The Canadian Assessment of Physical Literacy: Preliminary Results from Pilot and Feasibility Testing

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CS4L 2010
Physical Activity / Inactivity

Physical Activity Levels
- 90% of Canadian children and youth are not meeting current physical activity guidelines
- Girls are less active than boys
- Physical activity declines in adolescence
- SES may play a role in physical activity

Screen Time
- Average screen time on weekdays is almost 6 hours in 10-16 year-olds (HBSC)
- Average screen time on weekends is over 7 hours in 10-16 year-olds (HBSC)
- Preschool aged children are accumulating almost 2 hours of screen time per day

Sport Participation
- Sport participation has declined in youth between 1992 and 2005 (77% to 59%)
School-Community Assets and Engagement

- 84% of schools indicate partnerships with community

School Sport Opportunities

- 20-30% of students feel there are not enough school sport opportunities

Effective Evaluation of Programming

- More information required

School Facilities and Equipment

- More information required
The issues…

“Effective evaluation practices are needed to optimize the effectiveness of physical education programming” (p.184).

“Evaluation is [also] needed to document the public health impact of physical education programming” (p.185)

Purpose

To create a contemporary assessment of physical literacy
Tremblay & Lloyd (2010)

“how will we know if Canadian children ‘more physically literate’ as a result of strategic, programmatic, or curricular initiatives if physical literacy is not actually assessed?” (p.30).
CAHPERD: Award of Excellence
Feasibility Study Findings

- Unanimous support for new program
- Parents concerned about their children – want to know where they rank and how to support them
- Desire for common, turn-key, yet adaptable, user-friendly tool to promote physical activity and measure physical fitness
- Federal government is ready to act...
- Study/Report commissioned by Sport Canada
What is Physical Literacy?

- A construct which captures the essence of what a quality physical education or a quality community sport activity program aims to achieve.

  - It is the *foundation* of characteristics, attributes, behaviours, skills, awareness, knowledge and understanding related to healthy active living and the promotion of physical recreation opportunities and positive health choices.

*For today’s discussion we are discussing “land” based activities*
Literacy Development

- Literacy is related to multiple factors
- No one factor is responsible for the development of literacy in children
  - The same applies to physical literacy
- Physically literate children learn from experiences in multiple domains (e.g. sport, physical education, play), multiple contexts (e.g. land, water, air, ice) and from multiple sources (e.g. coach, teacher, parent, peers).
Literacy Ecology

Adapted from Kainz & Vernon-Feagans, 2007
Physical Literacy Measurement

- How would we measure physical literacy?

- Its measurement includes elements of fitness, motor skill development, awareness / knowledge / understanding, physical activity and sedentary behaviours.
Canadian Assessment of Physical Literacy

Diagram:
- Motor Skills
- Physical Literacy
- Physical Fitness
- Physical Activity Behaviours
- Awareness, Knowledge & Understanding

Interconnections:
- Motor Skills to Physical Literacy
- Physical Literacy to Physical Fitness
- Physical Fitness to Physical Activity Behaviours
- Physical Activity Behaviours to Awareness, Knowledge & Understanding
- Awareness, Knowledge & Understanding to Motor Skills
We need a theoretical framework of assessment...

World Health Organization’s International Classification of Functioning, Disability and Health
WHO-ICF: Introduction

- The ICF is designed to classify functional consequences of health conditions.
- The ICF is being used in a preliminary fashion to inform conceptual frameworks in research (Bruyere, Van Looy & Peterson, 2005).
- The model proposes reciprocal relationships among the 3 central concepts (body functions & structure, activity, & participation), and there is a role for environmental and personal factors.
WHO: International Classification of Functioning, Disability and Health

- Loss or lack of
- Reduction
- Addition or excess
- Deviation

Health Condition

Status of Physical Literacy

Capacity for Action
- “can do”

Activity

Performance of action in real life
- “does do”

Environment Factors

Personal Factors

Facilitators or hindrances

Age, gender, race, lifestyle, parents, etc
WHO: International Classification of Functioning, Disability and Health

Body Function & Structures
- Status of Physical Literacy
  - Motor Behaviour/Motor Skills/Knowledge
    - Activity = “can do”
    - Environmental Factors
      - School teams, sidewalks, intramurals etc
    - Personal Factors
      - Pedometers
        - Community participation = “does do”
      - Parents, knowledge, motivation, preferences, etc

Health Condition
- a) Height
- b) Weight
- c) Fitness levels
- d) etc

Participation
Canadian Assessment of Physical Literacy

- Motor Skills
- Physical Literacy
- Physical Activity Behaviours
- Physical Fitness
- Awareness, Knowledge & Understanding
Fundamental Movement Skills
Obstacle Course Assessment

- Novel approach to motor skill assessment.
- More open setting
- Not static skills
  - Looking at function, not form.

VIDEOS
Physical Fitness
Fitness Assessment

- FitnessGram
- CPAFLA
- Eurofit
- Other standard measures that we can compare our results to.
- VIDEOS

Fitness Version 1

1. Measurements
   - Height
   - Weight
   - Waist Circumference

2. Partial Curl-Ups and Push-Ups

3. Sit & Reach and Back Strength

4. Grip Strength and Arm Flexibility

5. Shuttle Run / Beep Test*

Note: Running is evaluated during the fitness module

*Running form is evaluated on first two passes
Height, Weight and Waist Circumference
Physical Activity Behaviour
Pedometers

- 7 days of pedometer data
- Appropriate for all children regardless of ability level
Knowledge, Understanding and Awareness
Questionnaire

- Two iterations so far
- Currently open ended questions
- Next phase will be multiple choice, fill in the blank type questions
- Teachers/parent/coach can scribe for children with learning disabilities
CAPL Cycle 1 & 2

**Cycle 1**
- Data was collected over an 8 week period
  - On 238 children
  - In 10 Classes (5 schools)
  - From 2 school boards
    - 1 Urban
    - 1 Rural

**Cycle 2**
- Data was collected:
  - On 373
  - In 18 School Classes (5 +1 schools)
  - From 2 school boards
    - 1 Urban
    - 1 Rural
    - 5 Community Groups
CAPL Cycle 1 & 2

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Static Motor Skills

Gr 4M  Gr 4F  Gr 5M  Gr 5F  Gr 6M  Gr 6F

n = 567
Obstacle Course – Cycle 1

Obstacle Course – Cycle 1

Mean Score (out of 13)  Mean Time to Complete

Gr 4 Males  Gr 4 Females  Gr 5 Males  Gr 5 Females  Gr 6 Males  Gr 6 Females
Obstacle Course Cycle 2

Obstacle Course - Cycle 2

- Mean Score (out of 14)
- Mean Time to Complete

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>Mean Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr 4 Males</td>
<td></td>
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<tr>
<td>Gr 4 Females</td>
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<td>Gr 5 Males</td>
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<td>Gr 6 Males</td>
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<td>Gr 6 Females</td>
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</tbody>
</table>
Cardio-respiratory Fitness

PACER

Mean Performance
Minimum Performance Guideline for FG HFZ

Laps Completed

9M 9F 10M 10F 11M 11F 12M 12F

n = 350
Physical Activity Behaviour for Grade 4-6 Students

- Grade 6: 12476.71 steps
- Grade 5: 13150.60 steps
- Grade 4: 11922.07 steps

n = 472
Mean Physical Activity Behaviour

- Grade 6 Girls: 11360.56
- Grade 6 Boys: 13491.39
- Grade 5 Girls: 11880.44
- Grade 5 Boys: 14375.93
- Grade 4 Girls: 10391.18
- Grade 4 Boys: 13264.22

Mean Daily Step Count

n = 472
If you were allowed to pick what you do after school, which activity would you pick?

- play on playground with friends: 30%
- sport team practice: 32%
- do homework: 7%
- read: 5%
- chat online: 4%
- walk the dog: 10%
- play video/computer games: 10%
- watch TV: 2%
- read: 5%

n = 541
How long should you and other Canadian children engage in physical activity every day?

- 20 min: 29%
- 45 min: 3%
- 60 min: 21%
- 90 min: 7%
- 30 min: 13%
- Other: 27%

n = 543
60% of boys and girls indicated they play sports at school
40% say they don’t play sports at school
175 children attend schools who have NO school sports
**Question 1. Name 3 things you **like **about playing sports or being physically active**

| Grade 4 boys | Getting stronger (5), I like playing with my friends (5), meeting new people/friends (5), sports are cool, showing off your skill, being sporty, staying out of trouble |
| Grade 4 girls | Getting exercise (4), Being healthy (4), meeting new people/friends (3), feeling good or better/proud (3) |
| Grade 5 boys | strength/muscles (13), Playing with friends (10), being fit (8), setting goals like making it to the NHL/Olympics (2) |
| Grade 5 girls | Making new friends/play with friends (16), keeping healthy (8), makes me feel good about myself/feels good after (5) |
| Grade 6 boys | Playing with friends/tournaments/competitive teams (11), staying in shape/fit (5), Helps build muscle/get stronger (3) |
| Grade 6 girls | Being healthy (9), make friends/be on a team (6), not being judged/getting acknowledged or rewards (3), feeling good after (3) |
Question 2. Name 3 things you don’t like about playing sports or being physically active

<table>
<thead>
<tr>
<th>Grade 6 boys</th>
<th>Tiring (8), Losing (3), too competitive (3), using up time (4), too rough (3), getting yelled at (2), I don’t like getting crushed like a grape, it hurts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 4 girls</td>
<td>Being sweaty (4), Being tired (4), getting hurt (3), not being liked/being made fun of (2), mean people/sour winners (2)</td>
</tr>
<tr>
<td>Grade 5 boys</td>
<td>Getting hurt/injured (8), bathroom breaks (6), getting tired (6), mean people (2), letting your team down, over competitiveness, getting embarrassed, bad sportsmanship/poor sports (3), being slow/not strong (2)</td>
</tr>
<tr>
<td>Grade 5 girls</td>
<td>Getting hurt (7), Being sweaty (7), too competitive (5), getting yelled at (2), getting your feelings hurt, getting made fun of/embarrassed (2)</td>
</tr>
<tr>
<td>Grade 4 boys</td>
<td>Cheaters (2), Sore losers (3), being away from friends (3), getting hurt (3)</td>
</tr>
<tr>
<td>Grade 6 girls</td>
<td>Being sweaty (7), Being tired (5), Breathing heavy (5), being watched, not understanding how, I don’t like when I’m playing a sport and my pants fall down</td>
</tr>
</tbody>
</table>
Question 6. Do you think it’s important to be fit? Why? Grade 6 girls responses

**HEALTH**
So you don’t get sick
It can make you healthy
If you’re not physically fit your body isn’t healthy
If not we would all be lazy
So we don’t become lazy
Because we could have problems like fat on the liver etc.
It’s healthy for you
If you are not physically healthy you cannot possibly be healthy in any other form
Keeps you healthy (3) so we can have a healthy body
It’s better for our lifestyle and health
Because if you’re not you will probably not be healthy when you are older
Because that way you will live a healthy and long life
So we stay healthy, keep fit and have fun!
Why can’t some children participate in physical activity or sports?

What do you think these 10-12 year olds said?
Disabilities/Health

- wheelchairs (13)
- handicapped
- blind so they have to be watched every minute
- blind (2)
- disabled/disabilities (19)
- tired all the time
- physical problems
- can’t walk (3)
- paralyzed (3)
- mental problems
- mentally challenged
- asthma (10)

- they don’t get enough sleep
- heart problems (2)
- they hurt/injured themselves (3)
- they are hurt (2)
- broken bone (3)
- sick/illness (16)
- cancer (2)
- flu
- rare disease
- don’t feel well
- no legs or arms (2)
- physically challenged
- physical conditions
- amputated part of body
Why can’t some children participate in physical activity or sports?

- **Disability/Health Answers**
  - Girls – 152 statements
  - Boys – 116 statements
  TOTAL = 268

- **Monetary**
  - Girls – 20
  - Boys – 49
  TOTAL = 69
Physical Activity and Fitness
Fitness and BMI
Physical Activity and BMI
Teacher Impressions

REB approved questionnaire: 3 questions
What were your positive impressions of the CAPL?

- Very well organized, good communication.
- I like the different parts – the kids really liked the pedometers, and the beep test, the obstacle course was a great hit too.
- Students were actively engaged
- Reinforced importance of fitness
- Introduced many students to pedometers
- Your staff were well organized and positive
- Well organized in all aspects
- The package you provided with an overview of the activities with related games was very informative.
- Kids enjoyed participating and were excited about program
- Very accommodating to schedule and time – it was great!
What were your positive impressions of the CAPL?

- It was very well organized and easy (little work required) on the teachers!
- The activities in the gym gave me an idea of how to better assess physical literacy/fitness.
- I liked the idea of giving students a survey to find out about their knowledge about health and fitness (an idea for the beginning of the year as a phys-ed teacher) students were motivated!
- My overall impressions are that this is long over-do! I think it was a wonderful experience all the way through! The class was very excited to participate. Your staff was very positive with my student’s 😊! I really think we have to continue to emphasize the importance of a healthy lifestyle to our students and this will definitely help. Thanks!
- I was impressed with how willing you were to work around our schedules. I was also impressed with how thorough the various activities were that you did with the kids. The staff were also very encouraging & supportive to all the students – positive feedback was provided regardless of how the student did. I also like the questionnaires the kids did.
What were your negative impressions of the CAPL?

- Teachers will need the support of principals to get adequate gym time to complete the testing.
- All the equipment needed for the test needs to be kept in one area/and or delivered to school at a specific time (like the EQAO materials are so that equipment doesn’t go missing)
- Set up time for the teachers to get course (i.e. The obstacle course ready – will be an issue as teachers will need to use their prep time to set up (cannot do it at recess or lunch)
- Schools/teachers will need to be flexible to get gym time.
- None
- The only thing was I was a little frustrated with some of my students who did not fill out their pedometer sheet properly. I hope it wasn’t a waste of time (for you!) Maybe they could record it at 12 noon every day or a consistent time at school, I’m not sure.
- N/A
- No negative! All positive!
What would you do to make it better?

- Some minor concerns about time management (e.g. student survey and pedometer handout with individual instructions) – Thank you for allowing us to participate. Best Wishes.
- Nothing – I hope you found (name of school) a useful stop on your way!
- If study was done earlier in the school year, teachers could use results to direct their teaching.
- Can teachers have access to survey (blank) or a copy of student surveys? (realize that is a lot of paper)
- Great learning process! 😊
- Can’t think of anything – it is beyond your control – but I was disappointed in my kids with respect to the pedometer tracking – some of the figures were majorly inflated.
Discussion

- It is feasible to conduct this type of assessment.
- Very positive feedback from teachers
- The inter-relationships are becoming clear.
- Much more work to be done.
Current Partners and Funding Sources: CAPL

PARTNERS
- Active Healthy Kids Canada
- ParticipACTION (2 years)
- CAHPERD (now PHE Canada)
- Champlain LHIN
- Champlain Cardiovascular Disease Prevention Network (2 years)
- Upper Canada District School Board
- Ottawa Catholic School Board
- OPHEA
- Public Health Agency of Canada
- Ontario Ministry of Health Promotion

RESEARCH GRANTS
- CIHR 1 year operating grant (2009-2010)
- CHEO-RI – 1 year pilot funds (2009)
- Summer Studentship (2009)

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