Environmental Modification to Increase Physical Activity During Recess: Preliminary Findings from Ready for Recess

Jennifer Huberty, Ph.D.
University of Nebraska – Omaha
Michael W. Beets, Ph.D.
University of South Carolina
Aaron Beighle, Ph.D.
University of Kentucky

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Background

- Increasing physical activity is a prominent public health objective to combat childhood obesity (Strong et al., 2005)
- Youth are not meeting recommendations for MVPA (Troiano et al., 2008)
- Obese youth spend 16 fewer minutes of time in MVPA per day than normal weight youth (Belcher et al., 2010)
- Girls are less active than boys (Belcher et al., 2010)

Introduction

- Schools are an attractive option for delivering interventions to promote physical activity (Pate et al., 2006)
- Multiple opportunities for physical activity during the school day (NASPE, 2008)
- Recess offers an opportunity for meaningful health enhancing physical activity (Nettlefold et al., 2010)

Recess

- Physical activity levels during recess vary depending on the recess environment (Beighle et al., 2006; Jago & Baranowski, 2004)
- Some evidence suggests students are active as little as 20% of the time during recess (Sallis & Patrick, 1995; Stellino et al., 2010)
- Environmental factors such as availability of equipment, staffing, and zoning may impact PA levels (Huberty et al., in press; Ridgers et al., 2010; Ridgers et al., 2007)
- An efficient recess is important

Purpose

- Little is known about the impact of recess interventions based on moderators such as age, gender, and BMI

- The purpose of this study was to determine the effectiveness of Ready for Recess (R4R) on the MVPA of boys and girls during recess.

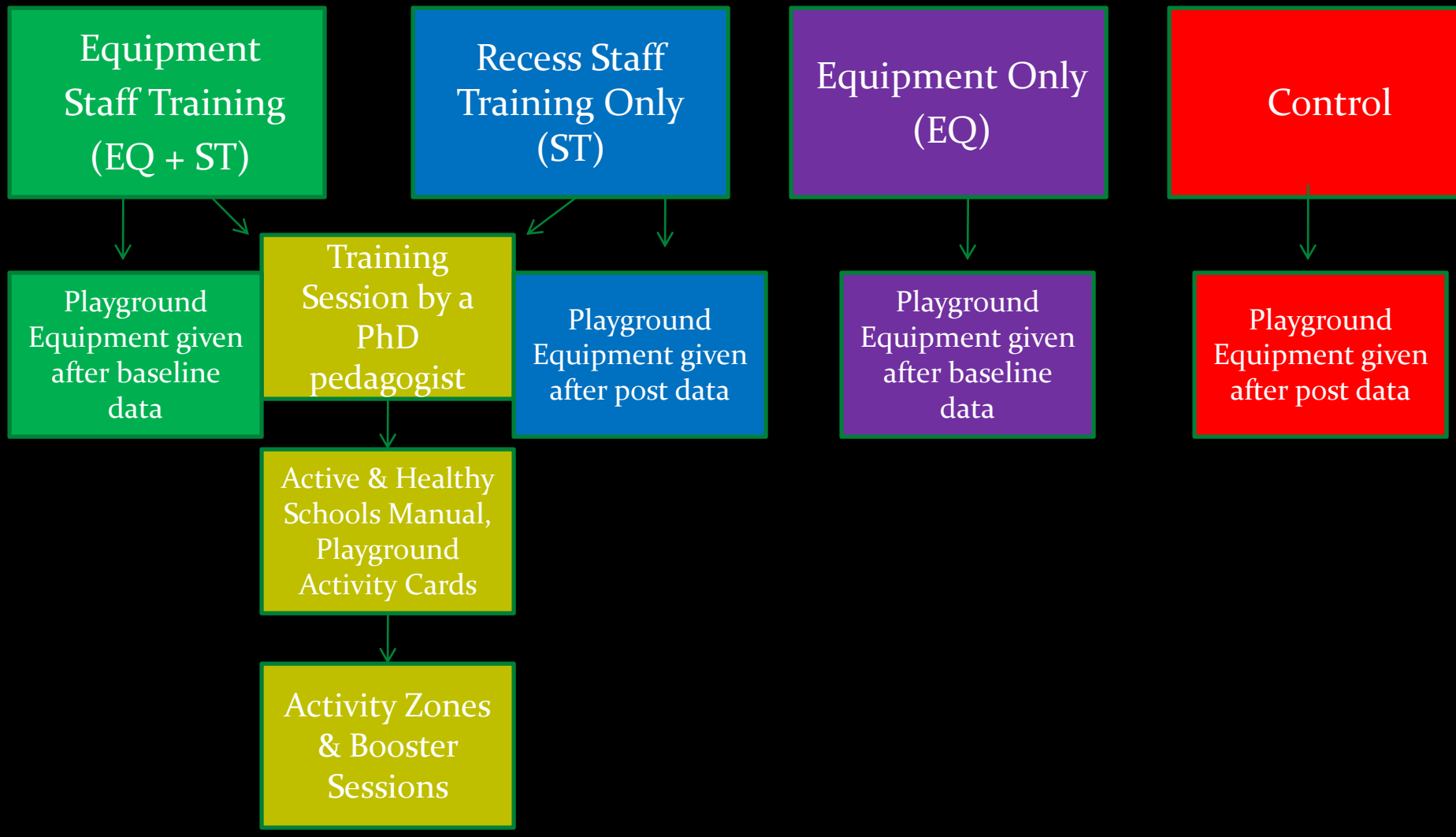
Participants

	Total N	%
Gender		
Boys	118	46%
Girls	139	54%
Race		
Caucasian	101	39%
African American	74	29%
Hispanic	75	29%
Asian/Pacific Islander	4	2%
Other	3	1%
	N=237	
Free & Reduced Lunch Status		66%

Methods

- Data were collected at the end of September, mid-school year, and post intervention in May
- Measurements
  - BMI was evaluated using standardized protocol
  - Accelerometers worn all day for 5 consecutive days during the school hours
- Experimental control pre/post-test design
- Graduate students were at the school in the morning and afternoon each day
- Teachers tracked when students went to recess

Intervention Arms



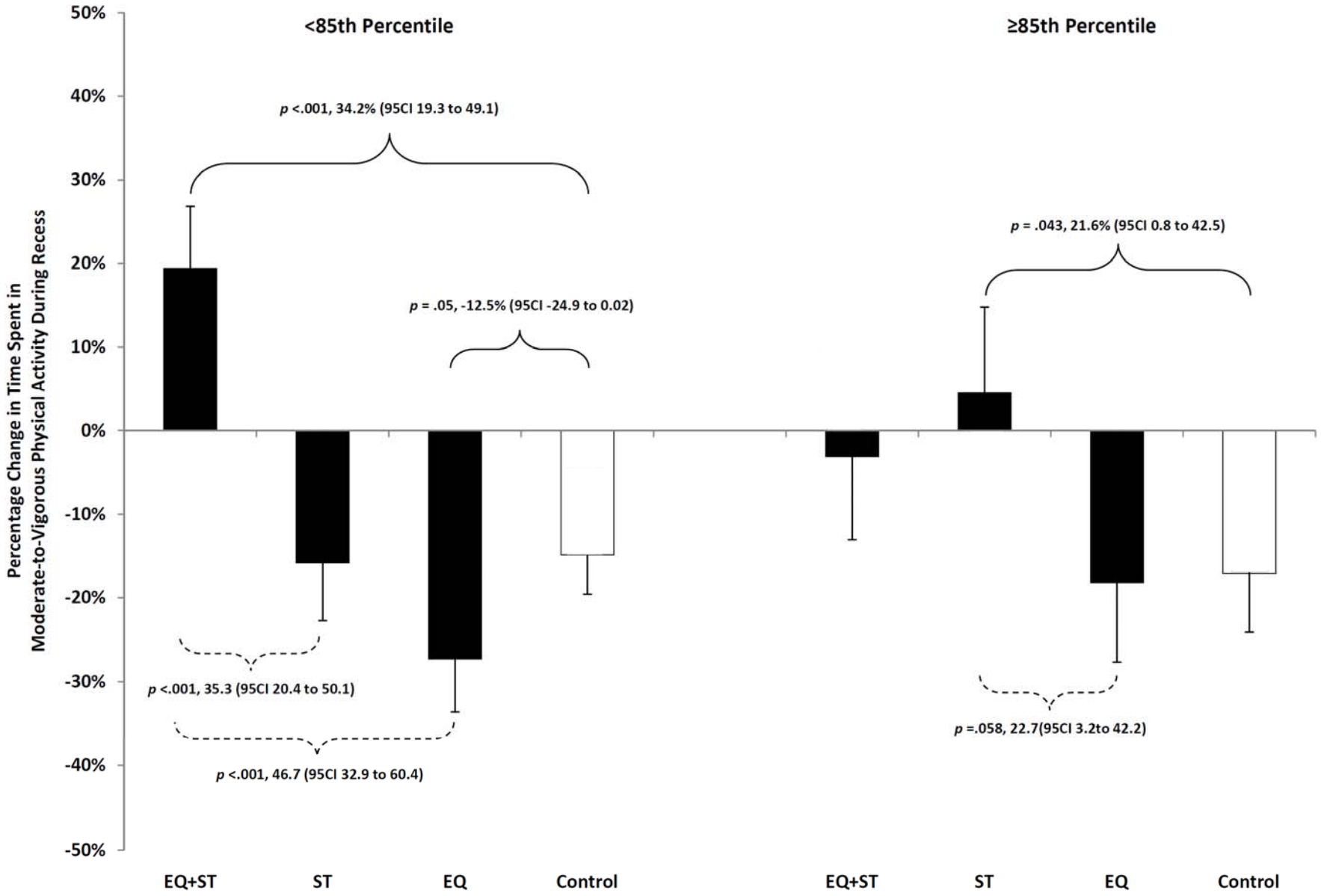
Data Analysis

- **Random intercept linear regression models**
  - **Time (baseline and post-test) nested within children**
- **DV:**
  - **Percentage of time during recess spent in MVPA**
- **IVs:**
  - **Time (0 = baseline, 1 = post-test)**
    Represents the change in the control group over time
  - **Dummy variables (0/1 three experimental group)**
    Represents the baseline values
  - **Time-by-experimental condition interaction**
    Represents the change over time in each experimental condition in comparison to the control
- **4 Models Estimated**
  - **≥85th and <85th centile**
  - **Boys and Girls**

Changes (baseline to post-test) in percent time during recess spent in moderate-to-vigorous physical activity for boys by weight status (healthy weight and overweight, separately)

Note: Dashed brackets represent contrasts among experimental groups

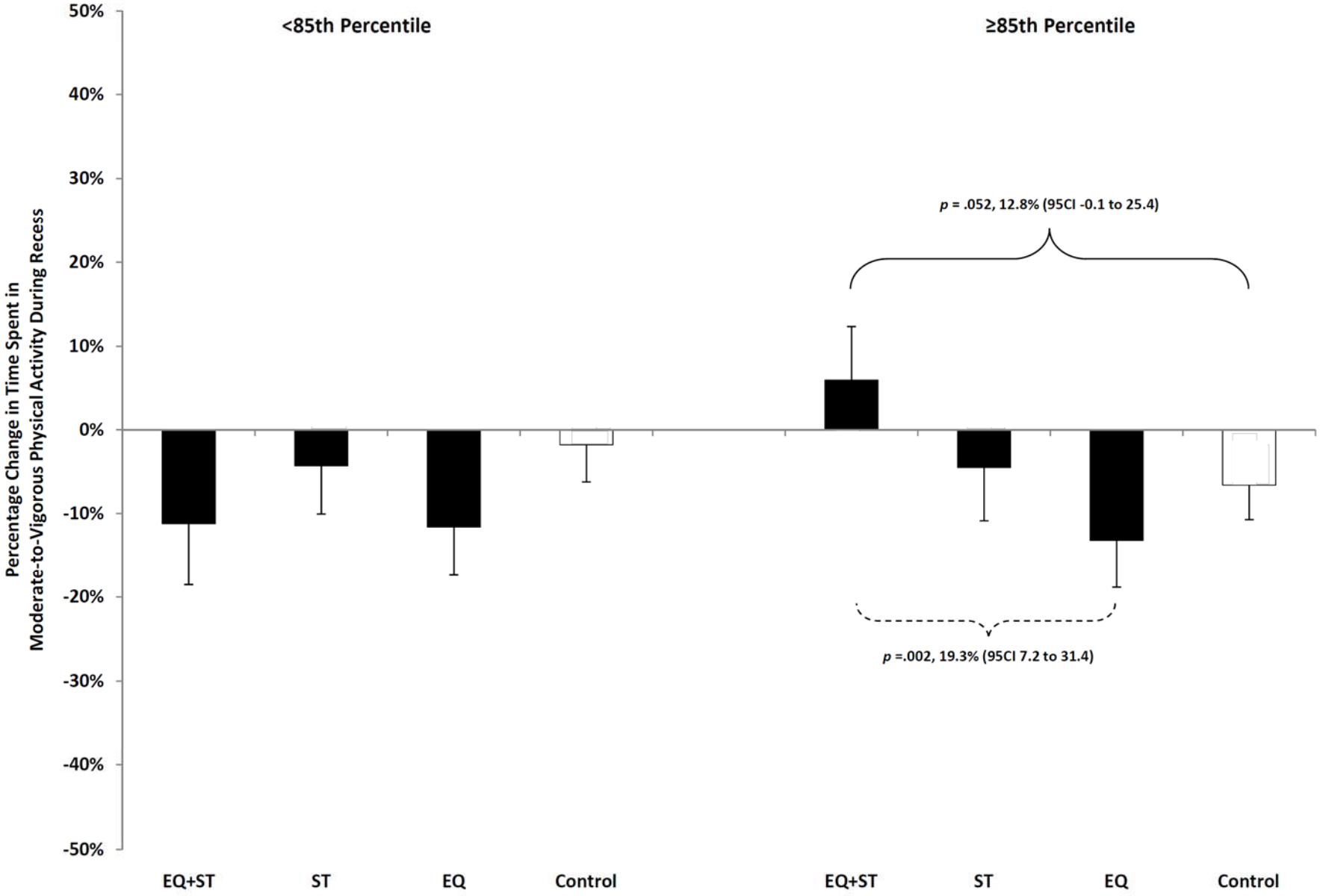
Abbreviation: EQ = Equipment only, ST = Staff Training only; EQ+ST = Combination



Changes (baseline to post-test) in percent time during recess spent in moderate-to-vigorous physical activity for girls by weight status (healthy weight and overweight, separately)

Note: Dashed brackets represent contrasts among experimental groups

Abbreviation: EQ = Equipment only, ST = Staff Training only; EQ+ST = Combination



Discussion

- EQ + ST can increase PA in healthy weight (HW) boys and overweight/obese (OWOB) girls
- ST can increase MVPA in OWOB boys
- None of the conditions resulted in increased PA for HW girls
  - In fact, HW girls' PA decreased
- These mixed findings are similar to those across other studies (Cardon et al., 2009; McKenzie et al., 2010; Stellino et al., 2010)

Discussion

- Intervention effect relative to weight status should be examined
  - OWOB boys need support from staff but may enjoy activities that require minimal equipment
- The decrease in MVPA for HW girls is a surprising finding
  - Were previous activities not included as a part of the intervention?
  - Zone activities such as long rope jumping and hula hooping may not be conducive for MVPA
- EQ+ST was effective for OWOB girls

Limitations

- Only four schools were used, thus we cannot disentangle the treatment effect from the school
- Child level effects were evaluated while random assignment and treatment were at the school level

Conclusion

- R4R represents a possible means to increase MVPA, particularly for OWOB girls and boys
- More research using a greater number of schools is warranted
- Currently a large scale ALR funded trial is being implemented to provide further insight into the effectiveness and utility of R4R

Thank You!