

The National Physical Activity Measurement Study of Children and Youth with Disabilities in Canada

FINAL STUDY REPORT

2023



UNIVERSITY OF
TORONTO



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PREFACE

The National Physical Activity Measurement (NPAM) study was designed to capture the typical movement behaviours (i.e., physical activity, sedentary behaviour, and sleep) of Canadian school-aged children and youth (ages 4 to 17 years) with any type of disability.

Data for the NPAM study were collected using three different methods:

1) Parent Survey

Parents completed an online survey. The online survey consisted of standardized measures of their child's daily physical and sedentary activities and well-being, and how they support their child's involvement in physical activity.

2) Fitbit® and Accelerometers

Children and youth wore a Fitbit® for 30 days and kept a daily log of their wear time. The Fitbit® provided daily minute-by-minute heart rate and step count data. Given the novelty of wearable activity monitors, such as the Fitbit®, among children and youth with disabilities, accelerometers were worn by a subsample of participants to conduct validation work.

3) Youth Survey

Youth over the age of 10 years were also given the opportunity to complete the survey. This survey consisted of similar items to the parent survey. In 2022-2023, the completion of surveys by both parents and youth were emphasized to obtain a sample of parent-child dyads.

This report provides an overview of the study timeline, sample demographics, main findings and research outputs.

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Canadian Disability Participation Project

SPECIAL THANKS

Thank you to the researchers, research assistants, collaborators, and participants who made this project possible.

CITATION

The University of Toronto. (2023). National Physical Activity Measurement Study: Final Research Report. The University of Toronto, Toronto, ON, Canada.

CONTACT

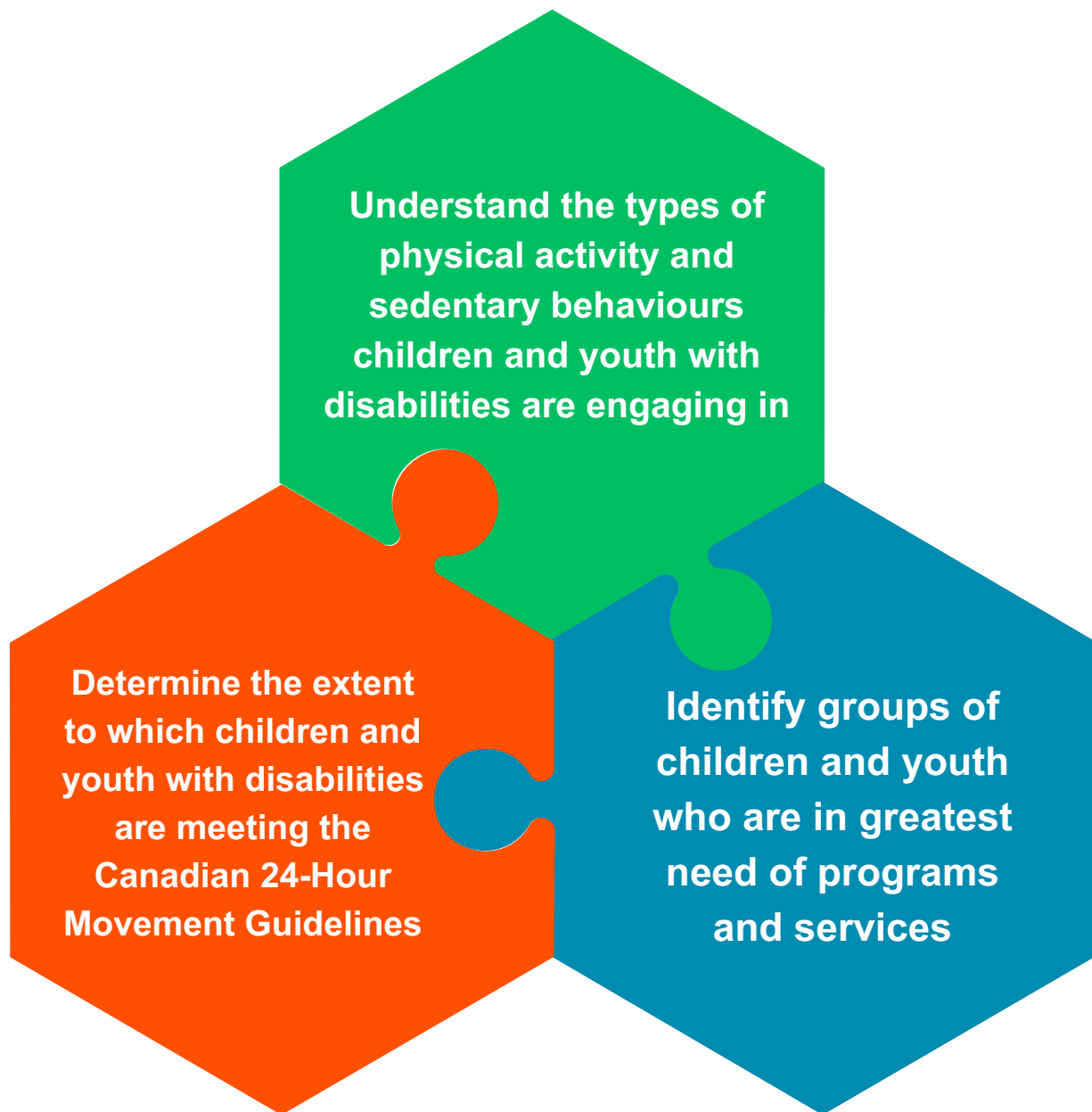
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This report is also available on the Canadian Disability Participation Project's website: www.cdpp.ca



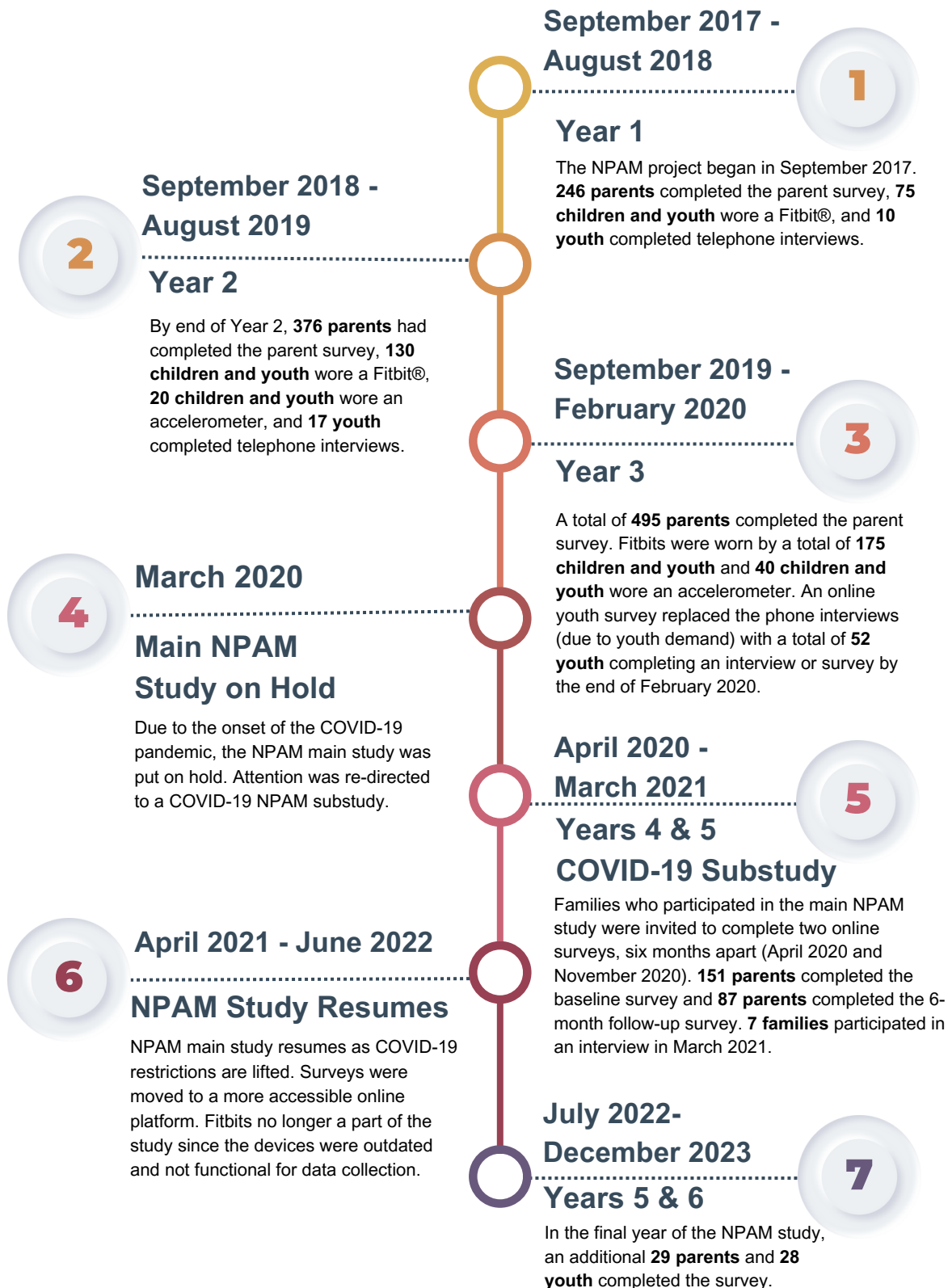
RESEARCH AIMS

The overarching goal of the NPAM study was to produce the first generalizable data in Canada on the 24-hour movement behaviours and guideline achievement of school-aged children and youth with disabilities. Specifically, the NPAM study aimed to:



STUDY TIMELINE

The NPAM study began in September 2017 and was originally intended to be a 5-year project. Due to the onset of the COVID-19 pandemic in March 2020, the project was put on hold and the timeline was extended by an additional 1 year. Below is a timeline detailing the research activities from 2017-2023.

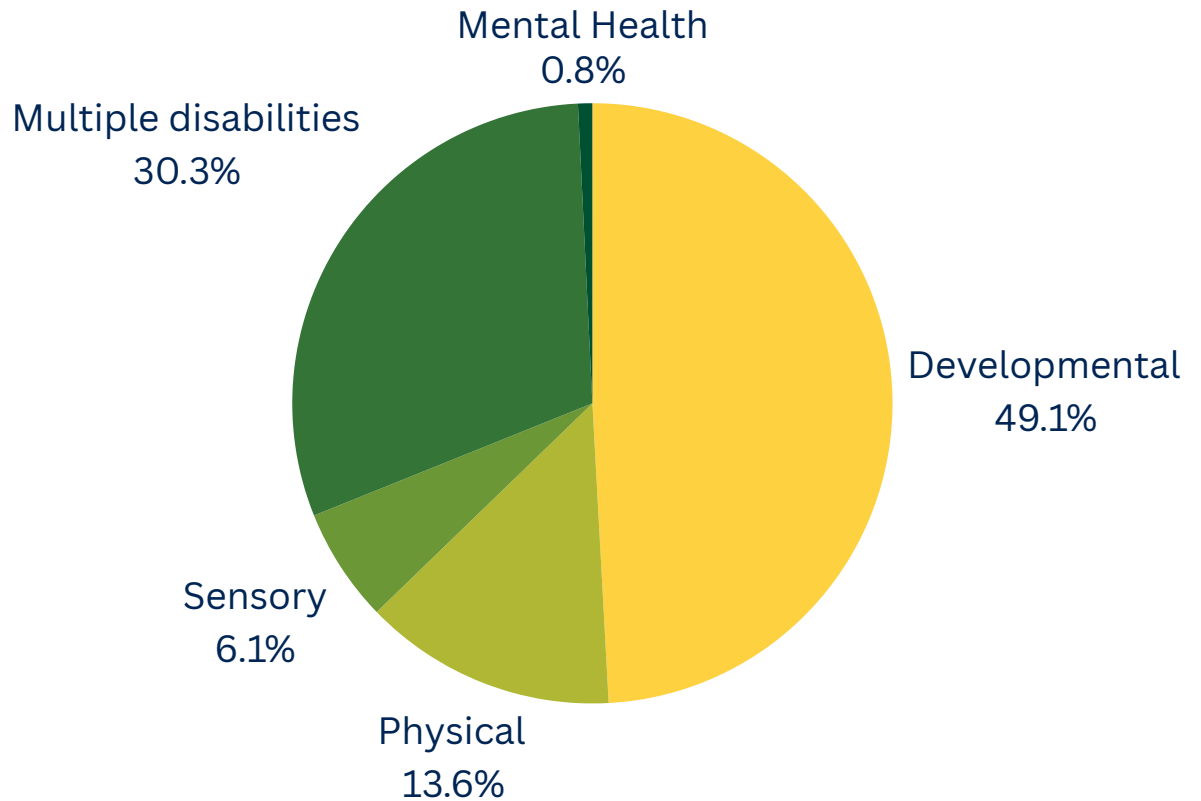


PARTICIPANT DEMOGRAPHICS

A total of 601 surveys were completed as part of the NPAM study. Below is a summary of the demographic characteristics of the children and youth reported in the parent survey (N = 521).



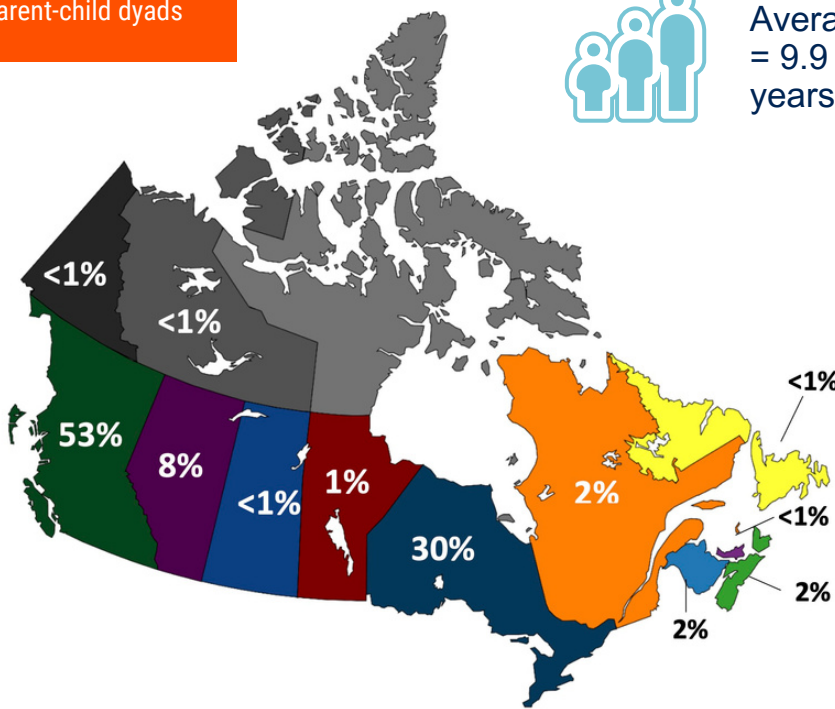
Disability Type



Average Age = 9.9 ± 3.3 years



363 boys, 154 girls, 4 transgender



The NPAM sample included families of children and youth with disabilities from across Canada, with the majority residing in British Columbia and Ontario.

SURVEY MAIN FINDINGS

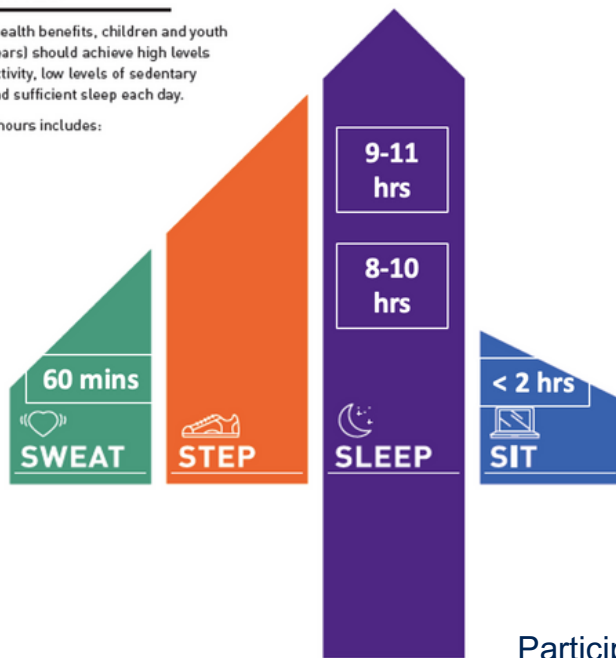
The primary objective of the NPAM study was to examine the movement behaviours (i.e., physical activity, sedentary behaviours and sleep) of children and youth with disabilities in Canada. Below is a summary of the percentage of children and youth meeting the Canadian 24-Hour Movement Guidelines.

MEETING MOVEMENT BEHAVIOUR GUIDELINES

GUIDELINES

For optimal health benefits, children and youth (aged 5–17 years) should achieve high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day.

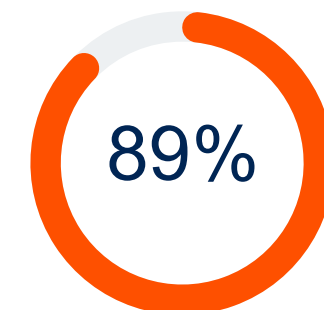
A healthy 24 hours includes:



PHYSICAL ACTIVITY ('SWEAT')

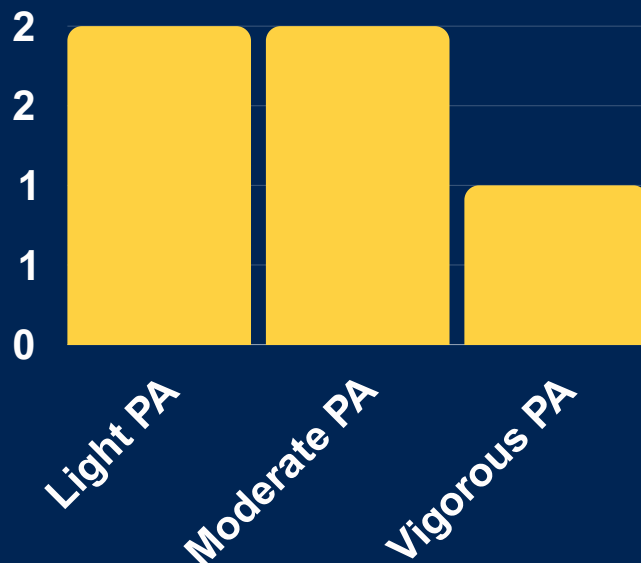


SEDENTARY BEHAVIOUR ('SIT')



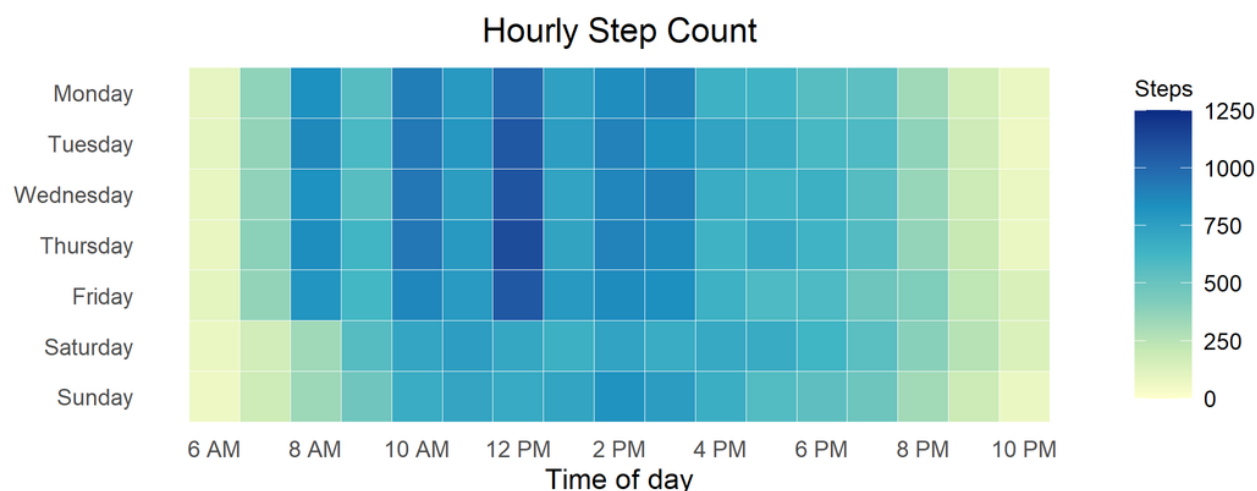
SLEEP

Average Days Per Week Engaging in Light, Moderate and Vigorous Physical Activity (PA)

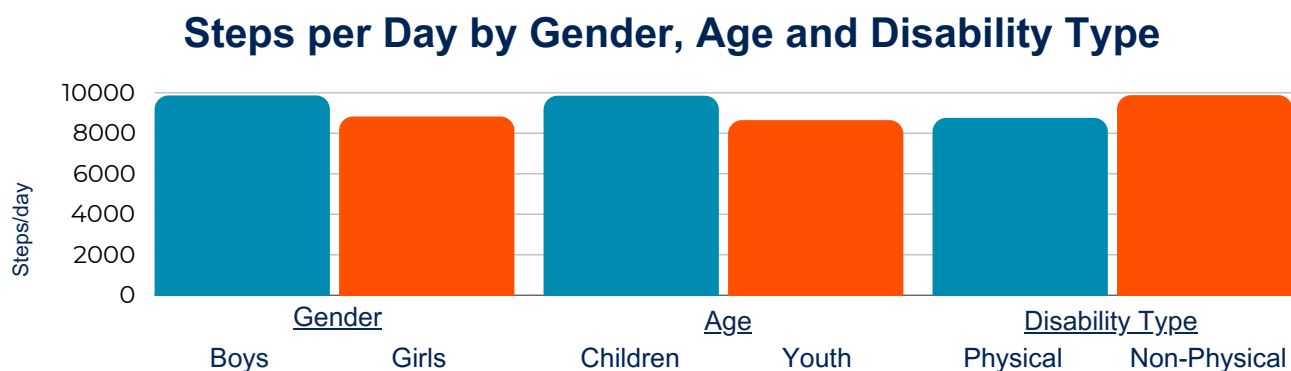


FITBIT MAIN FINDINGS

A secondary aim was to examine the acceptability, feasibility and validity of the Fitbit® for measuring physical activity levels in children and youth with disabilities. A subsample of 157 children and youth wore a Fitbit® for 28 consecutive days to collect daily step count. Below is a summary of the data collected using Fitbits. Note: Fitbit® data were collected prior to the onset of the COVID-19 pandemic.



 Average daily steps = 9953  Average wear time = 15.5 hrs/day



Note: Less than 5 participants identified as transgender, which is the minimum number of people required to calculate average values without revealing anyone's identity.

Key Takeaways



Fitbits can detect group differences to what is seen within child and youth populations.



Fitbits are feasible for monitoring physical activity among ambulatory children and youth with disabilities



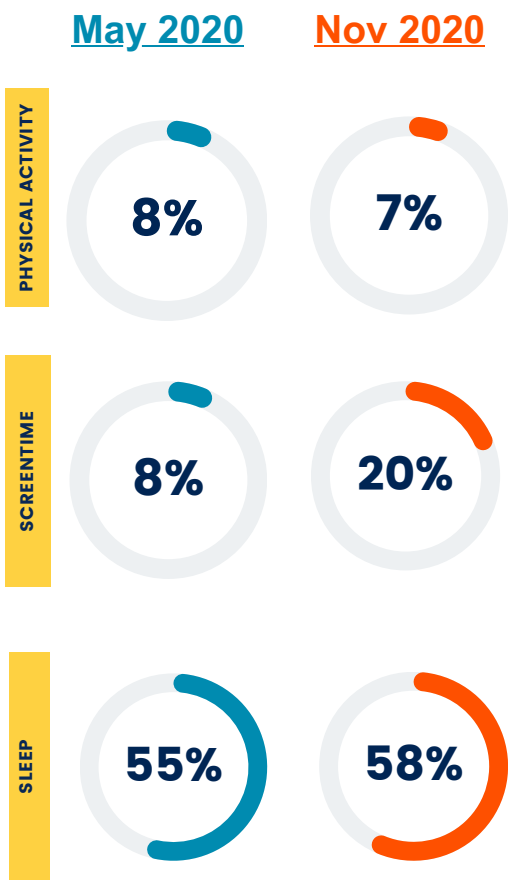
Intraday analysis of step counts indicates opportune days and times to intervene

*Full study results are provided in Bremer et al. (2023)

COVID-19 SUB STUDY

A substudy was done to examine the movement behaviours of the children and youth who had previously participated in the NPAM study. A parent survey was administered at two time points (May 2020 and November 2020) and interviews were completed with parent-child dyads in the Winter 2021. Study results were used in the creation of evidence-informed recommendations for building back better healthy movement opportunities for children and youth with disabilities in Canada.

% MEETING GUIDELINES



IDENTIFIED THEMES IMPACTING FAMILIES DURING COVID-19



Recommendations for Building Back Better Health Movement Behaviours

Intentional focus on quality programming

Training of coaches and instructors


(Re)construction of accessible and inclusive infrastructure

Family-centred health practices

*see Arbour-Nicitopoulos et al., 2021 for full results from the COVID-19 substudy

KNOWLEDGE OUTPUTS

The NPAM project has led to over 60 knowledge translation outputs which have included academic publications and presentations, and public facing documents. The NPAM database continues to be used to conduct secondary analyses of the data for publication and presentation.

27 

Peer-reviewed papers
and abstracts in
academic journals

34 

Academic & broader
community presentations

3 

Student thesis
projects

Online now.

**Canadian Physical Activity Report Card for
Children and Adolescents with Disabilities**

cdpp.ca

The NPAM study dataset was one of four national datasets used to create the first-ever Canadian Physical Activity Report Card for Children and Adolescents with Disabilities

*Click [here](#) for the full list of knowledge translation outputs

IMPLICATIONS

1

Multiple methods required for high-quality movement data

Our intentional use of parent and youth surveys and device-based measures aimed to respect the diversity within which children and youth with disabilities communicate, move and think, with the ultimate goal of enhancing NPAM's representation of families experiencing childhood disability in Canada. Our team being a 'go-to' resource for many researchers and disability and sport organizations on how to tailor their evaluation and research methods to enhance the representation of persons with disabilities within their projects.

3

Disparities in physical activity within childhood disability

Girls were shown to accumulate fewer daily steps and less likely to meet the physical activity guideline than boys. No notable race and ethnicity differences in physical activity participation were shown, however this may be due to the relatively small representation (30%) of BIPOC children and youth within the NPAM sample. These findings reiterate the World Health Organization's call for more coordinated national evidence data systems on physical activity to prioritize efforts to address disparities and reduce inequalities.

2

Prioritizing childhood disability in reporting and surveillance

NPAM data were used in national physical activity report cards and the first Physical Activity Report Card for Children and Adolescents with Disabilities in Canada. These achievements led to invitational membership on the 2024 ParticipACTION Report Card Research Committee. NPAM knowledge outputs have spurred discussion and advocacy around the ableist language and practices that exist within surveillance and reporting mechanisms and the continued need for adequately powered studies to test the optimal balance of movement behaviours in childhood disability.

4

Evidence-informed targets for program evaluation

The NPAM study provides the most comprehensive and generalizable evidence-base of physical activity to date in school-aged children and youth with disabilities in Canada. Community organizations can make use of these data to set priorities for future programming targets to equitably support the health and well-being of children and youth with disabilities.

ACKNOWLEDGEMENTS

We would like to acknowledge ALL of our team members for their valuable and ongoing support on this project. We would not be here without you.

To our community partners - thank you for taking the time to help us with recruitment and reach families across Canada.

To the families who have participated in the NPAM study - your willingness to share your experiences allow us to conduct this research and work toward a more inclusive place for all children and youth, thank you.

Finally, we would like to thank the generous funding and support provided by the Canadian Tire Jumpstart Charities, the Social Science and Humanities Research Council, and the Canadian Disability Participation Project.



**WE THANK YOU
FOR YOUR SUPPORT WITH
THE NPAM STUDY**

KNOWLEDGE TRANSLATION OUTPUTS

REFERENCE LIST

Publications:

1. Bremer E, Arbour-Nicitopoulos KP, Tsui C, Martin Ginis KA, Moore S, Best KL, Voss C. (2023). Feasibility and utility of a Fitbit tracker among ambulatory children and youth with disabilities. *Pediatric Exercise Sciences*. Advance online publication. <https://doi.org/10.1123/pes.2022-0121>
2. Arbour-Nicitopoulos KP, Mitra R, Sharma R, Moore SA. (2023). Physical activity and outdoor 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*, 40(4), 571-586. <https://doi.org/10.1123/apaq.2022-0080>.
3. Ng K, Sit C, Arbour-Nicitopoulos KP, Aubert S, Stanish H, Hutzler Y, Augusto Santos Silva DA, Kang M-G, Francisco Lopez-Gil J, Young Lee E, Asunta P, Pozeriene J, Kazimierz Urbanski P, Aguilar Farias N, Wilson OWA, Reilly J. (2023). A global matrix of para report cards on physical activity of children and adolescents with disabilities. *Adapted Physical Activity Quarterly*, 40(3), 409-430. <https://doi.org/10.1123/apaq.2022-0111>
4. Hutzler Y, Barak S, Aubert S, Arbour-Nicitopoulos KP, Tesler R, Sit C, Augusto Santos Silva D, Asunta P, Pozeriene J, Francisco Lopez-Gil J, Ng K. (2023). "WOT" do we know and do about physical activity of children and adolescents with disabilities: A SWOT-oriented analysis of Para report cards. *Adapted Physical Activity Quarterly*, 40(3), 431-455. <https://doi.org/10.1123/apaq.2022-0123> (Report Card linked to some of our NPAM data)
5. Arbour-Nicitopoulos KP, Kuzik N, Vanderloo LM, Martin Ginis KA, James ME, Bassett-Gunter RL, Ruttle D, DaSilva P, Disimino K, Cameron C, Arthur M, Shikako-Thomas K, Latimer-Cheung AE. (2023). The Canadian report card on the physical activity of children and youth with disabilities. *Adapted Physical Activity Quarterly*, 40(3), 465-474. <https://doi.org/10.1123/apaq.2022-0050> (Report Card linked to some of our NPAM data)
6. O'Rourke RH, Brown D, Martin Ginis KA, Arbour-Nicitopoulos KP. (2022). Mental well-being and ill-being of Canadian children and youth with disabilities. *Canadian Journal of Community Mental Health*, 41(4), 75-103. <https://doi.org/10.7870/cjcmh-2022-033>
7. Sit C, Aubert S, Carty C, Augusto Santos Silva D, Francisco López-Gil J-F, Asunta P, Palad Y, Guisihan R, Min Lee J, Arbour-Nicitopoulos KP, Vanderloo LM, Stanish H, Haegele J, Pozeriene J, Hutzler Y, Ng K. (2022). Promoting physical activity among children and adolescents with disabilities: The translation of policy to practice internationally. *J Journal of Physical Activity and Health*, 19(11), 758-768. <https://doi.org/10.1123/jpah.2022-0351>. (Report Card linked to some of our NPAM data)
8. James ME, Moore S, Bassett-Gunter R, Martin Ginis K, Arbour-Nicitopoulos K. (2022). Examining the relationship between parent physical activity support behaviour and physical activity among children and youth with disabilities during the COVID-19 pandemic. *Disabilities*, 2, 451-461.
9. Arbour-Nicitopoulos KP, James ME, Moore SA, *Sharma R, Martin Ginis KA. (2022). Movement behaviours and health of children and youth with disabilities: Impact of the 2020 COVID-19 pandemic. *Paediatrics & Child Health*, 27(Suppl 1), S66-S71. <https://doi.org/10.1093/pch/pxac007>.
10. Moore SA, Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). Adverse effects of the COVID-19 pandemic on movement and play behaviours of children and youth living with disabilities: Findings from the National Physical Activity Measurement (NPAM) study. *International Journal of Environmental Research and Public Health*, 18, 12950. <https://doi.org/10.3390/ijerph182412950>.
11. Santino N, Arbour-Nicitopoulos KP, Graham J, Sharma R, Bassett-Gunter RL. (2021). Physical activity and loneliness among adolescents with disabilities: Exploring quality physical activity experiences as a possible moderator. *Disability and Health*, 14(3): 101060. <https://doi.org/10.1016/j.dhjo.2021.101060>
12. Brown DM, Arbour-Nicitopoulos KP, Martin Ginis KA, Latimer-Cheung AE, Bassett-Gunter RL. (2020). Examining the relationship between parent physical activity support behaviour and physical activity among children and youth with autism spectrum disorder. *Autism*, 24(7), 1783-1794. <https://doi.org/10.1177/1362361320922658>
13. Bremer E, Martin Ginis KA, Bassett-Gunter RL, Arbour-Nicitopoulos KP. (2020). Factors associated with participation in physical activity among Canadian children with autism spectrum disorder: Application of the International Classification of Functioning, Health and Disability. *International Journal of Environment Research and Public Health*, 17(16): 5925

Papers Under Review/Near Submission

1. Arbour-Nicitopoulos KP, Bassett-Gunter R, James ME, Latimer-Cheung AE, Moore SA, Voss C, Best KL, Leo J, Bremer E, Martin Ginis KA (in preparation). The National Physical Activity Measurement (NPAM) study for children and youth with disabilities: 24-Hour Movement Guidelines adherence and participation across age, gender and disability groups
2. Voss C, Bremer E, Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (under review). Validity of the Fitbit wearable activity monitor to estimate step counts in free-living conditions in ambulatory children and youth with disabilities. *Disability and Rehabilitation*. (August 1st, 2023).
3. O'Rourke R, Arbour-Nicitopoulos KP, Voss C, Martin Ginis KA, Brown DMY. Differential associations between device-assessed and parent-reported physical activity with indicators of mental health in children and youth with disabilities. *Pediatric Exercise Sciences*. (November 17th, 2023)

Published Abstracts

1. James ME, Martin Ginis K, Latimer-Cheung, Arbour-Nicitopoulos KP. (2022). It's not all about quality: Exploring the role of quality physical activity participation for social-emotional well-being among adolescents with disabilities. *Journal of Exercise, Movement and Sport*, 53(1). <https://www.scapps.org/jems/index.php/1/article/view/2896>
2. Arbour-Nicitopoulos KP, Bassett-Gunter R, Latimer-Cheung A, Voss C, Moore S, Leo J, Best K, Bremer E, James M, Martin Ginis K. (2022). The National Physical Activity Measurement (NPAM) study for children and youth with disabilities: Movement behaviour guideline adherence and participation levels. *Journal of Exercise, Movement and Sport*, 53(1). <https://www.scapps.org/jems/index.php/1/article/view/2865>
3. O'Rourke R, Brown D, Voss C, Martin Ginis K, Arbour-Nicitopoulos KP. (2022). An examination of device-measured physical activity behaviours and mental health outcomes in Canadian children and youth with disabilities. *Journal of Exercise, Movement and Sport*, 53(1). <https://www.scapps.org/jems/index.php/1/article/view/2923>
4. Arbour-Nicitopoulos KP, Vanderloo LM, Kuzik NCO, Martin Ginis KA, James ME, Bassett-Gunter R, Ruttle D, DaSilva P, Disimino K, Cameron C, Arthur M, Shikako-Thomas K, & Latimer-Cheung AE. (2022). A Canadian Report Card on the Physical Activity of Children and Youth with Disabilities. *Pediatric Exercise Science*, 34(Suppl 1), 2.
5. O'Rourke, RH, James ME, Moore SA, Martin Ginis, K A, Arbour-Nicitopoulos, KP. (2022). Family distress and physical activity in children and youth with disabilities: The moderating role of parent online resource use during the pandemic. *Journal of Sport and Exercise Psychology*, 44, S100.
6. James ME, Odorico N, Moore SA, Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). Understanding the experiences related to movement behaviours and health of children and youth with disabilities during the COVID-19 pandemic: A qualitative study. *Journal of Exercise, Movement, and Sport*, 52(1). <https://www.scapps.org/jems/index.php/1/article/view/2667>
7. James ME, Moore SA, Bassett-Gunter R, Martin Ginis KA, Arbour-Nicitopoulos KP (2021). The relationship between parent behaviours and physical activity in children and youth with disabilities during the COVID-19 pandemic. *Journal of Sport and Exercise Psychology*, 43(S1). S1-S98.
8. Arbour-Nicitopoulos KP, Moore SA, Sharma R, Martin Ginis KA. (2021). Movement behaviours and guideline adherence during the COVID-19 pandemic for Canadian children and youth with disabilities. *Medicine & Science in Sports & Exercise*, 53(8S): 220-221.
9. Moore SA, Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). Parental support is associated with healthy movement behaviours in children with disabilities during COVID-19. *Medicine & Science in Sports & Exercise*, 53(8S): 222.
10. Brown D, Arbour-Nicitopoulos KP, Martin Ginis KA, Latimer-Cheung AE, Bassett-Gunter RL. (2019). Examining the relationship between parent physical activity support and physical activity among children and youth with autism spectrum disorder. *Journal of Sport & Exercise Psychology*, 41, S56.
11. Brown D, O'Rourke R, Martin Ginis KA, Arbour-Nicitopoulos KP. Moderate-to-vigorous physical activity confers protective benefits for internalizing disorders among Canadian children and youth with disabilities. *Journal of Exercise, Movement, and Sport*, 51(1). <https://www.scapps.org/jems/index.php/1/article/view/2405>.

Conference Presentations

1. Tsui B, Johnston K, Sideroff T, Bennett E, Arbour-Nicitopoulos K, Martin Ginis K, Voss C. (2023). Feasibility of qualitative geospatial methods to explore physical activity in children with developmental disabilities. (Poster). American College of Sports Medicine Annual Meeting & World Congresses, May 30 – June 2, 2023. Denver, CO, United States.
2. Vanderloo LM, Latimer-Cheung AE, Kuzik NCO, Martin Ginis KA, James ME, Bassett-Gunter R, Ruttle D, DaSilva P, Disimino K, Cameron C, Arthur M, Shikako-Thomas K, & Arbour-Nicitopoulos KP. (2022). Expert appraisal of the Canadian Physical Activity Report Card for Children and Youth with Disabilities. (Poster). 9th International Society for Physical Activity and Health Congress, October, 2022. Abu Dhabi, UAE. (Report Card linked to some of our NPAM data)
3. James ME, Martin Ginis K, Latimer-Cheung, Arbour-Nicitopoulos KP. (2022). It's not all about quality: Exploring the role of quality physical activity participation for social-emotional well-being among adolescents with disabilities. (Poster). Canadian Society for Psychomotor Learning and Sport Psychology Conference, October 15th, 2022, Montréal, Québec, Canada.
4. Arbour-Nicitopoulos KP, Bassett-Gunter R, Latimer-Cheung A, Voss C, Moore S, Leo J, Best K, Bremer E, James M, Martin Ginis K. (2022). The National Physical Activity Measurement (NPAM) study for children and youth with disabilities: Movement behaviour guideline adherence and participation levels. (Oral). Canadian Society for Psychomotor Learning and Sport Psychology conference. October 15th, 2022. Montréal, Québec, Canada.
5. O'Rourke R, Brown D, Voss C, Martin Ginis K, Arbour-Nicitopoulos KP. (2022). An examination of device-measured physical activity behaviours and mental health outcomes in Canadian children and youth with disabilities. (Poster). Canadian Society for Psychomotor Learning and Sport Psychology Conference, October 14th, 2022, Montréal, Québec, Canada.
6. Bremer E, Arbour-Nicitopoulos KP, Tsui B, Martin Ginis KA, Moore SA, Best KL, & Voss C. (2022). Feasibility and validity of the Fitbit wearable activity monitor among ambulatory children and youth with disabilities. (Oral). North American Federation of Adapted Physical Activity, October 12th, 2022. St. Catharines, Ontario, Canada.
7. Stanish H, Arbour-Nicitopoulos KP, Vanderloo L, Haegele J. (2022). Physical activity report cards for children and youth with disabilities: Experiences from Canada and the USA. North American Federation of Adapted Physical Activity, October 11th, 2022, St. Catharines, Ontario, Canada.
8. O'Rourke RH, Martin Ginis KA, Latimer-Cheung AE, Arbour-Nicitopoulos KP. (2022). Quality participation in and out-of-school physical activity participation in children and youth with disabilities. (Oral). North American Federation of Adapted Physical Activity. October 11th, 2022. St. Catharines, Ontario, Canada.
9. Arbour-Nicitopoulos KP, Vanderloo LM, Kuzik NCO, Martin Ginis KA, James ME, Bassett-Gunter R, Ruttle D, DaSilva P, Disimino K, Cameron C, Arthur M, Shikako-Thomas K, & Latimer-Cheung AE. (2022). A Canadian Report Card on the Physical Activity of Children and Youth with Disabilities. (Oral). North American Society of Pediatric Exercise Medicine, August 4th, 2022. Saskatoon, Saskatchewan, Canada. (Report Card linked to some of our NPAM data)
10. O'Rourke RH, James ME, Moore SA, Martin Ginis KA, Arbour-Nicitopoulos KP. (2022). Family distress and physical activity in children and youth with disabilities: The moderating role of parent online resource use during the pandemic. (Oral). North American Society for the Psychology of Sport and Physical Activity, May 26-28, 2022. Kona, Hawaii, U.S.A.
11. Arbour-Nicitopoulos KP & Bassett-Gunter RL. (2021). Inclusive recreation: What's new in research and practice? Parks and Recreation Ontario Symposium. October 5th, 2021. Online.
12. James ME, *Odorico N, Moore SA, Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). Understanding the experiences related to movement behaviours and health of children and youth with disabilities during the COVID-19 pandemic: A qualitative study. (Oral). Canadian Society for Psychomotor Learning and Sport Psychology conference, Online. October, 2021.
13. James ME, Moore SA, Bassett-Gunter RL, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). The relationship between parent behaviours and physical activity in children and youth with disabilities during the COVID-19 pandemic. (Oral). North American Society for the Psychology of Sport and Physical Activity. June, 2021. Virtual conference.
14. Arbour-Nicitopoulos KP, Moore S, Sharma R, Martin Ginis KA. (2021). Movement behaviours and guideline adherence during the COVID-19 pandemic for Canadian children and youth with disabilities. (Poster). American College of Sports Medicine Annual Meeting and World Congress. June 2021, Virtual Conference.

Conference Presentations (continued)

15. Moore S, *Sharma R, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). Parental support is associated with healthy movement behaviours in children with disabilities during COVID-19. (Poster). American College of Sports Medicine Annual Meeting and World Congress. June, 2021, Virtual Conference.
16. Santino N, Arbour-Nicitopoulos KP, Sharma R, Graham JD, Bassett-Gunter RL. (2021). Physical activity and loneliness among adolescents with disabilities: Examining the quality of physical activity experiences as a possible moderator. (Oral). North American Society for the Psychology of Sport and Physical Activity. June, 2021. Virtual conference.
17. James ME, Moore SA, Bassett-Gunter RL, Martin Ginis KA, Arbour-Nicitopoulos KP. (2021). The relationship between parent behaviours and physical activity in children and youth with disabilities during the COVID-19 pandemic. (Oral). Eastern Canadian Sport and Exercise Psychology Symposium, March 25th, 2021. Windsor, Ontario, Canada. Online.
18. Voss C, Bremer E, Best KL, Moore SA, Martin Ginis KA, Arbour-Nicitopoulos KP. (2019). Feasibility of using Fitbit activity trackers in children and youth with disabilities: Preliminary findings from the National Physical Activity Measurement (NPAM) study. (Oral). Canadian Society of Exercise Physiology Conference, November 6th, 2019. Kelowna, British Columbia, Canada.
19. Brown D, O'Rourke R, Martin Ginis KA, Arbour-Nicitopoulos KP. Moderate-to-vigorous physical activity confers protective benefits for internalizing disorders among Canadian children and youth with disabilities. (Oral). Canadian Society for Psychomotor Learning and Sport Psychology, October 20th, 2019. Vancouver, British Columbia, Canada.
20. Brown D, Arbour-Nicitopoulos KP, Martin Ginis KA, Latimer-Cheung AE, Bassett-Gunter RL. (2019). Examining the relationship between parent physical activity support and physical activity among children and youth with autism spectrum disorder. (Oral). North American Society for Psychology of Sport and Physical Activity. June 6th, 2019. Baltimore, Maryland, U.S.A.
21. Latimer-Cheung AE, Arbour-Nicitopoulos KP. (2019). Promoting physical activity participation among children and youth with a disability (Oral). Sport for Life Summit. January 23rd, 2019. Gatineau, Québec, Canada.

Knowledge Products

1. Canadian Disability Report Card for Children and Adolescents with Disabilities: Resource Suite. (December 2022). Available at: <https://cdpp.ca/resources-and-publications/canadian-physical-activity-report-card-children-adolescents-disabilities>
2. Arbour-Nicitopoulos KP, James ME, Flood S. (November 2021). Impact of the 2020 COVID-19 pandemic on the movement behaviours of children and youth with disabilities and recommendations for building back healthy movement opportunities. Available at: [KA1]
3. Arbour-Nicitopoulos KP, Moore SM, Sharma R, James ME, Martin Ginis KA. (January 2021). Impact of the COVID-19 pandemic on the movement behaviours of Canadian children and youth with disabilities: Baseline and time 2 survey results. Available at: <https://cdpp.ca/resources-and-publications/impact-2020-covid-19-pandemic-movement-behaviours-children-and-youth>
4. Sharma R & Arbour-Nicitopoulos KP. (April 2020). COVID-19: Supporting the physical and mental health of families of children with disabilities. Available at: <https://cdpp.ca/resources-and-publications/covid-19-supporting-physical-and-mental-health-families-children>

Ancillary Studies NPAM Database Has Supported

1. Brianna Tsui (M.Sc. Candidate, UBC). Thesis: Feasibility of Qualitative Geospatial methods to explore physical activity in children with developmental disabilities (Supervisor: C. Voss)
2. Aleksandra Jevdjevic (M. Sc. Candidate, UBC). Thesis: Physical education participation in children and youth with physical and sensory disabilities. (Supervisors: K. Martin Ginis & C. Voss)
3. Dragana Javorina (M.Sc., University of Toronto). Thesis: Investigating the validity of the Fitbit ChargeHR in children with disabilities. (Supervisor: K. Arbour-Nicitopoulos). Defended July 2020.