



## The Internet Journal of Allied Health Sciences and Practice

<http://ijahsp.nova.edu>

A Peer Reviewed Publication of the College of Allied Health & Nursing at Nova Southeastern University

*Dedicated to allied health professional practice and education*

<http://ijahsp.nova.edu> Vol. 9 No. 1 ISSN 1540-580X

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# Development of an After-School Wellness Club to Promote Physical Activity and Healthy Lifestyle

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**CITATION:** Lamberg, EM., McKenna, RF. Development of an After-School Wellness Club to Promote Physical Activity and Healthy Lifestyle. *The Internet Journal of Allied Health Sciences and Practice*. Jan 2011. Volume 9 Number 1.

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### ABSTRACT

Childhood overweight and obesity is a serious national health problem that can lead to overweight and obesity in adulthood. Many programs have been developed to “treat” children already classified as overweight or obese. However, they represent reactionary strategies to a preventable problem. This paper describes the development of a school-based program to promote physical activity and healthy lifestyle to all students regardless of weight. Results from the initial pilot are presented, and barriers and methods to overcome these barriers are discussed. **Methods:** *Move your Feet!* is an elementary-school-based after-school club that promotes physical activity and healthy lifestyle. Attendance was recorded, BMI determined, and responses obtained on pre- and post-club questionnaires. **Results:** Overall child attendance rate was 91%. The average number of days/week children and parents participated in physical activity significantly increased. Over 80% of parents were “satisfied” with the way the club affected their child, themselves, and their family. Over 95% of the children enjoyed the club. There was no change in BMI. **Conclusion:** After-school wellness programs show promise for promoting physical activity and healthy lifestyle changes, and as a result, may have the potential to help decrease overweight and obesity in children.

### INTRODUCTION

Childhood overweight and obesity is a serious national health problem. Recent estimates conclude that over 30% of children aged 6-11 years are considered overweight or obese.<sup>1</sup> Children who are overweight or obese are more likely to become adults who are overweight or obese and are at higher risk for developing obesity related conditions such as type 2 diabetes, orthopedic complications, cardiovascular diseases, and pulmonary complications.<sup>2-9</sup> Additionally, overweight and obesity can have a negative impact on a child’s psychological state.<sup>2,10,11</sup> Reasons for overweight and obesity are multi-factorial including a sedentary lifestyle, decreased physical activity, poor dietary practices, and a lack of knowledge regarding healthy lifestyle.<sup>12-16</sup>

Various programs exist to combat the problem of childhood overweight and obesity.<sup>17-25</sup> The content of these programs vary from providing nutritional counseling only to combining physical activity and healthy lifestyle education. However, many of these programs target youths already classified as overweight or obese. While these programs offer promise, they represent reactionary strategies to the current epidemic.<sup>26</sup> A more sensible approach would be to develop programs that take a proactive approach by providing and promoting lifestyle education and physical activity to all children regardless of weight status. Most school systems in the United States provide an ideal environment to implement such programs.<sup>27</sup> School-based programs can reach large numbers of children and can have access to the facilities and equipment required to run these programs.<sup>21,22</sup> In addition, by delivering the program within the context of the school and amongst peers, the information may be better received by children than if presented in a medical or clinical setting. However, if a school-based program is to be successful, it must fit within the constructs of the school culture and its fiscal restraints.<sup>12, 28</sup>

Childhood overweight and obesity impacts individuals, families, schools, and entire communities. Allied health professionals can use their expertise to assist schools in designing, implementing, and evaluating programs that promote physical activity and healthy lifestyles that will hopefully help reduce childhood overweight and obesity. This background inspired physical therapy faculty to approach a local elementary school in New York with the idea of creating a wellness club with the overarching goal of promoting physical activity and healthy lifestyle to prevent excessive weight in childhood. The school was receptive and agreed to partner.

From information gathered through preliminary parent questionnaires and interviews with parents, teachers, and school administrators, *Move Your Feet!* was created. *Move Your Feet!* is an after-school wellness club that provides opportunities for school children to participate in physical activity in a non-competitive atmosphere and provide a forum for healthy lifestyle education for both the children and parents. The initial trial of *Move Your Feet!* was offered at one elementary school (one of five in the district) as an after school club for 3<sup>rd</sup> and 4<sup>th</sup> graders.

The main goals of this trial were to deliver a quality program that was fiscally responsible and to gain acceptance and support from students, parents, teachers, and school and district administrators. Attaining these goals would support the broader goal of expanding the program within the school, the district, and into other school districts. This paper describes the initial trial of *Move Your Feet!* as well as the evaluation process used to assess its impact.

## **METHODS**

### **Description of the Club**

*Move your Feet!* consisted of physical activity and healthy lifestyle education for children and healthy lifestyle education for parents. *Move your Feet!* was designed and developed by two physical therapy faculty with the main objective of promoting activity and healthy lifestyle in the school setting while being as fiscally lean as possible. To that effect, the program required minimal staffing and utilized equipment already owned by the school. Five teachers were identified and agreed to serve as club advisors. The teachers received service pay from the district per their contract. One teacher taught physical education, one health education, and three were classroom teachers. All teachers were provided with instructions and trained with regards to the goals of the program, the structure of the program, and the activities that were to be performed. Each teacher supervised one group consisting of ten to twelve children. Additionally, physical therapy and high school students served as volunteer assistants. Typically, there were one to two student volunteers to assist each teacher.

*Move your Feet!* met for one hour, twice a week, for four weeks and provided opportunities for the children to increase their overall daily physical activity level to help meet the recommended minimum requirement of at least 60 minutes of moderate to vigorous physical activity every day.<sup>29</sup> Each session consisted of a brief warm-up consisting of light aerobic and stretching activities (approximately 5-minutes), followed by four physical activities (each approximately 10-12-minutes) and a rest break (approximately 7-minutes). There was approximately 1-minute in between activities to allow for the children to change stations. Thus, within the hour, our hope was to provide at least 44 minutes of moderate to vigorous physical activity. The physical activities were designed to improve general endurance, strength, power, and agility while being fun, varied, and non-competitive. Examples of activities include scavenger hunts, jumping rope, running games, obstacle courses, and tag games. Healthy lifestyle education consisted of 10-15 minute learning sessions on three different days and replaced one of the activities for that day. Parents attended separate but similar education sessions on the same days to promote conversation between them and their children. The topics presented included healthy eating, sun safety, and promoting physical activity for yourself and your family. Club personnel and outside speakers with expertise in the topic facilitated the sessions.

At the beginning and completion of the four-week program, parents and children completed questionnaires, and children were assessed for height and weight using the same calibrated scale with height rod and body mass index (BMI) was calculated. The children's BMI-for-age and gender was used to classify weight status as either underweight (< 5<sup>th</sup> percentile), healthy weight (5<sup>th</sup> - 85<sup>th</sup> percentile), overweight (85<sup>th</sup> - 95<sup>th</sup> percentile), or obese (>= 95<sup>th</sup> percentile).<sup>30</sup>

### **Description of the Participants**

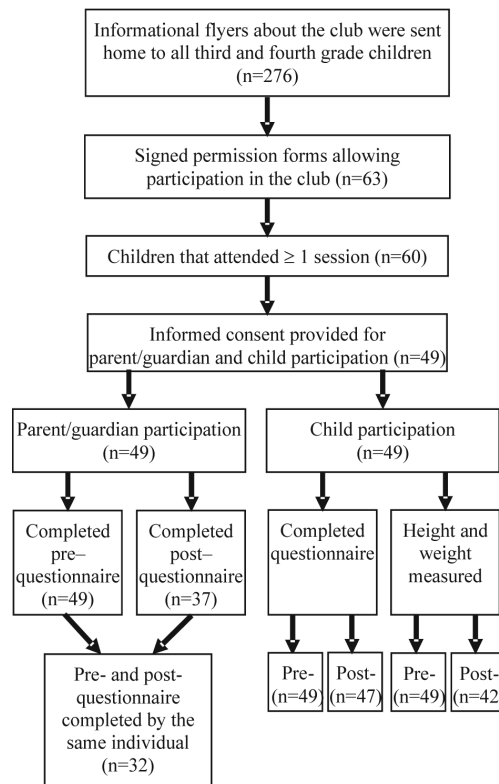
Flyers describing the club were distributed to all children in the third and fourth grades (276 students). Exclusion criteria included the inability to participate in physical education class. If individuals presented with physical or medical conditions, activities would be modified accordingly. Those interested in participating were required to return a permission form signed by a parent. Written consent to allow the researchers to access physical and questionnaire data collected during the club was ascertained from the parents at programmatic informational meetings held prior to the start of the club. Study procedures were approved by the Committees on Research Involving Human Subjects Institutional Review Board.

Figure 1 depicts enrollment and participation. Sixty-three children out of a possible 276 third and fourth graders signed up for *Move Your Feet!*, however, three did not attend more than 1 session resulting in a participation rate of 21.7% (n = 60). Since *Move Your Feet!* was a school-sponsored club, children could participate in the club regardless of whether consent was received. Consent was obtained for 81.6% of club participants (n = 49). Only data from these 49 participants who provided consent was analyzed. Descriptive characteristics of the 49 children participants are shown in Table 1.

**Table 1. Descriptive characteristics of child participants**

	Third Graders	Fourth Graders
<b>Gender</b>		
Male	36.7% (18)	18.4% (9)
Female	30.6% (15)	14.3% (7)
Total	67.3% (33)	32.7% (16)
<b>Race</b>		
White	51.0% (25)	14.3% (7)
Asian	8.2% (4)	2.0% (1)
Hispanic	2.0% (1)	14.3% (7)
Other	6.1% (3)	2.0% (1)

Data are displayed as percentage of participants (n).



**Figure 1. Enrollment and Participation**

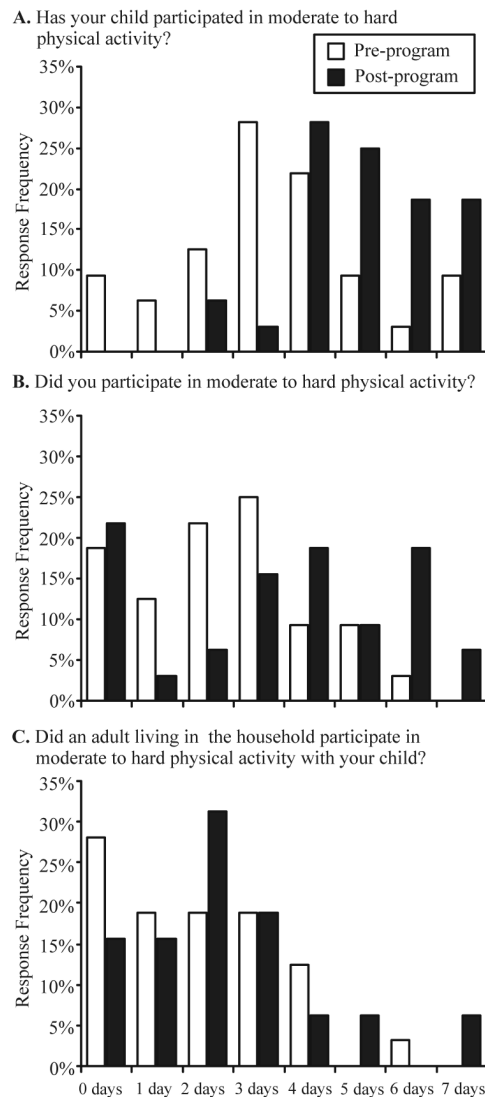
## Program Evaluation

Descriptive statistics were used to characterize the study sample (n=49). Response frequencies were determined from questionnaire responses and examined for trends when applicable. Paired t-tests for anthropometric measures and Wilcoxon Signed Ranks tests for questionnaire responses were used to compare pre- and post-club data. Statistical significance was considered at  $p < 0.05$ .

## RESULTS

### Parent Questionnaire Responses

As shown in figure 1, 100% of the parents (n = 49) completed the pre-club questionnaire and 75.5% of the parents (n = 37 of 49) completed the post-club questionnaire. However, only 65.3% of the questionnaires (n = 32 of 49) were completed by the same individual pre- and post-club. Thus, to assess change due to participation, only those 32 questionnaires were analyzed.



**Figure 2: Frequency of responses by the parents to the questionnaire statement regarding how many days in the past 7 has your child participated in moderate to hard physical activity (A), did you participate in moderate to hard physical activity (B), and did an adult living in the household participate in moderate to hard physical activity with your child (C).**

Based on questionnaire responses from the parents, there was a significant increase ( $p < 0.001$ ) in the average number of days that the child participated in moderate to hard physical activity from 3.3 days pre-club to 5.0 days post-club (Figure 2a). There was also a significant increase ( $p < 0.001$ ) in the average number of days that the parent filling out the questionnaire participated in moderate to hard physical activity from 2.3 days pre-club to 3.4 days post-club (Figure 2b). Furthermore, the number of days that an adult participated in moderate to hard physical activity with their child increased from 1.8 days to 2.3 days (Figure 2c) although this was not significant ( $p = 0.10$ ).

To assess the impact of the program, the 37 post-club questionnaires that were completed were analyzed. Of the 37 questionnaires returned, 97.3% ( $n = 36$ ), 86.5% ( $n = 32$ ) and 81.1% ( $n = 30$ ) of the parents were either satisfied or very satisfied with the way the program affected their child, self, and family, respectively. No parent was dissatisfied or very dissatisfied with the affect of the program. In addition, 91.9% ( $n = 34$ ) of the parents really agreed and 8.1% ( $n = 3$ ) "sort of agreed" with the statement "My child enjoyed the club," and 100% ( $n = 37$ ) "really agreed" with the statement "I think the club is a good idea."

Thirty of the parents (61.2%,  $n = 30$  of 49) attended at least one of the three information session. Of the 30, 56.7% ( $n = 17$ ) "really agreed" and 43.3% ( $n = 13$ ) "sort of agreed" with the statement "I found the information session(s) helpful."

Fifteen parents provided comments about the program on the post-club questionnaire. In general, these comments focused on the positives of the program. For example, "My son LOVED this program and it has made a tremendous difference in his outlook and attitude. He is much more likely to play outside and do physical activity now than before the program." Another parent commented, "My child has been really enjoying the sports in this program. He has been more active since he started to attend this program. He told me all sports were funny and suitable for him." Some commented on suggestions for the club such as "The program was successful. I hope this program will be expanded to all ages (from K-6, at least) and all seasons!! Thanks."

### **Child Participation**

The club met 7 times in 4 weeks. One session was cancelled due to school closure. Overall attendance rate was 91.0%, with 85.7% of the children attending at least 6 of the sessions.

### **Child questionnaire responses**

To assess change due to participation, children needed to complete both the pre- and post-club questionnaires. Pre- and post-club questionnaires were completed by 95.9% ( $n = 47$  of 49) of the children. Of the 47 children who completed the pre- and post-club questionnaires, there was no significant change ( $p > 0.05$ ) in responses to the statement "During the last 7 days, how many days did you do physical activity that made you breathe hard?" (figure 3a). However, 38.3% ( $n = 18$  of 47) of the children responded they were active for more days after participating in the club than before, 42.6% ( $n = 20$  of 47) indicated the same number of days, and 19.1% ( $n = 9$  of 47) indicated they were active for fewer days after than before participating in the club. In addition, there was no significant change ( $p > 0.05$ ) in responses to the statement "During the last 7 days, how many days did you do physical activity with one of your parents?" (figure 3b). Only 45 children responded to this question and of those, 28.8% ( $n = 13$  of 45) indicated they participated in activity with one of their parents for more days after than before the program, 48.9% ( $n = 22$  of 45) indicated the same number of days, and 22.2% ( $n = 10$  of 45) indicated they participated in activity with one of their parents for fewer days after than before the program.

Table 2 summarizes child responses related to club satisfaction. Overall, the children enjoyed the club and activities.

A. Have you participated in moderate to hard physical activity? B. Did you participate in moderate to hard physical activity with a parent/guardian?

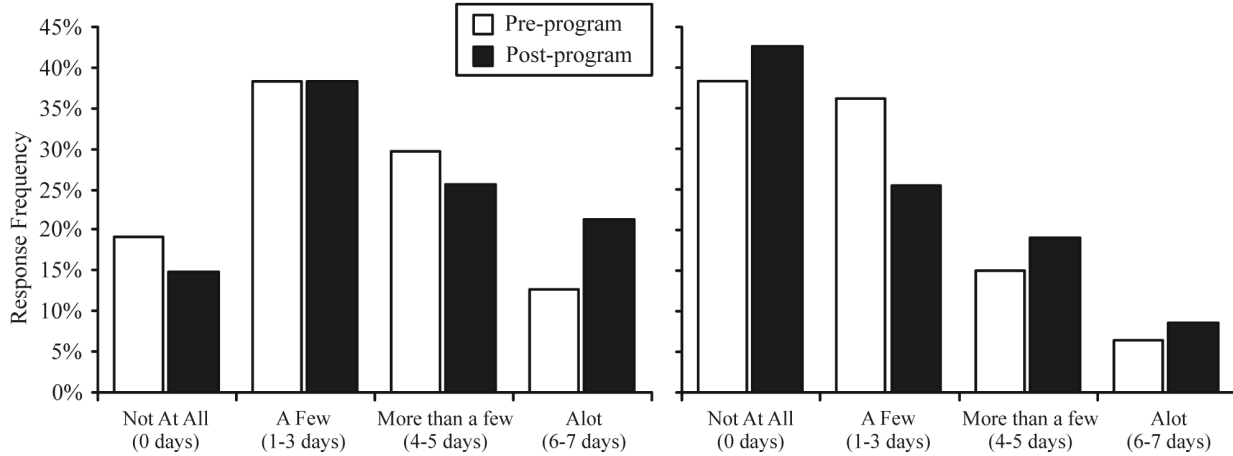


Figure 3. Frequency of responses by the children to the questionnaire statement regarding how many days in the past 7 have you participated in moderate to hard physical activity (A) and how many days did you participate in moderate to hard physical activity with a parent/guardian (B).

Table 2. Response frequency by the children on the post-club questionnaire

Question	Yes	No	Same	No Answer
1) Did you like being a part of the <i>Move Your Feet!</i> club?	97.8% (46)	2.1% (1)		
2) Did you like the type of activities that you did?	95.7% (45)	2.1% (1)		2.1% (1)
3) Do you think you are more active now than before you joined this club?	63.8% (30)	4.3% (2)	31.9% (15)	
4) Would you tell your friends that they should join this club?	91.5% (43)	6.4% (3)		2.1% (1)
5) Have you encouraged family members to become more active?	59.6% (28)	40.4% (19)		
6) Will you continue to be active on a regular basis now that the club is over?	97.8% (46)	2.1% (1)		

Data are displayed as percentage of participants (n).

**Physical measures**

Table 3 summarizes pre- and post-club anthropometric, BMI, and weight classifications for 85.7% (n = 42 of 49) of the children. As expected, due to the length of the intervention there were no significant changes in weight, BMI, or weight classification ( $p > 0.05$  in all cases).

**Table 3. Anthropometric, BMI and weight classification**

	Pre-program	Post-program
Height (cm)	139.0 ± 5.9	139.7 ± 5.5*
Weight (kg)	35.8 ± 7.0	35.8 ± 6.6
BMI (kg/m <sup>2</sup> )	18.5 ± 3.0	18.3 ± 2.7
<b>Weight Classification</b>		
Underweight	2.4% (1)	0% (0)
Healthy	57.1% (24)	61.9% (26)
Overweight	26.2% (11)	26.2% (11)
Obese	14.3% (6)	11.9% (5)

Height, weight, and BMI data are displayed as the mean ± SD. Asterisk denotes significant difference. Weight classification data is calculated from BMI-for-age and gender and are displayed as percentage of participants (n).

## DISCUSSION

*Move Your Feet!* is a low cost program that can be part of the after-school curriculum offered in many schools. The club was open to all children, regardless of weight classification, with the overarching goal of instilling in the children and parents the importance of fitness and healthy living. Children were provided with opportunities to be physically active and participate in educational sessions. To further support this goal, parents were invited to similar educational sessions. Physical activities were carefully selected to be fun and require minimal instruction. We felt it was important that the club was not perceived by the children as an extension of physical education class.

Consistent with the National Health and Nutrition Examination Survey (NHANES) data of 2005 - 2006, which concluded that over 30% of children across the United States are classified as overweight or obese, we found that pre-program 40.4% (n = 17 of 42) of the children in this study were classified as overweight or obese. In the past, nutritional and/or physical activity programs addressing overweight in children were evaluated based on changes in BMI or weight. While these may be good, long-term objectively measured outcomes, we believe they should only be part of program evaluation. What may be equally, if not more important is knowing whether a program is able to modify child and parent attitudes and behaviors toward physical activity and the benefits of fitness. As expected, we did not see any changes in the average BMI or the distribution of weight classification from pre- to post-club assessment. However, based on the reported changes in attitude we conclude that the club was successful. Most encouragingly was that through child participation in the club we saw reported increases in parent activity level.

Based on the questionnaires, the club was widely accepted by the children and their parents. The majority of the parents were satisfied with the way the club affected them, their child, and their family. In addition, of the parents who attended at least one education session, the feedback was generally positive. Unfortunately, only a small percentage of parents attended these sessions. A future goal is to explore methods to increase the percentage of those who receive the information. Options include creating a web portal where the information sessions are available for download and providing paper copy summaries of the sessions to the children and their parents.

Although 47 children completed both pre- and post-program questionnaires, their responses must be evaluated with caution because of their age and ability to discriminate between some of the answers.<sup>31,32</sup> With this said, the responses were still very encouraging. Most of the children reported liking both the activities and the club. Additionally, we find it exciting that many of the children reported they have encouraged family members to be more active. Finding time for physical activity in the family unit can be very difficult; however, we feel that if the motivation for activity comes from not only the parents, but the children as well, there is a better chance that activity may take place. We are hopeful that the children will follow through as reported on the questionnaires and continue to be active on a regular basis even though the club is over.

When initially developing the concept of *Move Your Feet!*, our goal was to design a wellness program that could be implemented in a school setting at minimal cost. We anticipated that our initial barriers would be finding qualified and committed personnel, cost, and scheduling the program within a busy school day. After meeting with officials from an elementary school, we quickly identified that such a program would fit nicely into the current after-school club curriculum for which the school had a small budget to support. Since most schools and districts own physical education equipment (e.g., cones, balls, etc), the only costs to run the program are those required to pay teachers to supervise the club. While this compensation varies across school districts depending on teacher contracts, many districts budget for teacher supervision of clubs so the cost of this program would be no more than the cost associated with implementing any new club.

After completing the initial pilot of *Move Your Feet!*, we are able to identify potential barriers to the success of the club and have initiated adjustments to overcome these barriers. While our initial pool of advisors was committed to the club, we identified that classroom teachers may require more assistance than initially thought in order to manage, teach, and motivate children while engaging in physical activities. Fortunately, we were able to overcome this by appointing a physical education teacher to serve as a supervisor and model for the classroom teachers. Physical education teachers are well-versed in teaching and motivating children during activity. They are also familiar with the available equipment and have the knowledge and experience to help design activities for the club, think on the fly in a hectic environment, and adapt quickly when an activity is not going well.

In addition to having a physical education teacher involved with the program, we found that introducing volunteers made the program run smoother. These high school and college students would help set-up, clean-up, teach, or model activities. In addition, many of the volunteers chose to participate in the activities making it more fun for the children.

One of our goals for *Move Your Feet!* was to increase the duration of the club and expand to other grades, schools, and school districts. One limitation of the program is that it ran for only 4 weeks. We would like to see the club run for 8 weeks in both the fall and spring, believing that the longer time frame will not only provide more opportunity to reinforce the importance of physical activity and healthy lifestyle, but may also provide enough time to see physical change in some participants. While the club has been well received, there are barriers to expanding the club beyond its present state. Expansion means finding committed and qualified teachers to serve as advisors, and our experience shows us this may not be easy. In addition, expansion requires each school and/or school district to find funding, as minimal as it is, to compensate staff. Identifying volunteers can help alleviate some of this burden; however, finding qualified and committed volunteers is not trivial. Local high schools and colleges serve as a source of volunteers especially since many high schools and colleges have community service requirements for their students.

Another goal is to attract a greater number of the obese or overweight children to participate in the club. We believe that some of these children are reluctant to join because they view the club as an extension of physical education or as a competitive environment. This is untrue; the idea behind the club is not activity instruction or individual competition, but rather group competition (where applicable depending on the activity) and simple participation. If we hope to attract more of the obese or overweight children, we will need to convey this message in a clearer manner. An additional barrier to getting obese and overweight children enrolled in the club is the failure of their parents to recognize and value the importance of physical activity and healthy lifestyle. If the parent does not promote the club as an option for their child, focusing on the fun, non-competitive nature of the club, that child may not recognize its value. These barriers are difficult to overcome, however we feel that the popularity of this club within the school will help promote the importance of physical activity and healthy lifestyle not only amongst students but the parents as well, so much so that most children regardless of weight status will want to be part of it.

## CONCLUSIONS

Working with teachers, allied health professionals can help design school-based programs that promote physical activity and healthy lifestyle in children and parents at minimal cost to the school district. *Move Your Feet!* was implemented as a club within an existing school schedule and environment for the same expense as implementing any other school based club. It was well attended, well-received by both parents and children and increased weekly physical activity in both. Based on the results from this pilot program, school districts should consider implementing an after-school program to promote physical activity and healthy lifestyle in an effort to help combat childhood overweight and obesity.

## ACKNOWLEDGMENTS

The authors would like to thank the club advisors, the school district, the Stony Brook University physical therapy student volunteers, the high school volunteers, and the children and parents who participated and made *Move Your Feet!* so much fun.



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