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## About The Report Card

The ParticipACTION Report Card on Physical Activity for Children and Youth is the most comprehensive assessment of child and youth physical activity in Canada. The Report Card synthesizes data from multiple sources, including the best available peer-reviewed research, to assign evidence-informed grades across 14 indicators.

For the first time, the Report Card includes an *Expert Statement on Physical Activity and Brain Health for Children and Youth* that highlights the benefits physical activity has on kids' most vital and complex organs – the brain.

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## Cover Story

**Canadian kids need active bodies to build their best brains.**

All kids deserve to thrive in mind and body. But in order for them to reach their full mental, emotional and intellectual potential, their bodies have to move to get the wheels in their brains turning.

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# Indicators & Grades

Grades are determined by the best available data, research and key issues from the past year.

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# Indicators & Grades

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# Methodology

- The ParticipACTION Report Card synthesizes data from multiple data sources and the research literature.
- 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 to be poor, adequate, good or excellent:
  - A = We are succeeding with a large majority of children and youth.
  - B = We are succeeding with well over half of children and youth.
  - C = We are succeeding with about half of children and youth.
  - D = We are succeeding with less than half, but some, children and youth.
  - F = We are succeeding with very few children and youth.
- Key considerations include trends over time and the presence of disparities.
- National data take precedence over sub-national and regional data, and objectively measured data take precedence over subjectively measured data.

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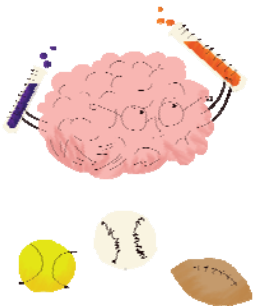
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## Indicators

- ★ Overall Physical Activity
- ★ Active Play & Leisure Activities
- ★ Physical Education
- ★ Active Transportation
- ★ Sedentary Behaviours
- ★ Organized Sport Participation
- ★ Sleep
- ★ 24-Hour Movement Behaviours
- ★ Physical Literacy
- ★ Physical Fitness
- ★ Family & Peers
- ★ School
- ★ Community & Environment
- ★ Government



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## Daily Behaviours

### OVERALL PHYSICAL ACTIVITY

D+

- ★ 35% of 5- to-17-year-olds meet the physical activity recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (2014-15 CHMS, Statistics Canada). Custom analysis
- ★ 62% of 3- to 4-year-olds meet the physical activity recommendation within the Canadian 24-Hour Movement Guidelines for the Early Years (2009-11, 2012-13 and 2014-15 Canadian Health Measures Survey (CHMS), Statistics Canada).<sup>57</sup>



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### RESEARCH GAPS

- ★ A better standardization and harmonization of objective physical activity assessment is needed in order to make more direct comparisons of physical activity levels across studies and populations.
- ★ National data are needed on physical activity levels and guideline adherence in Canadian infants and toddlers.
- ★ National physical activity data on children and youth with Indigenous heritage is also needed.

### RECOMMENDATIONS

- ★ When developing strategies aimed at increasing physical activity, focus on reducing inequalities by targeting “high-risk” segments of the population (e.g., teenage girls, racial/ethnic minorities, low-income families).
- ★ Promote MVPA among preschoolers, especially in light of its inclusion in the new Canadian 24-Hour Movement Guidelines for the Early Years.<sup>53</sup>

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## Daily Behaviours

### SEDENTARY BEHAVIOURS



- The proportion of children and youth in Canada meeting the screen time recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth varies considerably (6-54%) by dataset and age group.
- 24% of 3- to 4-year-olds in Canada meet the screen time recommendation within the Canadian 24-Hour Movement Guidelines for the Early Years (2009-11, 2012-13 and 2014-15 CHMS, Statistics Canada).<sup>57</sup>

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### RESEARCH GAPS

- Future research should focus on developing interventions to engage children and youth in regular light-intensity physical activity in place of sedentary behaviour.<sup>171</sup>
- More research that differentiates screen (e.g., TV viewing, smartphone use) and non-screen (e.g., reading, colouring) pursuits is needed in order to better understand their independent contributions to sedentary behaviour.<sup>174,175</sup>
- There is a lack of research on sedentary behaviour in infants and toddlers.<sup>176</sup>
- More research is needed on the health consequences of using multiple screens simultaneously.
- More research is needed on passive commuting and sitting time at school.

### RECOMMENDATIONS

- Parents should develop a family media plan that details where, when and how screens may and may not be used.<sup>180</sup>
- Parents should remove screens from children's bedrooms, where they are most likely to lead to reduced sleep.<sup>181</sup>
- Parents should also limit their own screen time to role model for their children.<sup>182</sup>

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## Daily Behaviours

### SLEEP



- Approximately three quarters of school-aged children and youth in Canada meet the sleep recommendation within the Canadian 24-Hour Movement Guidelines for Children and Youth (2014-15 CHMS, Statistics Canada).<sup>Custom analysis</sup>
- 84% of 3- to 4-year-olds in Canada meet the sleep recommendation within the Canadian 24-Hour Movement Guidelines for the Early Years (2009-11, 2012-13, 2014-15 CHMS, Statistics Canada).<sup>57</sup>

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**RESEARCH GAPS**

- Only self- or proxy-reports are used for surveillance of sleep in Canada. Objective measures are needed to better assess sleep health of Canadians.
- The key characteristics of sleep health are sleep duration, sleep quality, sleep timing, sleep duration variability and sleep hygiene.
- Sleep questions for use in population health surveys should be updated to reflect new research.
- More research on napping as it relates to sleep and health outcomes is needed for young children.
- Research that can better inform the sleep consistency piece of the Canadian 24-Hour Movement Guidelines for the Early Years is needed.

**RECOMMENDATIONS**

- Ensure children go to bed and wake up at consistent times that allow them to obtain age-appropriate amounts of sleep.
- Establish consistent bedtime routines.
- Limit access to electronics during and after bedtime by removing these devices from children's bedrooms.
- Delay school start times for adolescents – even by as little as 30 minutes – as a countermeasure to chronic sleep deprivation.
- We should all take sleep more seriously in our busy, work-obsessed society.

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**Daily Behaviours**



**24-HOUR MOVEMENT BEHAVIOURS**

**F**

- 15% of children and youth in Canada meet all three recommendations within the Canadian 24-Hour Movement Guidelines for their age group (2014-15 CHMS, Statistics Canada). Custom analysis
- 13% of 3- to 4-year-olds in Canada meet all three recommendations of the Canadian 24-Hour Movement Behaviours for the Early Years (2009-15 CHMS, Statistics Canada).<sup>57</sup>

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**RESEARCH GAPS**

- Research is needed that examines the impact of combinations of movement behaviours on health indicators over time.<sup>235</sup>
- Research is needed that examines intermediate combinations of movement behaviours (e.g., high physical activity + high sleep + low sedentary behaviour vs. low physical activity + high sleep + low sedentary behaviour).<sup>235</sup>
- Research is needed that further divides light physical activity into low and high, or measures sedentary behaviour with alternative devices, such as inclinometers that better classify postures, in order to examine if associations with health indicators differ.<sup>235</sup>

**RECOMMENDATIONS**

- It is important for parents, teachers and clinicians to recognize that a child or youth's level of physical activity, sedentary behaviour and sleep all contribute to their overall health and well-being.
- Preserving sufficient sleep, trading indoor time for outdoor time and replacing sedentary behaviours and light physical activity with additional MVPA can provide greater health benefits.<sup>52</sup>

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## Implications

**Is inactive modern living hindering our children's ability to develop optimally and perform well in all aspects of life?**

- ✦ Have we created physical and social environments that no longer promote physical activity to the point that they are negatively impacting the brain health of our children and youth?
- ✦ This is something that society—parents, governments, healthcare professionals, non-profits—should seriously consider.

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## Expert Statement on Physical Activity and Brain Health



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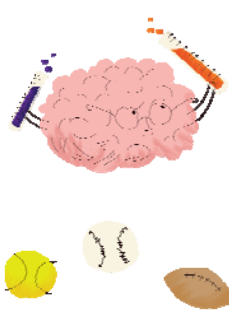
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## Creating a Knowledge Product

- ✦ Expert Panel established
- ✦ Gap and research question(s) identified
- ✦ Relevant evidence was searched, reviewed, and synthesized (resulting in 6 systematic reviews!)
- ✦ Public-facing knowledge product was created based on synthesized evidence
- ✦ Multi-layered messaging and dissemination plan were developed
- ✦ Various stakeholders were engaged throughout the entire process (and continue to be)



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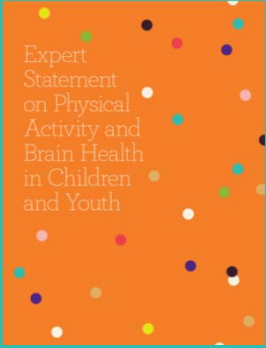
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Expert Statement on Physical Activity and Brain Health in Children and Youth

For better brain health, *all* children and youth should be physically active on a regular basis. In addition to physical health benefits, physical activity also improves cognition, brain function and mental health.

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## Application

- This *Expert Statement* applies to all children and youth (under 18 years), including those with brain-based disabilities, regardless of sex, cultural background or socioeconomic status.

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## The Brain + Body Equation

**KIDS NEED TO BE ACTIVE. THEIR BRAIN HEALTH DEPENDS ON IT.**

For decades, we've known that physical activity improves heart health, helps maintain healthy body weights and builds strong bones and muscles in kids across a range of skills and abilities. But we may have been overlooking what physical activity does for one their most vital and complex organ: the brain.

**It's time for them to drop the phones, get off the couch and break a sweat – now more than ever.**

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## Cognition, Brain Function & Structure

- \* **Moving > Cramming**
  - \* Students who exercise before a test show stronger brain function than those who are less active.<sup>26</sup>
  - \* Children with poor aerobic fitness appear to have more difficulty solving problems.<sup>27-29</sup>
- \* **Busy Bodies = Bigger Brains**
  - \* Sections of the brain dedicated to memory and learning are larger in active children in comparison to their less active peers.<sup>31</sup>
  - \* Being physically active can boost memory in children and youth,<sup>32,33</sup> including those with some brain-based disabilities.<sup>34,35-37</sup>
- \* **Active Bodies → Innovative Ideas**
  - \* Active kids are better equipped to get creative.<sup>30</sup>
- \* **Zooming Around Helps Them Zoom In!**
  - \* Kids who participate in physical activity have more focused and longer attention spans, compared to their less active peers.<sup>32,33</sup>

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## Cognition, Brain Function & Structure

+ Adding more physical activity to kids' routines could be the missing part of the equation in support of their success in the classroom, on the field and with their friends.

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## Mental Health

- \* **Breaking a Sweat Releases Happy Hormones ∴ Kids Who Move Feel Great**
  - \* Kids who are active experience the same rush of feel-good brain chemicals.<sup>37</sup>
  - \* Children and youth who are fit benefit from this rush of chemicals and experience fewer depression-related symptoms than those who are not fit.<sup>35,36</sup>
  - \* Kids with brain-based disabilities are at an increased risk for mental health problems, so they have even more to gain from getting, and staying, active.<sup>31</sup>
- \* **Movement = ↓ Symptoms of Anxiety**
  - \* Evidence suggests that physical activity may help lower feelings of anxiety in children and youth.<sup>39,40</sup>
- \* **Movement = ↓ Stress**
  - \* Kids who are less active have measurably higher levels of the stress hormone cortisol.<sup>43</sup>
  - \* Being active not only appears to bolster kids' resiliency when they are dealing with stress, but it appears to help them recover from stressful situations faster.<sup>42</sup>
- \* **Movement = ↑ Self-Esteem**
  - \* Getting active can be a protective tool to bolster kids' self-esteem, confidence and self-worth.<sup>20</sup>
  - \* Real-world physical activity can distract them from these virtual experiences that could erode how they perceive themselves.<sup>45</sup>

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## Mental Health

+ Boosting kids' physical activity levels could be the missing part of the equation in supporting their mental health.

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## Physical Activity Recommendations for Brain Health

- Children and youth should be encouraged to participate in at least the daily minimum of physical activity recommended by the Canadian 24-Hour Movement Guidelines.
  - However, some physical activity is better than none.
- The benefits of physical activity can build over time.
  - While some of the effects of physical activity are immediate, participation in regular physical activity supports long-term brain development and better mental health.
- Physical activity can increase neuroplasticity
  - Physical activity can help create new pathways in their brains and supporting better learning.
  - It also improves brain blood flow, which increases the amount of oxygen flowing to the brain, and releases neurotrophins and neurotransmitters that support better brain function.
- Children and youth with brain-based disabilities should be encouraged to engage in daily physical activity for improved brain health.

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## Physical Activity among Children with Neurodevelopmental Disabilities

- With the prior approval of their healthcare provider, children and youth with brain-based disabilities should be encouraged to engage in a variety of activities at various intensities that are fun for them and appropriate for their skill-level and abilities.
- Supportive, accepting and modified environments, developmentally appropriate equipment, and trained coaching staff are essential.
- Promoting daily physical activity among children and youth with brain-based disabilities will help foster feelings of happiness and mental wellness,<sup>93,94,95</sup> as well as improve executive function.
- Physical activity can also improve sleep, a particular benefit to children and youth with brain-based disabilities, who often experience sleep problems that can greatly hinder their quality of life.

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## Tips to Promote Brain Health

**PARENTS & FAMILY**

- Encourage children and youth to meet the daily physical activity guidelines for their age, and support them in their efforts.
- Promote age-appropriate outdoor play as a way of improving decision making, problem-solving and self-confidence.
- Become aware of sport and physical activities that are appropriate for the skill level and abilities of children and youth.
- Learn about funding opportunities for participation in sports and recreation activities by children and youth.
- Explain the child's strengths and needs to local physical activity and recreation providers so the instructors have the knowledge required to ensure an inclusive environment/experience.
- Be active as a family. This encourages physical activity, togetherness, social support and connectedness, which are all important for good mental health.
- Seek out quality programming with trained instructors that support physical literacy.

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## Tips to Promote Brain Health

**HEALTHCARE PROFESSIONALS**

- Recommend children and youth meet the Canadian physical activity guidelines to promote good brain health.
- Recommend and/or "prescribe" physical activity to complement the prescribed medical course of treatment for anxiety, depression and focus-related conditions (such as ADHD) among children and youth.<sup>103</sup>
- Be familiar with community-based inclusive programming (e.g., Special Olympics, ParaSport programs, disability-specific sporting organizations).
- Share information with community physical activity and recreation providers to help them better support children and youth with brain-based disabilities.
- Assist families with funding requests for specialized adapted sports equipment if required for independent participation.

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## Tips to Promote Brain Health

**EDUCATORS**

- Provide daily opportunities for physical activity and active play during school and childcare hours.
- Include active learning strategies in daily school curriculum and childcare programming.
- Interrupt long periods of sitting with active breaks.
- Educate children, youth and families that regular physical activity is good for the brain as well as the body.
- Avoid using the removal of opportunities for physical activity and outdoor play as punishment.
- Be informed about adaptations/modifications to physical education curriculum (e.g., FUNdamentals through Special Olympics, Canadian Paralympics Committee FUNdamental resource, ParaSport education and awareness opportunities) to increase inclusivity and participation.
- Personalize physical activity programs for children and youth with brain-based disabilities using a strength-based approach.

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## Tips to Promote Brain Health

### RECREATION, COACHING AND COMMUNITY REPRESENTATIVES

- Support the availability of specially trained staff and settings that facilitate physical activity for all children and youth, including those with disabilities.
- Encourage the development of inclusive and universally designed play opportunities, resources and spaces.
- Provide personalized, accepting and respectful play environments for all children and youth, including children with brain-based disabilities.
- Foster the growth and development of specialized and inclusive programming.
- Seek funding opportunities to support the development of inclusive and accessible programming for children and youth with disabilities.
- Provide programming during optimal timeslots for parents and their children and youth with disabilities.
- Create positive awareness and introductory events to introduce children and youth to available programming.
- Communicate with families and community members to ensure they are aware that children and youth with brain-based disabilities are welcome to participate in programs.
- Ensure instructors and coaches are trained in promoting physical literacy and strength-based programming.

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## Tips to Promote Brain Health

### RECREATION, COACHING AND COMMUNITY REPRESENTATIVES

- Support the availability of specially trained staff and settings that facilitate physical activity for all children and youth, including those with disabilities.
- Encourage the development of inclusive and universally designed play opportunities, resources and spaces.
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- Communicate with families and community members to ensure they are aware that children and youth with brain-based disabilities are welcome to participate in programs.
- Ensure instructors and coaches are trained in promoting physical literacy and strength-based programming.

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## Tips to Promote Brain Health

### GOVERNMENT OFFICIALS

- Recognize physical activity as both a physical, cognitive and mental health promotion strategy at a population level.
- Continue to legislate and create policies that encourage and/or mandate physical activity during school and childcare hours.
- Provide additional funding and subsidies for low-income families as well as families with children and youth with disabilities, to help decrease barriers to participation.
- Recognize the need for, and provide additional funding for, specialized staff training and increased programming options/resources (e.g., community organizations, healthcare facilities).
- Provide training opportunities for educators about active learning strategies.
- Allocate additional granting opportunities to service providers to increase inclusion and accessibility.
- Provide increased funding for inclusive indoor and outdoor play spaces and equipment.
- Support awareness and education campaigns about the benefits of physical activity for child and youth brain health across all levels of abilities.

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## Research Gaps and Future Direction

- More studies are needed to look at the long-term effects of physical activity on child and youth brain development.
- More research examining the impact of physical activity on the mental health outcomes of children and youth with brain-based disabilities is needed.
- A more focused look at the relationship between physical activity and brain health across all disability categories is necessary.
- Further investigations into the development of physical literacy for long-term physical activity and its impact on brain health (especially cognitive function) are needed.
- Additional research is needed to explore the impact of physical activity on social inclusion for children and youth with and without brain-based disabilities.

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## Research Gaps and Future Direction

- More information is needed on the types of physical activities (e.g., individual activities, group activities, indoor/outdoor activities, activities with therapy animals, water-based activities) that are associated with the greatest benefits in children and youth with and without brain-based disabilities.
- More research is needed to explore the impact of physical activity on brain health in younger children (under 6 years).
- More collaborations are required with end/knowledge users and front-line staff to bring research to practice, and practice to research (e.g., evidence-based programs, clinician training).

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## Tools & Resources (En/Fr)

- 2018 ParticipACTION Report Card – Highlight Report
- 2018 ParticipACTION Report Card – Full Report
- The Expert Statement on Physical Activity and Brain Health for Children and Youth
- Past Report Cards
- PowerPoint presentation
- Media materials
- Social media kit
- Infographic



All creative assets and content were tailored to individual end users and delivered through various channels.

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