



## High quality recess contributes to the executive function, emotional self-control, resilience, and positive classroom behavior in elementary school children.

An examination of recess quality and student behavior by Dr. William Massey & Dr. John Geldhof, Oregon State University • October 2019

### Background

Over the past decade much attention has been paid to school-based recess and the implications of recess on child development. Several influential groups such as the American Academy of Pediatrics<sup>1</sup>, the Centers for Disease Control (CDC), and SHAPE America<sup>2</sup> have cited recess as a crucial component to the school day and elevated the potential cognitive, academic, social, emotional, and physical benefits. However, in considering the possible benefits associated with recess, the majority of research findings have focused on recess as instrumental to achieving minutes of physical activity. This lens has led several states to adopt laws requiring a minimum number of minutes for daily recess without focusing on the quality of that time.<sup>3,4,5</sup> The quality of recess (e.g., physical and emotional safety, student engagement, adult engagement) is likely a major determinant in facilitating the social and emotional benefits recess can afford<sup>6,7,8</sup>. As such, the primary purpose of this study was to examine the relationship between recess quality and social, emotional, and behavioral outcomes in children.

### Key Findings

This study moves beyond an examination of benefits related to the amount of recess time and instead is the first to systematically study the benefits based on the overall quality of recess.

### High quality recess significantly predicted the following student behaviors:



**Executive functioning:**  
The cognitive skills that help a child focus attention, remember details, solve problems, and make plans.  
(p-value=.021)



**Resilience:**  
Ability to overcome adversity, quickly recover from mistakes, cope with change, and solve problems.  
(p-value=.016)



**Emotional self-control:**  
Ability to resist immediate temptations and avoid acting on impulse in response to environmental changes.  
(p-value=.016)



**Positive classroom behavior:** These behaviors include adaptability (e.g., able to transition), functional communication, leadership, social skills, and study skills (i.e., behavior important to school success).  
(p-value=.030)

### Importance of Findings from the Study

Recess has been largely overlooked as a lever for improving students' social and emotional well-being and classroom behavior. By critically understanding and investing in what happens at recess, school leaders and policy makers can directly improve student outcomes in areas such as resilience and emotional self-control that are barriers to healthy and positive development, as well as learning. This study highlights the importance of focusing on what happens at recess, including how students are encouraged to engage with each other and how adults are prepared to model and support students in positive ways.

## Study Design

The aim of this study was to examine the relationship between recess quality, recess time, and various measures of child health and development. Participants include:



26 schools around the United States ranging from 32 percent to 98 percent economically disadvantaged



352 students randomly selected for behavior assessments completed by 113 teachers



1,033 students completed self-reported questionnaires

## Measures

- **Recess Quality:** Great Recess Framework Observational Tool (GRF-OT) is a valid and reliable tool that contains 17 items that each describe in short detail critical aspects of a quality recess environment. Recess quality included the structure and safety, adult engagement and supervision, student behavior, and transitions to and from recess to learning.
- **Student Behavior:** Behavioral Assessment System for Children (BASC-3) is a standardized, valid and reliable tool that examines a range of student behavior during the school day.
- **Classroom Quality:** Classroom Assessment Scoring System (CLASS) is a student report measure that captures classroom quality.

## Procedures

All procedures were approved by the Human Research Protection Program at Oregon State University. Data were collected during the 2018-2019 academic year. Of children who participated, up to five children per class were randomly selected for teacher completion of BASC-3. Recess observations and child surveys were conducted by trained university students.

## Analysis

To assess how recess quality was associated with indicators of children's developmental outcomes, a series of two-level regression models were fit in Mplus (v. 8.2; Muthén & Muthén, 2018). All statistical models accounted for children being clustered within recess sessions and corrected for the standard errors for nesting within schools. Within each model, we controlled for gender, age, classroom quality, and recess time allotted, while examining whether recess quality predicted student outcomes. Due to model complexity, we were not able to simultaneously model all BASC outcomes in a single model and instead blocked BASC subscales into five groups: Internalizing and Externalizing, School Behavior Index and Positive Behavior, Emotional Self-Control and Bullying, Executive Functioning and Resilience, and Negative Emotions and Anger.

Each set of outcomes was included in a separate statistical model and were tested against the total GRF-OT score.

## About the Authors



Dr. Massey's research focuses on the role of play, physical activity, and sport on child development, with a focus on children living in low-income and/or high violent communities. He focuses on how engagement contributes to the development of children who are at risk for physical, cognitive, and social disparities.



Dr. Geldhof's research focuses on the development of self-regulation across the lifespan and the relationship between self-regulation and positive youth development. He is also an expert in latent variable and multilevel modeling techniques.

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### Endnotes

1. Murray R, Ramstetter C. The crucial role of recess in school. *Pediatrics*. 2012; doi:10.1542/peds.2012-2993.
2. Centers for Disease Control, SHAPE America. Recess. In: *Physical activity*. U.S. Department of Health & Human Services. 2017. <https://www.cdc.gov/healthyschools/physicalactivity/recess.htm>. Accessed 26 Apr 2017.
3. Erwin H, Abel M, Beagle A, Noland MP, Worley B, Riggs R. The contribution of recess to children's school-day physical activity. *J Phys Act Health*. 2012;9:422-48.
4. Gao Z, Chen S, Stodden DF. A comparison of children's physical activity levels in physical education, recess, and exergaming. *J Phys Act Health*. 2015; doi: 10.1123/jpah.2013-0392.
5. Robert Wood Johnson Foundation. Recess rules: Why the undervalued playtime may be America's best investment for healthy kids and healthy schools report. In: *Research. Robert Wood Johnson Foundation*. 2007. <http://www.rwjf.org/content/dam/fam/reports/reports/2007/rwjf18060>. Accessed 24 June 2014.
6. Massey, W.V., Stellino, M.B., Wilkison, M., & Whitley, M.A. (2017). The impact of a recess-based leadership program on urban elementary school students. *Journal of Applied Sport Psychology*. doi: 10.1080/10413200.2017.1318417
7. Massey, W.V., Stellino, M.B., Mullen, S.P., Claassen, J. & Wilkinson, M. (2018). Development of the great recess framework – observational tool to measure contextual and behavioral components of elementary school recess. *BMC Public Health*, 18:394. <https://doi.org/10.1186/s12889-018-5295-y>
8. London, Rebecca A, Lisa Westrich, Katie Stokes-Guinan, and Milbrey McLaughlin. 2015. "Playing Fair: The Contribution of High-Functioning Recess to Overall School Climate in Low-Income Elementary Schools." *Journal of School Health* 85 (1): 53–60.