

CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS (0-4 YEARS): AN INTEGRATION OF PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR, AND SLEEP

Dr. Mark Tremblay, PhD

Dr. Valerie Carson, PhD

Dr. Guy Faulkner, PhD

Dr. Casey Gray, PhD

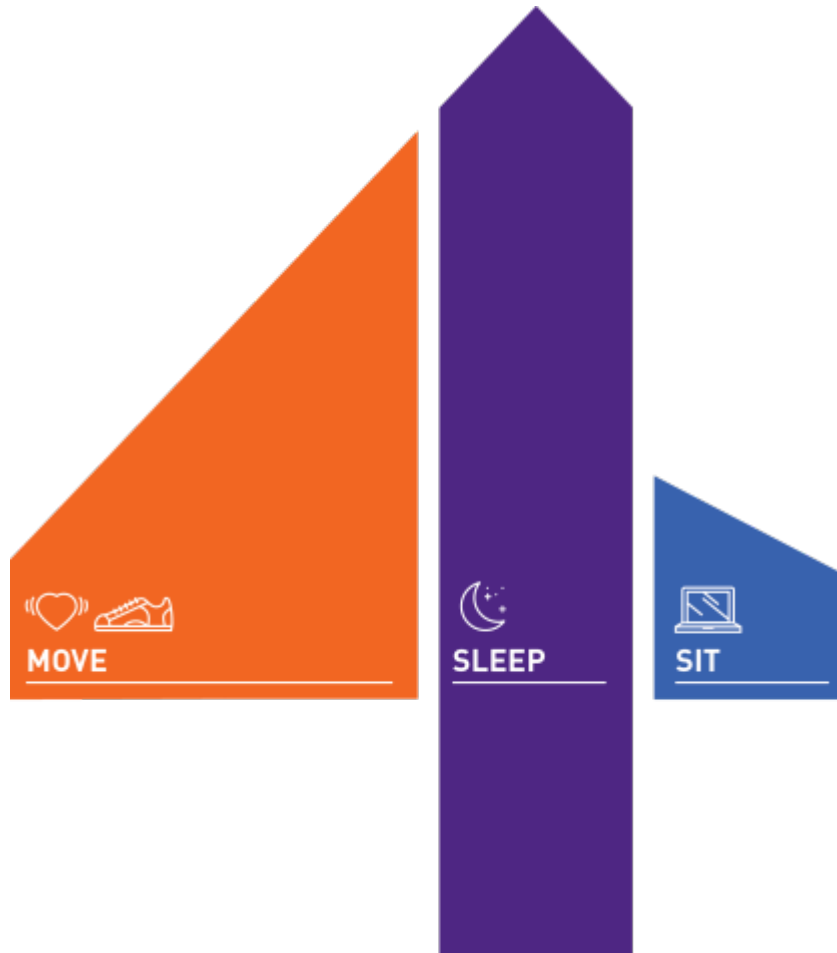


SYMPOSIUM OBJECTIVES

- Summarize the key elements of the public health guideline development process
- Describe the relationships between movement behaviours and health indicators in children of the early years
- Explain the stakeholder and end-user consultation process and findings
- Share the new *Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years): An Integration of Physical Activity, Sedentary Behaviour, and Sleep*
- Identify strategies for applying the guidelines in your work

SYMPOSIUM OVERVIEW

-
- Background and overview of the development of the new guidelines (Dr. Mark Tremblay)
 - 15 min + 5 min Q+A
 - Summary of the foundation of evidence informing the guidelines (Dr. Val Carson)
 - 15 min + 5 min Q+A
 - Description of the consultation methods and findings (Dr. Guy Faulkner)
 - 15 min + 5 min Q+A
 - Final guidelines and suggestions for applications in your work (Dr. Casey Gray)
 - 15 min + 5 min Q+A
 - Panel discussion (10 min)



BACKGROUND AND OVERVIEW OF CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS DEVELOPMENT

Dr. Mark Tremblay, PhD
Healthy Active Living and
Obesity Research Group,
CHEO Research Institute
Ottawa, ON

BACKGROUND AND RATIONALE



- Early years is a critical period for physical, mental, emotional, and social development
- Nearly all Canadian toddlers (aged 1-2 years) and 62-84% of Canadian preschoolers accumulate 180 minutes of physical activity at any intensity each day [1-4]
- Only 15% of toddlers and 18-24% of preschoolers meet screen time recommendations [1,2,4,5]
- There are currently no systematic review-informed sleep guidelines for children of the early years [6]



BACKGROUND AND RATIONALE

EXAMPLE:



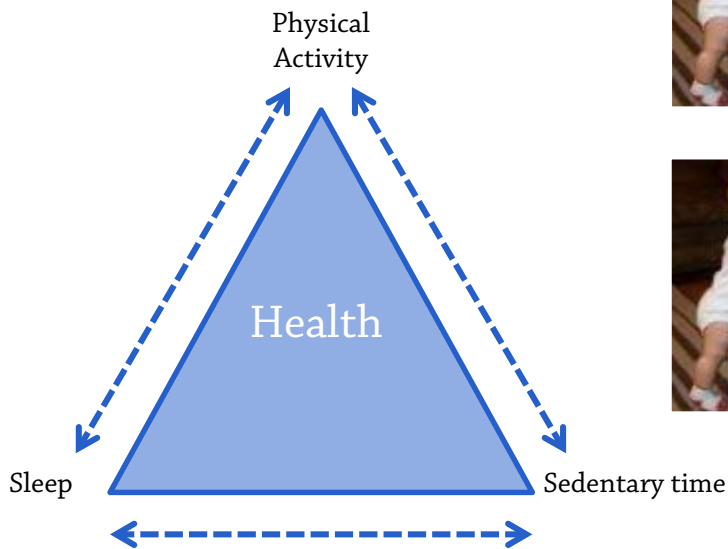
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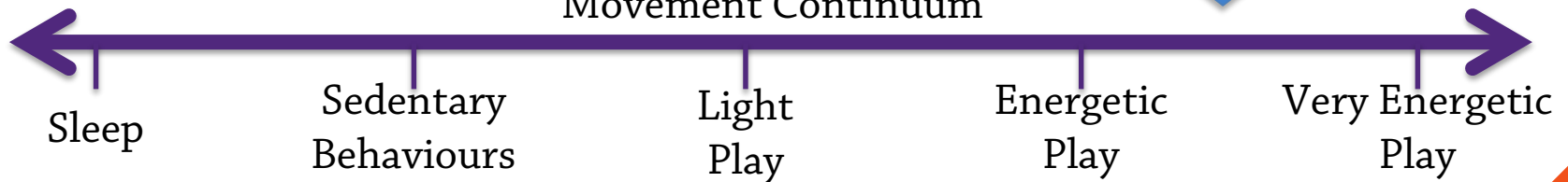


BACKGROUND AND RATIONALE



The whole day matters

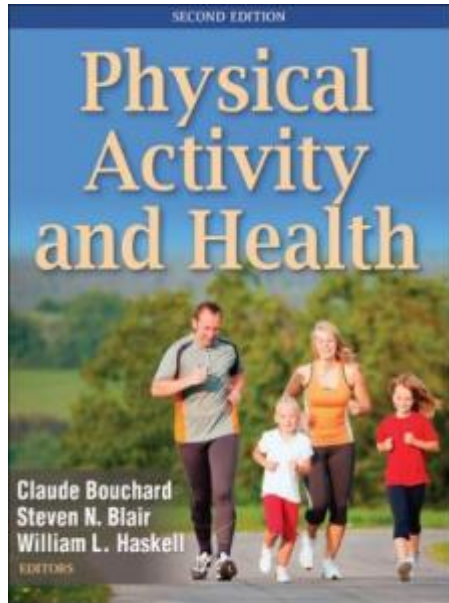
Movement Continuum



METHODS:

GUIDELINE DEVELOPMENT STRUCTURE

Procedural Framework



Tremblay MS, and Haskell WL. 2012. **From science to physical activity guidelines.** In C. Bouchard, SN, Blair, WL Haskell (Eds.) Physical Activity and Health (2nd Ed.). Human Kinetics Publishers, Champaign, IL. p. 359-378.[7]

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 17(suppl.5):874:1-32, 2017. [8]

METHODS:

LEADERSHIP AND PARTNERS

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT

NOVEMBER 2015
Leadership Team Established

PRINCIPAL INVESTIGATOR:

Mark Tremblay, PhD
Valerie Carson, PhD (Co-PI)

PARTNERS:

LEADERSHIP COMMITTEE:

Principal Investigator, funders, research leads, and methodology consultants



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METHODS:

GUIDELINE DEVELOPMENT PANEL

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT

NOVEMBER 2015
Leadership Team Established

NOVEMBER 2015
Methodologists Engaged

JANUARY 2016
Guideline Development Panel Established

Guideline Development Panel:

- Leadership Committee
- Research experts
- Stakeholder groups
- Knowledge users
- International collaborators
- Methodology consultants
- Target population users (parents)
- Project managers

METHODS:

METHODOLOGICAL CONSULTANTS

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT

NOVEMBER 2015
Leadership Team Established

NOVEMBER 2015
Methodologists Engaged

JANUARY 2016
Guideline Development Panel Established

Grading of Recommendations Assessment,
Development and Evaluation [13,14,15]



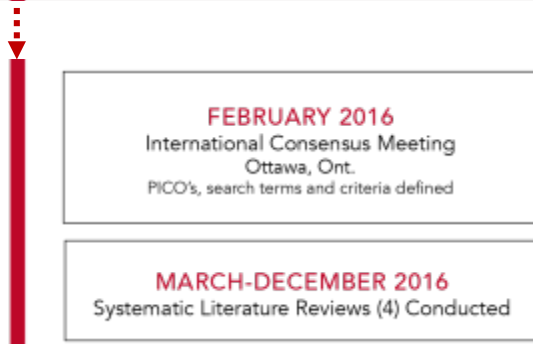
AGREE II = Appraisal of Guidelines
for Research Evaluation [9-12]



METHODS:

GUIDELINE DEVELOPMENT PANEL MEETING #1

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT



Objectives:

- Outline the guideline development process, responsibilities and timelines
- Introduce methodology consultants and explain their responsibilities
- Hear from international delegates (potential harmonization and efficiencies)
- Finalize process of evidence-gathering (PICOS)
- Establish timelines
- Plan for knowledge translation, dissemination, evaluation

CONSIDERATIONS FROM GRADE

- **Quality of the evidence** (i.e., risk of bias, inconsistency, indirectness, imprecision, publication bias) assessed through systematic reviews
- **Balance of benefits and harms** assessed through systematic reviews and Guideline Development Panel deliberations
- **End-user preferences and values, feasibility, acceptability, and equity issues** assessed through a stakeholder survey, focus group meetings and key informant interviews
- **Resource implications (costs)** assessed through a stakeholder survey, focus group meetings, key informant interviews and a review of the literature

METHODS:

GUIDELINE DEVELOPMENT PANEL MEETING #2

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT



OBJECTIVES:

- Review, discuss, debate, and interpret findings from systematic reviews and compositional analyses
- Review results of cost-effectiveness / resource use analysis
- Craft individual components of the movement behaviour guidelines
- Create 24-hour integrated movement behaviour guidelines
- Identify research gaps
- Plan the launch, dissemination, promotion, and evaluation activities

METHODS:

GUIDELINE REVISIONS AND AGREE ASSESSMENTS

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT

APRIL 2017
Leadership Group Meeting
Vancouver, B.C.
Stakeholder consultation findings reviewed,
Guidelines finalized

Additional Details:

Guideline Development Report
www.csep.ca/guidelines

- Sub-committee reviewed summaries of the stakeholder survey, focus group and interview results, and made revisions
- GDP reviewed revised guidelines for comment and final revision
- Consensus was achieved on the final guidelines
- Revisions were translated to finalize the French version
- Four independent reviewers conducted AGREE II assessments on the entire guideline development process

SUMMARY OF DEVELOPMENTAL WORK

- >50 Leadership Committee meetings
- 2 Guideline Development Panel meetings (6 days) – consensus achieved
- 4 systematic reviews
- Compositional analyses of national dataset
- Online survey input from stakeholders and end-users
- Focus groups and key informant interviews
- 4 independent AGREE II assessors employed to rate the process
- 13 peer-reviewed manuscripts published in *BMC Public Health*

EVIDENCE

4 Systematic Reviews + Compositional Analyses + Expert Consensus + Stakeholder Feedback + Methodological Advice =



Foundation of Evidence

METHODS:

KNOWLEDGE TRANSLATION AND GUIDELINE LAUNCH



Knowledge Translation:

- Development of a visual identity
- Public-facing tools and resources
- Implementation and activation plans
- Launch on November 20, 2017

INTERNATIONAL IMPACT (NEW ZEALAND)

Sit Less, Move More, Sleep Well

Active Play Guidelines for Under-fives

Citation: Ministry of Health. 2017. *Sit Less, Move More, Sleep Well: Active play guidelines for under-fives*. Wellington: Ministry of Health.

Published in May 2017
by the Ministry of Health
PO Box 5013, Wellington 6145, New Zealand

ISBN 978-1-98-850249-6 (print)
ISBN 978-1-98-850250-2 (online)
HP 6598

This document is available at:
health.govt.nz



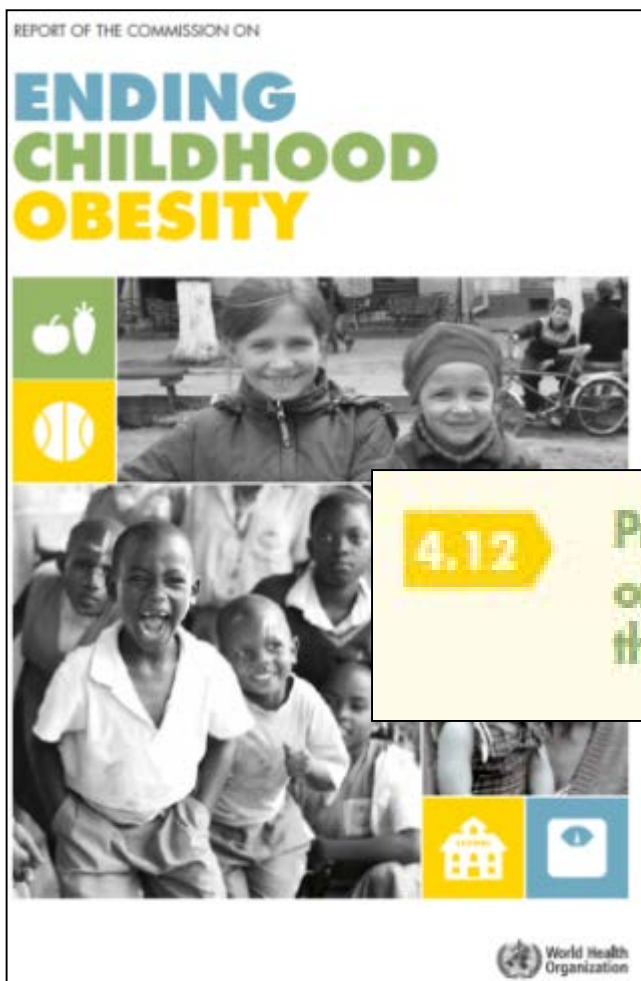
- New Zealand Guidelines released in May, 2017
- New Zealand Ministry of Health. *Sit Less, Move More, Sleep Well: Active Play Guidelines for under-fives*. Wellington: New Zealand, Ministry of Health; 2017

INTERNATIONAL IMPACT (AUSTRALIA)



- Okely et al. A collaborative approach to adopting/adapting guidelines – The Australian 24-Hour Movement Guidelines for the early years (Birth to 5 years): An integration of physical activity, sedentary behaviour, and sleep. BMC Public Health 17(suppl.5):869:167-190, 2017.[21]
- Released on November 21, 2017

INTERNATIONAL IMPACT (WHO)



Process for developing global 24-hour guidelines underway

ACKNOWLEDGEMENTS

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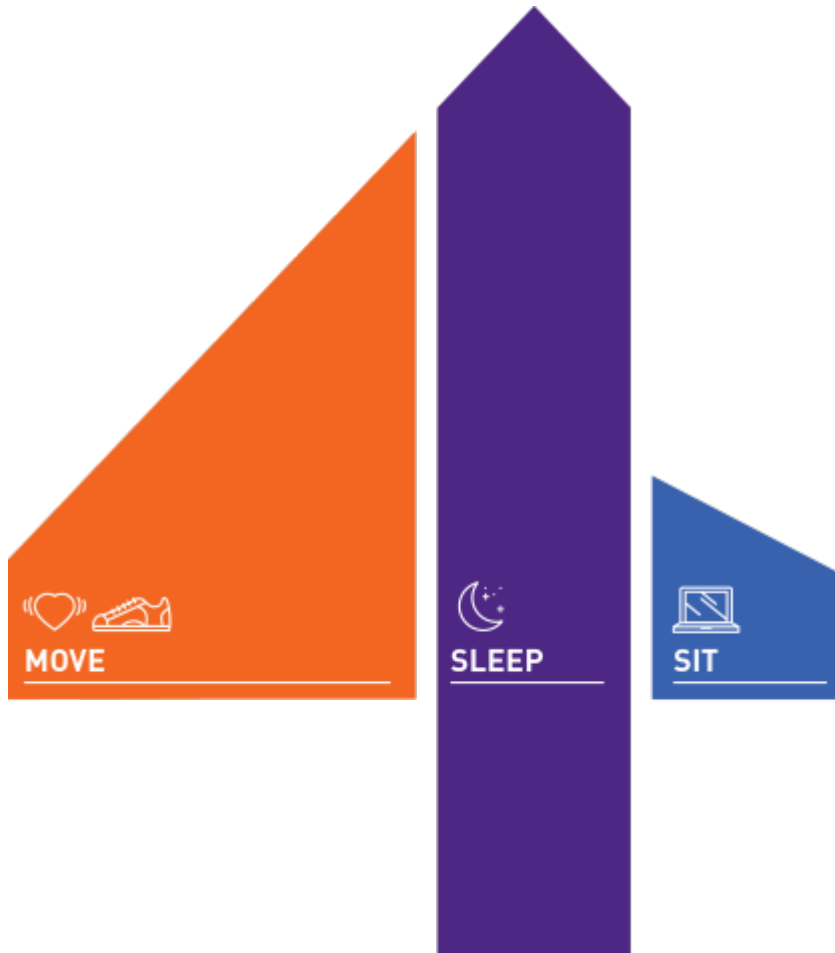
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FOUNDATION OF EVIDENCE FOR THE CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS

Dr. Valerie Carson, PhD
Faculty of Kinesiology, Sport,
and Recreation,
University of Alberta
Edmonton, AB

EVIDENCE



1. Systematic Reviews
 - Physical activity (PA)
 - Sedentary behaviour (SB)
 - Sleep
 - Movement behaviour combinations
2. Compositional Analyses

SYSTEMATIC REVIEWS

Health Indicators:

- Adiposity
- Motor development
- Cardiometabolic health
- Fitness
- Growth
- Bone and skeletal health
- Psychosocial health / emotional regulation
- Cognitive development
- SB/ PA *indicator in the sleep review only
- Risks (injury)/harm

SYSTEMATIC REVIEWS

Population

Apparently healthy Infants (1 month - <1 year), toddlers (1 - 2 years), and preschoolers (3 - 4 years)

Methods

Online databases searched for relevant articles meeting inclusion criteria. No study design or date limits were applied. English and French articles were eligible for inclusion. The GRADE framework guided the evaluation of the quality of evidence by health indicator and study design [13-15]

Results

- 34,566 articles screened
- 271 papers included
- 1 meta-analysis was performed
- Narrative syntheses were conducted in all reviews



Systematic Review: Physical Activity

Results:

- 96 studies
- 71,291 participants; 36 countries
- Quality of evidence: very low to high

Key Findings:

- Specific types of PA, total PA, and PA of at least moderate- to vigorous-intensity were favourably associated with multiple health indicators, with evidence that more tends to be better
- For infants, ≥ 30 minutes of tummy time per day while awake appears beneficial for motor development

Carson et al. Systematic review of the relationships between physical activity and health indicators in the early years (aged 0-4 years). BMC Public Health 17(suppl.5):854:33-63, 2017. [16]



Systematic Review: Sedentary Behaviour

Results:

- 96 studies
- 195,430 participants; 33 countries
- Quality of evidence: very low to moderate

Key Findings:

- Objectively measured total sedentary time unrelated to adiposity and motor development
- Time in front of screens was associated with unfavourable adiposity, motor and cognitive development, and psychosocial health
- Time in car seats/strollers, and in the supine position were associated with unfavourable adiposity and motor development or unrelated
- Reading and story- telling was associated with better cognitive development or no relationship

Poitras et al. Systematic review of the relationships between sedentary behavior and health indicators in the early years (aged 0-4 years). BMC Public Health 17(suppl.5):868:65-89, 2017. [17]



Systematic Review

Sleep

Results:

- 69 studies
- 148,524 participants; 23 countries
- Quality of evidence: very low to high

Key Findings:

- Shorter sleep duration:
 - Associated with higher adiposity, poorer emotional regulation, impaired growth, more screen time, and higher risk of injuries
 - Unclear association with cognitive development, motor development, physical activity, quality of life/well-being

Chaput et al. Systematic review of the relationships between sleep duration and health indicators in the early years (0-4 years). BMC Public Health 17(suppl.5):855:91-107, 2017.[6]



Systematic Review: Combinations of Behaviours

Results:

- 10 studies
- 7,549 participants; 5 countries
- Quality of evidence: very low to moderate

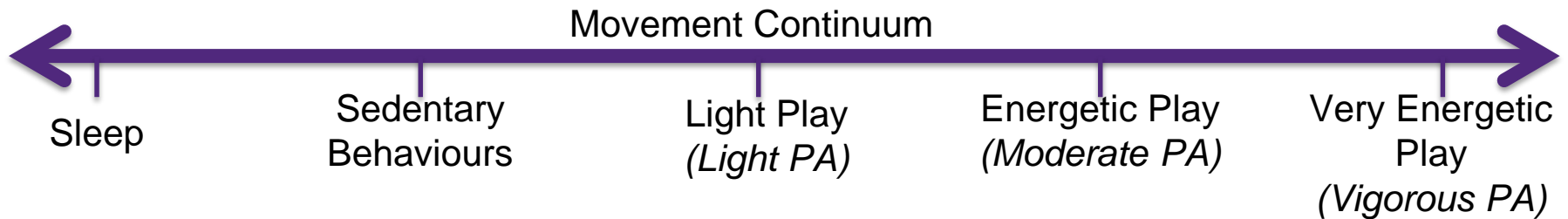
Key Findings:

- Ideal combinations of PA and SB:
 - Favourable motor development and fitness (preschoolers)
 - Favourable adiposity or unrelated (toddlers and preschoolers)
 - Unrelated to growth
- Ideal combinations of sleep duration and SB:
 - Lower adiposity (infants and toddlers)

Kuzik et al. Systematic review of the relationships between the combinations of movement behaviors and health indicators in the early years (aged 0-4 years). BMC Public Health 17(suppl.5):849:109-122, 2017.[18]

COMPOSITIONAL ANALYSES

- Movement behaviours traditionally assessed in isolation



- Since the constituent parts explain the entire 24-hr period, any change in one behaviour must be done at the expense of the other behaviours
- Traditional statistical procedures cannot address this geometric reality and may produce incorrect results
- Alternative: Compositional analyses
 - Interpretation: A proportion relative to the other behaviours instead of assumption of independence from other behaviours

COMPOSITIONAL ANALYSES

Objectives:

1. To explore the combined associations of the composition of sleep duration, sedentary time, light-intensity PA, and MVPA with adiposity indicators (BMI z-score, waist circumference)
2. To explore the associations between each behaviour and adiposity indicators relative to the time spent in the other behaviours

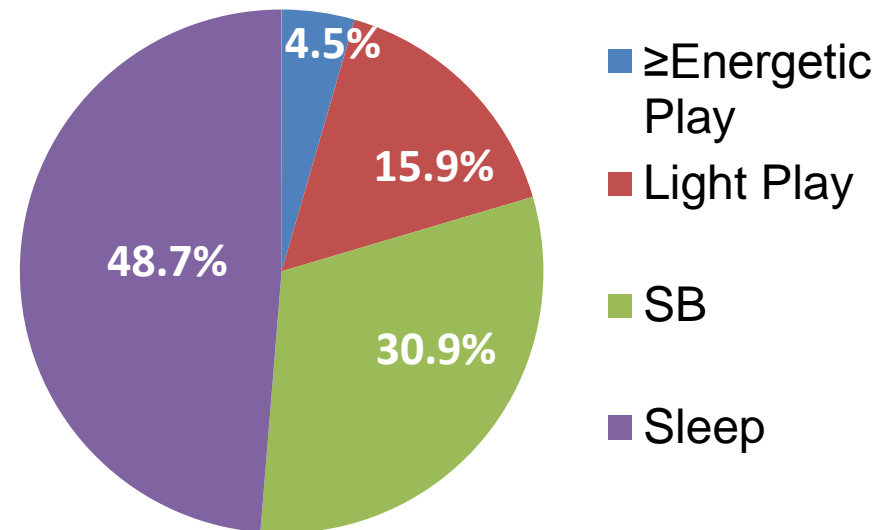
Methods:

- Cross-sectional data on 552 children aged 3-4 years from cycles 2 and 3 (2009-2013) of the Canadian Health Measures Survey were examined

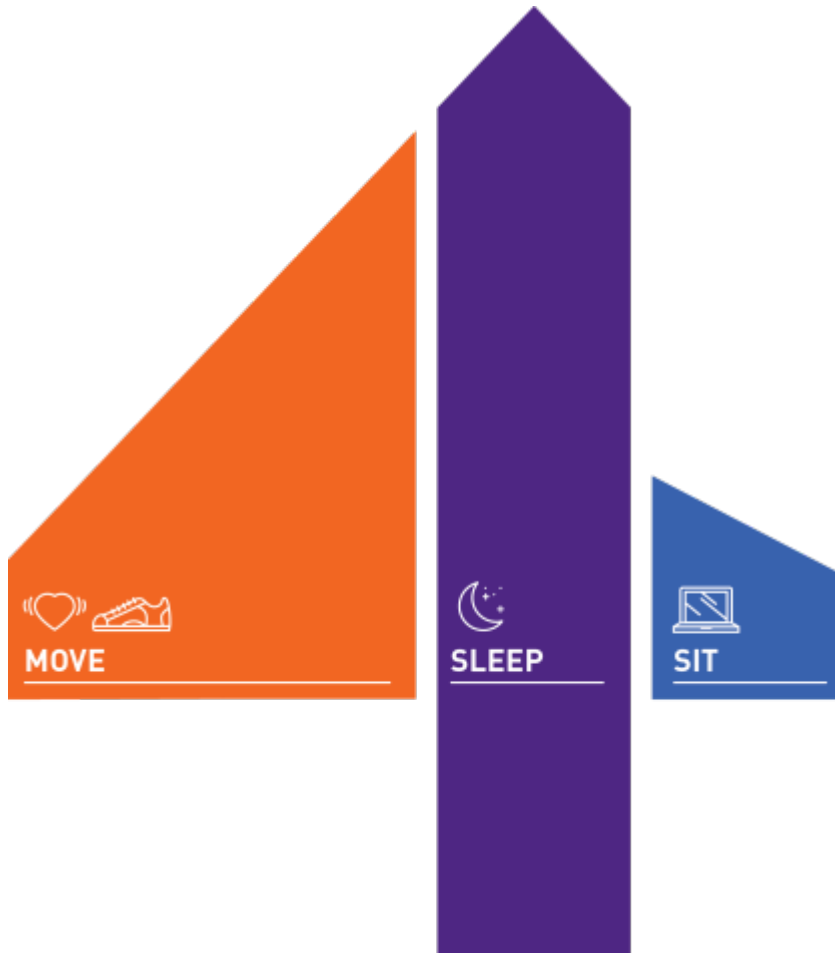
COMPOSITIONAL ANALYSES

- The composition of movement behaviours was significantly associated with BMI z-scores but not with waist circumference
- Time in each of sleep, SB, light play, or \geq energetic play was not significantly related to adiposity indicators relative to the other behaviours

Proportional Distribution of 24-Hours



Carson et al. Cross-sectional associations between sleep duration, sedentary time, physical activity and adiposity indicators among Canadian preschool-aged children using compositional analyses. BMC Public Health 17(suppl.5):848:123-131, 2017.[19]



CONSULTATIONS COMPLETED FOR THE CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS

Dr. Guy Faulkner, PhD
School of Kinesiology,
University of British Columbia
Vancouver, BC

Purpose

- Interest and acceptability of 24 hour guidelines
- Critique preamble and initial draft of guidelines
- Identify facilitators and barriers to uptake
- Suggestions on dissemination of guidelines
 - Methods and Messengers

METHODS:

STAKEHOLDER CONSULTATIONS

TIMELINE: 24-HR MOVEMENT GUIDELINES DEVELOPMENT



FEBRUARY-APRIL 2017

Stakeholder Consultations
Online survey and focus groups

KEY INFORMANT INTERVIEWS

STAKEHOLDER SURVEY

FOCUS GROUPS

Riazi et al. Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years): Exploring the perceptions of stakeholders regarding their acceptability, barriers to uptake, and dissemination. BMC Public Health 17(suppl.5):841:133-145, 2017.[20]

STAKEHOLDER SURVEY

- Cross-sectional survey in English and French was developed to gather stakeholder and end-user feedback on:
 - The content and format of the draft guidelines
 - Elements of importance to the GRADE Evidence-to-Decision Framework, i.e., how much end-users value the outcomes, the resource requirements/costs of implementing the guidelines, equity, acceptability, and feasibility of implementing the guidelines
 - Suggestions regarding key intermediaries to implement and activate the guidelines

STAKEHOLDER SURVEY

- The survey was shared via snowball sampling procedure, initiated through GDP distribution networks from March 24 to April 18, 2017
- Data from 695 stakeholders and end-users were collected by the online survey; missing data ranged from 130 to 287 per closed-ended item.
- Participants were employed in all provinces and territories except the Northwest Territories and Nunavut
- By sector, participants primarily associated with physical activity/fitness (22.9%), public health (16.2%), healthcare (14.2%), education (12.4%), and research (10.2%)

Summary of Results

Question	Strongly Agree n (%)	Somewhat Agree n (%)	Neither Agree Nor Disagree n (%)	Somewhat Disagree n (%)	Strongly Disagree n (%)	Total responses n
The Title is clearly stated.	339 (60.0%)	193 (34.2%)	19 (3.4%)	13 (2.3%)	1 (0.2%)	565
Do you agree with the Title?	303 (54.1%)	196 (35.0%)	36 (6.4%)	22 (3.9%)	3 (0.5%)	560
The Preamble is clearly stated.	322 (71.4%)	113 (25.1%)	9 (2.0%)	7 (1.6%)	0 (0.0%)	451
Do you agree with the Preamble?	339 (75.3%)	94 (20.9%)	10 (2.2%)	7 (1.6%)	0 (0.0%)	450
The 24-Hour Guidelines are clearly stated.	341 (78.0%)	87 (20.0%)	5 (1.1%)	4 (1.0%)	0 (0.0%)	437
Do you agree with the 24-Hour Guidelines?	327 (74.8%)	93 (21.3%)	12 (2.7%)	5 (1.1%)	0 (0.0%)	437

Evidence to Decision Framework

	Yes			No		
Are the 24-Hour Guidelines important to you? (priority)	409 (95.8%)			18 (4.2%)		
	Always	Frequently	Occasionally	Seldom	Never	
Would you use the Preamble? (acceptability)	98 (21.4%)	178 (38.8%)	142 (30.9%)	32 (7.0%)	9 (2.0%)	
Would you use the 24-Hour Guidelines? (acceptability)	141 (32.9%)	198 (46.2%)	73 (17.0%)	11 (2.6%)	6 (1.4%)	
	Much More Useful	More Useful	Neutral	Less Useful	Much Less Useful	
In comparison to separate physical activity, sedentary behaviour and sleep guidelines, do you find these 24-Hour Guidelines... (acceptability)	119 (27.8%)	216 (50.5%)	87 (20.3%)	4 (0.9%)	2 (0.5%)	
	Very Easy	Somewhat Easy	Neither Easy Nor Difficult	Somewhat Difficult	Very Difficult	
How easy or difficult would you find using the 24-Hour Guidelines? (feasibility)	175 (41.0%)	188 (44.0%)	41 (9.6%)	22 (5.2%)	1 (0.2%)	
	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	I Don't Know
The costs for you to use, or your organization to implement, the 24-Hour Guidelines are likely to be small or negligible compared to not using the Guidelines. (resource use)	143 (35.0%)	122 (29.8%)	55 (13.4%)	12 (2.9%)	5 (1.2%)	27 (6.6%)

FOCUS GROUPS AND KEY INFORMANT INTERVIEWS

- Focus groups and key informant interviews were completed to examine stakeholders' (experts in pediatric and family medicine, PA knowledge translation, and research) and end-users' (parents and early childhood educators) perceptions of the draft guidelines
- Stakeholders (n=10) engaged in telephone interviews and end-users (n=92) participated in focus groups (n=14) to discuss perceived clarity and need for the guidelines, potential barriers to implementation, identification of credible messengers, and methods for dissemination of the guidelines
- Audio-recordings from the focus groups and interviews were transcribed verbatim and thematic analysis was conducted

RECEPTIVITY: 'THE WHOLE PICTURE'

- There was consistent support for the new Movement Guidelines across all stakeholder interviews and end user focus groups
 - Regardless of their cultural, educational, or professional backgrounds (e.g., parent, ECE, physician, etc.).

Their 'holistic' nature	The provision of specific and concrete goals
The inclusion of sleep and <i>quality</i> sedentary activities (e.g., reading, drawing)	Recommendation for replacing indoor with outdoor time

Barriers to Uptake

- What guidelines? Lack of awareness among parents and educators
- Physical activity not perceived as a concern

“Mine never stop moving, so I’ve never considered there being any guidelines. They have so much energy”.

- Screen time: a “hot button issue”

“You need to face reality Mr Faulkner”

Say that I have to clean the house, it's [screen time] sometimes the only way to capture their attention. It gives them something to watch. [...] Yeah, the government should send a housecleaner. Someone to prepare dinner. It's [screen time] just a way to distract them, because we have too much on our plate, we work full-time, we have to clean the house and do chores, our houses are becoming bigger now... it's a lot.

“You need to face reality Mr. Faulkner”

“The four-year-old has a lot of iPad time, but it’s all very much school-based learning. Either a puzzle or math programs or things like that. As far as time goes, it’s way exceeding it, but we’re trying to at least...it’s not watching TV all day. It’s doing something at least interactive to help stimulate cognitive function. That’s how I rationalize it”.

- Screen time guidelines were mostly interpreted by parents as a ‘goal’ to strive toward, but unrealistic most days

Messengers & Methods for Dissemination

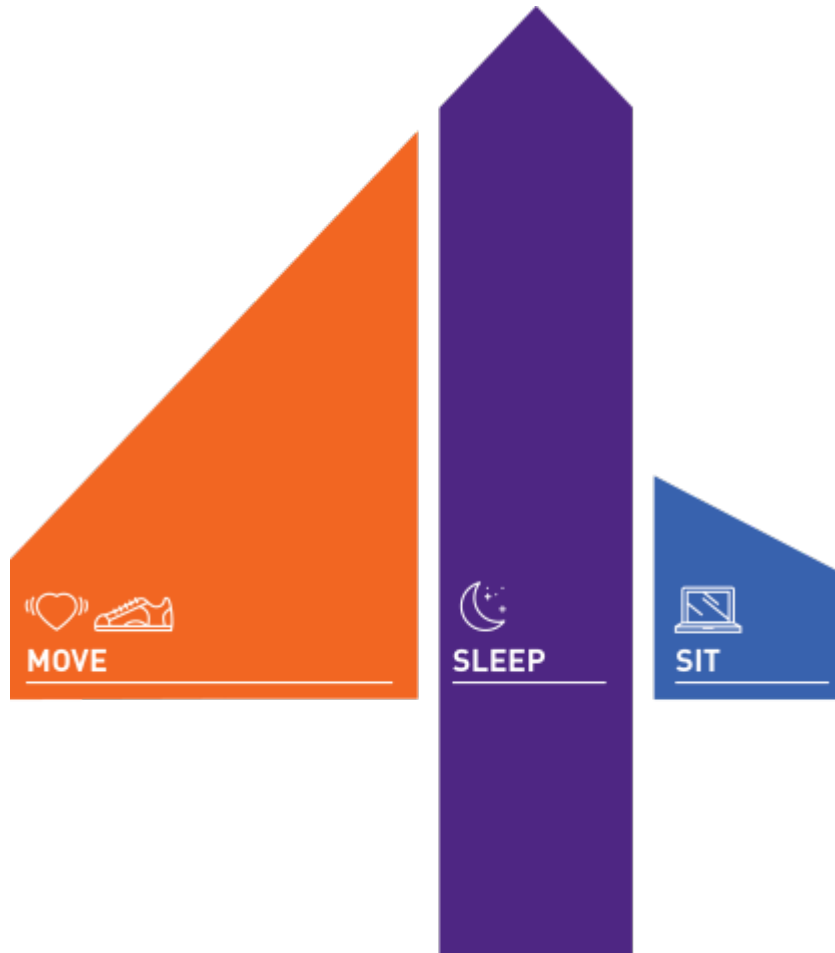
- Repeatedly hearing about the Movement Guidelines from credible sources in a variety of settings & integrated within existing communication channels
 - Physician/nurse interactions
 - e.g., embedded within pre- and post-natal classes
 - Childcare settings
 - e.g., adherence to guidelines a licensing regulation for child care programs

“I feel like our role is mostly liaising with the parents. Maybe trying to notice where there might be gaps and knowledge of what’s needed at that age and volunteering information when it might be useful”

- Suggested methods of dissemination were wide and varied: some consensus that web-based and mobile applications were preferred

Summary

- Stakeholders and end users were very receptive to the Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years)
 - uptake of a new innovation is strongly related to its perceived acceptability by potential adopters
- The behavioural recommendations were largely considered feasible, although increasing screen time was identified by participants as an emerging concern in the early years
- Engaging physicians/nurses and ECEs in dissemination efforts may be critical for increasing awareness of the Movement Guidelines among Canadian parents
- Uptake by parents will likely be dependent on the messaging and resources created to facilitate implementation
- 4 independent AGREE II assessors rated the guideline development process as very high (domain average ratings 89-100%)



CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS (0-4 YEARS: AN INTEGRATION OF PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR AND SLEEP

Dr. Casey Gray, PhD
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0-4 years

CANADIAN 24-HOUR MOVEMENT GUIDELINES FOR THE EARLY YEARS (0-4 YEARS):

An Integration of Physical Activity, Sedentary Behaviour, and Sleep

PREAMBLE

These Guidelines are relevant to all apparently healthy infants (less than 1 year), toddlers (1-2 years), and preschoolers (3-4 years), irrespective of gender, cultural background, or the socio-economic status of the family. These Guidelines may be appropriate for young children with a disability or medical condition; however, a health professional should be consulted for additional guidance.

To encourage healthy growth and development, young children should receive support from their parents and caregivers that allows for an active lifestyle with a daily balance of physical activities, sedentary behaviours, and sleep. Young children should participate in a range of developmentally appropriate, enjoyable, and safe play-based and organized physical activities in a variety of environments (e.g., home/child care/school/community; indoors/outdoors; land/water; summer/winter), both independently as well as together with adults and other children. For infants, supervised activities could include tummy time, reaching and grasping, pushing and pulling, and crawling. The quality of sedentary behaviour matters; for example, interactive non-screen-based behaviours (e.g., reading, storytelling, singing, puzzles) are encouraged. Developing healthy sleep hygiene in the early years is important; this includes having a calming bedtime routine with consistent bedtimes and wake-up times, avoiding screen time before sleep, and keeping screens out of the bedroom.

Following these Guidelines through the early years is associated with better growth, cardiorespiratory and musculoskeletal fitness, cognitive development, psychosocial health/emotional regulation, motor development, body composition, quality of life/well-being, as well as reduced injuries. The benefits of following these Guidelines exceed potential harms.

For those not currently meeting these Guidelines, a progressive adjustment toward them is recommended. Adhering to these Guidelines may be challenging at times; resources are available for assistance at www.BuildYourBestDay.com/EarlyYears.

These Guidelines were informed by the best available evidence, expert consensus, stakeholder consultation, and consideration of values and preferences, applicability, feasibility, and equity. The specific Guidelines and more details on the background research, their interpretation, guidance on how to achieve them, and recommendations for further research and surveillance are available at www.csep.ca/guidelines.

Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years)

For healthy growth and development, infants, toddlers, and preschoolers should achieve the recommended balance of physical activity, high-quality sedentary behaviour, and sufficient sleep.

A healthy 24 hours includes:

MOVE

SLEEP

SIT

MOVE

SLEEP

SIT

INFANTS (LESS THAN 1 YEAR)

Being physically active several times in a variety of ways, particularly through interactive floor-based play—more is better. For those not yet mobile, this includes at least 30 minutes of tummy time spread throughout the day while awake.

14 to 17 hours (for those aged 0-3 months) or 12 to 16 hours (for those aged 4-11 months) of good-quality sleep, including naps.

Not being restrained for more than 1 hour at a time (e.g., in a stroller or high chair). Screen time is not recommended. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

TODDLERS (1-2 YEARS)

At least 180 minutes spent in a variety of physical activities at any intensity, including energetic play, spread throughout the day—more is better.

11 to 14 hours of good-quality sleep, including naps, with consistent bedtimes and wake-up times.

Not being restrained for more than 1 hour at a time (e.g., in a stroller or high chair) or sitting for extended periods. For those younger than 2 years, sedentary screen time is not recommended. For those aged 2 years, sedentary screen time should be no more than 1 hour—less is better. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

PRESCHOOLERS (3-4 YEARS)

At least 180 minutes spent in a variety of physical activities spread throughout the day, of which at least 60 minutes is energetic play—more is better.

10 to 13 hours of good-quality sleep, which may include a nap, with consistent bedtimes and wake-up times.

Not being restrained for more than 1 hour at a time (e.g., in a stroller or car seat) or sitting for extended periods. Sedentary screen time should be no more than 1 hour—less is better. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

Replacing time restrained or sedentary screen time with additional energetic play, and trading indoor for outdoor time, while preserving sufficient sleep, can provide greater health benefits.

Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years)

For healthy growth and development, infants, toddlers, and preschoolers should achieve the recommended balance of physical activity, high-quality sedentary behaviour, and sufficient sleep.

A healthy 24 hours includes:



MOVE

INFANTS (LESS THAN 1 YEAR)

Being physically active several times in a variety of ways, particularly through interactive floor-based play—more is better. For those not yet mobile, this includes at least 30 minutes of tummy time spread throughout the day while awake.

SLEEP

14 to 17 hours (for those aged 0-3 months) or 12 to 16 hours (for those aged 4-11 months) of good-quality sleep, including naps.

SIT

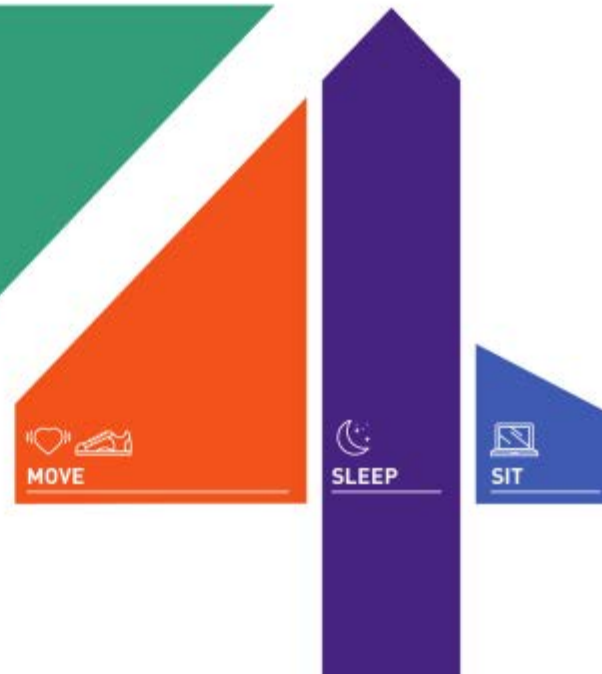
Not being restrained for more than 1 hour at a time (e.g., in a stroller or high chair). Screen time is not recommended. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

Replacing time restrained or sedentary screen time with additional energetic play, and trading indoor for outdoor time, while preserving sufficient sleep, can provide greater health benefits.

Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years)

For healthy growth and development, infants, toddlers, and preschoolers should achieve the recommended balance of physical activity, high-quality sedentary behaviour, and sufficient sleep.

A healthy 24 hours includes:



MOVE

TODDLERS (1-2 YEARS)

At least 180 minutes spent in a variety of physical activities at any intensity, including energetic play, spread throughout the day—more is better.

SLEEP

11 to 14 hours of good-quality sleep, including naps, with consistent bedtimes and wake-up times.

SIT

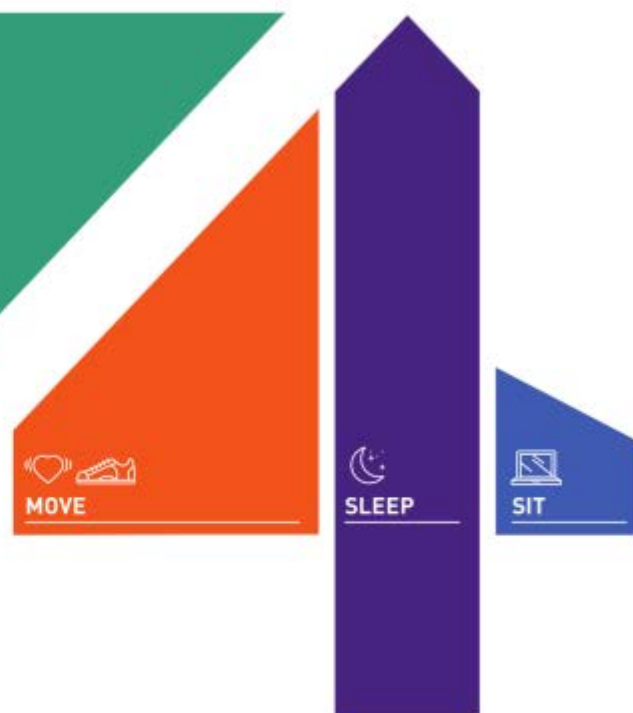
Not being restrained for more than 1 hour at a time (e.g., in a stroller or high chair) or sitting for extended periods. For those younger than 2 years, sedentary screen time is not recommended. For those aged 2 years, sedentary screen time should be no more than 1 hour—less is better. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

Replacing time restrained or sedentary screen time with additional energetic play, and trading indoor for outdoor time, while preserving sufficient sleep, can provide greater health benefits.

Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years)

For healthy growth and development, infants, toddlers, and preschoolers should achieve the recommended balance of physical activity, high-quality sedentary behaviour, and sufficient sleep.

A healthy 24 hours includes:



MOVE

PRESCHOOLERS (3-4 YEARS)

At least 180 minutes spent in a variety of physical activities spread throughout the day, of which at least 60 minutes is energetic play—more is better.

SLEEP

10 to 13 hours of good-quality sleep, which may include a nap, with consistent bedtimes and wake-up times.

SIT

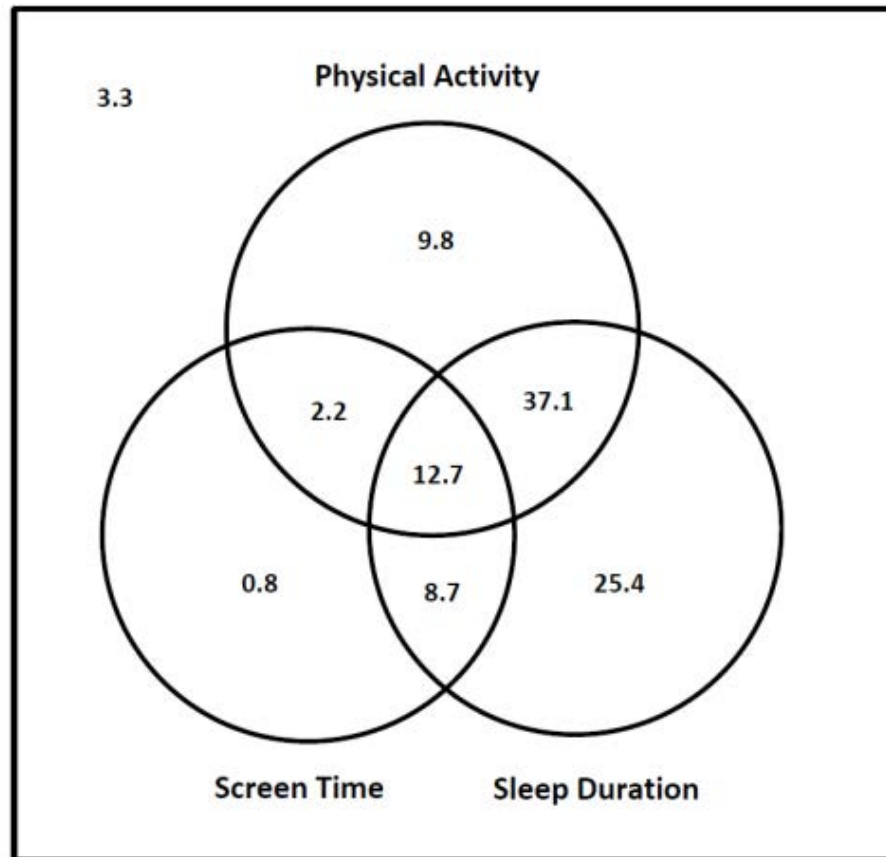
Not being restrained for more than 1 hour at a time (e.g., in a stroller or car seat) or sitting for extended periods. Sedentary screen time should be no more than 1 hour—less is better. When sedentary, engaging in pursuits such as reading and storytelling with a caregiver is encouraged.

Replacing time restrained or sedentary screen time with additional energetic play, and trading indoor for outdoor time, while preserving sufficient sleep, can provide greater health benefits.

SURVEILLANCE AND MONITORING

- Recommendations for surveillance provided in Tremblay et al. [8]
- General focus is on what is currently measured
- Physical activity
 - Infants: Average total tummy time per day is ≥ 30 min while awake
 - Toddlers: Average total PA per day is ≥ 180 min with some energetic play
 - Preschoolers: Average total PA per day is ≥ 180 minutes with ≥ 60 min MVPA
- Sedentary behaviour
 - Infants and toddlers < 2 years: Typical day includes no screen time; Time restrained is ≤ 1 h at a time
 - Toddlers ≥ 2 years and preschoolers: Average sedentary screen time per day is ≤ 1 hour/day; Time restrained is ≤ 1 h at a time
- Sleep
 - Infants (0-3 months; 4-11 months): Average total sleep duration per 24 h is 14 to 17 hours; 12-16 hours
 - Toddlers: Average total sleep duration per 24 h is 11 to 14 hours
 - Preschoolers: Average total sleep duration per 24 h is 10 to 13 hours

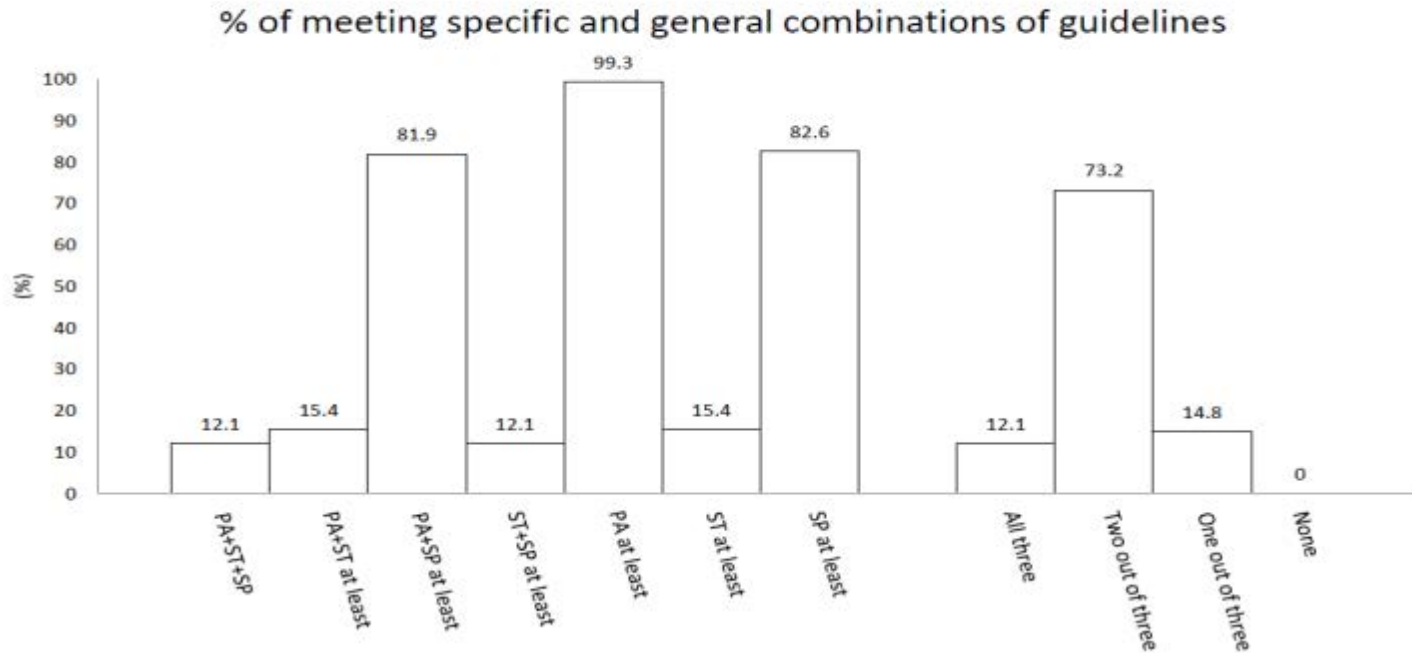
SURVEILLANCE AND MONITORING: PRESCHOOLERS



Chaput 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 17(suppl.5):829:147-154, 2017.[1]

SURVEILLANCE AND MONITORING: TODDLERS

Figure 1. Proportion of participants meeting the physical activity, screen time, and sleep recommendations and combinations of these guidelines among toddlers living in Edmonton, Canada (n = 149).



Lee et al. Meeting new Canadian 24-hour movement guidelines for the early years and associations with adiposity among toddlers living in Edmonton, Canada. BMC Public Health 17(5):840:155-165, 2017.[5]

EVALUATION

- Guidelines launch metrics
 - traditional media impressions, social media activity, hard-copy and electronic distribution, general tone (positive/negative) of media coverage
- Canadian parents' baseline awareness of the Guidelines
 - ParticipACTION survey
- Beliefs among key stakeholders about the relative benefits of the 24-Hour Movement Guidelines vs. separate guidelines for each behaviour
 - Online survey
- Web analytics
 - monitored on partners websites

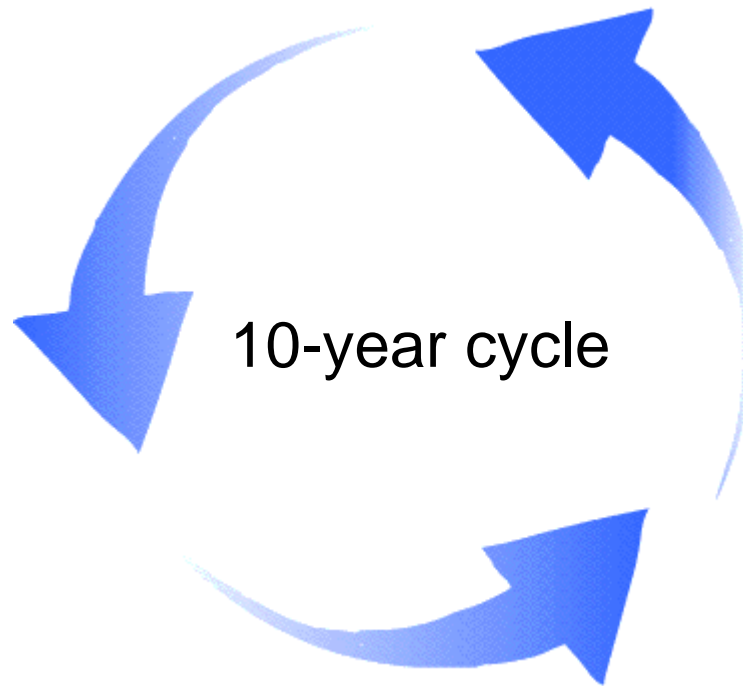


RESEARCH GAPS

- Dose-response relationships between PA, SB, and sleep with health indicators
- Studies using valid and reliable measures of SB or sleep, focused on infants or toddlers, and controlled for important confounders (e.g., diet)
- Relationships between PA, SB, and sleep, with fitness, bone and skeletal health, cardiometabolic health, and risk/harms
- Combined effects of PA, SB, and sleep on health indicators
 - focus on examining the combined effect of these behaviours while developing innovative ways to analyze these 24-hour data



UPDATING AND REVISING THE GUIDELINES



Or when significant new information emerges

DISSEMINATION, IMPLEMENTATION, ACTIVATION

- Proactive national media relations outreach
- Hard copy and e-distribution of guideline-related materials
- Cross-Canada lecture tour
- Webinars targeted to different end-user groups developed and preserved on-line (www.csep.ca/guidelines)
- All promotional materials, campaigns, and initiatives are available in both English and French
- Suite of prepared messaging and communication tools, adapted visual identity, and digital platform designed to serve as a foundation for a long-term, multi-platform, multi-sector, multi-jurisdictional, and multi-disciplinary marketing and communication efforts to facilitate uptake and activation of the new guidelines (*under development*)
- “Build your best day” – www.buildyourbestday.com/earlyyears) that will enable clear, consistent and targeted communication with early childhood educators, primary care practitioners, and public health promoters, and parents/caregivers (*under development*)
- Research journal publications (13 papers)

ANIMATED VIDEO

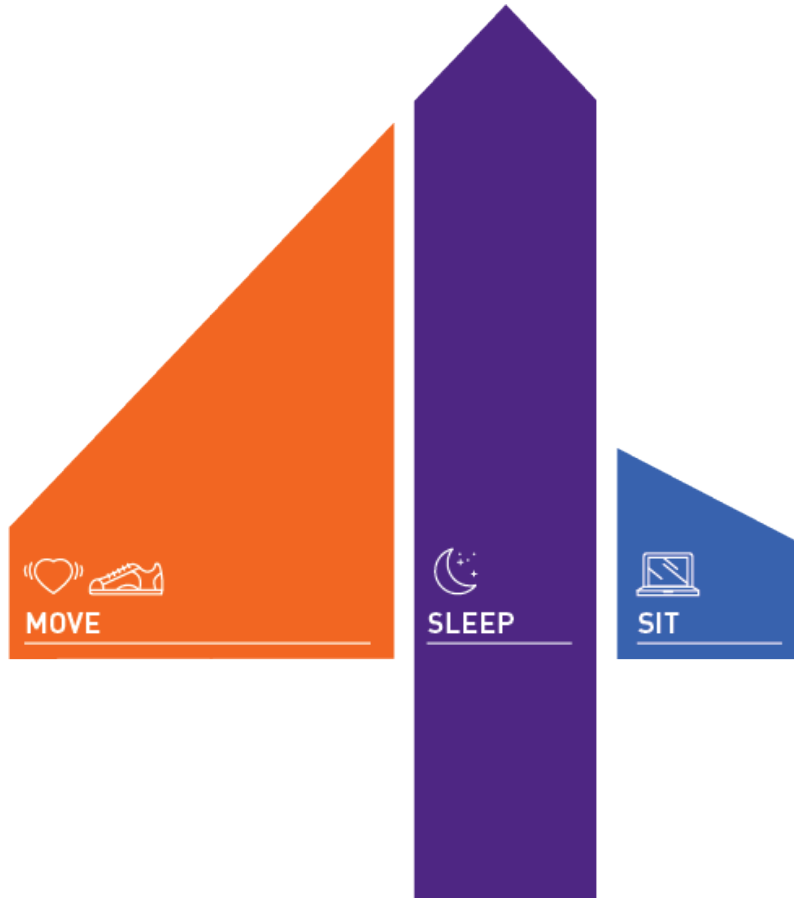
IMPLEMENTATION RECOMMENDATIONS

- Find ways to support the Guidelines
- Ensure your programming meets the Guidelines
- Reduce time spent 'sitting & waiting for turns' in programming
- Communicate the Guidelines to parents
- Ensure parents provide appropriate clothing for active play in all settings
 - Have extra clothing/outerwear/footwear available
- Support the development and implementation of policies:
 - No screens, outdoor play time, environments conducive/inspiring for activity etc.
- Be a role model

ADDITIONAL MATERIALS

- Open access supplemental Issue of *BMC Public Health* 17(Suppl. 5), 2017
 - Process and outcomes paper
 - 4 systematic reviews
 - Compositional analyses paper
 - Stakeholder consultations paper
 - Prevalence of preschoolers meeting new guidelines paper
 - Prevalence of toddlers meeting new guidelines paper
 - Australia “adoption” paper
 - 3 Australia prevalence papers (infants, toddlers, preschoolers)
- Tear sheets (English and French) (www.csep.ca/guidelines)
- Guideline Development Report (www.csep.ca/guidelines)
- Webinars (English and French) (www.csep.ca/guidelines)
- Glossary (English and French) (www.csep.ca/guidelines)
- Digital platform (www.buildyourbestday.com/earlyyears) - coming soon!

SUMMARY AND CONCLUSION



Canadian 24-Hour Movement Guidelines for the Early Years (0-4 years): An Integration of Physical Activity, Sedentary Behaviour, and Sleep

- The Whole Day Matters
- Young children need to **Move**, **Sleep** and **Sit** the right amounts for optimal health

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