The Healthy Schools Healthy Families Program – Physical Activity Integration into Elementary Schools in New York City

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Abstract

Increasing physical activity delivers proven results in combating childhood obesity. The high prevalence of childhood obesity and the lack of effective treatment mandate a prevention approach that targets all children. School based programming is an important tool to reach all children. Healthy Schools Healthy Families (HSHF) partnered with teachers, community groups and school leadership to increase physical activity during school hours, targeting all children in seven low resource inner city schools. The intervention targeted 5000 children in seven inner city schools in New York City. Results are reported from 2009-2010. A multi-faceted approach targeted in-class, recess and gym time with programming varying from school to school, tailored to specific school needs. Minutes of physical activity were tracked using a classroom-based logging system, with incentives provided to teachers, school-aides and schools documenting the most activity. HSHF schools averaged 110.8 minutes/week/class with significant variation between schools. HSHF successfully generated by, at all school levels, with 2010 data reaching the CDC recommendation for physical activity during school hours, despite severe resource limitations in program schools. HSHF offers a feasible model for increasing activity for all children in low-resource, inner city schools and for tracking results.

Keywords: Obesity prevention; School health; Physical activity; Child health; Public health

Introduction

Obesity has reached epidemic proportions, and minority children living in low-income, urban areas have been some of the hardest-hit. The New York City neighborhoods of Harlem and Washington Heights see rates of obesity and overweight nearing 50% while the rate for all New York City public school children is less than 25% [1,2]. Given the high prevalence of obesity and the limits of available treatment, there is an increasing consensus that resources should be focused on prevention [3]. To effectively address this epidemic, prevention programs should target all children from a young age; programs based in elementary schools have the potential to effectively increase daily physical activity levels for all children in the school. Evidence supports increasing physical activity in schools as part of effective prevention efforts [4].

The Centers for Disease Control and Prevention (CDC) recommend 60 minutes of physical activity (PA) per student per day, with 20-30 minutes during school hours; the New York State Department of Education mandates 120 minutes of physical education per week. However, many schools in New York City lack the necessary facilities, funding, and trained teachers needed to ensure students are physically active [5]. Despite evidence linking physical activity to academic success, principals often opt for more classroom instruction time instead of recess and PE class time [6]. There is currently no tracking system in place to evaluate schools’ compliance with this mandate, and therefore, schools are not currently held accountable for meeting these standards. This paper is a program profile describing a collaborative partnership which helped 7 schools integrate additional physical activity into the school day and track physical activity time.

The Healthy Schools Healthy Families Program

Healthy Schools Healthy Families (HSHF) is a partnership between New York-Presbyterian Hospital, Columbia University, seven New York City public elementary schools, and several community-based organizations in Northern Manhattan that began in 1999 and expanded to 7 schools in 2004. HSHF schools were selected based on past relationships with our academic medical center and on the level of commitment of the principals. The population of all 7 schools is majority immigrant and/or minority and 88% of students in the schools receive free or reduced lunch. The program is a coordinated school health program that works collaboratively with schools to identify and address a range of health problems. The ‘1999 needs assessment’ identified obesity as the most pressing unaddressed community health problem facing our pilot school. Therefore, a decision was made to focus on physical activity. At that time, the primary barriers to increase physical activity were the belief that physical activity/education took away valuable instructional time, the lack of trained staff, and the lack of space.

In 2002, with support from 2 local foundations, part time staff members were hired to build a comprehensive school health program within the pilot school. In 2004, a 2-year Health Resources and Services Administration grant supported expansion to 7 schools in the Northern Manhattan community with a focus on obesity prevention, providing each school with: 0.5 full time equivalents (FTE) program coordinator, 0.5 FTE outreach worker, 0.3 FTE nutritionist, and 0.1 FTE physical activity coordinator. The program coordinator and family care worker addressed the full coordinated school health agenda, each devoting about 50% of their time to obesity prevention in the schools.

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Received December 06, 2012; Accepted January 26, 2013; Published January 28, 2013


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Integrating Physical Activity into the School Day

Before HSHF began partnering with the schools, there was no physical activity plan in place in any of the schools. Physical education (PE) classes were the main source of physical activity time, and PE time varied widely among schools – even among classes in the same school. Only one of seven PE teachers in HSHF schools was certified in physical education. One HSHF school had neither a gym facility nor a PE teacher. In the other schools the student population was so large that each class could only attend one PE class a week at most, while some classes had no PE at all. There was no organized physical activity at any other point during the school day and recess was often spent sitting because of concerns about cool weather or discipline.

As a first step in addressing these issues, physical activity (PA) programming and relevant local resources were assessed in each school. Specific strategies were developed by the HSHF program staff and the menu of intervention strategies developed was tailored to match the specific needs, interests, and assets of each individual school. Importantly, stakeholders at all levels of the school including the principal, teachers, school aides, and parents, were engaged in this process. School stakeholders were consulted through individual conversations and all were invited to participate in monthly "Fitness and Nutrition Committee” meetings through which priorities were identified and strategies were adopted through a shared decision-making process. Over the course of this process of relationship-building and shared decision-making, strategies were developed and adopted. These strategies fell into 3 broad categories:

“**In-class**” programming

This approach involved the integration of exercises in the classroom, led by the classroom teacher or students. This approach was built upon previous research using brief movement breaks - "transition exercises" - as students shift between subjects [7,8]. Methods of exercise at various target heart ranges were introduced in 1-2 minute increments, up to 15 minutes of in-class PA per day. Specific types of exercise included Tai Chi, yoga, and traditional cardiovascular and resistance exercises. Incentives were used to encourage both exercise time and data tracking.

**Recess**

In New York City public schools recess is typically supervised by school-aides with limited training. Prior to this program it was common in HSHF schools for children to sit during recess to maintain calm, prevent injuries, and avoid colder weather. A train-the-trainer approach based on the Sports, Play, and Active Recreation for Kids (SPARK) [8] evidence based program was used with school-aides who supervise recess period. HSHF assisted by providing simple equipment and by providing small incentives to encourage active incorporation of this programming and of free-play. In some schools a running program was implemented, collaborating with the NY Road Runners and the Turn 2 Foundation.

**Physical education**

HSHF provided equipment and worked with PE teachers to maximize quality and variety of PA during PE periods; exercise consultants were hired to facilitate physical education in non-traditional spaces in schools without a gym space. Programming targeted all children, including those with physical and mental disabilities.

Upon adoption of these strategies and implementation in the schools, a tracking system was developed in order to monitor progress, adjust programming and sustain motivation. A user-friendly logging system developed by HSHF staff facilitated tracking of PA minutes per class and was posted in 100% of classrooms. Class activity, PE time, and recess were tracked by teachers, HSHF staff, and school aides respectively. HSHF staff entered recorded minutes into a central database and reports were generated and shared regularly with teachers and school leadership. Incentives were provided to classroom teachers and children, school-aides and the overall school (e.g. books for classroom teachers, gloves for school aides, baseball game tickets to classes etc.), rewarding those who documented the most minutes of PA.

**What have we Learned?**

In 2009-2010, HSHF schools averaged 110.8 minutes per class per week. Each school reached the CDC recommendation for physical activity during school hours. The total number of minutes ranged from 66.4 at School D to 149.5 per class per week at School G. The distribution of minutes across the three activity categories varied by school as seen in table 1. In every school the largest share of physical activity time was integrated into PE, while schools varied widely in the amount of time integrated into recess and in-class activities. The schools averaging the highest number of minutes per class per week were able to integrate time into all three activity categories (Table 1).

**Recommendations for Increasing Physical Activity in Elementary Schools**

From this experience, many valuable recommendations emerged. First of all, documentation is imperative in order to prioritize areas of need, to assess program effectiveness and to hold schools and teachers accountable for reaching targets. Monthly reports of PA broken down by class and activity type were made available to the schools and this information facilitated resource allocation decisions and helped to maintain motivation in working towards the goal that all students in a school were reached. Although this data does not allow us to identify predictors associated with minutes of activity achieved, the impression of program staff was that the total number of minutes achieved in a school most closely correlated with the buy-in of school stakeholders in the adoption of the intervention strategies. For example, some principals set aside mandatory professional development time for HSHF to hold PA trainings, while others offered these opportunities only as optional trainings to attend during teachers’ lunch or planning periods. A mandate from the school district holding school principals accountable for reaching recommended minutes-per-week for PA would likely improve support for this type of programming and increase buy-in from school leadership and teachers in schools that are currently less enthusiastic.

### Table 1: HSHF 2009-2010 - Distribution of total number of minutes of PA per class per week - by school and by location of activity.

<table>
<thead>
<tr>
<th>Activity</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>School D</th>
<th>School E</th>
<th>School F</th>
<th>School G</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-class</td>
<td>16.9</td>
<td>26.8</td>
<td>11.2</td>
<td>7.4</td>
<td>9.9</td>
<td>36.7</td>
<td>19.4</td>
</tr>
<tr>
<td>Recess</td>
<td>0</td>
<td>39.9</td>
<td>0.8</td>
<td>17.9</td>
<td>43.4</td>
<td>21.2</td>
<td>53.1</td>
</tr>
<tr>
<td>PE</td>
<td>81.6</td>
<td>76.9</td>
<td>75.6</td>
<td>41.1</td>
<td>63.7</td>
<td>48.1</td>
<td>77.0</td>
</tr>
<tr>
<td>Total</td>
<td>98.5</td>
<td>143.6</td>
<td>87.4</td>
<td>66.4</td>
<td>117</td>
<td>106</td>
<td>149.5</td>
</tr>
</tbody>
</table>
That said, a core component that led to the ability of the HSHF program to implement these strategies in 7 different elementary schools, is the collaborative approach taken by the HSHF team. This approach was based on relationship-building, emphasizing on gaining the trust and buy-in of individual stakeholders, and resulted in shared decision-making in the adoption of strategies at each school and sustained motivation. Additionally, the multi-pronged approach allowed for an adaptation to fit each school’s unique needs, interests, and strengths. Stakeholders at each school were empowered to select from a menu of options.

Effective obesity prevention programs must target their efforts to all children. This is possible through a program that partners with elementary school staff to target in-class time, recess and physical education, and also adapts to the needs and resources of each school. Tracking minutes per week of physical activity is necessary for both program planning and to hold schools accountable to agreed upon targets, and is feasible through a simple class tracking system.

HSHF works with partner schools to identify realistic ways to overcome barriers to physical activity and quantify the amount of physical activity children receive. HSHF provides a model for increasing activity and tracking progress that was replicable across multiple schools, with 2010 data reaching the CDC recommendation for physical activity during school hours, despite severe resource limitations in program schools.

Acknowledgements

We would like to acknowledge the important contributions to this project, and the daily dedication to children, by the Principals, staff and teachers at our seven partner schools and by the many dedicated staff members of the HSHF program from 1999 to the present. We would also like to thank Karen Ozuna and Zoila Del Villar for their helpful contributions to the manuscript, and Andy Nieto and the Ambulatory Care Network of New York Presbyterian Hospital for their steadfast support.

References