Healthy Kids, Healthy Futures
Saturday Open Gym Physical Activity Promotion: A Pilot Study

Jordan Thomas, MS*, Jessica Hoffman, PhD, NCSP*, Matthew DuBois, MS*, Tara Agrawal, MS*, Christine Locke Healey, MPH^, Shari Nethersole, MD^, Carmen Sceppa, MD, PhD*

*Northeastern University
^Children’s Hospital Boston
Presenter Disclosures

Jordan Thomas

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose
Background

• Recommended 60 minutes of daily physical activity\(^1\)

• Limited number of physical activity programs available

• Open Gym
  – Safe Space
  – Caregivers and children to come together
  – Increase knowledge and participation in physical activity
Healthy Kids, Healthy Futures

• Began in Boston February 2009

• Funding
  – Northeastern University
  – Children’s Hospital Boston
  – Boston Red Sox

• Partnership
  – Boston Public Health Commission
  – Action for Boston Community Development, Inc. Head Start
  – Boston Centers for Youth & Families
Goals of Healthy Kids, Healthy Futures

For Caregivers

• Nutrition and physical activity knowledge, attitudes and behaviors

For Head Start

• Self-evaluation and set nutrition and physical activity goals
Open Gym

- Additional component of HKHF
- Community-based physical activity program
- Caregivers and children 3-8 years old
- Free drop-in program offered year-round
- Northeastern University service-learning students
Open Gym

- 39 Open Gym sessions across 5 cycles
- 273 children
- 177 caregivers
- 150 families
- 57 caregivers and children at each session
Purpose of the Study

• Evaluate physical activity of children and caregivers and behaviors of student activity leaders

• We hypothesized that caregivers and children would engage in moderate to vigorous physical activity levels during the majority of the Open Gym sessions
Families (Caregivers and Children)

• Nine families

• One caregiver and one child between the ages of 3-8 years

• Caregivers self-identified as
  – Black ($n=5$)
  – Hispanic ($n=4$)

• Age of caregivers was 38+ 9 years

• Eight caregivers were female and one caregiver was male
Student Activity Leaders (SAL)

- Seventeen Northeastern University students

- Self-identified as:
  - Black ($n=1$)
  - Caucasian ($n=11$)
  - Hispanic ($n=2$)
  - Lebanese ($n=1$)
  - Multi-racial ($n=2$)

- Fifteen were female and two were male

- Attended one four-hour training session

- Supervised by a graduate student
Open Gym

- Community center in an urban neighborhood in Boston, MA
- 90 minutes on Saturday morning
- Activities based on
  - Sports, Play, and Active Recreation for Kids (SPARK) Early Childhood$^2$ curriculum
  - SPARK K-6$^3$ curriculum
  - Head Start *I am Moving, I am Learning* (IMIL)
- Activities specifically designed for young children (1-8 years)
- Designed for participation of children and their caregivers together
Open Gym

• Activity stations
  – 5 activity stations per session
  – 3 SAL per station

• Group game

• Caregivers served as role models for children
System for Observing Fitness Instruction Time (SOFIT)

- Measure activity levels of children and caregivers and behaviors of SAL

- Tool specially designed for use in physical education classes\(^4,5\)

- Validated using real-time measurements\(^6\) and accelerometers\(^7\)

- Behaviors of children, caregivers, and SAL were assessed
SOFIT Codes

• For children
  – 1 = lying down
  – 2 = sitting
  – 3 = standing
  – 4 = walking
  – 5 = vigorous

• For caregiver
  – Same as child with addition of code level 6
  – 6 = not engaged

• For SAL behavior
  – Promotes Fitness
  – Demonstrates Fitness
  – Instructs Generally
  – Manages
  – Observes
  – Other Tasks
Selection of Observed Children and Caregivers

• Families present during the first 15-20 minutes

• Up to 4 families chosen per session
Selection of Observed Student Activity Leaders

• Five SAL observed per session

• Randomly chosen
  – One SAL observed at each activity station
  – One SAL observed at the group game
Training of Student Observers

• Two trained graduate students

• Trained by the Open Gym coordinators on how to implement the SOFIT tool\textsuperscript{4,5}

• Modified interval answer key from training DVD

• 80\% criterion on all observation categories between observers prior to commencing data collection
Inter-observer Agreement

• Primary student observed

• Second inter-observer agreement

• Reliability check for one of the seven (14%) sessions
## Inter-observer Agreement

### Child Physical Activity

<table>
<thead>
<tr>
<th></th>
<th>Lying Down</th>
<th>Sitting</th>
<th>Standing</th>
<th>Walking</th>
<th>Vigorous</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Agreement</td>
<td>100</td>
<td>97</td>
<td>78</td>
<td>90</td>
<td>83</td>
</tr>
</tbody>
</table>

### Caregiver Physical Activity

<table>
<thead>
<tr>
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</tbody>
</table>

### SAL Behaviors

<table>
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</tr>
</tbody>
</table>
Observations

• Seven Open Gym sessions

• Children and caregivers
  – Momentary time sampling
  – 10-second observe interval
  – 10-second recording interval

• SAL
  – Partial-interval observations
  – Same observe/record intervals

• Continuously alternated observing each family for four minutes (240 seconds)

• Average of 159 intervals (64 minutes) and 477 observations each session
Child and Caregiver Activity Levels

Number of Intervals Observed

Activity Level

1. Lying Down
2. Sitting
3. Standing
4. Walking
5. Vigorous
6. Not Engaged

Caregivers
Children
Association Between SAL Behavior and Vigorous Physical Activity

SAL: Managing

\[ r = 0.81; \ p = 0.03 \]

SAL: Demonstrating

\[ r = 0.65; \ p = 0.11 \]
Association Between SAL Behavior and Vigorous Physical Activity

SAL: Instructing

\[ r=0.57; p=0.18 \]

SAL: Observing

\[ r=0.90; p=0.01 \]
Discussion

• Children
  – Vigorous physical activity (VPA) during 37% of the intervals
  – Walking or engaged in VPA for 55% of the intervals

• Caregivers
  – VPA for 16% of the intervals
  – Walking or VPA for only 24% of the intervals
  – Not engaged for 49% of intervals

• Implications for improving our Open Gym program
Discussion

1. Varying levels of physical ability and skills
   – Open setting
   – Physical ability and skill level between children and caregivers
Discussion

2. Help children and caregivers reach recommended physical activity levels
   – Targets children and caregivers
   – Limited number of physical activity promotion interventions
   – Careful attention needed when selecting the type of activities
   – Possible to focus more on the family
   – Caregivers served as positive role models
Discussion

3. Caregivers participated in more VPA when SLA were engaged in other tasks
   – When SAL were not participating in the activities, caregivers were more responsible to engage their child(ren)
Summary

- Community-based program that supports physical activity promotion.
- One of the few programs that targets caregivers and children.
- Learn healthy behaviors at a young age
  - Important to support a healthy lifestyle throughout the lifetime.
- Successful engagement in moderate-to-vigorous physical activity by young age children.
- The Healthy Kids, Healthy Futures Open Gym
  - A promising program model
    - Provides an opportunity for families to engage in moderate-to-vigorous physical activity
    - Helps support an active lifestyle for families of young children.
Recommendations for Future Research

- A larger sample size
- Increase caregiver participation
- Decrease number and participation of SAL
- Open Gym in a community setting
- Families of preschool aged children
Special Thanks To

- Northeastern University
- Children’s Hospital Boston
- Boston Red Sox
- The Boston Public Health Commission (BPHC)
- Action for Boston Community Development, Inc. (ABCD) Head Start
- Boston Centers for Youth & Families (BCYF)
References


