;19(1):1-6.
6. Chen Z, Chi G, Wang L, Chen S, Yan J, Li S. The combinations of physical activity, screen time, and sleep, and their associations with self-reported physical fitness in children and adolescents. International Journal of Environmental Research and Public Health. 2022 May 10;19(10):5783.
7. de Lannoy L, Barbeau K, Vanderloo LM, Goldfield G, Lang JJ, MacLeod O, Tremblay MS. Evidence supporting a combined movement behavior approach for children and youth's mental health – A scoping review and environmental scan. Mental Health and Physical Activity. 2023;24:100511.
8. Duncan MJ, Riazi NA, Faulkner G, Gilchrist JD, Leatherdale ST, Patte KA. Changes in Canadian adolescent time use and movement guidelines during the early COVID-19 outbreak: A longitudinal prospective natural experiment design. Journal of Physical Activity and Health. 2022 Jul 28;19(8):566-77.
9. Fairclough SJ, Clifford L, Brown D, Tyler R. Characteristics of 24-hour movement behaviours and their associations with mental health in children and adolescents. Journal of Activity, Sedentary and Sleep Behaviors. 2023;2(1):1-4.

10. Guerrero MD, Moore S, Faulkner G, Roberts KC, Mitra R, Vanderloo LM, Rhodes RE, Tremblay MS. Identifying risk profiles for nonadherence to the 24-Hour Movement Guidelines for Children and Youth 6 months into the COVID-19 pandemic. Pediatric Exercise Science. 2023 Jan 11;35(3):155-64.

11. Kariippanon KE, Aguilar-Farias N, El Hamdouchi A, Hongyan G, Lubree H, Okely AD, Tremblay MS, Draper CE. The voices of children on movement behaviours: Implications for promoting international guidelines to support obesity-prevention efforts. The Lancet Global Health. 2023 Mar;11:S17.

12. Kuzik N, Spence JC, Arkko K, Blye CJ, Davie J, Duddridge R, Ekeli T, English A, Etruw E, Hunter S, Lamboglia CG. Associations between meeting the Canadian 24-Hour Movement Guidelines and physical, cognitive, social-emotional, and overall development in early childhood. Journal of Activity, Sedentary and Sleep Behaviors. 2022;1(1):1-0.

13. Leppänen MH, Haapala EA, Väistö J, Ekelund U, Brage S, Kilpeläinen TO, Lakka TA. Longitudinal and cross-sectional associations of adherence to 24-hour movement guidelines with cardiometabolic risk. Scandinavian Journal of Medicine & Science in Sports. 2022 Jan;32(1):255-66.

14. Marques A, Ramirez-Campillo R, Gouveia ÉR, Ferrari G, Tesler R, Marconcin P, Loureiro V, Peralta M, Sarmento H. 24-h movement guidelines and overweight and obesity indicators in toddlers, children and adolescents: A systematic review and meta-analysis. Sports Medicine-Open. 2023 May 15;9(1):1-3.

15. Rodrigo-Sanjoaquín J, Bois JE, Aibar Solana A, Lhuisset L, Corral-Abós A, Zaragoza Casterad J. Are school-based interventions promoting 24-hour movement guidelines among children? A scoping review. Health Education Journal. 2023;82(4):444-60.

16. Sampasa-Kanyinga H, Lien A, Hamilton HA, Chaput JP. The Canadian 24-Hour Movement Guidelines and self-rated physical and mental health among adolescents. Canadian Journal of Public Health. 2022 Apr;113(2):312-321.

17. Sampasa-Kanyinga H, Lien A, Hamilton HA, Chaput JP. Canadian 24-Hour Movement Guidelines, life stress, and self-esteem among adolescents. Frontiers in Public Health. 2022 Apr;10:702162.

18. Tandon S, Patte KA, Goldfield GS, Leatherdale ST, Chaput JP. Loneliness during COVID-19 and its association with eating habits and 24-hour movement behaviours in a sample of Canadian adolescents. Preventive Medicine Reports. 2023 Oct;35:102287.

19. Tapia-Serrano MA, Sevil-Serrano J, Sánchez-Miguel PA, López-Gil JF, Tremblay MS, García-Hermoso A. Prevalence of meeting 24-Hour Movement Guidelines from pre-school to adolescence: A systematic review and meta-analysis including 387,437 participants and 23 countries. Journal of Sport & Health Science. 2022 Jul;11(4):427-37.

20. Vanderloo LM, Omand J, Keown-Stoneman CD, Janus M, Tremblay MS, Maguire JL, Borkhoff CM, Lebovic G, Parkin P, Mamdani M, Simpson JR. Association between physical activity, screen time and sleep, and school readiness in Canadian children aged 4 to 6 years. Journal of Developmental & Behavioral Pediatrics. 2022 Feb-Mar;43(2):96-103.

Physical Literacy

This benchmark is currently under construction. Due to an ongoing lack of nationally representative data, the Report Card Research Committee concluded that efforts must be undertaken to explore and engage partners in discussion on whether and/or how surveillance of physical literacy among children and youth can be undertaken to ensure that nationally representative data are made available to inform the physical literacy grade.

Benchmark

Grades by Year

Year	Grade
2010	–
2011	–
2012	–
2013	–
2014	–
2015	INC
2016	D+
2018	D+
2020	D+
2022	INC
2024	**INC**

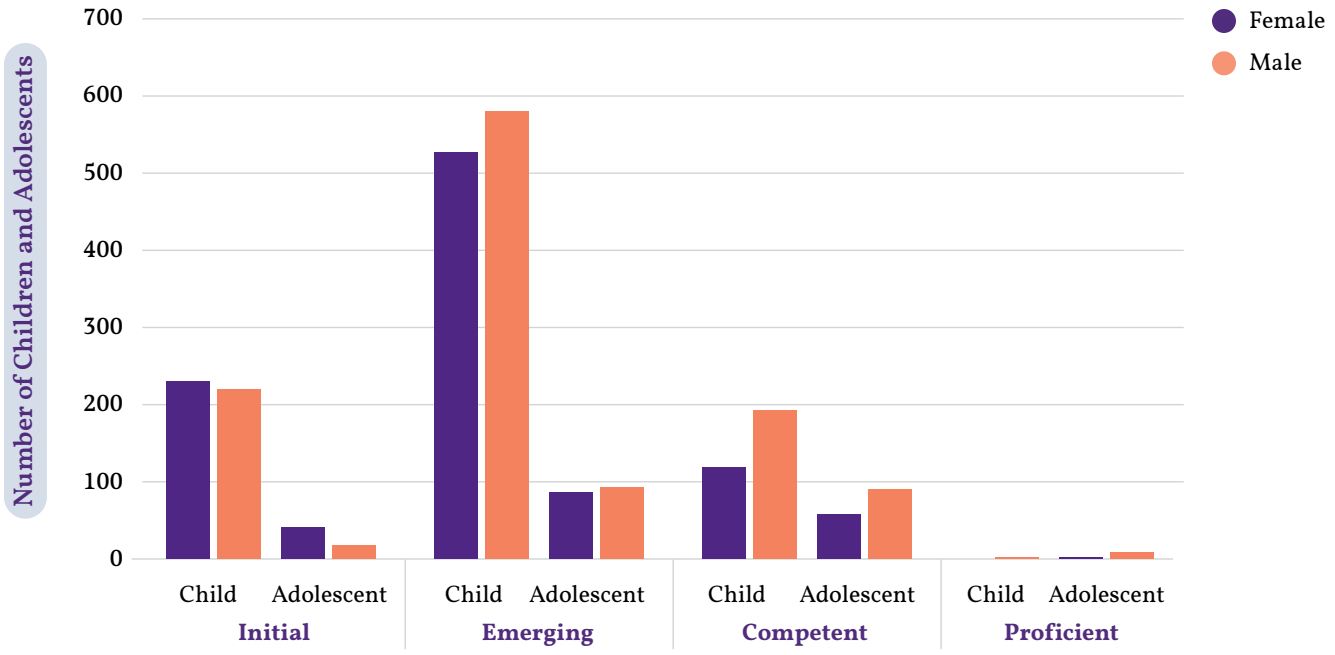
Key Findings

- While a lack of nationally representative data precludes grading physical literacy, the Physical Literacy for Communities project is a Public Health Agency of Canada (PHAC) initiative delivered by Sport for Life. Initiated in 2022, this 36-month project is designed to support the development of physical literacy among 150,000 children and youth two to 18 years of age across Canada. One aspect of the initiative is developing a national database of physical literacy assessments using the Physical Literacy Assessment for Youth (PLAYBasic) tool, which assesses key movement skills performed by children and youth. Some preliminary data are available (Physical Literacy for Communities).[Custom analysis]

- Current sample size n=2,270, with participants from British Columbia (91%) and Alberta (9%), most of whom are children (83% are children five to 11 years of age, and 17% are youth 12 to 17 years of age; Physical Literacy for Communities).[Custom analysis]

  - 83% of children and 60% of youth have fundamental movement skill assessment scores categorized as Initial (0-24/100) or Emerging (25-49/100). This means the majority of children and youth do not have Competent (50-74/100) or Proficient (75-100/100) fundamental movement skills such as running, jumping and throwing (Figure 7; Physical Literacy for Communities).[Custom analysis]

Figure 7. PLAYBasic Fundamental Movement Scores (Physical Literacy for Communities)[Custom analysis]



*The PLAYBasic fundamental movement skill assessments are scored out of 100 and categorized as initial (<25), emerging (25 to 50), competent (50 to 75) and proficient (75 to 100).

Research Gaps

- There is a need for nationally representative data on the physical literacy of children and youth in Canada that rely on validated instruments. Ways to incorporate physical literacy measurements in existing national surveys should be considered.
- Longitudinal examination of the inter-relationships between physical literacy, physical activity and health outcomes would be informative in understanding whether physical literacy offers direct benefits to children's health.[1]
- More research is needed to determine the most effective training methods to support educators and educator trainees in providing physical literacy opportunities in childcare and school settings.[2]
- Development and validation of physical literacy instruments are needed for different equity-denied children and youth populations.
- Ecologically enriched physical literacy interventions that aim to promote physical and environmental literacy, and the current and future overlaps between these literacy domains, should be explored. These ecologically enriched studies are needed within both economically developed and underdeveloped populations and marginalized groups.[3]
- Research that explores strategies for adapting physical literacy practices is required to better align physical literacy research with the needs of children with disabilities and medical conditions.

Recommendations

- Investments are needed to better assess this indicator across the country and to examine its role for various health outcomes.
- Research should be guided by consensus definitions to create a more universal understanding of physical literacy development in children. Future research on this topic should apply a holistic approach, rather than focusing on select aspects of physical literacy development (e.g., motor skills or physical competence) while also incorporating an ecological domain of physical literacy to reflect the ongoing climate-related physical literacy challenges.[3]
- Teacher training programs need to develop teachers' skills to support and assess children's physical literacy.
- Using a combination of physical literacy assessment tools may provide a more holistic and accurate representation of physical literacy.
- School boards are encouraged to include physical literacy as an outcome on student assessments and report cards.
- A focus on physical literacy is expanding in Canadian schools and communities through the work of organizations such as Sport for Life and PHE Canada. More practice-based evidence about how best to support the physical literacy of children and youth might be gleaned from unpublished reports and field experience.

Grade-informing and Notable Citations

1. Tang Y, Algurén B, Pelletier C, Naylor PJ, Faulkner G. Physical Literacy for Communities (PL4C): physical literacy, physical activity and associations with wellbeing. BMC Public Health. 2023 Jun 29;23(1):1266.
2. Buckler EJ, Faulkner GE, Beauchamp MR, Rizzardo B, DeSouza L, Puterman E. A Systematic Review of Educator-Led Physical Literacy and Activity Interventions. American Journal of Preventive Medicine. 2023 May 1;64(5):742–60.
3. Carl J, Abu-Omar K, Bernard P, Lohmann J, White P, Peters J, Sahlqvist S, Ma J, Duncan M, Barnett LM. Physical Literacy in the Context of Climate Change: Is There a Need for Further Refinement of the Concept? Journal of Physical Activity & Health. 2024 Jan 4:1-4.
4. Arbour-Nicitopoulos KP, Bremer E, Leo J, Wright FV. A pragmatic approach to measuring physical literacy and behavioural outcomes in youth with and without disabilities. Leisure/Loisir. 2022;47(2):209–33.
5. Brown DMY, Dudley DA, Cairney J. Physical literacy profiles are associated with differences in children's physical activity participation: A latent profile analysis approach. Journal of Science and Medicine in Sport. 2020 Nov;23(11):1062–7.
6. Caldwell HA, Miller MB, Tweedie C, Zahavich JB, Cockett E, Rehman L. The impact of an after-school physical activity program on children's physical activity and well-being during the COVID-19 pandemic: A mixed-methods evaluation study. International Journal of Environmental Research and Public Health. 2022 May 5;19(9):5640.
7. Chapelski MS, Erlandson MC, Stoddart AL, Froehlich Chow A, Baxter-Jones AD, Humbert ML. Parents, teachers, and community: A team approach to developing physical competence in children. Children. 2023 Aug 9;10(8):1364.
8. Houser N, Humbert L, Kriellaars D, Erlandson M. When the world stops: The impact of COVID-19 on physical activity and physical literacy. Applied Physiology, Nutrition, and Metabolism. 2022 May;47(5):611-4.
9. Houser N, Humbert L, Sulz L. Parents and physical literacy: Knowledge, perceptions, and responsibilities. Revue phénEPS/PHEnex Journal. 2022;13(1) :1-15.
10. Pastor-Cisneros R, Carlos-Vivas J, Muñoz-Bermejo L, Adsuar-Sala JC, Merellano-Navarro E, Mendoza-Muñoz M. Association between physical literacy and self-perceived fitness level in children and adolescents. Biology. 2021 Dec 20;10(12):1358.
11. Riley K, Froehlich Chow A, Wahpepah K, Houser N, Brussoni M, Stevenson E, Erlandson MC, Humbert ML. A Nature's Way-Our Way Pilot Project Case Assemblage: (Re)Storying Child/Physical Literacy/Land Relationships for Indigenous Preschool-Aged Children's Wholistic Wellness. Children. 2023 Mar 2;10(3):497.
12. Riley K, Froehlich Chow A, Wahpepah K, Humbert ML, Brussoni M, Houser N, Erlandson MC. Etuaptmumk (Two-Eyed Seeing) in Nature's Way-Our Way: braiding physical literacy and risky play through Indigenous games, activities, cultural connections, and traditional teachings. AlterNative: An International Journal of Indigenous Peoples. 2023;19(2):426-36.
13. Stoddart AL, Humbert ML, Kerpan S, Cameron N, Kriellaars D. PLitPE: an intervention for physical literacy enriched pedagogy in Canadian elementary school physical education classes. Physical Education and Sport Pedagogy. 2023;28(6):675-91.
14. Wright C, Buxcey J, Gibbons S, Cairney J, Barrette M, Naylor PJ. A pragmatic feasibility trial examining the effect of job embedded professional development on teachers' capacity to provide physical literacy enriched physical education in elementary schools. International Journal of Environmental Research and Public Health. 2020 Jun 18;17(12):4386.

Physical Fitness

This benchmark is currently under construction. Due to an ongoing lack of nationally representative data, the Report Card Research Committee concludes that efforts must be undertaken to explore and engage partners in discussion on whether and/or how surveillance of physical fitness among children and youth can be undertaken to ensure that nationally representative data are made available to inform the physical fitness grade.

Benchmark

Grades by Year

Year	Grade
2010	–
2011	–
2012	–
2013	–
2014	–
2015	–
2016	–
2018	D
2020	D
2022	INC
2024	**INC**

Key Findings

- While a lack of nationally representative data precludes grading the physical fitness indicator, grip strength is measured in the Maternal-Infant Research on Environmental Chemicals (MIREC) Study, a pregnancy and birth cohort that recruited 2,001 pregnant women from 10 Canadian cities between 2008 and 2010 (MIREC Study).[Custom analysis]
  - A subsample of 290 children seven to nine years of age from the MIREC study had grip strength measures (MIREC Study; see Table 1).[Custom analysis]

Table 1. Children's Grip Strength (MIREC Study)[Custom analysis]

	Total (n = 290)	Boys (n = 129)	Girls (n = 161)
Grip strength, mean kg (sd)	26.1 (6.4)	28.5 (6.2)	24.2 (5.8)
Grip strength, mean Z-score (sd)*	-0.3 (0.8)	-0.2 (0.8)	-0.4 (0.8)

*Z-scores based on CHMS percentiles

Research Gaps

- There is currently a significant lack of information on physical fitness outcomes among children and youth in Canada. Research is necessary to examine physical fitness of all children and youth living in Canada, as well as how fitness may differ for newcomers, Indigenous youth and those from all other equity-denied groups.
- Research is needed to validate the equation used in the modified Canadian Aerobics Fitness Test (mCAFT) to predict VO_2 max in children and youth.
- More research is needed on how musculoskeletal strength and endurance impact and are impacted by important health behaviours (e.g., sleep).
- More research is needed to understand how levels of sedentary behaviour and physical activity throughout the school day influence musculoskeletal and cardiorespiratory fitness.
- There is a need to develop and validate physical fitness instruments for different equity-denied children and youth populations.
- Physical fitness has a direct impact on heat tolerance; however, little data are available on how children and youth of varying fitness levels fare when being active in high temperatures.

Recommendations

- Cardiorespiratory fitness levels should be viewed as a proximal outcome of physical activity that provides a reflection of the total amount of physical activity that was performed over the past months. Cardiorespiratory fitness is a stable measure that should be used to assess the impact of physical activity interventions.[1]
- Parents, teachers and health-care practitioners should foster a positive view of physical fitness among children and youth, including focusing on the health benefits of cardiorespiratory and musculoskeletal fitness and the wide range of activities that can improve these outcomes.
- Researchers need to investigate and share information on best practices for improving physical fitness in children and youth.
- Sustained funding is needed to determine children's physical fitness levels nationally.

Grade-informing and Notable Citations

1. Kaioglou V, Dania A, Kambas A, Venetsanou F. Associations of motor competence, cardiorespiratory fitness, and physical activity: The mediating role of cardiorespiratory fitness. Research Quarterly for Exercise and Sport. 2023 Jun;94(2):361-7.
2. Baj-Korpak J, Stelmach MJ, Zaworski K, Lichograj P, Wochna M. Assessment of motor abilities and physical fitness in youth in the context of talent identification-OSF test. International Journal of Environmental Research and Public Health. 2022 Nov 1;19(21):14303.
3. Béghin L, Thivel D, Baudelet JB, Deschamps T, Ovigneur H, Vanhelst J. Change in physical fitness due to the COVID-19 pandemic lockdown in French adolescents: A comparison between two independent large samples from Diagnoform battery. European Journal of Pediatrics. 2022 Nov;181(11):3955-63.
4. Blagus R, Jurak G, Starc G, Leskošek B. Centile reference curves of the SLOfit physical fitness tests for school-aged children and adolescents. Journal of Strength & Conditioning Research. 2023 Feb 1;37(2):328-36.
5. Breau B, Brandes M, Veidebaum T, Tornaritis M, Moreno LA, Molnár D, Lissner L, Eiben G, Lauria F, Kaprio J, De Henauw S, Ahrens W, Buck C; IDEFICS/I.Family consortia. Longitudinal association of childhood physical activity and physical fitness with physical activity in adolescence: Insights from the IDEFICS/I Family study. International Journal of Behavioural Nutrition and Physical Activity. 2022 Dec 9;19(1):147.
6. Burden SJ, Weedon BD, Turner A, Whaymand L, Meaney A, Dawes H, Jones A. Intensity and duration of physical activity and cardiorespiratory fitness. Pediatrics. 2022 Jul 1;150(1):e2021056003.
7. Gonçalves ECA, Nardo Júnior N, Ribas MCS, Silva DAS. Which anthropometric equation to predict body fat percentage is more strongly associated with maximum oxygen uptake in adolescents? A cross-sectional study. Sao Paulo Medical Journal. 2023 May 12;141(6):e2022437.
8. Henriques-Neto D, Hetherington-Rauth M, Magalhães JP, Correia I, Júdice PB, Sardinha LB. Physical fitness tests as an indicator of potential athletes in a large sample of youth. Clinical Physiology and Functional Imaging. 2022 Mar;42(2):88-95.
9. Hoffmann MD, Colley RC, Doyon CY, Wong SL, Tomkinson GR, Lang JJ. Normative-referenced percentile values for physical fitness among Canadians. Health Reports. 2019 Oct 1;30(10):14-22.

10. Kryst Ł, Żegleń M, Artymiak P, Kowal M, Woronkowicz A. Analysis of secular trends in physical fitness of children and adolescents (8-18 years) from Kraków (Poland) between 2010 and 2020. American Journal of Human Biology. 2023 Mar;35(3):e23829.

11. Lang JJ, Zhang K, Agostinis-Sobrinho C, Andersen LB, Basterfield L, Berglind D, Blain DO, Cadenas-Sanchez C, Cameron C, Carson V, Colley RC, Csányi T, Faigenbaum AD, García-Hermoso A, Gomes TNQF, Gribbon A, Janssen I, Jurak G, Kaj M, Kidokoro T, Lane KN, Liu Y, Löf M, Lubans DR, Magnussen CG, Manyanga T, McGrath R, Mota J, Olds T, Onywera VO, Ortega FB, Oyeyemi AL, Prince SA, Ramírez-Vélez R, Roberts KC, Rubín L, Servais J, Silva DAS, Silva DR, Smith JJ, Song Y, Stratton G, Timmons BW, Tomkinson GR, Tremblay MS, Wong SHS, Fraser BJ. Top 10 international priorities for physical fitness research and surveillance among children and adolescents: A twin-panel Delphi study. Sports Medicine. 2023 Feb;53(2):549-64.

12. Leone M, Levesque P, Bourget-Gaudreault S, Lemoyne J, Kalinova E, Comtois AS, Bui HT, Léger L, Frémont P, Allisse M. Secular trends of cardiorespiratory fitness in children and adolescents over a 35-year period: Chronicle of a predicted foretold. Frontiers in Public Health. 2023 Jan; 10: 1056484.

13. Leppänen M, Uotila A, Tokola K, Forsman-Lampinen H, Kujala UM, Parkkari J, Kannus P, Pasanen K, Vasankari T. Players with high physical fitness are at greater risk of injury in youth football. Scandinavian Journal of Medicine & Science in Sports. 2022 Nov;32(11):1625-38.

14. Obayashi H, Ikuta Y, Nakashima N, Yamamoto R, Fujishita H, Fukuhara K, Sakamitsu T, Ushio K, Kimura H, Adachi N. Impact of COVID-19-related sports activity disruptions on the physical fitness of Japanese adolescent athletes. Adolescents. 2022 Mar 24;2(2):140-9.

15. Ortega FB, Leskošek B, Blagus R, Gil-Cosano JJ, Mäestu J, Tomkinson GR, Ruiz JR, Mäestu E, Starc G, Milanovic I, Tammelin TH, Sorić M, Scheuer C, Carraro A, Kaj M, Csányi T, Sardinha LB, Lenoir M, Emeljanovas A, Mieziene B, Sidossis LS, Pihu M, Lovecchio N, Konstabel K, Tambalis KD, Štefan L, Drenowatz C, Rubín L, Gontarev S, Castro-Piñero J, Vanhelst J, O'Keeffe B, Veiga OL, Gisladottir T, Sandercock G, Misigoj-Durakovic M, Niessner C, Riso EM, Popovic S, Kuu S, Chinapaw M, Clavel I, Labayen I, Dobosz J, Colella D, Kriemler S, Salaj S, Noriega MJ, Bös K, Sánchez-López M, Lakka TA, Tabacchi G, Novak D, Ahrens W, Wedderkopp N, Jurak G; FitBack, HELENA and IDEFICS consortia. European fitness landscape for children and adolescents: updated reference values, fitness maps and country rankings based on nearly 8 million test results from 34 countries gathered by the FitBack network. British Journal of Sports Medicine. 2023 Mar 3;57(5):299-310.

16. Pfeifer CE, Sacko RS, Ortaglia A, Monsma EV, Beattie PF, Goins J, Stodden DF. Fit to play? Health-related fitness levels of youth athletes: A pilot study. Journal of Strength & Conditioning Research. 2022 Jan 1;36(1):245-51.

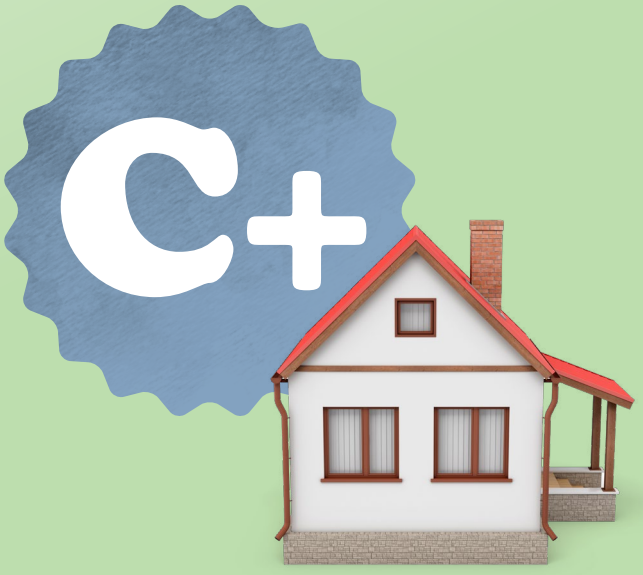
17. Rúa-Alonso M, Rial-Vázquez J, Nine I, Lete-Lasa JR, Clavel I, Giráldez-García MA, Rodríguez-Corral M, Dopico-Calvo X, Iglesias-Soler E. Comparison of physical fitness profiles obtained before and during COVID-19 pandemic in two independent large samples of children and adolescents: DAFIS project. International Journal of Environmental Research and Public Health. 2022 Mar 26;19(7):3963.

18. Sandercock G, Jones B. Is it time to give population health surveillance a late fitness test?. British Journal of Sports Medicine. 2019;53(8):463-464.

19. Yip KM, Wong SWS, Chua GT, So HK, Ho FK, Wong RS, Tung KTS, Chan EYN, Tso WWY, Chow BC, Fung GPG, Wong WHS, Ip P. Age- and sex-specific physical fitness reference and association with body mass index in Hong Kong Chinese schoolchildren. International Journal of Environmental Research and Public Health. 2022 Nov 20;19(22):15346.

Household

This year's grade is a C+, as an average of 55% of parents reported facilitating physical activity and sport opportunities for their children through transport (51%), spectating (50%), encouraging outdoor play regularly (69%), encouraging their children to participate in play instead of screens (69%), placing limits on screen time (52%), and playing active games or sports with their children (41%).



Benchmarks

- The percentage of parents who facilitate physical activity and sport opportunities for their children (e.g., volunteering, coaching, driving, paying for membership fees and equipment).
- The percentage of parents who meet the Canadian Physical Activity Guidelines for Adults.*
- The percentage of parents who are physically active with their kids.
- The percentage of children and youth with friends and peers who encourage and support them to be physically active.
- The percentage of children and youth who encourage and support their friends to be physically active.

* Ross et al. Canadian 24-Hour Movement Guidelines for Adults aged 18-64 years and Adults aged 65 years or older: An integration of physical activity, sedentary behaviour, and sleep. Applied Physiology, Nutrition, and Metabolism. 2020;45(10):S57-102.

Grades by Year

Year	Grade	
	Family Physical Activity Grade	Peer Influence Grade
2010	D	INC
2011	D+	INC
2012	D+	INC
2013	C	INC
2014	C	
2015	C+	
2016	C+	
2018	C+	
2020	C	
2022	C	
2024	**C+**	

Key Findings

- 53% of parents surveyed in the PSPAS reported facilitating physical activity and sport opportunities for their children often or very often through transport (**51%**), spectating (**50%**), encouraging outdoor play regularly (**69%**), encouraging their children to participate in play instead of screens (**69%**), placing limits on screen time (**52%**), and playing active games or sports with their children (28%) (2022 PSPAS, CFLRI).[Custom analysis]
    - Compared to parents of youth 12 to 17 years of age, a greater percentage of parents with younger children (five to 11 years of age) report that they often or very often play active games or sports with their children (**23%** vs. **35%**, respectively); watch or spectate as their children participate in physical activity or sport (46% vs. 54%, respectively); encourage their children to play outdoors regularly (66% vs. 73%, respectively); encourage their children to participate in active play instead of screen-based activities (65% vs. 72%, respectively); and place limits on the amount of time that their children spend on screen-based activities (43% vs. 62%, respectively) (2022 PSPAS, CFLRI).[Custom analysis]
    - A greater percentage of parents living in higher income households report that they often or very often transport their children places so that they can participate in physical activity and sport (55% in the highest income households vs. 43% in the lowest income households) or often or very often watch or spectate as their child participates in physical activity and sport (53% in the highest income households vs. 45% in the lowest income households), compared to those from households within the lowest income tertile (2022 PSPAS, CFLRI).[Custom analysis]
- According to the CHSCY, **69%** of parents reported playing sports, hobbies or games with their children (five to 11 years of age) more than once per week, while **36%** of youth reported engaging in physical activities like playing sports or going for a walk or hike with their parents more than once per week (CHSCY, 2019).[Custom analysis]
    - 58% of youth (12 to 17 years of age) reported that most or all of their close friends play sports or are involved in physical activity on a regular basis (CHSCY, 2019).[Custom analysis]

Research Gaps

- Research is needed to determine the role of parents and peers in facilitating physical activity and sport opportunities across different equity-denied groups.
- Research is needed exploring parent-child gender roles in parenting practices that may support children and youth to be more physically active whether through increasing opportunities for IM, outdoor play or structured sport.
- Research is needed to identify if the "type" of facilitation (e.g., role-modeling, encouragement, transportation, purchasing equipment) influences rates of physical activity.
- Families from different racial groups or ethnicities may have different perspectives on physical activity; therefore, an exploration of the influence of these perspectives on activity opportunities and levels is needed.
- Additional research is needed on the influence of the home environment (and the supports required) on facilitating physical activity participation among children with disabilities.
- Parents' behaviours and role-modeling are especially influential during the early years; continued exploration of this relationship among young children is important.

Recommendations

- It remains important to invest in and support programs that encourage families to be active together.
- Culturally diverse and inclusive resources to educate parents and guardians about the importance of physical activity are needed.
- As one mechanism for supporting participation, promoting outdoor play at home is important for physical activity participation.
- Funding should be prioritized for national data on how the physical activity of children and youth is influenced by their peers.

Grade-informing and Notable Citations

1. Bird M, Neely KC, Montemurro G, Mellon P, MacNeil M, Brown C, Sulz L, Storey K. Parental perspectives of sleep in the home: Shaping home-school partnerships in school-based sleep promotion initiatives. Preventing Chronic Disease. 2023;20:220395.
2. Cost KT, Unternaehrer E, Tsujimoto K, Vanderloo LL, Birken CS, Maguire JL, Szatmari P, Charach A. Patterns of parent screen use, child screen time, and child socio-emotional problems at 5 years. Journal of Neuroendocrinology. 2023 Mar 1;e13246.
3. De-Jongh González O, Hutchison SM, Tugault-Lafleur CN, O'Connor TM, Hughes SO, Mâsse LC. Patterns of Physical Activity Parenting Practices and Their Association with Children's Physical Activity Behaviors. Childhood Obesity. 2023 May 31.
4. Ewin CA, Reupert AE, McLean LA, Ewin CJ. The impact of joint media engagement on parent–child interactions: A systematic review. Human Behavior and Emerging Technologies. 2021 Apr;3(2):230-54.
5. Fitzpatrick C, Almeida ML, Harvey E, Garon-Carrier G, Berrigan F, Asbridge M. An examination of bedtime media and excessive screen time by Canadian preschoolers during the COVID-19 pandemic. BMC Pediatrics. 2022 Dec;22(1):212.
6. Fitzpatrick C, Binet MA, Harvey E, Barr R, Couture M, Garon-Carrier G. Preschooler screen time and temperamental anger/frustration during the COVID-19 pandemic. Pediatric Research. 2023 Feb;9:1-6.
7. Gordon AM, Carrillo B, Barnes CM. Sleep and social relationships in healthy populations: A systematic review. Sleep Medicine Reviews. 2021 Jun 1;57:101428.
8. Han CS, Brussoni MJ, Mâsse LC. Parental autonomy support in the context of parent–child negotiation for children's independent mobility: 'I always feel safer with my parents' to 'Boom! Bust down those walls!'. The Journal of Early Adolescence. 2022 Jun;42(6):737-64.
9. Hwang Y, Boyd M, Davenport C, Carson V. The relative contributions of center demographic, director, parental, social, environmental, and policy factors to changes in outdoor play in childcare centers during the COVID-19 pandemic. Journal of Physical Activity and Health. 2023 Apr 13;20(6):508-21.
10. James ME, Odorico N, Moore SA, Martin Ginis KA, Bassett-Gunter RL, Arbour-Nicitopoulos KP. Parent support is related to physical activity among children and youth with disabilities during the COVID-19 pandemic: Findings from the National Physical Activity Measurement (NPAM) Study. Disabilities. 2022 Jul 31;2(3):451-61.

11. Jirout JJ, Eisen S, Robertson ZS, Evans TM. Mother-child synchrony is high across child executive function levels for both physical and digital spatial play. Trends in Neuroscience and Education. 2022 Dec 1;29:100183.

12. Lane C, Naylor PJ, Predy M, Kurtzhals M, Rhodes RE, Morton K, Hunter S, Carson V. Exploring a parent-focused physical literacy intervention for early childhood: A pragmatic controlled trial of the PLAYshop. BMC Public Health. 2022 Dec;22(1):1-20.

13. Lee SJ, Ward KP, Chang OD, Downing KM. Parenting activities and the transition to home-based education during the COVID-19 pandemic. Children and Youth Services Review. 2021 Mar 1;122:105585.

14. Mirza S, Kandasamy S, de Souza RJ, Wahi G, Desai D, Anand SS, Ritvo P. Barriers and facilitators to healthy active living in South Asian families in Canada: A thematic analysis. BMJ Open. 2022 Nov 1;12(11):e060385.

15. Moss S, Gu X. Home- and community-based interventions for physical activity and early child development: A systematic review of effective strategies. International Journal of Environmental Research and Public Health. 2022 Sep 22;19(19):11968.

16. Nuss K, Coulter R, DeSilva B, Buenafe J, Sheikhi R, Naylor PJ, Liu S. Evaluating the effectiveness of a family-based virtual childhood obesity management program delivered during the COVID-19 pandemic in Canada: Prospective study. JMIR Pediatrics and Parenting. 2022 Nov 3;5(4):e40431.

17. Ostermeier E, Tucker P, Tobin D, Clark A, Gilliland J. Parents' perceptions of their children's physical activity during the COVID-19 pandemic. BMC Public Health. 2022 Aug 1;22(1):1459.

18. Prochnow T, Patterson MS, Bridges Hamilton CN, Umstattd Meyer MR. Summer friends and physical activity: Social network effects on child self-reported physical activity at summer care programs. Health Education & Behavior. 2022 Oct;49(5):770-9.

19. Rollo S, Sckrapnick A, Campbell JE, Moore SA, Faulkner G, Tremblay MS. Prevalence and correlates of meeting the Canadian 24-Hour Movement Guidelines among a sample of Canadian parents during the COVID-19 pandemic. Journal of Activity, Sedentary and Sleep Behaviors. 2023 Sep 5;2(1):17.

20. Salway R, Foster C, de Vocht F, Tibbitts B, Emm-Collison L, House D, Williams JG, Breheny K, Reid T, Walker R, Churchward S. Accelerometer-measured physical activity and sedentary time among children and their parents in the UK before and after COVID-19 lockdowns: A natural experiment. International Journal of Behavioral Nutrition and Physical Activity. 2022 Dec;19(1):1-4.

21. Steinwandt S, Cameron EE, Soderstrom M, Casar M, Le C, Roos LE. Family factors associated with hands-on play and screen time during the COVID-19 pandemic. Child & Youth Care Forum. 2022 Dec 1;51(6):1091-115.

22. Zheng Y, Wang W, Zhong Y, Wu F, Zhu Z, Tham YC, Lamoureux E, Xiao L, Zhu E, Liu H, Jin L. A peer-to-peer live-streaming intervention for children during COVID-19 homeschooling to promote physical activity and reduce anxiety and eye strain: Cluster randomized controlled trial. Journal of Medical Internet Research. 2021 Apr 30;23(4):e24316.

School

Based on a **64%** average across the benchmarks for the School indicator, this year's grade is a B-. This is consistent with the grade this indicator received in the previous three Report Cards.

Benchmarks

- The percentage of schools with active school policies (e.g., daily physical activity [DPA], physical education, recess, "everyone plays" approach, bike racks at school, traffic calming on school property, outdoor time).
- The percentage of schools where the majority (80% or more) of students are taught by a physical education specialist.
- The percentage of schools where the majority (80% or more) of students are offered at least 150 minutes of physical education per week.
- The percentage of schools that offer physical activity opportunities (excluding physical education) to the majority (80% or more) of their students.
- The percentage of parents who report that their children and youth have access to physical activity opportunities at school in addition to physical education classes.
- The percentage of schools with students who have regular access to facilities and equipment that support physical activity (e.g., gymnasiums, outdoor playgrounds, sporting fields, multipurpose spaces for physical activity, equipment in good condition).
- The percentage of schools reporting that competing priorities (e.g., for resources, equipment, facilities) and/or attitudes (e.g., teachers, parents, children) are *not* major barriers to physical education delivery and physical activity promotion at school.

Grades by Year

Year	Grade		
	Physical Education & Physical Activity Participation at School & in Childcare Settings	School Policy & Programming	School Infrastructure & Equipment
2010	C-/C*	C/C**	B
2011	C-/B*	C/B**	B
2012	C/B*	C-/B**	B+
2013	C	C	B+
2014		C+	
2015		C+	
2016		B	
2018		B-	
2020		B-	
2022		B-	
2024		**B-**	

* From 2005 to 2012, there were two separate indicators: Physical Education and Sport & Physical Activity Opportunities at School. In 2013, these indicators were combined into a single indicator.

** From 2009 to 2012, there were two separate indicators: School Policy and Sport & Physical Activity Opportunities at School. In 2013, these indicators were combined into a single indicator.

Key Findings

- According to the CFLRI's 2021-2022 OPASS, the average across the domains of policies, human resources, facilities, partnerships and other programming was 64% (2021–22 OPASS, CFLRI).[Custom analysis]
  - **Policies** – **68%** of schools had active school policies.
  - **Human resources** – **65%** of schools had a physical education specialist or teacher with at least one elective credit in physical education, and more than 65% of students were taught physical education by a physical education specialist.
  - **Facilities** – **62%** of schools indicated that their outdoor and indoor facilities for physical education and physical activity met students' needs well or very well.
  - **Partnerships** – **58%** of schools indicated that they had agreements with municipalities or sport organizations to share facilities or resources and programming.
  - **Other programming** – **68%** of schools indicated that intramural activities, inter-school activities and other physical activity outings were available to their students.
- Among Ontario-based elementary school teachers (n = 186) surveyed from May to June 2020, only 23% reported that their students met the mandated 20 minutes of DPA during curriculum time.[1]

Research Gaps

- More information is required on the role of school sports and programming in fostering sport and physical activity participation among children and youth from equity-denied groups.
- Identification of best-practice school policies, programming and staffing to support appropriate physical education offerings, and physical activity affordances, is needed.
- Research is needed on how school policies, opportunities and equipment are influencing children of various sub-groups differently. For example, are the policies more effective for boys than girls, older than younger kids, or typically developing children than children with disabilities?
- There is a need to understand how different school schedules (e.g., different start times, different recess numbers and lengths) influence students' movement behaviours during the school day and outside school hours.
- Innovative approaches to implement DPA that consider how to embed movement within the traditionally sedentary curriculum are needed.

Recommendations

- Provinces and territories should implement hiring policies for physical education specialists at elementary schools, similar to those in Quebec, Prince Edward Island and New Brunswick (Francophone division).
- Implement PHE Canada's Canadian Healthy School Standards, which provide a framework for promoting health and well-being within school communities (e.g., leveraging connections to the land on which your school community is situated).
- Grant schools the autonomy to select strategies tailored to their context, fostering ownership and activating a community empowerment process.[2] In rural underprivileged settings, leverage local resources effectively to ensure sustained success.[2] In disadvantaged urban areas, establish local leadership structures.[2] However, sustained external funding is essential for ensuring program sustainability in disadvantaged urban settings.
- Schools should give students a voice and involve them in the development of their physical activity curricula, policies and outdoor play spaces.
- Implement DPA policies in schools, as well as strategies to safeguard active play when recess is relocated indoors due to climate-related risks.
- Implement recent International School-Related Sedentary Behaviour Recommendations.

Grade-informing and Notable Citations

1. Martyn L, Bigelow H, Graham JD, Ogrodnik M, Chiodo D, Fenesi B. A mixed method investigation of teacher-identified barriers, facilitators and recommendations to implementing daily physical activity in Ontario elementary schools. BMC Public Health. 2022 Oct 31;22(1):1986.

2. Gosselin V and Laberge S. Do the implementation processes of a school-based daily physical activity (DPA) program vary according to the socioeconomic context of the schools? A realist evaluation of the Active at School program. BMC Public Health. 2022 Mar 3;22(1):424.

3. Barrat J, Patte KA, Battista K, Leatherland ST. The impact of changes in physical education class enrollment on moderate-to-vigorous physical activity among a large sample of Canadian youth. Journal of School Health. 2021 Dec;91(12):1030-6.

4. Bigelow H, Fenesi B. Pre-service teachers' perceptions of and experiences with classroom physical activity. International Journal of Environmental Research and Public Health. 2023 Jan 6;20(2):1049.

5. Blanchette S, Larouche R, Tremblay MS, Faulkner G, Riazi NA, Trudeau F. Associations between school environments, policies and practices and children's physical activity and active transportation. Journal of School Health. 2022 Jan;92(1):31-41.

6. Burns KE, Vermeer J, Battista K, Leatherdale STA. School-level examination of the association between programs and policies and physical activity outcomes among females from the COMPASS study. International Journal of Environmental Research and Public Health. 2021 Mar 23;18(6):3314.

7. Bremer E, Jefferies P, Cairney J and Kriellaars D. A cross-sectional study of Canadian children's valuation of literacies across social contexts. Frontiers in Sports and Active Living. 2023;5:1125072.

8. Chen K, Phipps S. "Why can't you sit still?" The effect of daily physical activity on childhood inattention/hyperactivity and the educational gender gap. Social Science & Medicine. 2021 Sep;284:114232.

9. Gadais T, Bardocz-Bencsik M. Analyzing a sport for development program's logic model by using key actors' perceptions: The case of Pour 3 Points organization in Montreal. PLoS One. 2022;17(5):e0267785.

10. Caldwell HAT; Miller MB,Tweedie C. Zahavich JBL, Cockett E, Rehman L. The impact of an after-school physical activity program on children's physical activity and well-being during the COVID-19 pandemic: A mixed-methods evaluation study. International Journal of Environmental Research and Public Health. 2022 May 5;19(9):5640.

11. Kalubi J, Riglea T, Wellman R, O'Loughlin J, Maximova K. Availability of health-promoting interventions in schools in Quebec, Canada, by school deprivation level. Health Promotion and Chronic Disease Prevention in Canada. 2023 Jun;43(6)321-9.

12. Klassen D, Champion C, Montemurro G, Flynn J, Raine K, Storey K. It takes a community: Exploring APPLE schools' impact within and beyond school walls in Canada. Health Promotion International. 2023 Jun 1;38(3):daac050.

13. Kontak JC, Caldwell HAT, Kay-Arora M, Hancock Friesen CL, Kirk SFL. Peering in: Youth perspectives on health promoting schools and youth engagement in Nova Scotia, Canada. Health Promotion International. 2022 Jun 1;37(3):daac081.

14. LaForge-MacKenzie K, Tombeau Cost K, Tsujimoto KC, Crosbie J, Charach A, Anagnostou E, Birken CS, Monga S, Kelley E, Burton CL, Nicolson R, Georgiades S, Korczak DJ. Participating in extracurricular activities and school sports during the COVID-19 pandemic: Associations with child and youth mental health. Frontiers in Sports and Active Living. 2022 Aug 29;4:936041.

15. Lewis B, Schaefer L, Lessard S, and Koch J. "Nothing is gonna change if we don't care for everyone": A narrative inquiry alongside urban Indigenous youth in an afterschool physical activity wellness program. Frontiers in Sports and Active Living. 2022 Sep;14(4):822547.

16. Lopresti S, Willows ND, Storey KE, McHugh TLF. Indigenous Youth Mentorship Program: Key implementation characteristics of a school peer mentorship program in Canada. Health Promotion International. 2021 Aug 30;36(4):913-23.

17. Nickel CN,, Doupe M, Enns JE, Brownell M, Sarkar J, Chateau D, Burland E, Chartier M, Katz A, Crockett L, Azad MB, McGavock JM, Santos R. Differential effects of a school-based obesity prevention program: A cluster randomized trial. Maternal and Child Nutrition. 2021 Jan;17(1)e13009.

18. Pirrie M, Carson V, Dubin JA, Leatherdale ST. A comprehensive school health approach to student physical activity: A multilevel analysis examining the association between school-level factors and student physical activity behaviors. Journal of School Health. 2022;92:774-785.

19. Pirrie M, Carson V, Dubin J, Leatherdale S. Do school characteristics, based on the Comprehensive School Health framework, contribute to youth meeting national physical activity recommendations over time? Health Promotion and Chronic Disease Prevention in Canada. 2022 Sep;42(9):408-419.

20. Pirrie M, Carson V, Dubin JA, Leatherdale ST. School-level factors within comprehensive school health associated with the trajectory of moderate-to-vigorous physical activity over time: A longitudinal, multilevel analysis in a large sample of grade 9 and 10 students in Canada. International Journal of Environmental Research and Public Health. 2021 Dec 3;18(23):12761.

21. Robinson DB, Harenberg S, Walters W, Barrett J, Cudmore A, Fahie K and Zakaria T. Game Changers: A participatory action research project for/with students with disabilities in school sport settings. Frontiers in Sports and Active Living. 2023 Apr;6(5):1150130.

22. Sobierajski F, Lévesque L, McGavock J, Beardy T, Montemurro G, IYMP National Team, Storey K. The essential conditions needed to implement the Indigenous Youth Mentorship Program: A focused ethnography. BMC Public Health. 2022 Feb 2;22(1):213.

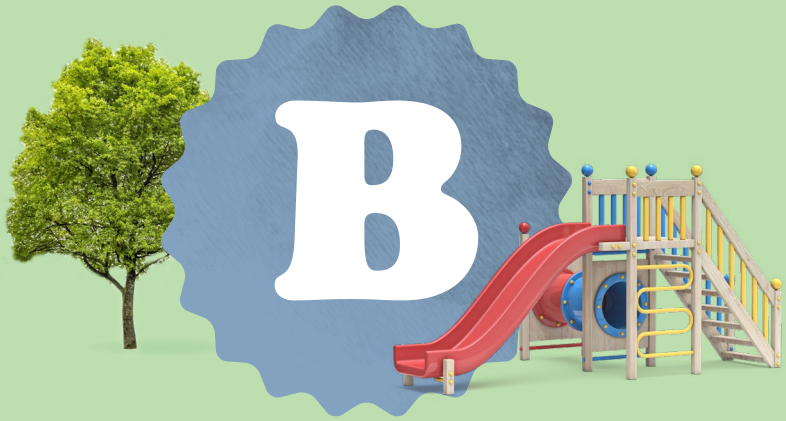
23. Williams GC, Burns KE, Battista K, de Groh M, Jiang Y, Leatherdale ST. A cross-sectional examination of the association between co-ed and gender-specific school intramural programs and intramural participation among a sample of Canadian secondary school students. Preventative Medicine Reports. 2020 Oct 26;20:101233.

24. Williams GC, Burns KE, Battista K, de Groh M, Jiang Y, Leatherdale ST. High school intramural participation and substance use: A longitudinal analysis of COMPASS data. Substance Use & Misuse. 2021;56(8):1108-18.

25. Saunders TJ, Rollo S, Kuzik N, Demchenko I, Bélanger S, Brisson-Boivin K, Carson V, da Costa BG, Davis M, Hornby S, Huang WY. International school-related sedentary behaviour recommendations for children and youth. International Journal of Behavioral Nutrition and Physical Activity. 2022 Apr 5;19(1):39.

Community & Environment

Based on an average of **70%** across the benchmarks for the Community & Environment indicator, this year's grade remains a B.



Benchmarks

- The percentage of children or parents who perceive that their community/municipality is doing a good job of promoting physical activity (e.g., variety, location, cost, quality).
- The percentage of communities/municipalities that report having policies promoting physical activity.
- The percentage of communities/municipalities that report having infrastructure (e.g., sidewalks, trails, paths, bike lanes) specifically geared towards promoting physical activity.
- The percentage of children or parents who report having facilities, programs, parks and playgrounds available to them in their community.
- The percentage of children or parents who report living in a safe neighbourhood where they can be physically active.
- The percentage of children or parents who report having well-maintained facilities, parks and playgrounds in their community that are safe to use.

Grades by Year

Year	Grade			
	Community Policy & Programming	Availability of Facilities, Programs, Parks & Playgrounds	Neighbourhood Safety	Natural Environment**
2010	D/B+*	B	B	–
2011	D/B+*	A-	B	INC
2012	D/B+*	A-	B	INC
2013	B	A-	B	INC
2014	B+			
2015	B+			
2016	A-			
2018	B+			
2020	B+			
2022	B			
2024	**B**			

*In the years prior to 2013, there were two separate indicators: Municipal Policies & Regulations and Community Programming. In 2013, these indicators were combined into a single indicator: Community Policy & Programming.

**This indicator has been in the Report Card since 2011 and was called "Nature & the Outdoors" until 2015.

Key Findings

- The CFLRI 2021 Survey of Physical Activity Opportunities in Canadian Communities (SPAOCC) reported an average of 70% across the domains of policies, human resources, facilities and infrastructure, partnerships, and programming for children, youth and families (2021 SPAOCC, CFLRI; 2022 PSPAS, CFLRI).[Custom analysis]

Policies:

- **27%** of communities with at least 1,000 residents had a formal plan for parks, recreation, physical activity and sport, or active transportation (2021 SPAOCC, CFLRI).[Custom analysis]

Human resources:

- **65%** of communities indicated they had sufficient human resources supporting physical activity (a percentage of communities with at least 1,000 residents citing at least some extent of staffing and human resources) (2021 SPAOCC, CFLRI).[Custom analysis]

Facilities and Infrastructure:

- **81%** of communities with at least 1,000 residents indicated having at least one amenity promoting active transportation (e.g., public transportation, crossing guards, school safety zones; 2021 SPAOCC, CFLRI).[Custom analysis]

- **74%** of communities reported having designated bike lanes on roads or trails for multiple purposes (2021 SPAOCC, CFLRI).[Custom analysis]
- **75%** of communities reported having one or more family-friendly amenities (i.e., family changing facilities, washrooms at parks, drinking fountains, childcare services; 2021 SPAOCC, CFLRI).[Custom analysis]
- According to the PSPAS, **82%** of parents reported that some or many facilities in their community (public, commercial, playgrounds, parks, trails, green spaces and other community facilities) were available in which to participate in physical activity or sport (2022 PSPAS, CFLRI).[Custom analysis]

Partnerships:

- **66%** of communities with at least 1,000 residents indicated that they had agreements in place with schools, school boards or sport organizations to share facilities or resources and programming.

Programming for children, youth and families:

- **92%** of communities with at least 1,000 residents reported having programming targeted to children, youth and families.

Research Gaps

- Further understanding is required on the facility needs to support sport and recreation for children and youth living in Canada.
- There is a significant gap in our understanding of how Canadian communities support or hinder the physical activity participation of children and youth from equity-denied groups.
- Research is needed on the accessibility and availability of community spaces (e.g., facilities, parks, playgrounds) in relation to children and youth's use of indoor and outdoor community spaces.
- Municipal policies may have a significant impact on the development of environments that provide sustainable opportunities for individuals to engage in healthy, active lifestyles. Little is known about how community planning in Canada integrates strategies to promote physical activity. Official community plans of cities could be systematically examined to identify policies that are supportive of physical activity and/or gaps in policy provision that can be rectified.
- Health economic analyses and policy evaluations that incorporate case studies and natural experiments are needed to translate research on the built environment into the development of effective policy and planning initiatives that promote healthy, active living.

Recommendations

- Support is needed for Health in All Policies approaches to improve the necessary communication between communities and the environments where children and youth engage in activities (e.g., recreation centres).
- When revising or creating new municipal policies or by-laws, decision-makers must consider their potential impact in restricting physical activity or outdoor play for children and youth.
- Communities should dedicate part of their capital plan to recreation facility revitalization.
- All parents and children should have access to inclusive extracurricular physical activity programs.
- Communities should ensure that indoor recreational facilities have high-quality air filtration and purification systems and develop plans to open these facilities to the public for free or at a reduced cost during weather and air quality alerts.

Grade-informing and Notable Citations

1. Canadian Fitness and Lifestyle Research Institute (CFLRI) and Canadian Parks and Recreation Association (CPRA). 2023. The Price of Inactivity: Measuring the Powerful Impact of Sport, Physical Activity, and Recreation in Canada. CFLRI & CPRA. Ottawa, ON, Canada.
2. Button B, Tillmann S, Gilliland J. Exploring children's perceptions of barriers and facilitators to physical activity in rural Northwestern Ontario, Canada. Rural and Remote Health. 2020 Aug;20(3):5791.
3. Caldwell HAT, Yusuf J, Arthur M, Friesen CLH, Kirk SFL. Play-friendly communities in Nova Scotia, Canada: A content analysis of physical activity and active transportation strategies. International Journal of Environmental Research and Public Health. 2022 Mar 3;19(5):2984.
4. Cimino A, McWhirter JE, Papadopoulos A. An evaluation of the amount, type and use of shade at public playgrounds in Guelph, Ontario, Canada. Health Promotion and Chronic Disease Prevention in Canada. 2022 May;42(5):209–17.
5. Fischer J, Winters M. COVID-19 street reallocation in mid-sized Canadian cities: socio-spatial equity patterns. Canadian Journal of Public Health. 2021 Jun;112(3):376–90.
6. Goon S, Kontulainen S, Muhajarine N. Neighborhood Built Environment Measures and Association with Physical Activity and Sedentary Time in 9- to 14-Year-Old Children in Saskatoon, Canada. International Journal of Environmental Research and Public Health. 2020 May 28;17(11):3837.
7. Kennedy E, Olsen H, Vanos J, Vecellio DJ, Desat M, Richters K, Rutledge A, Richardson GRA. Reimagining spaces where children play: Developing guidance for thermally comfortable playgrounds in Canada. Canadian Journal of Public Health. 2021 Aug;112(4):706–13.
8. Larouche R, Bélanger M, Brussoni M, Faulkner G, Gunnell K, Tremblay MS. Canadian children's independent mobility during the COVID-19 pandemic: A national survey. Health & Place. 2023 May;81:103019.
9. Loebach J, Sanches M, Jaffe J, Elton-Marshall T. Paving the way for outdoor play: Examining socio-environmental barriers to community-based outdoor play. International Journal of Environmental Research and Public Health. 2021 Mar 31;18(7):3617.
10. Lotoski L, Fuller D, Stanley KG, Rainham D, Muhajarine N. The effect of season and neighbourhood built environment on home area sedentary behaviour in 9- to 14-year-old children. International Journal of Environmental Research and Public Health. 2021 Feb 18;18(4):1968.

11. Mitra R, Campbell JE, Vanderloo LM, Faulkner G, Tremblay MS, Rhodes RE, Stone MR, Moore SA. Child and youth physical activity throughout the COVID-19 pandemic: The changing role of the neighbourhood built and social environments. Health & Place. 2023 Nov;84:103127.

12. Mitra R, Moore SA, Gillespie M, Faulkner G, Vanderloo LM, Chulak-Bozzer T, Rhodes RE, Brussoni M, Tremblay MS. Healthy movement behaviours in children and youth during the COVID-19 pandemic: Exploring the role of the neighbourhood environment. Health & Place. 2020 Sep;65:102418.

13. Mitra R, Waygood EOD, Fullan J. Subjective well-being of Canadian children and youth during the COVID-19 pandemic: The role of the social and physical environment and healthy movement behaviours. Preventive Medicine Reports. 2021 Sep;23:101404.

14. Nayakarathna R, Patel N, Currie C, Faulkner G, Riazi N, Tremblay MS, Trudeau F, Larouche R. Correlates of physical activity in children from families speaking non-official languages at home: A multi-site Canadian Study. Journal of Racial and Ethnic Health Disparities. 2023 Mar 13.

15. Ostermeier E, Tucker P, Tobin D, Clark A, Gilliland J. Parents' perceptions of their children's physical activity during the COVID-19 pandemic. BMC Public Health. 2022 Dec;22(1):1459.

16. Parent N, Guhn M, Brussoni M, Almas A, Oberle E. Social determinants of playing outdoors in the neighbourhood: family characteristics, trust in neighbours and daily outdoor play in early childhood. Canadian Journal of Public Health. 2021 Feb;112(1):120–7.

17. Rothman L, Hagel B, Howard A, Cloutier MS, Macpherson A, Aguirre AN, McCormack GR, Fuselli P, Buliung R, HubkaRao T, Ling R, Zanotto M, Rancourt M, Winters M. Active school transportation and the built environment across Canadian cities: Findings from the Child Active Transportation Safety and the Environment (CHASE) study. Preventive Medicine. 2021 May;146:106470.

18. Rothman L, Schwartz N, Cloutier MS, Winters M, Macarthur C, Hagel BE, Macpherson AK, El Amiri N, Fuselli P, Howard AW. Child pedestrian and cyclist injuries, and the built and social environment across Canadian cities: The Child Active Transportation Safety and the Environment (CHASE) Study. Injury Prevention. 2022 Aug;28(4):311–7.

19. Smith J, Chhina H, Sidhu P, Brussoni M, Pike I, Cooper A. Paediatric elbow fractures and public play spaces: adherence to standards for children's playground equipment and surfacing. BMJ Paediatrics Open. 2021 Nov;5(1):e001125.

20. Taylor LG, Vanderloo LM, Arbour-Nicitopoulos KP, Leo J, Gilliland J, Tucker P. Playground inclusivity for children with a disability: Protocol for a scoping review. JMIR Research Protocols. 2022 Jul 22;11(7):e37312.

Government

This year's grade is a B, based on a **68%** score across the Government benchmarks.

Benchmarks

- The number and breadth of relevant policies, including policies/strategies/action plans that reference physical activity.
- Identified supporting actions, including strategic documents with specific actions that promote physical activity.
- Identified accountable organization(s), including discreet organizations specifically identified as responsible for delivery of actions.
- Identifiable reporting structures, such as strategic documents with explicit reporting systems, including frequency and format of reports.
- Identifiable funding, such as explicit references to funding that supports identified actions.
- Monitoring and evaluation plans, such as explicit reference to monitoring and evaluation of progress and impact of the policy. **

*From 2010 to 2012, there were two separate indicators: Strategies and Investments. In 2013, these indicators were again combined into a single indicator.

** Ward MR, Tyler R, Edwards LC, Miller MC, Williams S, Stratton G. The AHK - Wales Report Card 2018: Policy measures – is it possible to 'score' qualitative data? Health Promotion International. 2020;36(4):1151-9.

Grades by Year

Year	Grade	
	Federal Government Strategies & Investments	Provincial/ Territorial Government Strategies & Investments
2010	C+/F*	B+/C-*
2011	C/F*	B+/C-*
2012	D/F*	B+/C-*
2013	C-	C
2014	C	
2015	B-	
2016	B-	
2018	C+	
2020	B-	
2022	B-	
2024	**B**	

Key Findings

- The overall score for the Government indicator, determined using the Policy Audit Tool Version 2 (PAT V2) (Ward et al., 2021), was **68%**. Use of the PAT V2 allowed for a more objective grade for the Government indicator. Specifically, the Report Card Research Committee compiled federal, provincial and territorial (FPT) government policies related to physical activity. Identified policies were sent to members of the FPT Sport, Physical Activity and Recreation Council (SPARC) to invite feedback and relevant additions consistent with the PAT V2 audit criteria. Each SPARC member was invited to provide feedback corresponding to their representative province or territory, and an additional member provided feedback on identified federal policies. Policies were then scored according to the rubric from Ward et al., 2018, and all provincial and territorial government policies were proportionally scaled based on their percentage of the total population in Canada (e.g., if province X has 10 policies and makes up 5% of Canada's population, it contributes 0.5 to Canada's total score).

  Number and breadth of relevant policies (8/10 score):

  - The proportional number of relevant government policies pertaining to physical activity identified at the provincial and territorial levels was 4.2, and the total at the federal level was 13, for an overall total of 17.2 (4/5 score).
  - The breadth of government policies proportionally spanned 3.6 sectors at the provincial and territorial levels and five sectors in total at the federal level, for an overall total of 8.6 sectors (4/5 score).

  Identified supporting actions (14.7/20 score):

  - The proportional number of relevant policies at the provincial and territorial levels that identified supporting actions was 3.7, while a total of 11 were identified at the federal level, adding up to an overall total of 14.7 out of a maximum score of 20.

  Of the relevant policies:

  - 76% identified responsibilities for delivery of actions (identified accountable organizations), for a score of **15/25**.
  - 70% identified systems for reporting delivery of actions (identifiable reporting structures), for a score of **10/15**.
  - 70% identified explicit references to funding to support identified actions, for a score of **15/20**.
  - 53% identified systems for the monitoring and evaluation of progress and the impact of the policy, for a score of **5/10**.

- Only six provinces/territories have an overarching physical activity strategy, two have a sport strategy, and six have neither.
- The July 2023 appointment of The Honourable Carla Qualtrough as Federal Minister of Sport and Physical Activity of Canada signifies the importance of both sport and physical activity at the federal level. This appointment demonstrates much-needed leadership in directing national-level policy, including improved coherence across sport and physical activity policy, the latter providing new opportunities for alignment and coordinated action across and between other relevant policy domains where physical activity is a subset of broader policies, including public health, education, social justice and others. Further, offices and roles of The Honourable Adam Van Koeverden (Member of Parliament, Milton)

include dual responsibility as Parliamentary Secretary to the Minister of Environment and Climate Change and to the Minister of Sport and Physical Activity. This dual responsibility presents new opportunities within the federal government structure to explore and identify the intersection between climate change and its implications for population physical activity, including for children and youth.

- Environment and Climate Change Canada and Health Canada are developing an implementation framework for a right to a healthy environment (Advancing Environmental Equity). The framework will set out how the right will be considered in the context and administration of the Canadian Environmental Protection Act (CEPA), 1999. Leadership on establishing a right to a healthy environment includes public consultation and online surveys, including engaging with a broad range of voices to help inform environmental justice and equity.
- The Government of Canada's National Adaptation Strategy is a consensus-driven framework to mitigate the risk of climate-related disasters, safeguard nature and biodiversity, enhance the health of Canadians, build and maintain resilient infrastructure, and support workers within a strong economy. Common goals, objectives, and targets are identified within five crucial domains that impact Canadians' daily lives: Disaster Resilience, Health and Well-being, Nature and Biodiversity, Infrastructure, and Economy and Workers. Additionally, the Government of Canada Adaptation Action Plan outlines the federal government's contribution in meeting goals within the National Adaptation Strategy while also identifying tools used to improve Canada's climate resiliency.
- Coinciding with the five-year anniversary of the policy framework on physical activity in Canada, titled "A Common Vision for Increasing Physical Activity and Reducing Sedentary Living in Canada: Let's Get Moving", and building on its themes, the Government of Canada conducted a cross-Canada series of five themed Healthy Living Roundtables hosted by the Public Health Agency of Canada. The Roundtables brought together multiple sectors to explore the impacts of the COVID-19 pandemic on healthy living, including population physical activity. The Roundtable report entitled "What We Heard: 2023 Roundtables on Healthy Living in Canada (PHAC, 2023)" represents an important foundation for renewed, intersectoral action to advance research, policy and practice aimed at increasing physical activity and related healthy behaviours for Canadians in a post-pandemic context.

Research Gaps

- Evaluations should be conducted on the accessibility and effectiveness of tax credits for sport and physical activity in Nova Scotia (children) and Newfoundland and Labrador (families).
- More information is required on the cost-effectiveness of subsidy programs such as those offered by KidSport and Jumpstart.
- Identify how high public support for policy actions that have co-benefits for physical activity and climate change can be used to push policy-makers in Canada to create and implement these policies that would benefit planetary and personal health.

Recommendations

Policy:

- More attention should be paid to ensuring monitoring and evaluation plans are in place to track the progress and impact of physical activity- and sport-related policies.
- All provincial and territorial governments should strive to support the creation of dedicated physical activity strategies to increase public sector coordination to advance physical activity promotion at a pan-Canadian level.
- Emphasis should be placed on achieving policy coherence between dedicated physical activity policies and other relevant public sector policies that either directly or indirectly support increased opportunities for population-level physical activity (e.g., transportation, public health, infrastructure).

Practice:

- Implementation of government policies should be supported by multi-year funding arrangements (i.e., minimum three years) with non-governmental actors to increase the likelihood that desired policy outcomes and impact can be achieved, measured and reported over a realistic implementation period.
- Efforts by governments to promote and support population-level physical activity should include the identification and application of areas of convergence across existing, relevant pan-Canadian policies that include physical activity (i.e., Physical Activity Common Vision, Canadian Sport Policy, Framework for Recreation in Canada).
- Increased investment in active transportation infrastructure, national/provincial parks, and recreation and sport facilities are needed to improve access to physical activity opportunities for children and youth. These investments also have potential benefits for planetary health and provide spaces for children and youth to avoid climate-related risks (e.g., air quality, heat advisories).

Getting a Head Start: Physical Activity in the Early Years (Zero to Four Years)

Physical activity and related behaviours, characteristics, and opportunities are critical for healthy development in the early years. The following synthesis provides a snapshot of key Report Card-related statistics specific to the early years:

Daily Behaviours

- A recent systematic review indicated that globally, 11% of preschool-aged children (n = 10,702) are meeting all 24-hour movement guidelines.[1] Studies reporting on the prevalence of movement behaviour guideline adherence among young children in Canada are reported in Table 2.

Table 2. Canadian Studies Examining Prevalence of Meeting 24-Hour Movement Guidelines *

Study	Age Group	n	None (%)	PA(%)	ST (%)	Sleep (%)	PA + ST + Sleep (%)
Carson et al. (2022)[2]	Infant	250/ 94**	NR	40/9**	17/15**	34/28**	2/0**
Lee et al. (2017)[3]	Toddler	151	0	99.3	15.2	82.1	11.9
Carson et al. (2019)[4]	Preschooler	343	6.1	19.3	50.5	83.1	5
Chaput et al. (2017)[5]	Preschooler	803	3.3	61.8	24.4	83.9	12.7
Lee et al. (2021)[6]	Preschooler	121	NR	24.8	2.4	86.3	0.8
Vanderloo et al. (2021)[7]	Preschooler	767	26.4	45.4	39.8	51.7	10.2
2007-2019 CHMS Custom analysis	Preschooler	10,344	NR	60	NR	-	-

*Tremblay 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(5):1-32; n=number of participants; PA=Physical Activity Recommendation; ST=Screen Time Recommendation; Infant=under 1 year; Toddler= 1-2 years; Preschooler= 3-4 years. NR= Not Reported. CHMS=Canadian Health Measures Survey.

**Meeting guidelines at 2, 4, and 6 months of age according to parent-report questionnaires/time-use diaries.

- Within the nationally representative 2019 CHSCY:[Custom analysis]
  - 58% of three- to four-year-old children participated in organized sports or physical activities with a coach or instructor.
  - 91% of parents reported playing sports, hobbies or games with their children between the ages of one and four years more than once per week.

Spaces & Places

- Within the 2012-2015 CHMS, no significant differences were observed in habitual daily or hourly levels of physical activity or sedentary time among a nationally representative sample of preschoolers from four childcare environments (centre-based, home-based, stayed at home with parent and school).[Custom analysis]
- Following the mandatory introduction of active play standards in childcare centres in British Columbia in 2016–17, the following provider- and organizational-level factors, as well as attributes of the standards, influenced changes to policy and practice:[8]
  - Higher staff capacity and perceived flexibility of the standards were associated with higher odds of a policy change related to fundamental movement skills.
  - Higher staff commitment to the active play standards was associated with higher odds of policy changes related to screen time and amount of active play.
  - Higher institutionalization of physical activity policies was associated with higher odds of policy changes related to the amount of active play.
  - Higher self-efficacy was associated with higher odds of policy changes related to outdoor active play.
  - Appetite to Play (a capacity-building initiative focused on implementing policies and practices to support physical activity in childcare centres) training was positively associated with practice changes related to fundamental movement skills.
- Across the CHMS cycles from 2009 to 2017, significant associations but small effect sizes were observed for parent-child screen time, sedentary time, light physical activity and MVPA.[Custom analysis]

Notable Citations

1. Tapia-Serrano MA, Sevil-Serrano J, Sánchez-Miguel PA, López-Gil JF, Tremblay MS, García-Hermoso A. Prevalence of meeting 24-Hour Movement Guidelines from pre-school to adolescence: A systematic review and meta-analysis including 387,437 participants and 23 countries. Journal of Sport and Health Science. 2022;11(4):427-37.

2. Carson V, Zhang ZG, Predy M, Pritchard L, Hesketh KD. Adherence to Canadian 24-Hour Movement Guidelines among infants and associations with development: a longitudinal study. International Journal of Behavioral Nutrition and Physical Activity. 2022;19(1):154.

3. Lee EY, Hesketh KD, Hunter S, Kuzik N, Rhodes RE, Rinaldi CM, Spence JC, Carson V. Meeting new Canadian 24-Hour Movement Guidelines for the Early Years and associations with adiposity among toddlers living in Edmonton, Canada. BMC Public Health. 2017 Nov 20;17(Suppl 5):840.

4. Carson V, Ezeugwu VE, Tamana SK, Chikuma J, Lefebvre DL, Azad MB, et al. Associations between meeting the Canadian 24-Hour Movement Guidelines for the Early Years and behavioral and emotional problems among 3-year-olds. Journal of Science and Medicine in Sport. 2019 Jul 1;22(7):797–802.

5. 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 Nov 20;17(5):829.

6. Lee EY, Song YK, Hunter S, Jeon J, Kuzik N, Predy M, et al. Levels and correlates of physical activity and screen time among early years children (2-5 years): Cross-cultural comparisons between Canadian and South Korean data. Child Care Health and Development. 2021;47(3):377-86.

7. Vanderloo LM, Maguire JL, Keown-Stoneman CDG, Parkin PC, Borkhoff CM, Tremblay MS, et al. Associations Between Meeting the 24-Hour Movement Guidelines and Cardiometabolic Risk in Young Children. Pediatric Exercise Science. 2021;33(3):112-9.

8. Tugault-Lafleur CN, Naylor PJ, Carson V, Faulkner G, Lau EY, Wolfenden L, et al. Factors associated with physical activity policy and practice implementation in British Columbia's childcare settings: a longitudinal study. BMC Public Health. 2023 Aug 29;23(1):1651.

9. Statler J, Wilk P, Timmons BW, Colley R, Tucker P. Habitual physical activity levels and sedentary time of children in different childcare arrangements from a nationally representative sample of Canadian preschoolers. Journal of Sports and Health Science. 2020 Dec;9(6):657–63.

10. Carson V, Langlois K, Colley R. Associations between parent and child sedentary behaviour and physical activity in early childhood. Health Rep. 2020 Feb 19;31(2):3–10.

11. Arts J, Drotos E, Singh AS, Chinapaw MJM, Altenburg TM, Gubbels JS. Correlates of Physical Activity in 0-to 5-year-olds: A Systematic Umbrella Review and Consultation of International Researchers. Sports Medicine. 2023;53(1): 215-40.

12. Arts J, Gubbels JS, Verhoeff AP, Chinapaw MJM, Lettink A, Altenburg TM. A systematic review of proxy-report questionnaires assessing physical activity, sedentary behavior and/or sleep in young children (aged 0-5 years). International Journal of Behavioral Nutrition and Physical Activity. 2022;19(1).

13. Bourke M, Vanderloo LM, Irwin JD, Burke SM, Johnson AM, Driediger M, et al. Association between childcare movement behaviour compositions with health and development among preschoolers: Finding the optimal combinations of physical activities and sedentary time. Journal of Sports Sciences. 2022;40(18):2085-94.

14. Bruijns BA, Johnson AM, Burke SM, Tucker P. Validation of a Physical Activity, Sedentary Behavior, and Outdoor Play Behavioral Intention and Perceived Behavioral Control Tool for Early Childhood Educators. Early Childhood Education Journal. 2023;51(3):559-67.

15. Buckler EJ, Faulkner GE, Beauchamp MR, Rizzardo B, DeSouza L, Puterman E. A Systematic Review of Educator-Led Physical Literacy and Activity Interventions. American Journal of Preventive Medicine. 2023;64(5):742-60.

16. Caldwell HAT, Proudfoot NA, DiCristofaro NA, Cairney J, Bray SR, Timmons BW. Preschool to School-Age Physical Activity Trajectories and School-Age Physical Literacy: A Longitudinal Analysis. Journal of Physical Activity and Health. 2022;19(4):275-83.

17. Carson V, Predy M, Hunter S, Storey K, Farmer AP, McIsaac JL, et al. An Environmental Scan of Existing Canadian Childcare Resources Targeting Improvements in Health Behaviours. Early Childhood Education Journal. 2022;50(8):1417-28.

18. Carson V, Zhang ZG, Kuzik N, Adamo KB, Predy M, Crozier M, et al. The impact of new government childcare accreditation standards on children's in-care physical activity and sedentary time. BMC Public Health. 2022;22(1).

19. Carson V, Zhang ZG, Predy M, Pritchard L, Hesketh KD. Longitudinal associations between infant movement behaviours and development. International Journal of Behavioral Nutrition and Physical Activity. 2022;19(1):10.

20. Cost KT, Unternaehrer E, Tsujimoto K, Vanderloo LL, Birken CS, Maguire JL, Szatmari P, Charach A. Patterns of parent screen use, child screen time, and child socio-emotional problems at 5 years. Journal of Neuroendocrinology. 2023 Mar 1:e13246.

21. Johnstone A, McCrorie P, Cordovil R, Fjortoft I, Iivonen S, Jidovtseff B, et al. Nature-Based Early Childhood Education and Children's Physical Activity, Sedentary Behavior, Motor Competence, and Other Physical Health Outcomes: A Mixed-Methods Systematic Review. Journal of Physical Activity & Health. 2022;19(6):456-72.

22. Kuzik N, Naylor PJ, Spence JC, Carson V. Movement behaviours and physical, cognitive, and social-emotional development in preschool-aged children: Cross-sectional associations using compositional analyses. PLoS One. 2020 Aug 18;15(8):e0237945.

23. Lugossy AM, Chow AF, Humbert ML. Learn to Do by Doing and Observing: Exploring Early Childhood Educators' Personal Behaviours as a Mechanism for Developing Physical Literacy Among Preschool Aged Children. Early Childhood Education Journal. 2022;50(3):411-24.

24. McArthur BA, Volkova V, Tomopoulos S, Madigan S. Global Prevalence of Meeting Screen Time Guidelines Among Children 5 Years and Younger. A Systematic Review and Meta-analysis. JAMA Pediatrics. 2022;176(4):373-83.

25. Neshteruk C, Burkart S, Flanagan EW, Melnick E, Luecking C, Kracht CL. Policy, systems, and environmental interventions addressing physical activity in early childhood education settings: A systematic review. Preventive Medicine. 2023;173.

26. Patel P, Li X, Keown-Stoneman CD, Vanderloo LM, Kinlin LM, Maguire JL, Birken CS. Changes in Pediatric Movement Behaviors During the COVID-19 Pandemic by Stages of Lockdown in Ontario, Canada: A Longitudinal Cohort Study. Journal of Physical Activity and Health. 2023 Apr 1;20(4): 292-302.

27. Szpunar M, Bourke M, Vanderloo LM, Bruijns BA, Truelove S, Burke SM, et al. Parent-Reported Changes in Ontario Children's Physical Activity Levels during the COVID-19 Pandemic. Children. 2023;10(2):221.

28. Szpunar M, Driediger M, Johnson AM, Vanderloo LM, Burke SM, Irwin JD, et al. Impact of the Childcare Physical Activity (PLAY) Policy on Young Children's Physical Activity and Sedentary Time: A Pilot Clustered Randomized Controlled Trial. International Journal of Environmental Research and Public Health. 2021;18(14).

29. Vanderloo LM, Omand J, Keown-Stoneman CDG, Janus M, Tremblay MS, Maguire JL, et al. Association Between Physical Activity, Screen Time and Sleep, and School Readiness in Canadian Children Aged 4 to 6 Years. Journal of Developmental and Behavioral Pediatrics. 2022;43(2):96-103.

30. Wenden EJ, Virgara R, Pearce N, Budgeon C, Christian HE. Movement behavior policies in the early childhood education and care setting: An international scoping review. Frontiers in Public Health. 2023;11:1077977.

31. Zhang ZG, Adamo KB, Ogden N, Goldfield GS, Okely AD, Kuzik N, et al. Associations between sleep duration, adiposity indicators, and cognitive development in young children. Sleep Medicine. 2021;82:54-60.

32. Zhang ZG, Predy M, Hesketh KD, Pritchard L, Carson V. Demographic Correlates of Movement Behaviors in Infants: A Longitudinal Study. Journal of Physical Activity and Health. 2022;19(3):177-85.

33. Zhang ZG, Predy M, Hesketh KD, Pritchard L, Carson V. Characteristics of tummy time and dose-response relationships with development in infants. European Journal of Pediatrics. 2023;182(1):113-21.

34. Zhang ZG, Predy M, Kuzik N, Hewitt L, Hesketh KD, Pritchard L, et al. Validity of an Infant Tummy Time Questionnaire and Time-use Diary against the GENEActiv Accelerometer. Measurement in Physical Education and Exercise Science. 2022;26(1):27-38.

Abbreviations

2SLGBTQI+: Two-spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, and additional sexual identities and gender identities

ATIM: Active Transportation and Independent Mobility longitudinal study

CCHS: Canadian Community Health Survey

CCPI: Climate Change Performance Index

CFLRI: Canadian Fitness and Lifestyle Research Institute

CHEO: Children's Hospital of Eastern Ontario

CHMS: Canadian Health Measures Survey

CHSCY: Canadian Health Survey on Children and Youth

COMPASS: Cohort Study for Obesity, Marijuana Use, Physical Activity, Alcohol Use, Smoking and Sedentary Behaviour

CPRA: Canadian Parks and Recreation Association

DPA: Daily Physical Activity

FPT: Federal, Provincial and Territorial

HALO: Healthy Active Living and Obesity Research Group

IM: Independent Mobility

mCAFT: modified Canadian Aerobics Fitness Test

MIREC: Maternal-Infant Research on Environmental Chemicals

MVPA: Moderate-to Vigorous-Intensity Physical Activity

ND-GAIN: Notre Dame Global Adaptation Initiative

NPAM: National Physical Activity Measurement study

OPASS: Opportunities for Physical Activity at School Study

PASMP: Physical Activity and Sport Monitoring Program

PAT V2: Policy Audit Tool Version 2

PHAC: Public Health Agency of Canada

PHE: Physical and Health Education

PLAYBasic: Physical Literacy Assessment for Youth

PLaTO-Net: Play, Learn and Teach Outdoors Network

PSPAS: 2022 Parent Survey on Physical Activity and Sport

SD: Standard Deviation

SPAOCC: Survey of Physical Activity Opportunities in Canadian Communities

SPARC: Sport, Physical Activity and Recreation Committee

Summary of Indicators

2024 Grades

Indicator Name	Benchmark(s)	Grade
Daily Behaviours		
Overall Physical Activity	The percentage of children and youth who meet the physical activity recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (at least 60 minutes of daily MVPA on average).	**D+**
Active Play	The percentage of children and youth who engage in active play and non-organized/unstructured leisure activities for several (more than two) hours per day.	**D-**
Active Transportation	The percentage of children and youth who typically use active transportation to get to and from places (e.g., school, park, mall, friend's house).	**C-**
Organized Sport	The percentage of children and youth who participate in organized sport programs.	**B**
Physical Education	The percentage of students in grades K to 8 receiving at least 150 minutes of physical education per week.	**C**
	The percentage of high school students taking physical education.	
	The percentage of students receiving daily physical activity (DPA) in provinces that have DPA policies.	
Sedentary Behaviours	The percentage of children and youth who meet the screen time recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (i.e., no more than two hours of recreational screen time per day on average).	**D**
Sleep	The percentage of children and youth who meet the sleep duration recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (five- to 13-year-olds: nine to 11 hours per night on average; 14- to 17-year-olds: eight to 10 hours per night on average).	**B-**
24-Hour Movement Behaviours	The percentage of children and youth who meet the physical activity, screen time and sleep duration recommendations within the Canadian 24-Hour Movement Guidelines for Children and Youth.	**F**

2024 Grades

Indicator Name	Benchmark(s)	Grade
Individual Characteristics		
Physical Literacy	Under construction	**INC**
Physical Fitness	Under construction	**INC**
Spaces & Places		
Household	The percentage of parents who facilitate physical activity and sport opportunities for their children (e.g., volunteering, coaching, driving, paying for membership fees and equipment).	**C+**
	The percentage of parents who meet the Canadian 24-Hour Movement Guidelines for Adults.	
	The percentage of parents who are physically active with their kids.	
	The percentage of children and youth with friends and peers who encourage and support them to be physically active.	
	The percentage of children and youth who encourage and support their friends to be physically active.	
School	The percentage of schools with active school policies (e.g., DPA, physical education, recess, "everyone plays" approach, bike racks at school, traffic calming on school property, outdoor time).	**B-**
	The percentage of schools where the majority (80% or more) of students are taught by a physical education specialist.	
	The percentage of schools where the majority (80% or more) of students are offered at least 150 minutes of physical education per week.	
	The percentage of schools that offer physical activity opportunities (excluding physical education) to the majority (80% or more) of their students.	
	The percentage of parents who report that their children and youth have access to physical activity opportunities at school in addition to physical education classes.	
	The percentage of schools with students who have regular access to facilities and equipment that support physical activity (e.g., gymnasium, outdoor playgrounds, sporting fields, multipurpose space for physical activity, equipment in good condition).	
	The percentage of schools reporting that competing priorities (e.g., for resources, equipment, facilities) and/or attitudes (e.g., teachers, parents, children) are not major barriers to physical education delivery and physical activity promotion at school.	

2024 Grades

Indicator Name	Benchmark(s)	Grade
Spaces & Places		
Community & Environment	The percentage of children or parents who perceive that their community/ municipality is doing a good job of promoting physical activity (e.g., variety, location, cost, quality).	**B**
	The percentage of communities/municipalities that report having policies that promote physical activity.	
	The percentage of communities/municipalities that report having infrastructure (e.g., sidewalks, trails, paths, bike lanes) specifically geared toward promoting physical activity.	
	The percentage of children or parents who report having facilities, programs, parks and playgrounds available to them in their community.	
	The percentage of children or parents who report living in a safe neighbourhood where they can be physically active.	
	The percentage of children or parents who report having well-maintained facilities, parks and playgrounds in their community that are safe to use.	
Strategies & Investments		
Government	The number and breadth of relevant policies, including policies/strategies/ action plans that reference physical activity.	**B**
	Identified supporting actions, including strategic documents with specific actions that promote physical activity.	
	Identified accountable organization(s), including discreet organizations specifically identified as responsible for delivery of actions.	
	Identifiable reporting structures such as strategic documents with explicit reporting systems, including frequency and format of reports.	
	Identifiable funding, such as explicit references to funding supporting identified actions.	
	Monitoring and evaluation plans, such as explicit reference to monitoring and evaluation of progress and the impact of the policy.	

Methodology & Data Sources

The ParticipACTION Report on Physical Activity for Children and Youth attempts to synthesize data from multiple data sources and research literature. The development of indicators and the assignment of grades involve an interdisciplinary Report Card Research Committee, including researchers and experts from across Canada. Typically, a biennial summary of research data and literature is prepared by staff within HALO-CHEO to facilitate the review of the information. Grade assignments are determined based on examination of the current data and literature for each indicator against a benchmark or optimal scenario, assessing the indicator as an:

A (80-100%) = We are succeeding with a large majority of children and youth.
B (60-79%) = We are succeeding with well over half of children and youth.
C (40-59%) = We are succeeding with about half of children and youth.
D (20-39%) = We are succeeding with some but less than half of children and youth.
F (0-19%) = We are succeeding with very few children and youth.

There are a number of general principles that are considered important factors when determining if data should be used to calculate a grade, including the following:

- Data should ideally span the entire age range for children and youth (five to 17 years), instead of focusing on a narrower range (e.g., 10- to 12-year-olds)
- Device-measured data is ideal, since it generally demonstrates improved reliability and validity compared to self-report data.
- Ideally the data is recent enough to give a current representation of children and youth's behaviour. Considering that the Report Card is currently released every two years, a perfect scenario would be one in which the data provide an accurate representation of the time period spanning the two Report Cards.
- Nationally representative data are the best data source for determining the prevalence of behaviours for people living in Canada. When sampling methods do not inherently produce nationally representative data, a very large sample is preferred in order to assist with the generalizability of the findings.
- Consistency is a key component, since using a survey that has been conducted over many years allows for comparisons to be made that assist with determining how behaviours have changed over time for children and youth in Canada.

While many factors weigh in on the ideal data source(s), trade-offs exist among these criteria when selecting the actual data sources.

A given indicator grade is assigned after applying weightings to the key findings to provide a fair and valid representation of the overall proportion of children and youth meeting a given benchmark. This is important because how the key findings are weighted can have considerable impact on the eventual letter grade for an indicator.

Some indicators are stand-alone, while others are comprised of several components. During the grade assignment meeting, each component of an indicator is assessed. Over the evolution of the Report Card, there has been an attempt to move toward indicators that are broad enough to contain various components in their assessment so that indicators can become more consistent from year to year.

The following are major data sources used in the 2024 Report Card:

Active Transportation and Independent Mobility Longitudinal Study (ATIM)

Sponsored by the Heart and Stroke Foundation of Canada, this ongoing project led by Dr. Richard Larouche at the University of Lethbridge aims to examine how movement behaviours (including physical activity, active transportation, screen time and sleep) and independent mobility (IM) evolve over time in children and one of their parents. It also aims to investigate the determinants of changes in children's movement behaviours. A better understanding of the determinants of behaviour change could help inform the development of more effective interventions. This longitudinal study sampled approximately 2,300 parents of children seven to 12 years of age between December 2020 and June 2021 using a third-party market survey firm (Leger). Data are nationally representative, with participants in all provinces and territories randomly sampled from a pool of approximately 450,000 people in Canada who regularly volunteer to participate in surveys. This was done to be representative of the Canadian subpopulation of households with children seven to 12 years of age based on education and household income.

Canadian Community Health Survey (CCHS)

The CCHS is a cross-sectional survey that collects information related to health status, health-care utilization and health determinants for the Canadian population. The survey is offered in both official languages. It relies upon a large sample of respondents and is designed to provide reliable estimates at the health region level every two years. The current cycle had a total sample of 65,000 respondents (5,000 between the ages of 12 and 17 years). Through stratified sampling and applying sampling weights, the CCHS is representative of the population in Canada. Data were collected from September to December 2020.

Canadian Health Measures Survey (CHMS)

The CHMS gathers information on health-related lifestyle behaviours, including direct measures of health indicators, to understand including direct measures of health indicators relationships between disease risk factors and risk conditions such as obesity, hypertension, cardiovascular disease, exposure to infectious diseases and exposure to environmental contaminants. The sample consisted of 10,344 children and youth between the ages of three and 17 years, which spans six cross-sectional cycles from the time period of 2007 to 2019. Combined survey weights were applied to ensure the analyses were representative of the ten provinces. The CHMS provides accelerometer-measured MVPA from ten provinces to mitigate response bias.

Canadian Health Survey on Children and Youth (CHSCY)

CHSCY is a cross-sectional survey with longitudinal follow-up that analyzes the physical activity, use of electronic devices, time spent in school and extracurricular activities, mental health, childhood experiences, suicidal thoughts, substance use, and the impact of the COVID-19 pandemic on the physical and mental health of children and youth. The data were collected in 2019 and the sample size included 175,000 children and youth between the ages of three and 17 years. The sample is primarily stratified by province, except for Ontario, where the geographic strata consist of the province's 34 health regions.

Cohort Study for Obesity, Marijuana Use, Physical Activity, Alcohol Use, Smoking and Sedentary Behaviour (COMPASS)

The COMPASS study is a nine-year study (started in 2012-13) about youth health behaviours that is funded by the Canadian Institutes of Health Research and Health Canada. It is being conducted and led by researchers at the University of Waterloo in collaboration with researchers at the University of Alberta, the University of British Columbia and the University of Toronto:

- Participating students in grades nine to 12 are surveyed once annually.
- COMPASS tracks any changes made to the school's health policies and programs over time.
- Each year, participating schools receive a detailed feedback report, which will include evidence-based recommendations for health policy and program improvement.
- COMPASS has support staff and resources available to schools to help them translate these recommendations into action.

This survey will allows us to see changes in youth health behaviours over time, determine whether changes to school health policies and programs are effective, and work directly with schools to implement changes. This is the ninth year of this survey, and data were collected online instead of through the traditional in-person method from November 2020 to June 2021. A total of 133 schools from Alberta, British Columbia, Ontario and Quebec participated, resulting in a sample of 53,469 students.

Maternal-Infant Research on Environmental Chemicals — Endocrine (MIREC-ENDO)

MIREC-ENDO is a longitudinal maternal and child health study investigating the impact of environmental chemicals on maternal and infant health. The data, collected in 2018-2021, included information from around 140 children between the ages of seven and nine years.

ParticipACTION COVID-19 Survey

ParticipACTION conducted surveys on the movement behaviours of children and youth during the COVID-19 pandemic. Specifically, children and youth (five to 17 years of age, Wave 1: April 2020, n=1,472; Wave 2: October 2020, n=1,568) were recruited via Maru/Matchbox, a third-party market research company. Maru/Matchbox has an online consumer database of more than 120,000 panelists in Canada. Panelists are recruited via online and offline methods and receive small cash incentives ($0.50 to $3.00 CAD) for completing surveys. Panelists were screened out by Maru/Matchbox if anyone in the household had been diagnosed with COVID-19 in the past month or if they were presently under self-isolation (i.e., quarantine) orders. Panelists were recruited so that the sample would be similar demographically to the Canadian population and were diverse in age, gender, region, income, employment and language spoken. When these conditions were not met, Maru/Matchbox employed targeted recruitment to complete the repeated cross-sectional sample.

Physical Literacy for Communities

The Physical Literacy for Communities project is a Public Health Agency of Canada (PHAC) initiative delivered by Sport for Life. Initiated in 2022, this 36-month project is designed to support the development of physical literacy among 150,000 children and youth two to 18 years of age across Canada. One aspect of the initiative is developing a national database of physical literacy assessments using the Physical Literacy Assessment for Youth (PLAYBasic) tool, which assesses key movement skills performed by children and youth.

The Canadian Fitness and Lifestyle Research Institute's (CFLRI's) setting-based studies

The CFLRI's setting-based studies are national studies that assess opportunities for physical activity and sport within key settings (i.e., schools, communities and municipalities, and homes). The data are based on questions asked of key administrators within each of the settings and of parents representing the household setting. The setting-based studies are an important component of the CFLRI's Physical Activity and Sport Monitoring Program (PASMP), as they provide critical information about the capacity of these settings to impact participation rates, the delivery system, and the role of these organizations as intermediaries to support physical activity and sport. These surveys are generally collected by mail or online:

- Parent Survey on Physical Activity and Sport (PSPAS) 2022: This survey explores opportunities for children's participation in physical activity and sport from a parental perspective. Data in the 2024 ParticipACTION Report Card on Physical Activity for Children and Youth represent data collected in spring 2022. Respondents (n= ~5,000) are adults 18 years or age and older who are parents or legal guardians of children and youth between the ages of five and 17 years.
- Opportunities for Physical Activity at School Study (OPASS): The OPASS assesses opportunities for physical activity and sport through the school system. It collects cross-sectional data on policies and programs available at school to support participation. School administrators from across Canada were invited to complete and return a questionnaire that was mailed to a random selection of schools. The survey was conducted by the CFLRI, in partnership with Physical and Health Education (PHE) Canada, with funding support from the Government of Canada.
- Survey of Physical Activity Opportunities in Canadian Communities (SPAOCC): The SPAOCC measures opportunities for physical activity and sport in local communities. It collects cross-sectional data on policies, programs, services and infrastructure that support healthy, active lifestyles. All municipal administrators across Canada are invited to complete and return a mailed questionnaire. The final sample included approximately 900 communities.

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