



WellSpring

Sharing physical activity knowledge

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The brain + body equation: Canadian kids need to move more to boost their brain health

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The science is in: **Kids + Steps + Sweat = Healthier Brains**

For decades we have known that physical activity improves heart health, helps maintain healthy body weight, and builds strong bones and muscles in children and youth across a range of skills and abilities.¹⁻⁴ Now we are taking a closer look at what physical activity does for one of their most vital and complex organs: the brain.

The data around physical activity are alarming. On average, kids are still sitting too much and moving too little to reach their full potential.

Only 35% of 5- to 17-year-olds are reaching their recommended physical activity levels as outlined in the Canadian 24-Hour Movement Guidelines for Children and Youth.⁵ Just 62% of 3- to 4-year-olds are achieving the recommended activity levels for their age group. In addition, 51% of 5- to 17-year-olds and 76% of 3- to 4-year-olds are engaging in more screen time than is recommended by the Canadian 24-Hour Movement Guidelines for recreational screen-based sedentary behaviours.^{5,6}

There are important connections between the health of the body and of the brain, connections that must be fostered in order for kids to reach their mental, emotional and intellectual potential. Kids' bodies have to move to get the wheels in their brains turning. They need to be active. Their brain health depends on it.

A growing body of evidence indicates that physical activity in childhood is essential for a healthy brain and leads to improved:

- thinking and learning
- emotional regulation and self-control
- problem-solving ability
- memory
- stress management
- self-esteem and self-worth
- brain plasticity — the growth of new brain tissue
- ability to cope with anxiety and depressive symptoms
- attention and focus

S U M M A R Y

The 2018 ParticipACTION Report Card on Physical Activity for Children and Youth highlights the important relationship between physical activity and brain health. Achieving physical activity recommendations can translate to success in the classroom, on the field, and with friends.

This WellSpring focuses on the importance of this relationship and provides an overview of the 2018 Report Card grades.

Expert statement on physical activity and brain health for 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 brain function, cognition and mental health.

A team of experts in paediatric neuroscience and exercise science created this *Expert Statement*, looking at the relationship between physical activity and brain health in children and youth. The best available scientific evidence was used to inform the development of this report.

While the physical health benefits of childhood physical activity are well known (e.g., improved heart, bone and muscle health; prevention of type 2 diabetes), a growing body of research has begun to examine the benefits of childhood physical activity in relation to brain health. Emerging evidence suggests that physical activity in childhood and adolescence is associated with better cognition (i.e., thinking and learning),⁷⁻¹¹ brain function (i.e., how the brain works)¹²⁻¹⁵ and mental health (i.e., emotional, psychological and social well-being).^{3,16-23}

The landscape of preventable chronic disease among children and youth is changing—and not for the better. The prevalence of overweight and obesity,²⁴ diabetes,²⁵ and use of health services for mental illness is high.²⁶

Further, there is a lack of appropriate and/or modified equipment, as well as few professionals who are prepared or trained to promote physical activity among children and youth with brain-based disabilities.

How does physical activity help the brain?

Cognition, brain function and brain structure

The current state of evidence highlights that many studies find favourable relationships between physical activity and cognition.^{7,12,27} Most studies support a positive relationship between physical activity and brain function and structure.^{28,29}

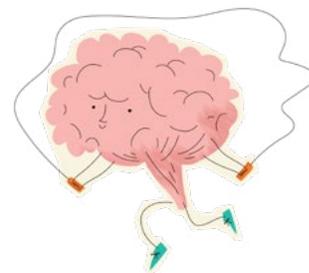
Physical activity plays an important role in helping children and youth learn better, solve problems more creatively, and develop healthier brains. Children and youth who are least active or who have brain-based disabilities may have the most to gain.

Mental health

Overall, physical activity supports and encourages mental and emotional wellness.

Collectively, the research indicates that physical activity plays a key role in preventing and reducing symptoms of depression and anxiety,^{3,16, 30-32} in helping with stress management,²⁰ and in improving self-esteem in children and youth.^{23,33,34} Although initial evidence is promising, additional work is needed to clarify and confirm the relationship between physical activity and mental health in children and youth with brain-based disabilities.

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.



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



Physical activity recommendations for brain health

Overall, for healthy brain development, children and youth should aim to participate in at least the daily minimum of physical activity recommended by the Canadian 24-Hour Movement Guidelines.^{5,6} But always remember: some physical activity is better than none.

With the 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 and appropriate for their skill level and abilities. Supportive, accepting, and modified environments (inclusive of the right equipment and trained coaching staff) are essential.



Educators

- Provide daily opportunities for physical activity and active play during school and childcare hours.
- Interrupt long periods of sitting with active breaks.
- Avoid using the removal of opportunities for physical activity and outdoor play as punishment.

Health care 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.
- Be familiar with community-based inclusive programming.

Coaches

- 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.
- Foster the growth and development of specialized and inclusive programming.

Results from the 2018 Report Card

In 2018, there were generally small changes to indicator grades. Among the daily behaviour indicators (Overall Physical Activity, Active Play & Leisure Activities, Active Transportation, Organized Sport Participation, Physical Education, Sedentary Behaviours, Sleep, 24-Hour Movement Behaviours), most grade changes were small and due to adjustments to the grading scheme. A majority of children and youth in Canada are not getting at least 60 minutes of daily, moderate- to vigorous-intensity physical activity.^{35,36}

Among the sources and settings of influence indicators (Family & Peers, School, Community & Environment), the grade for School dropped from a B to a B- due to the high proportion of schools in Canada with only partially implemented physical activity-related policies (e.g., Physical Education and Daily Physical Activity).³⁷ The grade for Community & Environment dropped from an A- to a B+ owing to new data showing that many municipalities in Canada have important infrastructure needs (e.g., maintenance, repair and/or improvements to trails, paths and facilities).³⁸

Grades for all indicators include:

Daily Behaviours

- Overall Physical Activity: D+
 - Active Play & Leisure Activities: D
 - Active Transportation: D-
 - Organized Sport Participation: B
 - Physical Education: C-
- Sedentary Behaviours: D
- Sleep: B+
- 24-Hour Movement Behaviours: F

Individual Characteristics

- Physical Literacy: D+
- Physical Fitness: D

Settings & Sources of Influence

- Family & Peers: C+
- School: B-
- Community & Environment: B+

Strategies & Investments

- Government: C+

The sole strategies and investments indicator in the 2018 Report Card (Government) dropped from a B- to a C+ due to there being little evidence that federal efforts to increase physical activity support will impact child and youth physical activity directly.

Overall, results are similar to previous years in that there are generally good grades for indicators relating to sources and settings of influence and investment and infrastructure, and poor grades for behavioural indicators. Several new indicators appear in the 2018 Report Card including Physical Education, 24-Hour Movement Behaviours and Physical Fitness.

Recommendations

What can you do to improve the results of the Report Card and help kids sit less and move more? ParticipACTION has developed support materials to help you use the Report Card now and in the coming months, to facilitate your efforts to “improve the grades.”

Currently, the following tools are available:

- 2018 ParticipACTION Report Card — Highlight Report
- 2018 ParticipACTION Report Card — Full Report
- Expert Statement on Physical Activity and Brain Health for Children and Youth
- Links to background research papers for the Expert Statement on Physical Activity and Brain Health for Children and Youth
- Past Report Cards
- PowerPoint presentation
- Media materials
- Social media kit
- Infographic

About the 2018 Report Card

ParticipACTION relies on its strategic partner, the Children’s Hospital of Eastern Ontario Research Institute’s Healthy Active Living and Obesity Research Group (CHEO-HALO), to research, develop, and communicate the Report Card. Production of the ParticipACTION Report Card has been made possible through financial support from Days Inn. Additional support is provided by provincial and territorial governments through the Interprovincial Sport and Recreation Council.

To download the 2018 ParticipACTION Report Card Highlight Report, including the Expert Statement on Physical Activity and Brain Health for Children and Youth, or the full report, please visit www.participaction.com/reportcard.

You can also reach out to us on social media (@ParticipACTION on both Facebook or Twitter) and via email (info@participaction.com).

References for this issue can be found on ACAL’s website at:
www.centre4activeliving.ca/news/2018/07/brain-body-equation/

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