Physical Literacy and Obesity: Moving well to move more

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DISCLOSURE

• I have no commercial interests to disclose

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OBJECTIVES

1. Review the current physical activity recommendations for youth
2. Define physical literacy and describe its connection to physical activity and obesity
3. Explore how physical literacy assessment, counseling, and referral can be incorporated into the clinical care of youth with obesity

Defining terms: physical activity

• Physical activity is any action that gets a body moving and expending energy above its resting state

• Includes different types of activities:
  • Aerobic
  • Muscle-strengthening
  • Bone-strengthening
  • Flexibility
  • Balance

• Multiple health benefits to all ages
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https://www.youtube.com/watch?v=Oi8r6S2Wb6Q

Physical activity recommendations for youth

• **Physical Activity Guidelines for Americans, 2nd edition** provides guidance for youth ages 3-17
Key Guidelines for Preschool-Aged Children

- Children ages 3-5 should be physically active throughout the day to enhance growth and development
  - 3 hrs per day is a “reasonable target”
  - Caregivers should encourage a variety of activity types

Key Guidelines for School-Aged Children and Adolescents

- **Aerobic**
  - Most of the 1 hr+/day should be MV aerobic PA and should include vigorous PA on at least 3 days/week

- **Muscle-strengthening**
  - As part of 1 hr+/day PA, youth should include muscle-strengthening PA on at least 3 days/week

- **Bone-strengthening**
  - As part of 1 hr+/day PA, youth should include bone-strengthening physical activity on at least 3 days/week
Maine youth & PA guidelines

• How are young Mainers doing?
### Maine youth & PA guidelines

<table>
<thead>
<tr>
<th>MIYHS Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many days each week do you exercise, dance or play sports for at least an hour? (Percentage of students who answered at least 7 days)</td>
</tr>
<tr>
<td>5th/6th grade</td>
</tr>
<tr>
<td>2019</td>
</tr>
<tr>
<td>23%</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>28%</td>
</tr>
</tbody>
</table>

| 60+ minutes of total physical activity daily (Percentage of students who were physically active for a total of 60 minutes/day on all of the past 7 days) |
| Middle school |
| 2019 |
| 26% |
| 2017 |
| 26% |

| Same as for MS |
| High school |
| 2019 |
| 21% |
| 2017 |
| 20% |

Adapted from: [http://data.mainepublichealth.gov/miyhs/home](http://data.mainepublichealth.gov/miyhs/home)

“…we remain stuck in a mindset grounded in guidelines that focus almost solely on the achievement of at least 60 min MVPA each day.”

“The time has come to expand our conceptual approach...”

“Simply asking physically inactive boys and girls to “walk to school” or “play outside” is not enough.”


So what is physical literacy?

- The **motivation**, **confidence**, **physical competence**, **knowledge** and **understanding** that individuals develop in order to **maintain physical activity** at an appropriate level throughout life.


WHAT IS PHYSICAL LITERACY?

Physical literacy is when kids have developed the skills, confidence, and love of movement to be physically active for life.

Physical literacy begins when parents encourage movement in infancy... ...develops throughout life... ...and can be a gift that is shared between generations.

$7-8$

Higher annual earnings

$↓$

Reduced risk of heart disease, stroke, cancer, and diabetes

$40%$

Higher test scores

$↑$

Increased self-esteem and happiness

THE BENEFITS OF BEING PHYSICALLY ACTIVE

*Adapted from Aspen Institute Sport for All: Play for Life: A Playbook to Get Every Kid in the Game

https://activeforlife.com/physical-literacy-2/

HOW IS PHYSICAL LITERACY DEVELOPED?

Kids develop physical literacy gradually through a variety of structured and unstructured activities. The nature of these activities changes as kids grow in age and ability.

0-3 years

Encourage early movement.

3-5 years

Expand on play, and keep it fun.

5-8 years

Increase the focus on fundamental movement skills.

8-12 years

Introduce more complex skills as kids are ready.

Learn more at: ActiveForLife.com

https://activeforlife.com/physical-literacy-2/
Fundamental movement skills (FMS)

- Locomotor skills
  - crawl, walk, run, hop, skip, jump, swim, push, pull

- Object-control skills
  - throw, catch, kick

- Stability skills
  - static balance

Groups at risk of low physical literacy

- Low income
- Racial/ethnic minorities
- Girls
- Children and youth with special health care needs (CYSHCN)
- Children with obesity


How to evaluate kids

Physical Literacy assessment

How to evaluate kids

Physical Activity assessment vs. Physical Literacy assessment

• Questionnaires
• Activity logs
• Pedometers
• Research-grade and consumer-oriented accelerometers
Physical literacy assessment

Domains of Physical Literacy

Daily Behavior

Knowledge & Understanding

Motivation & Confidence

Physical Competence

Physical Literacy for All Youth in Maine (PLAY-ME) Workgroup

Left to Right: Victoria Rogers MD, Sarah Hoffman DO, Carrie Gordon MD, Michele Labotz MD, Emily Keller MD, Marin Johnson MS, Christina Holt MD

Matt Douglas PT, Chris Pribish ATC
Physical Literacy for All Youth in Maine: 
PLAY-ME 
HEALTHCARE SCREENING FOR PHYSICAL LITERACY

Project Goals:
- IDENTIFY children who lack physical literacy
- REFER to help them improve physical literacy
- FOLLOW UP to monitor improvement
- SPREAD awareness of the concept of physical literacy

Primary Screen (Medical office)
Secondary Screen (PT, ATC, School, Other)

Beginner Program
Intermediate Program
Advanced Program

Reinforcement

Medical Follow-up
Reassess
Reassess

Cycle of Intervention (PT, ATC, School, Other)

Higher risk
Lower risk

Goal of communication between all parties woven throughout this process
# 2-Step Primary Screen in Office

Can be done via telemedicine or in office

**FAST and EASY Tasks with Limited Space**

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Equipment/Space</th>
<th>Accuracy of a PASS</th>
<th>Accuracy of NOT PASSING</th>
</tr>
</thead>
</table>
| One  | Answer Parent Support Questions | • Copy of question  
|      |                              | • Pencil or pen                                       | 89% of children who pass will be screened correctly | 67% of the children who do not pass will be screened correctly |
| Two  | Wall Sit                    | • Empty wall to rest back comfortably (2-3 feet in width)  
|      |                              | • Watch that measures seconds                        |                                             |                                          |

Data on accuracy of this screening process for adequate physical literacy:
- Positive predictive value: 89%
- Negative predictive value: 67%
- Sensitivity: 72%
- Specificity: 86%

https://www.capl-edp.ca/physical-literacy-screening-tasks/


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## Step 1: Questions

**Questions:**

<table>
<thead>
<tr>
<th>Higher risk</th>
<th>Lower risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Often</td>
</tr>
<tr>
<td>Not Often</td>
<td>Very Often</td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
</tr>
</tbody>
</table>

**Recording Answers**

<table>
<thead>
<tr>
<th>Child</th>
<th>Answer for Take You to Play</th>
<th>Child</th>
<th>Answer for Play with You</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. 001</td>
<td>Never</td>
<td>e.g. 001</td>
<td>Not Some</td>
</tr>
<tr>
<td></td>
<td>Not Some</td>
<td></td>
<td>Often</td>
</tr>
<tr>
<td></td>
<td>Not Some</td>
<td></td>
<td>Very</td>
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<tr>
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<td>Very</td>
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https://www.capl-edp.ca/physical-literacy-screening-tasks/
Step 2: Wall Sit

- Time until child gives up, or cannot maintain the proper position

https://www.capl-eclp.ca/physical-literacy-screening-tasks/

Step 2: Wall Sit Results

<table>
<thead>
<tr>
<th>Child ID</th>
<th>Wall Sit Time (seconds)</th>
<th>Child ID</th>
<th>Wall Sit Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. 001</td>
<td>52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What do the results mean?
If a participant scores less than 20 seconds on the Wall Sit, a detailed assessment of the child’s physical literacy (e.g., Canadian Assessment for Physical Literacy) is recommended. If the child scores 20 seconds or longer, a more in-depth assessment of physical literacy is probably not required.

Goal = >20 seconds

https://www.capl-eclp.ca/physical-literacy-screening-tasks/
Refer higher risk for Secondary Screen with:

- School-based
  - Physical Educators
    - Adapted PE
  - PT/OT
- **Physical Therapists**
- Athletic Trainers
- Community resources (*i.e.* YMCA, personal trainers, recreation departments, gyms)
- Medically Oriented Fitness Facilities
Secondary Screen at referral partner: 3 parts

1. Assessment of functional motor skills
   - 6 minute walk
   - 10 x 5 m shuttle run
   - Broad Jump
   - Medicine ball chest throw
   - Throw, kick, catch

2. Longer questionnaire
   - Knowledge
   - Motivation
   - Confidence

3. Daily activity log for 7 days
   - Pedometer tracking (or smart device)
   - Daily log of activity

PLAY-ME Project Status

- Testing the 2-step primary screen with pilot group of physician practices
  - Cycle 1: weight/wellness/obesity clinics ➔ completed
  - Cycle 2: primary care physician offices ➔ in development
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Thank you for listening!

Interested in more info on physical literacy, or the PLAY-ME Project? Reach out to:

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