At the end of this session, you will be able to...

• ...operationalize concept of classroom physical activity.

• ...list at least two influential facilitators of classroom physical activity implementation.

• ...list at least three highly rated perceived barriers to classroom physical activity implementation.

• ...recommend strategies for promotion and adoption of classroom physical activity in professional settings.

Physical Activity Benefits

• Increases fitness
• Decreases risk of disease
• Strengthens bones and muscles
• Alleviates stress, anxiety, depression
• Enhances cognition and brain health
• Improves academic performance
• Increases likelihood of healthy adulthood
Recommended Guidelines for Youth

- 60 minutes of daily physical activity
- Periods of inactivity not to exceed 2 hours

Physical Activity in School

- Quality PE
- Before and after school PA
- Family and community engagement
- Staff involvement
- During school physical activity

Classroom Physical Activity

- Movement within the general education classroom facilitated by the classroom teacher
- Procedural: task-oriented
- Structured: whole-class engagement in physical activity unrelated to academic instruction
- Content: physical activity integrated into academic lesson
Literature Background

- Classroom physical activity is feasible
- Increases student physical activity levels
  - Step counts and energy expenditure in class
  - Levels of activity outside the classroom
- Improves student behavior and performance
  - On-task behavior
  - Concentration
  - Fluid intelligence scores
  - Standardized test scores

Study Purpose

1. Determine elementary school teachers’ perceived barriers to, and facilitators of, classroom physical activity
2. Assess correlations among relevant constructs, including quantity of offered opportunities
3. Extrapolate data to inform promotion and adoption of classroom physical activity as a mechanism to enhance health and academic performance

Methods

- Cross-sectional
- Elementary classroom teachers
- Anonymous online survey via Qualtrics
  - Classroom Physical Activity Perception Survey (CPAPS)
  - Link sent via email from principal investigator, building principal, district representative, or colleague
Assessment Tool

- Classroom Physical Activity Perceptions Survey (CPAPS)
- Likert-type questions
- Current implementation status
- Relative advantage of implementation
- Facilitating reasons for implementation
- Barriers to implementation
- Demographics

Data Analysis Overview

- Descriptive statistics
- Multivariate general linear model (MANOVA)
- Bivariate correlations
- Multiple linear regression analyses

<table>
<thead>
<tr>
<th>Participants (n=116)</th>
<th></th>
</tr>
</thead>
</table>
| Sex                  | Male: 10 (9.4%)  
                          Female: 96 (90.6%)  |
| Age (yrs)            | n = 85  
                          M = 30.2, SD = 11.8  |
| Teaching experience (yrs) | n = 103  
                          M = 11.8, SD = 8.8  |
| Grade level          | K-2: 43 (40.6%)  
                          3-5: 56 (50.7%)  |
| Class size (students) | n = 79  
                          M = 20.8, SD = 8.9  |
| Physically active?   | Yes: 78 (71.7%)  
                          No: 37 (32.3%)  |
| Previous PA PD* attendance? | n = 104  
                          Yes: 39 (36.3%)  
                          No: 65 (58.3%)  |
| Prior PA PD* attendance? | n = 27/30  
                          M = 5.4, SD = 5.6  |

* PA PD: physical activity professional development
  ** Of those who responded yes to prior PA PD attendance
Implementation from Prior Five Days

Recent Classroom Physical Activity (structured or content only)

- 13% Number of Opportunities in Previous Five Days
- 42% 0-3
- 11% 4-6
- 34% 7-9
- 3% 10+

About half offered fewer than one opportunity per day.

Differences in Implementation: Multivariate

- Only prior professional development was significantly related to classroom physical activity implementation (F=2.90, p=0.03, η² partial = 0.22)
  - Those with prior professional development (vs. no PD)
    - 1.37 more typical days of structured physical activity (95% CI: 0.42, 2.31, t=2.92, p<0.01)
    - 0.61 more typical days of content physical activity (95% CI: -0.01, 1.62, t=2.00, p=0.05)
    - 2.52 more opportunities in previous 5 days (95% CI: 0.82, 4.22, t=2.99, p<0.01)

Teachers who attended PD offered more CPA than teachers who did not.

Differences in Implementation: Univariate Trends

- Grade level taught and content physical activity (F=7.61, p<0.01, η² partial = 0.15)
  - K-2 teachers offer 1 more day of content physical activity per week than 3-5 teachers (95% CI: 0.27, 1.73, t=2.76, p<0.01)

- Class size and structured physical activity (F=4.73, p=0.035, η² partial = 0.10)
  - Teachers with ≤20 students offer 0.97 more days of structured physical activity per week than teachers with 20+ students (95% CI: 0.07, 1.87, t=2.18, p=0.03)
Predictors of Opportunities

- Typical structured physical activity ($R^2=0.17$, $p<0.001$)
  - 1 knowledge point = 0.67 days ($p<0.001$)

- Typical content physical activity ($R^2=0.33$, $p<0.001$)
  - 1 knowledge point = 0.75 days ($p<0.001$)
  - K-2 teacher = 0.88 days > 3-5 teacher ($p=0.008$)

- Recent structured or content physical activity ($R^2=0.20$, $p<0.001$)
  - 1 knowledge point = 1.24 opportunities ($p<0.001$)

Top 5 Perceived Barriers to Classroom Physical Activity

- Noise/Behavior = 46.8%
- Planning Time = 36.7%
- Habit = 31.2%
- Material = 33.0%
- Noise/Behavior = 32.1%

Correlations between Constructs

- Teacher Perceived Need for CPA vs. Classroom Physical Activity (CPA) Opportunities: $r=0.20^*$
- Classroom Physical Activity (CPA) Opportunities vs. Teacher Innovativeness: $r=0.43^{**}$
- Classroom Physical Activity (CPA) Opportunities vs. Teacher Professional Development Attendance: $r=0.25^{**}$
- Teacher Innovativeness vs. Teacher Knowledge of CPA
- Not shown: $r=0.41$, 0.48, 0.43$^*$
- Teacher Knowledge of CPA vs. Teacher Perceived Need for CPA
- Teacher Knowledge of CPA vs. Teacher Innovativeness
- * $p<0.01$ 
- **$p<0.05$
Methodology Assessment

<table>
<thead>
<tr>
<th>Limitations</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible selection bias: those who support classroom physical activity may be more likely to complete survey</td>
<td>Quantitative report of constructs relevant to classroom physical activity implementation</td>
</tr>
<tr>
<td>Use of convenience sample may limit generalizability</td>
<td>Specific to classroom teachers about classroom physical activity</td>
</tr>
</tbody>
</table>

Conclusions

- Disconnect between positive perceptions and reported implementation
- Many of top rated barriers are modifiable
- Professional development is associated with implementation

Implications

- To decrease barriers and enhance facilitators to implementation of classroom physical activity:
  - Provide access to lesson plans, materials, and resources
  - Offer trainings designed to increase knowledge and self-efficacy specific to classroom physical activity
- Free resource: Classrooms in Motion™
  - http://classroomsinmotion.com