

Quick and Easy Screening Tasks Effectively Identify the Physical Literacy Support Needed to Include Children with Medical Conditions and Disabilities

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Introduction
Physical literacy among children with MC&D

Children with medical conditions & disabilities (MC&D)...

- 1 Are less likely to participate in recreation programs or activities
- 2 Often have limited physical literacy

Understanding these limitations enables recreation leaders to facilitate their inclusion

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Access ON Childhood Physical Literacy

Methods – Participants

Children who were:

- 8 to 12 years of age
- Followed in neurology, cardiology, oncology, haematology, rheumatology, rehabilitation, concussion, respirology, mental health or thrombosis clinics at one of 3 paediatric hospitals

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Background
What is Physical Literacy (PL)?

The motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life

(Canadian Physical Literacy Consensus Statement, 2015)

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Introduction
Purpose

To determine whether quick/easy physical literacy screening tasks could accurately identify the physical literacy deficits of children with MC&D

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Screening tasks

Methods

Wall sit, Run, Balance on one leg

BMI = $\frac{\text{Weight (kg)}}{\text{Height (m)}^2}$

Body mass index

Questionnaire

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Children with medical conditions & disabilities (MC&D)...

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Increasing their risk for the physical and psychosocial health consequences of inactivity

(Tremblay et al., 2011)

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Brief overview
Methods

Step 1 → Step 2 → Step 3 → Step 4

Recruitment, Screening tasks, CAPL-2, Analysis

Children, ages 8-12, with a chronic medical condition or disability

Wall sit, balance on one leg, run, BMI questions

CAMSA, PACER, plank, questions, pedometer

Evaluated associations between screening task results and CAPL-2

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Screening tasks

Methods

How active are you compared to other kids your age?

Who is most like you?

Screen time: a) school days b) weekends

Barriers to being active

Parent support for activity

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Canadian Assessment of Physical Literacy (CAPL)

Methods

"Physical Literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life."

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APPLIED CHILDREN'S
PHYSIOLOGY

Canadian Assessment of Physical Literacy (CAPL)

Methods – Physical Competence

- > Motor skill
Canadian Agility and Movement Skill Assessment (CAMSA) score and time
- > Aerobic endurance
PACER shuttle run
- > Muscular endurance
Plank isometric hold

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Physical screening task results

Screening task completion

Participant characteristics	n	Mean Age (Years)	Sex (%male, % female)
Participant characteristics	330	9.95	52%, 48%

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Methods – Daily Behaviour

- > Pedometer step counts
1,000 < count < 30,000 daily
Minimum of 10 hours on 3 days
- > Self-reported MVPA
How many days > 60 mins

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Canadian Assessment of Physical Literacy (CAPL)

Methods – Knowledge and Understanding

- > Physical Activity guidelines
- > Physical activity terminology
- Endurance of aerobic fitness
- Muscular strength or endurance
- > Enhancing physical literacy
- Training to improve fitness
- How to improve skill

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Results and Discussion

Summary

Result	Implications
Successful performance was: - 87% (wall sit) - 78% (one leg balance) - 91% (run)	Most children with MC&Ds were able to perform the physical screening tasks

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Canadian Assessment of Physical Literacy (CAPL)

Methods – Motivation and Confidence

- > Predislection
Fun and enjoyment
- > Adequacy
Expectations for success
- > Competence
Feeling effective in the activity
- > Intrinsic motivation
Activity pursued for its own sake

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Canadian Assessment of Physical Literacy (CAPL)

Methods

Analyzing the data:

- Total scores for each screening task & CAPL-2
- % able to complete each screening task
- Correlation of screening tasks & CAPL-2

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Physical screening tasks vs. CAPL results

Correlations between physical screening tasks and CAPL score

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PHYSIOLOGY

Results and Discussion

Summary

Result	Implications
Successful performance was: 87% (wall sit), 78% (one leg balance), 91% (run)	Most children with MC&Ds were able to perform the physical screening tasks
Relatively strong correlations for CAPL vs: wall sit, one leg balance, and run	The screening tasks requiring movement were most correlated with the child's total physical literacy (CAPL score)
Moderate relation between CAPL score and whether children reported that they did well in most sports	A lower association was found between screening questions and the child's total physical literacy (CAPL score)
No associations for BMI or other questions	

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Take home message

Body mass index and parent support are not strongly associated with physical literacy.

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Appendices

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Questionnaire and BMI vs. CAPL results

Screening questionnaire and BMI compared to CAPL score

Do Well vs Aren't Good $r = 0.36$

If you have any questions, just add Here are the two questions:

1. Some kids do well in most sports. **OR** 2. Other kids feel they aren't good at sports

REALLY TRUE for me	SORT OF TRUE for me	REALLY TRUE for me	SORT OF TRUE for me
How active compared to peers	0.25		
Good enough for teams	0.22		
Barriers to being active	-0.21		
Parent support for activity	0.03		
Body mass index	-0.21		
Screen time	-0.14		

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Take home message

Children's expectations regarding whether they would "do well" or "aren't good" in sports may help.

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Appendix A – Wall sit scoring sheet

Examiner: _____

Instructions:

- Stand with your back up against the wall and keep your feet shoulder width apart.
- Sit your knees and move your body downward until your legs are bent at 90 degrees.
- Place your arms on an imaginary chair.
- Hold your arms level at your sides and maintain the position as long as possible.
- We will stop timing as soon as your body is not in the proper position or when you stop trying.

Subject is instructed to stop if the 90 second mark is reached.

Date	ID #	Clinic	Wall Sit (seconds)

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Results and Discussion

Summary

Result	Implications
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Take home message

Recreation professionals can easily include the wall sit, one leg balance and run into warm-up activities, with the children's performance providing information about the expected level of physical literacy.

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Appendix B – PLAY Tools Run. Level 2

Examiner: _____

Instructions:

- Run in a straight line to the pylon (7m apart). Stop at the pylon. Run backwards back from the pylon to the starting pylon.

Rating 1

- Stumbles, trips or slips
- Transitions are not smooth
- Disjointed movement
- Steps over the line at the pylon

Rating 2

- Runs slowly
- Runs in a straight line there and back
- Good speed (up to run)
- Running backwards is not as good as running forwards
- Mature running form

Rating 3

- Stays on the line at the pylon
- Runs slowly
- Runs in a straight line there and back
- Good speed (up to run)
- Running backwards is not as good as running forwards
- Mature running form

Rating 4

- Stays on pylon
- Accelerates rapidly
- Disrupts at pylon
- Runs backwards efficiently, turns head to face direction of movement
- Arms and legs are not used purposefully

Date	ID #	Clinic	Rating (1-4)	Confidence
				1-5 (N)
				1-5 (N)
				1-5 (N)

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Appendix C – Balance on one leg

The subject is barefoot and 2ft from a wall with hands on hips. A visual target is placed on the wall at eye level. The subject is instructed to lift one foot and look at the target. Each child gets two trials on each leg. The best performance on each foot is recorded. Subject is instructed to stop if the 90 second mark is reached.

Timing is stopped when:
 - the subject touched the free foot to the floor
 - removed hands from hips
 - or moved the supporting foot from the original position
 (after two warnings) subject continued to hook the free leg behind the support leg, drop the free leg below 45 degrees of knee flexion, or looked away from the visual target

Date	ID	Left-foot balance 1	Left-foot balance 2	Right-foot balance 1	Right-foot balance 2

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Appendix D – Screening questionnaire (Q8)

8. Kids say there are also reasons that make it hard for them to be active. For each reason, tell us what you think by choosing the number that shows how you feel. If you think it is a good reason then you would "Agree a little" or "Agree a lot". If you do not think it is a good reason, then you would "Disagree a little" or "Disagree a lot". If you are not sure or you don't think the reason is good or bad then you are "in between".

I might not be active if...	Disagree a lot	Disagree a little	In between	Agree a little	Agree a lot
...I didn't have enough time to be active	1	2	3	4	5
...I have too many chores to do	1	2	3	4	5
...I didn't have a good place to be active	1	2	3	4	5
...if the weather was too bad	1	2	3	4	5
...I didn't have the right clothes/shoes	1	2	3	4	5
...I didn't know how to do the activity	1	2	3	4	5
...I didn't have the right equipment	1	2	3	4	5
...I had too much homework	1	2	3	4	5
...I didn't have anyone to be active with	1	2	3	4	5
...I didn't like to be active	1	2	3	4	5

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Appendix D – Screening questionnaire (Q1-4)

1. Compared to other kids your age, how active are you?

1	2	3	4	5	6	7	8	9	10
Not active at all									Very active

For the next questions, think about how you feel:

- 1 - Find circles the sentence that is **MORE LIKE YOU**
- 2 - These are about the sentence that is **REALLY TRUE** or **NOT TRUE** for you.

THERE ARE NO RIGHT OR WRONG ANSWERS, JUST WHAT IS MOST LIKE YOU

SAMPLE QUESTION AND ANSWER

1. **Other kids like to play with computers more than I do.** BUT I **REALLY** like to play with computers more than I do.

2. **Other kids like to play with computers more than I do.** BUT I **REALLY** like to play with computers more than I do.

3. **Other kids like to play with computers more than I do.** BUT I **REALLY** like to play with computers more than I do.

4. **Other kids like to play with computers more than I do.** BUT I **REALLY** like to play with computers more than I do.

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Appendix D – Screening questionnaire (Q9)

9. During a normal week, how much do your parents do the following things with you:

	Never	Not often	Sometimes	Often	Very Often
Take you to play games or sports					
Be active with me					
Encourage me to be active or play					
Play games or sports with me					
Plan family sport activities (bike, swim, walk, shoot baskets, etc.)					
Praise me for being active					
Complain about me being active					

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Appendix D – Screening questionnaire (Q5-7)

5. On a **school day**, how many hours do you play video or computer games or use a computer for something that was **not** school work?

I do not play video/computer games or use a computer other than for school work on **school days**

Less than 1 hour 1 hour 2 hours 3 hours 4 hours 5 or more hours

6. On a **weekend day**, how many hours do you watch TV?

I do not watch TV on **weekend days**

Less than 1 hour 1 hour 2 hours 3 hours 4 hours 5 or more hours

7. On a **weekend day**, how many hours do you play video or computer games or use a computer for something that was **not** school work?

I do not play video/computer games or use a computer other than for school work on **weekend days**

Less than 1 hour 1 hour 2 hours 3 hours 4 hours 5 or more hours

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