Outcome Evaluation: Healthy Habits Program Session Two



## BOYS & GIRLS CLUBS OF COACHELLA VALLEY

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## **Executive Summary**

The Boys & Girls Clubs of Coachella Valley (BGCofCV) conducted a program for local club members called the *Healthy Habits* program. This program, supported by the Humana Foundation, was designed to improve the health and wellness of participants. Main program components included fitness classes, nutrition classes, parent nights, and community activities. The program is 8 weeks long. This is the second time that this program has been offered.

BGCofCV partnered with the Health Assessment Resource Center (HARC) to evaluate the program's effectiveness in improving participant health. The evaluation design included preand post-tests of health knowledge, behaviors, and objective outcomes. A total of 87 children between the ages of 6 and 15 participated in the data collection and the program.

Additionally, for the first time, BGCofCV collected data from parents that attended the Parent Night component of the *Healthy Habits* program. Thus, this evaluation report covers both child outcomes and parent outcomes.

Results showed that children who participated in the *Healthy Habits* program had greater knowledge about the principles of nutrition and fitness, drank more fruit juice, exercised more often, and had greater levels of physical fitness than they did prior to the program.

Results of a parent evaluation demonstrated that parents who attended a Parent Night had significant knowledge gains about the health subjects that were covered. Parents reported that they intend to use this information to make healthy lifestyle changes for themselves and their families in the future. Overall, parent response to the Parent Night events was positive, indicating great future opportunities for engaging parents in efforts to improve the health of their children.

Overall, these results indicate that the *Healthy Habits* program has a positive influence on health knowledge, health behaviors, and physical fitness for child participants. The program also has a positive impact on parents that engage with the program, and has great potential to influence the health habits of entire families. It is clear that the program improves short-term health outcomes, and has the potential to create healthy habits that will improve long-term health outcomes as well.



#### Introduction

In 2012, the Boys & Girls Clubs of the Coachella Valley (BGCofCV) created a new program, called the *Healthy Habits* program, designed to improve the health and wellness of program participants. The *Healthy Habits* program was supported by the Humana Foundation.

The design of the *Healthy Habits* program originated from portions of the Triple Play Program, which is a wellness endeavor of the Boys & Girls Clubs of America that is sponsored by the Coca-Cola Company and the WellPoint Foundation. These materials were subsequently adapted and others were added. The resulting program was a 10-week program that incorporated fitness classes, nutrition classes, parent involvement, and community involvement.

The first *Healthy Habits* program was conducted in November 2012 and continued to March 2013. Health Assessment Resource Center (HARC) was contracted to conduct the program evaluation. Results showed that the *Healthy Habits* program was successful in improving participant health knowledge, health behaviors, and health outcomes.

Based on the program staff experience, the results of the evaluation, and participant feedback, the *Healthy Habits* program was adapted and implemented once more in May of 2013. This second session still centered around nutrition classes, fitness classes, parental involvement, and community involvement. The second session of *Healthy Habits* was shortened from 10 weeks to eight. Some elements were changed (for example, offering fewer nutrition classes that lasted for a longer period of time) and others were added (for example, evaluation of parent learning outcomes as well as student learning outcomes). This report describes the program evaluation of this second session of *Healthy Habits*.

## **Program Components**

#### **Fitness Classes**

During this session of *Healthy Habits*, participants were offered a total of 12 fitness classes: eight instructed by BGCofCV staff, and an additional four that were supervised. The fitness classes typically comprised of a warm-up period, a moderate to intense workout period that focused on circuit training, and a stretching and cool down period. Several fitness classes this session focused on boxing, and participants got to practice boxing techniques with fitness instructors at the clubs. Each fitness class lasted about an hour.



Participants pose in the gym after a fun fitness class

#### **Nutrition Classes**

This session of the *Healthy Habits* program offered a total of six nutrition classes. Nutrition classes began with a lecture. The topics of these lectures varied, and included subjects such as portion control, learning to read and interpret food labels, the importance of eating a wide variety of fruits and vegetables, basic food preparation principles, identifying food cues that triggered overeating, and more. Each of these lectures was followed by a hands-on activity where participants created a healthy snack using the principles they had just learned. Each nutrition class was about 80 minutes long.



Participants are eager to answer questions during a nutrition class

#### **Parent Nights**

Two "Parent Nights" were held over the course of the program to help educate parents and engage them in improving the health of their families. One Parent Night was held at the Coachella club, and another was held at the Indio club. The programming was provided in both English and Spanish.

At the start of Parent Night, children in the *Healthy Habits* program served healthy parfaits and beverages to arriving parents and family members. Parents were given a four-item quiz to assess their existing knowledge on the upcoming health topics. Next, the entire group received a 20 minute presentation, which focused on health and wellness. The presentation covered topics such as childhood obesity, blood pressure, and depression. The presentation gave parents more information about these health problems, how to prevent them, and the importance of parental role models in addressing these issues.



A participant displays the healthy meal he has made as a part of the program.

After the presentation, children in the program prepared a healthy meal for their families. During the meal time, parents completed a follow-up four-item questionnaire to assess potential knowledge gain from the presentation. Parents were also asked to rate their experience at Parent Night on several aspects, including ease of scheduling, comfortable setting, and understandable presentation. Before leaving, parents were also given resources about healthy eating, including healthy recipes. The night ended with a free raffle where exercise equipment was given to the winners.

#### **Other Community Involvement**

Several participants were also involved in the Third Annual "Run for Ike", a 5k charity run held on April 6, 2013. *Run for Ike* is an event held in honor of a Palm Springs police dog named Ike that was killed in the line of duty in 2011. The event benefits the Palm Springs K-9 unit, and funds raised have helped the department to purchase and train new police dogs. Over a dozen members of the *Healthy Habits* program participated in this year's *Run for Ike* event.



Participants before the "Run for Ike" 5k charity run

### **Program Evaluation Methods**

#### Design

To assess the impact of this second *Healthy Habits* program, the BGCofCV again partnered with Health Assessment Resource Center (HARC). In order to measure potential changes in health due to the *Healthy Habits* program, the evaluation was designed to include a pre-test and a posttest for all student participants. All measures were included on both instruments.

BGCofCV staff members administered the pre-tests one week prior to the start of *Healthy Habits* programming. At the end of the program, the staff administered the same tests to the same participants. BGCofCV staff were responsible for providing this data to HARC for analysis.

#### Measures

The *Healthy Habits* program was designed to improve the health and wellness of program participants. "Health" is an extremely broad term, and can encompass a wide variety of factors, making it difficult to adequately measure outcomes of interventions aimed at improving health. However, most outcome measures can generally be grouped into three categories: increased knowledge, changed behavior (such as an increase of healthy behaviors or a decrease of unhealthy behaviors), and altered physical state (such as weight loss, strength increase, disease cures, etc). Generally speaking, these outcomes are usually related to one another, such that an increase in knowledge leads to a change in behavior which leads to improved physical outcomes. The BGCofCV obtained outcome measures in each of these three categories.

#### Knowledge Outcomes

A brief 10-item survey was designed to assess the children's knowledge regarding health and nutrition. The survey covered both physical fitness questions (e.g., "You should get at least

minutes of physical activity each day: 45, 30, or 60?") and nutrition questions (e.g., "It is OK to snack if you are not really hungry: true or false?"). Staff members "graded" this survey to assess how many correct answers each student gave.

#### **Behavioral Outcomes**

Participants were also asked to self-report several behaviors that can impact health. These questions assessed participants' current level of physical activity and their recent consumption of a variety of fruits and vegetables.

#### **Physical Outcomes**

The BGCofCV collected several physical indicators, such as height, weight, age, and gender. These figures, along with a physical fitness test, allowed for the calculation aerobic capacity.

To assess physical fitness, this study utilized the California Department of Education's physical fitness test, FITNESSGRAM. FITNESSGRAM provides a standardized method of measurement and set standards for three areas of physical fitness: aerobic capacity, body composition, and muscle strength. The current study focused on the aerobic capacity of the FITNESSGRAM. Aerobic capacity is the maximum rate of oxygen uptake in a person's body. Higher scores indicate that an individual is able to process greater amounts of oxygen, indicating higher fitness levels. Research shows that having high levels of aerobic capacity is associated with reduced risk

of many diseases and illnesses, including high blood pressure, coronary heart disease, obesity, diabetes, and cancer.

As per FITNESSGRAM protocol, aerobic capacity in this study was captured by the 20 meter Progressive Aerobic Cardiovascular Endurance Run (PACER). In this test, the participants are required to run 20 meter laps at increasing paces until they reach their maximum speed. The number of laps completed are then combined with participants' height, weight, gender, and age to calculateVO<sub>2</sub>max scores. VO<sub>2</sub>max is widely accepted as the best way to measure aerobic capacity, as it measures the maximum rate of oxygen uptake.

It is worth noting that the FITNESSGRAM protocol is not recommended for children under the age of 10, and thus, several members of the current sample were not included. Additionally, if a child is unable to run 10 laps total, this is considered too low to be used to calculate a  $VO_2max$  score. This means that participants who are especially unaccustomed to exercise may have no  $VO_2max$  score at all.

VO<sub>2</sub>max scores are categorized into one of three categories, according to FITNESSGRAM standardized guidelines. Based on the student's age and gender, VO<sub>2</sub>max scores are placed into the following categories (from most healthy to least healthy): the healthy fitness zone (HFZ), needs improvement, and needs improvement-health risk.

#### Parent Outcomes

As mentioned in the description of Parent Night, parents who attended Parent Night were also subject to a brief evaluation. Parents were given a brief survey before the presentation and again directly after the presentation. This survey not only assessed their knowledge of the health topics covered in the presentation, but also their experience at Parent Night. This report covers the results of both the student and parent program evaluation in depth. For assistance in interpretation, please contact the author of this report, Dr. Jenna LeComte-Hinely, at HARC.

## Results

#### **Demographics**

A total of 87 children participated in the data collection for this session of *Healthy Habits*. Data was collected at Time 1 and Time 2 for all measures. Children were asked to self-report on various demographics at these measurement points. Demographics from the Time 1 data are presented here to give the reader a profile of the program participants.

#### Age

Children in the *Healthy Habits* program ranged from 6 years old to 15 years old. The average age of participants was about 10. The majority of participants were between 8 and 12 years old, as illustrated in Figure 1.

As noted in the methods section, the FITNESSGRAM does not recommend computing  $VO_2max$  scores for individuals under the age of 10. Thus, for some of the outcome measures, final sample size is closer to 50 than 80, due to the relatively young age of some participants.



Figure 1. Age Distribution of Participants

*Note.* n = 87.

#### Gender

Slightly more than half of participants (57.5%) were male, but overall the sample was relatively balanced, as illustrated in Figure 2.



Figure 2. Gender of Participants

*Note. n* = 87.

#### Location

Participants in this *Healthy Habits* program came from three different clubs: Indio, Jefferson, and Coachella. As illustrated in Figure 3, about half of participants came from the Coachella club.



Figure 3. Club Location of Participants

*Note.* n = 87.

#### Body Mass Index (BMI)

Body Mass Index, or BMI, is a ratio between height and weight, and is widely regarded to be a reasonable indicator of obesity. Children's weight status is determined using an age and gender-specific percentile for BMI provided by the Centers for Disease Control and Prevention (CDC). These percentiles are the most frequently utilized pediatric clinical indicator of size and growth.

Percentiles indicate a child's position with regard to a reference population of other children in the U.S. of the same age and sex. For example, 25% of children of the same age and sex are at or below the weight of a child at the 25<sup>th</sup> percentile of BMI-for-age, and 75% of children of this age and sex weigh more.

Generally speaking, children whose BMI-percentile is at or below 5% are classified as underweight, while those whose BMI-percentile is at or below 85% are classified as normal weight. Children whose BMI-percentile falls between the 85<sup>th</sup> and 95<sup>th</sup> percentiles are classified as overweight, while children at or above the 95<sup>th</sup> percentile are considered obese.

In order to obtain the data needed to calculate BMI, the BGCofCV weighed participants, measured their height, and had the children self-report birth date and gender. HARC subsequently used this data to calculate BMI percentiles via the widely accepted formula and parameters provided by the CDC.

As illustrated in Figure4, about half of participants are overweight or obese, indicating that they are in need of a health and fitness intervention such as the *Healthy Habits* program. It is clear from these numbers that the Healthy Habits program is targeting children who can gain a great deal from becoming more physically fit.



#### Figure 4. BMI Categories

*Note.* n = 61.

#### **Health Outcomes**

Overall, results demonstrate that knowledge, health behaviors, and objective health outcomes all improved from Time 1 to Time 2. As detailed below, after completing the *Healthy Habits* program, participants had improved knowledge about fitness and nutrition, were active more often, consumed more fruit, and had better aerobic capacity levels.

#### Knowledge Outcomes

At Time 1, the average participant scored a 5.94, or 60% correct, on the knowledge survey. Only one participant scored a perfect 10 out of 10.

By Time 2, however, the average score increased significantly to 8.96, or nearly 90% correct, t (72) = -13.86, p < .001. As illustrated in Figure 5, over a quarter of participants scored a perfect 10 out of 10 at Time 2. This demonstrates that across the sample, participant knowledge significantly improved over time.



#### Figure 5. Health Knowledge Scores

Note. n = 73

#### **Behavioral Outcomes**

Results confirmed that participants' behaviors became healthier after going through the *Healthy Habits* program: participants significantly increased their physical exercise as well as their fruit juice consumption.

#### Exercise

The CDC recommends that children get 60 minutes or more of exercise every day of the week. According to the children's Time 1 self-reports, about half of participants were at or near that level of physical activity, exercising five or more days per week. Results show that on average, participants were physically active for at least 60 minutes per day 4.25 days per week at Time 1.

By Time 2, however, this number had significantly increased. At Time 2, participants were physically active for 60 or more minutes per day an average of 5.40 days per week, t(51) = -3.72, p < .001. As illustrated in Figure 6, the amount of children getting the recommended amount of exercise or close to it (exercising on five or more days per week) increased from about half of children at Time 1 to about 75% of children at Time 2.



#### Figure 6. Physical Exercise Frequency at Time 1

*Note.* n = 52.

#### Fruit and Vegetable Consumption

Participants were asked to indicate how many times in the past 24 hours they had consumed several specific fruits and vegetables. The minimum score on each question was zero (indicating the child had not consumed that particular type of fruit or vegetable in the past 24 hours) and the maximum was 5 (indicating they had consumed that particular fruit or vegetable 5 times in the past 24 hours).

Overall, the results indicated a high rate of consumption of fruits and vegetables. As illustrated in Table 1, the average participant had consumed fruits and vegetables about 10 times in the past 24 hours at Time 1 and an average of about 12 times in the past 24 hours at Time 2. Fruit juice consumption had a statistically significant increase from 1.90 times at Time 1 to 2.47 times at Time 2, t(50) = -2.17, p < .05. The other types of fruits and vegetables did not experience a statistically significant increase in consumption.

How many times in the past 24 hours did	Average Time 1	Average Time 2	
you			
Drink 100% fruit juice	1.90*	2.47*	
Eat fruit	2.47	2.57	
Eat green salad	1.33	1.51	
Eat potatoes (not fried)	.94	1.39	
Eat carrots	1.82	1.67	
Eat other vegetables	1.82	2.10	
Total	10.29	11.71	

#### Table 1. Fruit and Vegetable Consumption

*Note:* Statistically significant differences are starred. n = 51.

#### **Physical Outcomes**

Results of the FITNESSGRAM test provided raw VO<sub>2</sub>max scores for participants. Results of a paired-samples t-test on these raw scores indicated that participants gained significant aerobic capacity over the course of the *Healthy Habits* program. Specifically, VO<sub>2</sub>max scores significantly increased from 41.54 at Time 1 to 43.10 at Time 2, t(43) = -5.71, p < .001.

The raw VO<sub>2</sub>max scores were subsequently transformed into categories, based on the California Department of Education's FITNESSGRAM standards. This grouped the scores into three main categories: "Healthy Fitness Zone" (or "HFZ"), "Needs Improvement", and "Health Risk". As illustrated in Figure 7, 23 participants had VO<sub>2</sub>max scores in the HFZ at Time 1. By Time 2, this number had increased to 31 participants.



#### Figure 7. VO<sub>2</sub>max Categories

*Note.* n = 50.

#### Health Risk Participants

Eight participants scored in the "health risk" category at Time 1. Their average VO<sub>2</sub>max scores significantly improved over time from an average of 34.34 at Time 1 to 37.06 at Time 2, t(7) = -3.75, p < .01. Five of the eight "health risk" participants increased their scores by an entire category, subsequently falling into the "needs improvement" category at Time 2. The remaining three participants maintained their "health risk" category.

#### Needs Improvement Participants

Six participants scored in the "needs improvement" category at Time 1. Their average VO<sub>2</sub>max scores significantly increased from 39.01 at Time 1 to 40.68 at Time 2, t(5) = -3.52, p < .05. Four of the six participants improved an entire category into the "HFZ" category, while the other two maintained their "needs improvement" category.

#### HFZ Participants

Twenty-three participants scored in the "HFZ" category at Time 1, indicating their physical fitness levels were already high at the start of the Healthy Habits program. However, the average VO<sub>2</sub>max scores for these participants also significantly improved over the course of the program, rising from an average of 45.25 at Time 1 to 46.56 at Time 2, t(22) = -3.19, p < .01. This indicates that even those individuals who were physically fit at the start of the program gained aerobic capacity over the course the program. All 23 participants who scores in the "HFZ" at Time 1 maintained that category at Time 2.

#### Other Participants

As illustrated in Table 2, 13 participants that had endurance scores too low to calculate  $VO_2max$  scores at Time 1 were able to run enough laps at Time 2 to actually have a  $VO_2max$  score. In fact, four of these individuals increased all the way to the "HFZ" category—an increase of three entire categories. The other nine participants improved into the score-able "health risk" category.

Type of Change	Specific Change	Number of Students	Valid % of participant s
<b>Positive Change</b>	Any Type	22	44%
	Too low to score to Health Risk	9	18%
	Health Risk to Needs Improvement	5	10%
	Needs Improvement to HFZ	4	8%
	Too low to score to HFZ	4	8%
No Change	Any Type	28	56%
	HFZ to HFZ	23	46%
	Needs Improvement to Needs Improvement	2	4%
	Health Risk to Health Risk	2	4%

Table 2.	VO <sub>2</sub> max So	core Categor	y Change fro	om Time	1 to Time 2
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#### Impact of Class Attendance

The *Healthy Habits* program's major components included physical fitness classes and nutrition classes. Fitness class attendance ranged from zero classes to 11 classes. On average, *Healthy Habits* participants attended 6 fitness classes over the course of the eight week program. Participants are encouraged by their instructors to take what they learned and accomplished during a fitness class and continue activity habits both and home and during other club activity hours. From observation of the instructors, many members enjoyed the challenge of being physically active 60 minutes a day 5 days a week, and became great leaders in organizing their own activity challenges during open gym hours.

Nutrition class attendance ranged from zero classes to six classes. On average, *Healthy Habits* participants attended four nutrition classes over the course of the eight week program. Each nutrition class always began with a review of previous sessions and ended with a type of "pop-quiz" to test members' attentiveness and understanding during the lesson. Instructors found repetition to be a key teaching method to help members grasp new concepts and vocabulary about nutrition.

Results of a linear regression indicated that total class attendance had a significant relationship with VO<sub>2</sub>max scores at Time 2, F(1) = 5.61, p < .05. Specifically, for every additional class a student attended (nutrition or fitness), predicted Time 2 VO<sub>2</sub>max scores increased by .68 points, as illustrated in Figure 8. Thus, an individual who had attended no classes whatsoever would have a predicted VO<sub>2</sub>max score of about 34, which is in the "Health Risk" category. In contrast, a student that had attended all 18 classes that were offered would have a predicted VO<sub>2</sub>max score of over 45, which is in the "HFZ".



Figure 8. Healthy Habits Classes and VO<sub>2</sub>max Scores

*Note.* n = 60 for this analysis.

#### Parent Night

Two "Parent Nights" were offered, one at the Indio club and another at the Coachella club. A total of 29 parents attended a Parent Night. Overall, results indicated that parents enjoyed the event, and that their attendance resulted in learning.

#### Parental Knowledge Outcomes

Parent knowledge of health principles was assessed using a brief 4-item pre- and postpresentation quiz. Results of a paired-samples t-test showed that parents' scores on this quiz improved significantly after the presentation, t(26) = -4.44, p < .001. Specifically, before the presentation, parents correctly answered an average of 2.67 of the 4 questions. After the presentation, parents correctly answered an average of 3.37 of the four questions. As illustrated in Figure 9, at the pre-test, only two parents scored a perfect four out of four. In contrast, by the post-test, 17 parents scored a perfect four out of four.





*Note.* n = 27.

Parents were asked whether they learned something new about the two focus topics that they had not known prior to the presentation. All but one parent indicated that they learned something about blood pressure. As illustrated in Figure 10, all but two parents indicated that they learned something about depression that they did not know before the presentation.



Figure 10. Parent Learning About Subject Matter

All of the parents in attendance indicated that they plan to make changes for themselves or their family based on the information provided at Parent Night. One parent elaborated on these plans: "This will help us eat healthier and better portions of food."

*Note.* n = 29.

#### Parental Feedback on Parent Night

BGCofCV collected feedback from parents on the overall experience of Parent Night. The goal of this feedback-gathering was to improve future Parent Night experiences, and to increase the likelihood that parents would attend events like Parent Night.

All participants indicated that the presentation was interesting and understandable, indicating that the presenters were skilled and that the language used was appropriate for this audience. As one parent wrote, "It was clear and very understandable for me."

Responses indicated that the date and time of Parent Night was convenient for most parents. Only one parent indicated a different preferred time for the event (weekends). One parent did note that transportation to the club would help increase attendance. All parents agreed that the room and set-up made them feel comfortable.

As illustrated in Figure 11, about 70% of parents indicated they would be interested in learning more about finding places to be active with their families or how to choose healthier foods at stores. In contrast, less than half of parents indicated they would be interested in learning more about how to prevent other health problems like diabetes or stress, indicating this topic would likely not be a large draw for these parents for future Parent Night sessions.



#### Figure 11. Parent Interest in Presentation Topics

*Note.* n = 29.

## Conclusion

Based on the results presented here, it is clear that, similar to the first session, this adapted second session of the *Healthy Habits* program had a positive impact on participants' health and wellness. Over the course of the 8-week program, health knowledge, healthy behavior, and physical health outcomes all improved.

Additionally, this evaluation demonstrated that parental outcomes can also be improved as a part of the *Healthy Habits* programming. Parents that participated in the Parent Night activities provided as a part of the *Healthy Habits* program increased their knowledge about current health issues. Additionally, they indicated plans to use this knowledge to create healthier lifestyles for themselves and their families. It is likely, although as yet not measured, that this will result in lifestyle changes that have positive health impacts on families in the long run.

In order to be appealing and useful to parents, future Parent Nights should follow a similar design to those conducted in this session of *Healthy Habits*. Future focus topics should include family physical fitness and proper nutrition in order to attract parents.



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