

California Project LEAN's Food on the Run Program: An evaluation of a high school-based student advocacy nutrition and physical activity program

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healthfully and engage in more physical activity.

In carrying out its work, FOR's primary target audience is multiethnic, underserved high school students. Secondary target audiences include families, school staff, community leaders, and policymakers. FOR currently operates in 28 low-income high schools¹ across California. This school-based project:

- Trains high school students about healthful eating, physical activity, consumerism, advocacy, and the media;
- Conducts classroom and campus- and community-related activities to advocate for healthful eating and physical activity options; and
- Integrates lessons into existing curriculums that encourage students to eat healthfully, keep moving, and become smart shoppers and involved citizens.

Each project year, the student intervention component of FOR is carefully evaluated as part of an ongoing evaluation process. The student advocate survey is one part of a multicomponent evaluation plan. There are 3 main purposes of the student advocate evaluation:

- Assess the participating student advocates' initial knowledge, attitudes, and behaviors related to healthful eating and physical activity;
- Assess changes in participating student advocates knowledge, attitudes, and behaviors related to healthful eating and physical activity after the school-based intervention; and
- Assess effectiveness of the student intervention component of the FOR program.

METHODS

Each FOR site recruited students to participate in the FOR program. Recruitment generally occurred at the beginning of the school year. Some schools were able to recruit students at the end of the previous school year or during the summer. There were 220 student advocates from 20 high schools who participated in the FOR program during the 1998-1999 project year. The average age of students was 16 years and the average grade level in school was tenth grade. Of the students, 30% were boys and 70%

¹For California Project LEAN's Food on the Run program, a low-income high school is defined as a school where at least 40% of the enrolled students are eligible for free/reduced price meals through the National School Lunch Program.

Overweight and obesity in children has increasingly become an important public health concern because of several recent research and survey findings. There was an overall relative increase of 40% in overweight prevalence from the 1976-1980 NHANES II baseline to the 1988-1991 NHANES III findings among adolescents aged 12 to 19 years (1,2). The prevalence of overweight among children in California is even higher than the US average (3). Because overweight in adolescence is associated with overweight in adults and related chronic disease morbidity and mortality, there is a dire need for primary prevention that targets youth (1,4). The

most promising approach is to trigger lifestyle changes by encouraging healthful eating and physical activity among teens.

Food on the Run (FOR) is a multi-component, high-school-based intervention program to promote healthful eating and physical activity among adolescents. FOR is organized by California Project LEAN (Leaders Encouraging Activity and Nutrition), a program of the California Department of Health Services and the Public Health Institute. The FOR mission is to increase healthful eating and physical activity among teens as a way to improve health and reduce risk of chronic disease. The goals of FOR are to conduct a high-school-based program that:

- Encourages high school students to advocate for additional healthful food and physical activity options at school;
- Advances policy and environmental changes that promote healthful eating and physical activity options in their schools and in their communities; and
- Motivates students to eat more

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Table

Comparison of pretest vs posttest of nutrition and physical activity knowledge, attitudes, and behavior of high school students participating in the Food on the Run program^{a,b}

Scale	Pretest score (mean±SD) ^c	Posttest score (mean±SD)
Physical activity knowledge	4.02±0.99	4.27±0.94**
Physical activity attitude	3.25±0.61	3.37±0.58*
Physical activity behavior	1.40±0.88	1.37±0.82
Nutrition knowledge	3.67±1.20	3.89±1.09*
Nutrition attitude	3.11±0.55	3.26±0.61***
Nutrition behavior	5.53±2.18	6.04±2.18**

^aComparison determined using Wilcoxon matched-pairs, signed-ranks test.

^bn=220.

^cSD=standard deviation.

*P<.05.

**P<.01.

***P<.001.

were girls; 37% were white, 10% were African-American, 31% were Hispanic American, 13% were Asian American, 2% were Native American, and 5% were categorized as “other.” Once the students were recruited, they were given the student advocate survey to complete as a pretest.

The FOR program was implemented during the course of the 9-month school year. The program began with training for the student advocates. During the training, students learned the basics of nutrition and physical activity, as well as the steps necessary to create environmental and policy changes using materials provided to all school sites. After receiving training, the student advocates conducted 5 to 7 school-based and community activities designed to create awareness, educate others, and to institute environmental and policy changes. The activities—including working with foodservice to increase healthful food options, school-wide taste tests, and lunchtime demonstrations—were student-driven and based on the student assessment of nutrition and physical activity needs of the high school campus. Each activity was therefore unique and responsive to the needs and circumstances of the students in that particular high school. At the end of the school year, the students were given the student advocate survey again as a posttest.

In addition, a survey was administered to all FOR site coordinators to collect data on the implementation of the program. Variables included number of lessons taught, time spent on each lesson, number of weeks spent on training, time spent on the program per week, and number of hours spent on activities outside the training. SPSS (Statistical Pack-

age for Social Studies) (version 10.0) was used to analyze the data. Knowledge, attitude, and behavior mean scores were computed for physical activity and nutrition. Pretest and posttest mean scores were compared using the Wilcoxon matched-pairs signed ranks test. Frequencies were run on the program implementation variables.

RESULTS

The self-report survey consisted of a total of 42 closed-ended questions: 4 questions were related to demographic information, 19 were related to physical activity, 15 pertained to nutrition, and 4 focused on student activity. The physical activity and nutrition survey items—the focus of this article—were standardized questions.

Following are the final results of the 1998-1999 FOR student advocate survey evaluation. Pretest and posttest physical activity and nutrition mean scores are presented in the Table. Program implementation results are presented in the Figure.

Physical Activity

There was a significant increase in knowledge about (*P*<.01) and positive attitudes toward (*P*<.01) physical activity among the FOR Student Advocates between the pretest and posttest; however, there was no significant change or increase in physical activity behavior.

Nutrition

There was a significant increase (*P*<.05) in knowledge about (*P*<.05) and positive attitudes toward (*P*<.001) nutrition—as well as a significant change in healthful eating behavior (*P*<.001)—among FOR student advocates.

Program Implementation

Program implementation variables were reported as follows: an average of 6 lessons were taught, lessons averaged 55.25 minutes, advocate training lasted a mean of 9 weeks, and time spent on activities outside the training was a mean of 20 hours.

DISCUSSION

Overall, FOR has demonstrated success in its school-based, student-driven nutrition and physical activity program. The data suggest that much of the demonstrated success in the student advocate component of the program was the result of time spent on activities outside of the training, such as the 5 to 7 school-

Number of lessons taught:	6
Minutes spent per lesson:	55
Number of weeks spent training students:	9
Minutes spent per week on program:	74
Hours spent on activities outside of training:	20 ^a

*FIG. Breakdown of time spent on implementation of program components for Food on the Run.
^a Hours were not evenly distributed between nutrition and physical activity. Only 5 of the 20 participating schools spent substantial time on physical activities.*

based and community activities.

All FOR coordinators received similar training and the data reflect that all participants have improved in their knowledge and attitudes on nutrition and physical activity. Behavior change, however, occurred in the area of nutrition and not in physical activity. Program survey data showed that there was more time spent on activities related to nutrition than on physical activity. Time spent on activities outside the training was a mean of 20 hours, with some sites spending up to 36 hours. Only 5 of the 20 FOR sites, however, spent a substantial amount of time on physical activities. The majority of coordinators at the sites focused their efforts on nutrition education.

Another observation was the correlation between the nutrition and physical activity behavior scores and the environment evaluation (unpublished report available upon request) (5). (An environment evaluation is conducted each

year to measure changes in the eating and physical activity environment of the high school campuses. This evaluation focuses on the environment and policy change component of the FOR program, which is also part of the training and 5 to 7 activities that the student advocates conduct.) In the same project year, based on environment evaluation findings, there was significant improvement ($P < .01$) in the healthful food options offered to students at school, whereas there was minimal to no improvement in physical activity options offered to students during and after school. Based on these results, there appears to be a correlation between environmental change and the students' related behaviors.

■ It is important for students to be properly educated on the basics of nutrition and physical activity; however, students should also have the opportunity to apply knowledge with a number of skills-based activities and events.

■ Individual attempts to change health behaviors are more successful when the environment supports the positive behaviors. By making positive changes to the school environment, such as increasing healthful food options, support for healthful behavior is strengthened.

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APPLICATIONS

FOR is a multicomponent primary prevention program that focuses on strengthening individual skills and knowledge and works to influence the high school community, its school-based practices, and its environment and policies (6,7). Most of the student advocate activities extend beyond the classroom and it is the long-term goal of California Project LEAN that the students extend these activities into adulthood.