An Inverse Approach to Validate the Importance of Motor Ability and Sport on Purposeful Play and Lifelong Vigorous Physical Activity

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Increased Health Care Costs in the US

• Ages 20 to 74 relatively little change in the percentage of overweight Americans from 1976-80 to 2009-10 (32.1% to 32.7%). However, obesity more than doubled from 15% to 36% for the same age group (Fryar, Carroll, & Ogden, 2012).

• 16.9% of the population ages 2 to 19 years categorized as obese. Obese children are at high risk for short-term health consequences and long-term tracking of obesity into adulthood (Ogden, Carroll, Kit, & Flegal, 2012).

• Approximately 58% of American children ages 6 to 11 do not engage in the recommended amount of daily physical activity, and by adolescence the proportion jumps to 92% (Benson & Mokhtari, 2011).
Which PE curriculum is best to enable children to initiate and embrace lifelong vigorous physical activity?

1) Physical fitness approach with an emphasis on “fitness-related” activities (i.e., cycling, yoga, resistance training, rock climbing, etc.);
   - Longitudinal studies in this area are apparently non-existent

2) Skill-based, motor competence approach attached to the concept of Long Term Athletic Development;
   - Longitudinal studies are emerging but mixed and sparse

The Inverse Approach

• Yes longitudinal observations are important, but critical curriculum decisions need to be made now! Not 10 or 15 years later...

• What do we know about adults that are vigorously active? Why are they vigorously active? What previous experiences enabled them to become vigorously active?

• Can this information give us insight into what should be considered for the development of a quality PE curriculum that will encourage lifelong vigorous physical activity?
Methodology

Participants:
• 32 college-aged elementary education students enrolled in a physical education methods class.

Anonymous qualitative and retrospective survey of:
• Previous elementary and secondary PE experiences.
• Perceived elementary FMS ability
• Elementary sport experience – school or club-based
• Secondary sport experience – school or club-based
• Current PA participation

Video assessment of motoric ability during invasion-type and object control games
• How resourceful are students at finding motor solutions to the motor problems? Bernstein, 1940's in Latash and Turvey (1996)

Motor Competence and Activity Index
• Do you recall the # days/wk of formal physical education (PE) in elementary school (ES)?
• How skillful do you think you were at FMS in elementary school?
• Did you participate in ES or club-based sports? Years? Start age?
• Did you participate in a secondary (HS) physical education program? Years? Did you enjoy HS PE?
• Did you participate in HS or club-based sports? How many sports? Years? Start age?
• What current sports, physical, or recreational activities do you currently participate? Why?
Qualitative Analysis

<table>
<thead>
<tr>
<th>Subj #</th>
<th>Dys/wk of EPE</th>
<th>Self assessed skill level</th>
<th># of Elem. sports</th>
<th>Yrs of Elem. sport</th>
<th>Yrs of Sec. PE</th>
<th># of sec. sports</th>
<th>Yrs of Sec. sport</th>
<th>Current activities</th>
<th>Index score</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1 (running)</td>
<td>23</td>
</tr>
<tr>
<td>23</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 (occasional running)</td>
<td>7</td>
</tr>
<tr>
<td>30*</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2 (baseball, wt. training)</td>
<td>22</td>
</tr>
</tbody>
</table>

*asterisk indicates home-schooled

Self-assessment scale: 3 - highly skilled; 2 - moderately skilled; 1 - very little skill; 0 - not skilled

“Motor solutions to the motor problems...”
“Motor solutions to the motor problems...”

Index values
• 14 students 20+ pt
• 14 students 10+ pt
• 4 students < 10 pt
Future Research

• Index needs to incorporate a quantitative scale to make meaningful statistical comparisons among exposures and current activity levels.

• Greater perspective in comparing school-based sports to club sports.

• Frequency and nature of current activity requires specific definitions to differentiate activities that are heavily motor skill dependent and those that are not (ex. equestrian, dance, hunting, swimming, etc.).

• Need to form focus groups to extract meaningful affective data (discomfort with dressing in front of peers; discomfort with competitive environments, etc.). Anthropometric and hormonal changes in middle school may introduce proficiency barriers, particularly among females.
Thank You!