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Process evaluation of an intervention to increase child activity levels in afterschool programs

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ABSTRACT

Background: Identifying effective strategies in Afterschool programs (ASPs) to increase children's moderate-to-vigorous physical activity (MVPA) in the ASP setting is crucial. This study describes the process evaluation outcomes from an intervention to reduce child sedentary time and increase MVPA in ASPs.
Methods: Four ASPs participated in a quasi-experimental single-group pre-post study targeting child sedentary time and MVPA. The strategies implemented to help ASPs meet Physical Activity Standards consisted of detailed schedules, professional development trainings, on-site booster sessions, and technical assistance. Process evaluation related to staff behaviors was collected via systematic observation to identify the interventions impact on the physical and social environment of the ASP. Random-effects regression models examined the impact of the intervention on boys/girls observed sedentary behavior, MVPA, and changes in staff behaviors.
Results: Increases in MVPA and reductions in sedentary behavior were observed during enrichment, academics, organized and free-play physical activities (PA). Corresponding changes in staff behaviors were observed during these ASP contexts. For example, staff reduced child idle-time during organized PA (38.9–1.8%) and provided energizers more often during enrichment (0.2–11.5%).
Conclusions: This study identified changes in staff behavior during ASP contexts that led to increases in child MVPA and decreases in child sedentary behavior.

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1. Introduction

Afterschool programs (ASPs) serve more than 8.4 million children nationwide (Afterschool Alliance, 2009), and can contribute to children's daily accumulation of health enhancing physical activity (PA) (Beets, 2012; Beets, Webster, Saunders, & Huberty, 2013) because of their substantial reach and structured environment (Beighle et al., 2010). Subsequently, standards that target the amount of PA children engage in during ASPs have been developed and adopted by local, state and national organizations (Beets, Wallner, & Beighle, 2010). These standards call for children to accumulate 30–60 min of moderate-to-vigorous physical activity (MVPA) and limit the amount of time children spend sedentary while attending ASPs (Beets, Wallner, et al., 2010). However, initial research indicates ASPs struggle to limit child sedentary time and provide children with sufficient amounts of PA (Beets, Huberty, et al., 2013; Beets, Rooney, Tilley, Beighle, & Webster, 2010). This gap between standards and practice suggests that ASPs need additional support if children are to achieve the levels of PA called for in ASP standards.

Studies have sought to increase children's PA in ASPs (Dzewaltowski et al., 2010; Gortmaker et al., 2012; Iversen, Nigg,

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& Titchenal, 2011; Nigg, Battista, Chang, Yamashita, & Chung, 2004; Robinson et al., 2010; Sharpe, Forrester, & Mandigo, 2011). Intervention components used in these studies include: tailoring ASP activities to the participant population (Robinson et al., 2010), scheduling more time for PA opportunities during the program (Gortmaker et al., 2012; Mozaffarian et al., 2010), and implementing new curricula such as the CATCH Kids Club (Dzewaltowski et al., 2010; Sharpe et al., 2011). However, these studies have demonstrated mixed results with some increasing child PA slightly (Dzewaltowski et al., 2010; Gortmaker et al., 2012; Sharpe et al., 2011), some reporting no change in child PA (Iversen et al., 2011; Nigg et al., 2004) and one even reporting a decrease in child PA (Robinson et al., 2010). Many of the successful and unsuccessful studies incorporated similar intervention components for promoting child PA (Beets, 2012), making interpretation of components difficult. It is essential to understand what components within an intervention lead to increases in child MVPA. Perhaps an important consideration is the distinction between the way a program is delivered (i.e., what staff do) and the program itself (i.e., the curriculum). The staff shapes both the physical (structure the PA setting) and social environments (staff interactions with youth). This perspective requires a comprehensive approach to promoting child PA in ASPs.

Recently, one study adopted a comprehensive approach to increasing child PA levels (Beets et al., 2014; Weaver, Beets, Saunders, Beighle, & Webster, 2014). Founded in the principles of community based participatory research (Israel, Schulz, Parker, & Becker, 1998), a systems framework (Foster-Fishman, Nowell, & Yang, 2007), and public health policy literature (Brownson & Jones, 2009; Brownson, Seiler, & Eyler, 2010), a collaborative partnership between the YMCA of Columbia and the University of South Carolina implemented and evaluated PA standards in four YMCA ASPs. The collaborative team developed a comprehensive set of strategies (i.e., intervention components) for meeting the YMCA's PA Standards, which called for children to accumulate a minimum of 30 min of MVPA daily during the ASP. The core strategy of the collaborative team was a theoretically and empirically based (Weaver, Beets, Webster, Beighle, & Huberty, 2012) professional development training program focused on physical and social environmental elements identified as primary barriers to increasing children's PA in ASPs. These elements were operationalized in the trainings as the LET US Play principles, which stand for removal of lines, eliminating elimination, reducing team size, identifying uninvolved staff and children, and modifying space, equipment and rules to increase child PA. Findings indicated that changes in staff behaviors consistent with the LET US Play principles (e.g., reduction in elimination games) occurred from baseline to post-assessment (range 11% decrease in staff discouraging behaviors to a 14% increase in staff promoting behaviors) (Beets et al., 2014; Weaver, Beets, Saunders, et al., 2014), as did an increase in the overall percentage of girls (9.2% increase) and boys (15.9% increase) meeting the PA standard during ASPs.

The next step to further understanding the success of the professional development training program is identifying the ASP contexts (e.g., academics, PA) in which ASP staff utilized the skills learned in professional development training, and how these social and physical environmental changes translate into changes in child PA levels. Identifying where ASPs can successfully increase children's PA and what staff behaviors are driving these changes will allow practitioners and researchers to refine strategies to meet current PA standards. The two-fold purpose of this study, therefore, was to identify (a) the ASP contexts in which the staff implemented the behaviors learned in professional development training (i.e., effected physical and social environmental changes) and (b) the corresponding changes in child PA observed during those ASP contexts.

2. Methods

2.1. Setting and participants

Approximately 500 children ages 5–12 years old were enrolled across the four ASPs. Programs maintained a 1:10 staff to child ratio employing approximately 50 staff across all sites. The programs operated from Monday through Friday weekly. Start times ranged from 2:15 pm to 3:30 pm and finished between 6 pm and 6:30 pm. The average duration of the participant ASP sites was 3 h (range 2.5–3.75 h). The programs operated on similar schedules that included time allocated for snack, enrichment (e.g., crafts, puzzles, board games, drawing), academics (i.e., time designated specifically to academic work related to school), and physical activities (i.e., activities that require bodily movement such as sports or playground time), referred to as ASP contexts throughout this manuscript. Each program had access to both indoor (e.g., gym) and outdoor (e.g., fields) facilities. All children in attendance were invited to participate in the study with the only exclusion criteria being the inability to move without an assistive device.

2.2. Intervention components: comprehensive and coordinated approach

2.2.1. Physical activity standards

In 2011, the YMCA of USA and the four participating YMCAs adopted PA standards aimed at creating PA-promoting ASP environments (Wiecha, Gannett, Hall, & Roth, 2011). The four participant sites used these standards to guide their efforts to increase the PA of children attending their ASPs. Specifically, the sites called for all children in attendance to accumulate 30 min of MVPA each day (Beets, Wallner, et al., 2010), for staff to display PA promotion behaviors (e.g., verbal promotion) and refrain from PA discouraging behaviors (e.g., withholding PA as punishment) and for staff to receive annual training in order to develop competencies related to these behaviors (Wiecha et al., 2011).

2.2.2. Professional development training

All ASP staff at all sites participated in a one-day professional development training in January 2012. The session introduced PA promotion and management strategies to help frontline staff facilitate active ASP environments. The professional development training utilized the 5Ms (Mission, Manage, Motivate, Monitor, Maximize) training model to teach staff core competencies needed (Weaver et al., 2012). Within the 5Ms model, the LET US Play principles provided a framework for staff to examine elements of games and activities that limit PA. Members of the research team with expertise in the skills underpinning the training model led trainings.

2.2.3. Scheduling adjustments

The collaborative team identified detailed schedules as a useful tool to enable more opportunities for MVPA. Existing ASP schedules did not provide detailed direction for frontline staff leading activities, listing only times and general descriptions of what activities should be provided in various locations within each ASP context (e.g., games on the field, crafts in the classroom). Without clear direction, staffers were observed using excessive time to facilitate activities, leading to child idle-time (i.e., children waiting for direction from staff with no specific game/activity in which to engage). The schedules developed for the intervention consisted of clearly indicated activities to be played, equipment necessary to facilitate the activities, modifications to the activities that would increase child PA, and staff members who would be facilitating the activities.

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