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PHYSICAL ACTIVITY

Making After-School Physical Activity Programs a Success: Practical Lessons Learned

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Abstract

After-school physical activity programs for youth can develop and extend physical and mental skills necessary for health across the life span. With the considerable time and effort required to operate such programs, it is important that youth are achieving tangible goals and benefit from the programs. Unfortunately, many after-school programs lack any formal evaluation process, and it is unclear whether participants accrue benefits. Using the experiences of developing and evaluating multiyear after-school programs, we discuss variables that should be considered in the design and operation of an effective after-school program. Examples include how to market the program, what to include, how the program's size can affect outcomes, and how to effectively assess program effectiveness. Recommendations can be applied to other sport and physical activity–based programs to the benefit of program staff and participants.

After-school physical activity (PA) programs for youth can develop and extend physical and mental skills necessary for health across the life span. This is important, as children and adolescents have become increasingly sedentary over the past few decades (Tremblay et al., 2011). For example, in a recent report card on PA for children and youth in the United States, Katzmarzyk et al. (2016)

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reported that overall PA received a *D*- and health-related fitness was scored at a *D*. This lack of PA in combination with other environmental and socioeconomic factors has a detrimental effect on health, particularly for children and youth who are overweight and obese (Trost, Rosenkranz, & Dzewaltowski, 2008).

Children and adolescents who are overweight and obese are at much greater risk of being overweight and obese as adults (Trost et al., 2008). Consequently, comorbid diseases, or the simultaneous presence of two chronic conditions or diseases, such cardiovascular disease and type 2 diabetes, as well as other negative psychological consequences, such as decreased self-esteem and depression, may become evident from weight status (Porter, Stern, Mazzeo, Evans, & Laver, 2013). Organized after-school physical activities that are perceived as appealing and fun may serve as a vital means for preventing child health risk factors while enhancing interest in leisure-time physical activities (Bailey, Cope, & Pearce, 2013).

Implementing PA such as school-based PA programs has the potential to counter physical risks associated with obesity. However, these programs may also improve psychological variables such as self-esteem and self-efficacy (Shapiro & Martin, 2014). Barton, Griffin, and Pretty (2012) reported that exercise for those with poor mental health was equally as effective as other existing therapeutic techniques in managing and supporting recovery and in reducing depression and increasing self-concept. Through a variety of data collection methods including the Self-Description Questionnaire Inventory (SDQI; Marsh, Craven, & Debus, 1998) and focus groups, Daley, Daley, Sydney, and Haley (2009) found that a sailing program for youth increased self-confidence, communication, teamwork skills, and problem solving. These findings suggest that PA programming for youth should consider measuring psychological and physical outcomes, as well as tracking continued participation at a future time.

Findings from studies of in-school physical education programs have reinforced the need for increased time spent in physical education and activity (Sollerhed & Ejlertsson, 2008), but PA programming for children and adolescents has had mixed results (Gabriel, DeBate, High, & Racine, 2011; Stein, Fisher, Berkey, & Colditz, 2007). Gabriel et al. (2011) suggested that some of the ineffectiveness of PA

programs might be caused by a failure of not involving all stakeholders, the community, program planners, parents, and participants. They found that maintaining a feedback loop among the multiple stakeholders plays an important role in the sustainability of youth programs by supporting ongoing evaluation of the programs and identification of concerns.

In response to these issues, the Centers for Disease Control (2013) and the Society of Health and Physical Educators developed the *Comprehensive School Physical Activity Programs: A Guide for Schools*. Its primary purpose was not only to develop quality physical education as the foundation, but also to build PA programming for before, during, and after school that includes staff, family, and community. The program is considered holistic, which generally requires a "champion" within the district or school site to oversee the multiple areas in which activities occur during the school day. Although the physical educator is often considered the best person for this role, barriers such as insufficient professional development, training, and support exist (Centeio, Castelli, Carson, Beighle, & Glowacki, 2014). Therefore, acquiring external support through external partnerships, as in these studies for example, may increase PA opportunities that best serve youth.

Offering PA opportunities outside of the school environment provides children and adolescents with programming that counters a sedentary lifestyle. It creates an opportunity to improve PA, physical outcomes, and potentially psychosocial benefits. Therefore, the purpose of this article was to present the findings of three after-school programs (one running and two rowing) that we developed and tested to improve physical and psychological outcomes. Using the findings and experiences from these programs, we present how future, similar programming could use best practices to improve based on the outcomes of these two projects.

Method

About the Programs

We conducted three after-school programs, one for running and two for indoor rowing. The running program (RUN) helped us to develop the indoor rowing program (ROW1), which was conducted

a second time (ROW2) using adjustments made from experiences acquired from ROW1. Please refer to Baghurst, Tapps, and Adib (2015) and Baghurst, Fink, and Adib (2016) for details about each program.

Participants

Participants in RUN were 10 boys and 17 girls in first to fifth grades from multiple schools in a small city in the Mid-South of the United States. Because this was a pilot project, other demographic data were not collected. Participants in ROW1 were 14 boys and 25 girls between fourth and fifth grade from two schools in an urban (n = 8) and suburban (n = 31) area. Most were Hispanic/Latino (59%), and the majority (85%) considered themselves very inexperienced at rowing. Participants in ROW2 were 24 boys and 22 girls in fourth and fifth grades from three schools in a suburban area. Most students were White/Caucasian (70%), and 80% considered themselves very inexperienced at rowing.

Programs

The RUN after-school program was conducted during the spring over 4 weeks on a Tuesday and Thursday for 50 min at an outdoor park. The first and last sessions were dedicated to testing, but each typical session mimicked a physical education lesson whereby following a warmup activity and stretching, participants were split into four groups and completed various stations dedicated to running technique, fitness, speed development, and a game tied to running.

ROW1 followed a similar pattern to RUN, except participants completed a plyometric station, a kayak station, and a rowing station. In ROW2, the kayak station was removed, not only so that participants could have more time on the rowing ergometers, but also because participant enjoyment for this activity was low. ROW1 and ROW2 were held twice a week over 6 weeks, ROW1 in the fall and ROW2 in the spring. Locations varied, as some groups participated in their school environment and others at a boathouse local to their school. At the end of both ROW programs, participants met up and competed in a "row-off" wherein individuals and schools competed against each other to 500 m. Data were collected at this event also.

Measures Used

Participants in all three programs were measured using the Self-Description Questionnaire Inventory (SDQI; Marsh et al., 1998), which is designed for use with adolescents. Only four components (of eight) were included in this study: (a) General Self-Concept (e.g., Overall I have a lot to be proud of), (b) Physical Abilities (e.g., I have good muscles), (c) Physical Appearance (e.g., I like the way I look), and (d) Peer Relations (e.g., I make friends easily). Other elements including reading, math, parent, or general school self-concept were not measured.

Participants in RUN completed a 40-yd sprint test (stationary and running start) and the PACER test, which measures running endurance, at the beginning and end of the program to measure change. Participants in the ROW programs completed a timed row to 500 m at the beginning and end of the program.

Results

In the RUN program, participants significantly improved their stationary sprint times, $t(20) = 3.78$, $p = .001$, but not their running start times, $t(20) = 1.02$, $p = .32$. Their PACER time also improved significantly from 5:02 to 7:10, $t(18) = -4.69$, $p = .000$. There was an error in data collection of SDQI scores, wherein participants put an identifier on the prequestionnaire but not the postquestionnaire. Therefore, the individual pre–post scores could not be compared. However, overall, participants' posttest scores were higher than their pretest scores on all subscale measures including Physical Appearance (4.05; 4.51), Physical Ability (4.31; 4.44), Peer Relations (3.55; 3.87), and General Self (4.33; 4.50).

In ROW1, there was no significant improvement in rowing time to 500 m from the beginning to the end of the program. However, participants rowed approximately 21 s faster than either point when in the competitive "row-off" environment, which was a significant difference, $F(1.48) = 22.71$, $p < .001$. There were no significant changes in SDQI scores from the beginning to end of the program.

ROW2 participants also significantly improved their rowing performances, $F(1.665) = 22.99$, $p < .001$, but not from the beginning to the end of the program, although participants were faster at the end of the program. Rather, the competitive times were found to be

approximately 31 and 20 s faster than either the beginning or end of program 500-m rowing times, respectively. However, unlike ROW1 participants, ROW2 participants were found to have significantly improved their Physical Appearance, Peer Relations, and General Self-Concept subscale scores of the SDQI.

Discussion

Several lessons were learned in the progression from a pilot running program to a repeated indoor rowing program as an after-school activity. Although some lessons are specific to the event, others are more relevant to any program being developed for youth after school. Here is a brief synopsis of our findings and recommendations.

With respect to the RUN program, we collaborated with a city parks and recreation department. This had benefits such as allowing the department to control the budget, but may have limited applicants because the department did not have an online registration system. Therefore, we recommend ensuring that registrations can be controlled electronically. The program was offered at a local park, which had many benefits. For example, some parents with younger children remained at the park to play on the playground. However, weather could have been an issue, and locating a safe and flat surface was challenging. Creating or utilizing an alternate location for poor weather in addition to a flat surface, especially for assessments, is important. For example, a soccer or football field would be an ideal location for this type of program.

The ROW programs yielded other important recommendations. First, we discovered that group size could be an important factor in whether programming is successful. Following ROW1, we limited ROW2 to a maximum of 20 participants to help keep the coach-to-athlete ratio lower and ensure that time was more efficiently used. In the academic setting, larger class sizes tend to increase time spent on nonacademic tasks (Hastie & Saunders, 1991), and there is no reason to suspect that this environment would be different.

Second, more time was also spent on the rowing machines during ROW2. Participants were dissatisfied with the kayak activity, and additional time on the rowers was believed to be more helpful in improving pre–post rowing times. This is supported by Busquets, Marina, Irurtia, Ranz, and Angulo-Barroso (2011), who reported

that time spent in practice is one of the most important factors responsible for improvements in motor skill ability.

Third, although significant improvements in rowing times were *not* found between the pretest and the posttest, participants *did* significantly improve at the final competitive test. This finding is important, as it shows the influence external factors such as competition and audience effects, in addition to many other variables, can have on a performance (Duda, 1987). It is evident that participants did not put forth maximum effort in the posttest especially, and programmers need to find a motivator to ensure that they do.

Depending on the purpose and desired outcomes of an after-school PA program, researchers may want to evaluate improvements in technique (see Fink & Baghurst, 2016) and plan a follow-up with participants at a future time to examine continued interest in the particular activity. If interest has discontinued, researchers can probe to determine if environmental barriers or personal interest were factors. For instance, a child may want to continue rowing, but does not have access to an ergometer, a nearby body of water, or a boat (Baghurst, Price, & Fink, 2017). Therefore, working with community partners is essential to creating effective, enjoyable programs that are sustainable and provide equitable access to targeted community members.

Conclusion

After-school programming that focuses on PA and skill development could have significant positive effects on youth participation that extend beyond the physical benefits of activity. However, as we discovered, a variety of factors must be considered in the development of such programming. Based on our own findings, we recommend careful consideration of the many challenges and variables associated with running an after-school program prior to program operation.

The future of after-school programming is bright, especially given the increasing adoption of comprehensive school physical activity programs (CSPAP) that include after-school PA. However, programmers need to carefully consider including assessment tools when developing these programs, which may not always happen. By evaluating program effectiveness, programmers are helping to

ensure that successes can be replicated and failures corrected so that the best possible outcome for the participants is achieved.

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