



Healthy Eating in Summer Day Camps: The *Healthy Lunchbox Challenge*

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ABSTRACT

Objective: To describe the development and evaluation of *Healthy Lunchbox Challenge*, a nutrition program targeting staff, parents, and children in summer day camps (SDCs).

Methods: A single-group, pre/post-assessment design was used during summer, 2011 (baseline) and 2012 (intervention). Four community-based SDCs in South Carolina participated. Intervention components were applied over the 11-week SDC program (2012) and consisted of (1) parent/staff education on Building a Better Lunchbox, and (2) a child/staff incentive program. Child and staff foods and beverages were assessed via direct observation (1,977 children and 241 staff). Percentages of foods and beverages brought by children and staff during the intervention were compared with baseline measures using mixed-effects regression models.

Results: The percentage of children bringing fruits, vegetables, and water increased from 31% to 42% ($P = .01$), 5% to 16% ($P = .01$), and 47% to 60% ($P = .01$) from baseline to post-assessment. Staff fruits and vegetables increased from 30% to 47% ($P = .03$) and 9% to 22% ($P = .03$). A slight decrease was observed for staff water (64% to 58%); however, this was not statistically significant. Decreases in low-nutrient-dense foods and beverages were also observed.

Conclusions and Implications: The *Healthy Lunchbox Challenge* represents a low-cost, innovative way to influence the nutritional content of child and staff foods and beverages in SDCs.

Key Words: nutrition policy, health promotion, summer day camp, child (*J Nutr Educ Behav.* 2014;46:134-141.)

INTRODUCTION

Summertime, which is seen as a respite for children from the school year routine, is also the time of the most rapid weight gain in youth.¹ A primary factor in unhealthy weight gain observed during summer months is the increased availability and consumption of high-calorie foods.² Summer day camps (SDCs), seasonal recreational programs providing daylong (8 AM to 5 PM) child care during the 8–11 weeks of summer, offer a unique opportunity to influence the foods and beverages children consume

during this time. Approximately 14.3 million children attend SDCs annually³; thus, SDCs are a potentially high reach setting that can influence children's eating habits. The National Afterschool Association (NAA) released *Healthy Eating Standards* (April, 2011) for SDCs to ensure that foods and beverages consumed support lifelong health of children. These standards specify that children consume a fruit, vegetable, and water daily during SDC while avoiding sugar-based foods and beverages (eg, candy, non-100% fruit juices).⁴ The standards emphasize the role of staff promotion of healthy

dietary habits and the importance of providing parents with food guides supporting healthy eating standards. Currently, the extent to which SDCs are meeting these standards is unknown.

Less than 10% of the 21 million children receiving free or reduced price lunches during the school year participate in the US Department of Agriculture Summer Food Service Program,^{5,6} which leaves parents the responsibility of packing foods and beverages during SDC. Of the studies targeting foods and beverages packed by parents in other settings (eg, child care, after-school programs), there has been little to no improvement in fruits, vegetables, whole grains, and/or water.⁷⁻⁹ This lack of improvement in the foods and beverages packed by parents suggests the need for innovative strategies to influence what parents pack for SDC. Therefore, the purpose of this study was to describe the development and evaluation of the *Healthy Lunchbox Challenge (HLC)*, an innovative theory and incentive-based program, to determine its influence on the amount of fruits, vegetables, and water brought

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to SDC by children. As a secondary outcome, the *HLC* also targeted the foods and beverages brought by staff.

METHODS

Participants

Four large-scale, community-based SDCs in central South Carolina participated in the study during summer, 2011 (baseline) and 2012 (intervention). Site-level demographics were assessed for each school district served by the SDCs using the South Carolina Department of Education's yearly free and reduced lunch eligibility reports. The average percentage of children eligible for free or reduced lunch across the 4 sites was 50%, with a range of 32%–86%. None of the SDCs received federal reimbursement for meals or snacks. Parents were informed of study procedures through orientation packets and newsletters, and through information posted at each SDC location. Because of the observational nature of this study, participants provided passive consent for the recording of foods and beverages. The University of South Carolina's Institutional Review Board for the Protection of Human Subjects approved all procedures.

Intervention Components

The *HLC* was grounded in behavioral choice theory (BCT)¹⁰ and goal-setting theory.¹¹ The concept of group goal setting, a key component of the *HLC*, has been shown to be an important mediator of group task performance.¹¹ In addition, studies employing BCT principles and constructs of goal-setting theory indicate that behavior change may be more likely when messages target increases in positive recommended behaviors (eg, packing fruits, vegetables, and water) rather than messages restricting behaviors (eg, do not pack sugar-sweetened beverages, chips, or candy) and clear goals are set to achieve.^{11–13} Focusing on recommended behaviors has the potential to elicit substitutions where fruits, vegetables, and water are brought to SDC, and conversely, untargeted reductions in packing non-recommended items, such as chips or soda, occur.¹³ Also, rewards (identified by each SDC)

were used to provide incentive for children and parents to pack fruits, vegetables, and water daily. These approaches served as the theoretical foundation upon which the *HLC* was created. Considering the lack of onsite refrigeration, dairy products were not specifically targeted.

Weekly meetings from March to May, 2012 identified strategies to influence parental and staff decisions regarding foods and beverages packed for each day of SDC. From these meetings, 2 intervention components were developed: parent and staff education, and a child and staff incentive program. Healthy eating education materials included a description of the *HLC* mission and procedures, a “Building a Better Lunchbox” guide to choosing foods and beverages that supports healthy eating standards, and tips on making recommended purchases at lower cost (Figure 1). The second component of the *HLC* was designed to influence parental decisions of foods and beverages purchased for SDC through child incentives, with the assumption that incentives would motivate children's request for fruits, vegetables, and water to be packed daily. Children were informed about the *HLC* during daily assembly and/or by their group counselors. Points were tallied by SDC staff, within predetermined groups (ie, kindergarten through first grade, second to third grades) before morning snack (children brought food for the entire day), to ensure all possible points were given before snack consumption. To record points, staff asked children to show any fruits, vegetables, and water they had brought for the day. To account for varying group sizes, group points were tallied as total percentage for each category. A maximum of 3 points (ie, 1 for fruits, 1 for vegetables, and 1 for water) were awarded regardless of the total number of items brought in any given category. Group points were displayed on a 4 × 3-in marker board located at the check-in/out area. Prizes were awarded to groups with the highest points at the end of each week. The NAA *Healthy Eating Standards* also emphasize the role staff have in nutrition promotion and modeling⁴; therefore, staff members were also encouraged to participate in the *HLC*.

Process Evaluation Measures

Trained research staff conducted 1 30-minute training session for SDC directors showing how to record, input, calculate, and display points daily. Technical support consisted of weekly communications and site visits where field notes were recorded to identify and resolve implementation errors, such as incomplete or missing recordings. Electronic recording forms provided to SDC directors enabled them to calculate age group percentages. Recording forms were evaluated weekly by trained research staff for accuracy. To quantify reach, trained research assistants spoke with parents throughout the study duration to evaluate the extent of their knowledge about the *HLC*. Staff members were provided with written evaluation forms (developed by researchers) on the *HLC* (including discrete and open ended questions) after program completion.

Procedures

The *HLC* was initiated within the first 2 weeks of SDC. Each SDC program operated Monday through Friday (7:30 AM to 6 PM) for 11 weeks; group observations took place during weeks 6–9. Each SDC site grouped children daily based on grade level. Based on weekly camper enrollment, either multiple grade levels were combined (ie, kindergarten through first grade, second through third grade, fourth through fifth grade) or each grade had its own designated group. Observation groups of children were randomly selected using a stratified sampling procedure, in which subsamples of children were randomly selected from each designated grade level, ensuring observation of the foods and beverages of at least 75% of children at any given grade level. Two groups of trained data collectors observed 4 age groups across 2 SDC sites daily for 16 days. Trained research assistants recorded all food and beverage items brought to SDC by children and staff on an observation form developed from an existing direct observation tools for the child care centers and elementary schools^{14,15} and modified for SDC settings. Categories of foods and

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