Commit to Health: A Nationwide Summer Camp Nutrition and Feeding Intervention Improves Nutrition Knowledge and Healthy Eating Behaviors of Children, Parents, and Staff

Danielle Hollar¹, Marla Collum², and Kellie May²

BACKGROUND

Park and recreation agencies are the health/wellness leaders in their communities. Park and recreation agencies provide a safe place for children during summers, provide millions of nutritious meals, and teach children about eating healthily.



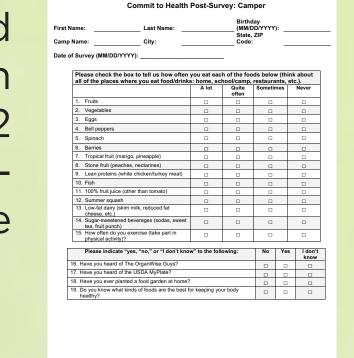


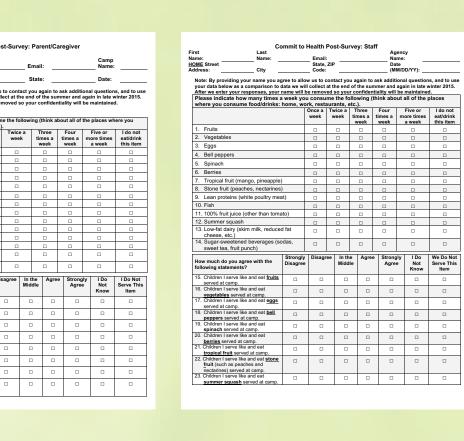


EVALUATION PLAN

Approximately 875,000 children participated in two C2H interventions (summer and afterschool meals and HEPA). A subgroup of 557 C2H sites including ~257,000 children (grades K-6) participated in <u>3 interventions</u>: summer feeding, nutrition literacy programming, and HEPA implementation. To assess the impact of the combination of the 3 interventions,

a nationwide representative sample of the post- (August) surveys. In all, 426 children (having just completed grades 4 or 5), 92 staff, and 116 parents completed both preand post-surveys, and thus comprise the sample presented herein.





METHODOLOGY

Commit to Health: Overview

Since the launch of the National Recreation and Park Association (NRPA)'s five-year Commit to Health (C2H) initiative, kicked off in 2014 in Miami with First Lady Michelle Obama, millions of children in low-income communities nationwide have been provided nutritious summer and afterschool meals during out-of-school time (OST), and hundreds of thousands have been educated about healthy eating and physical activity habits in park and recreation sites that provide healthy environments in accordance with Healthy Eating and Physical Activity (HEPA) standards. Through Commit to Health, park and recreation agencies are playing a critical role in obesity prevention efforts by providing access to nutritious foods and opportunities for physical activity in healthy environments aligned with standards that support such efforts.

Study Interventions

This study included three interventions:

- 1 United States Department of Agriculture (USDA) Summer Feeding Program meals and USDA afterschool meals,
- 2 Nutrition literacy programming, and
- 3 Commit to Health Healthy Eating and Physical Activity (HEPA) standards.

A supportive network of nationwide partners (Alliance for a Healthier Generation, United States Department of Agriculture [USDA], Food Research and Action Center [FRAC], among others) are critical to the successful implementation of the three interventions.













Nutrition Literacy Programming

Children learned a lot about nutritious foods, the organs of their bodies, and how to become healthier overall thanks to the nutrition literacy program provided by NRPA. Through fun, engaging, cartoon-based programming called The OrganWise Guys (which includes cute characters such as Hardy Heart,

Peter Pancreas, and Peristolic the Large Intestine), the importance of good nutrition and daily physical activity was understood by kids.

These lessons were complimented by USDA MyPlate activities, Foods of the Month programming that included focusing on specific nutrient-rich foods each week during the summer months (experiential food tasting activities in many instances), and an emphasis on daily physical activity.

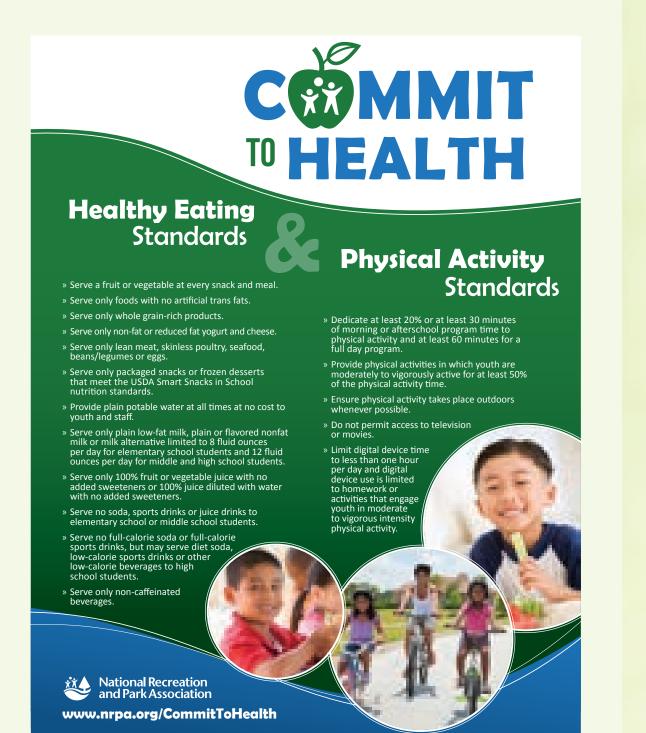
	Assembly	Book	WISERCISE!	OrganWise Guy/Gal	USDA MyPlate and Other Nutrition Activities	Foods of the Month/Wee
Week #	MyPlate "OrganWise" Style (found in FoM Kit.)	Heart to Start Blue Kit (NOTE: Books can be read in any order. Sample order is below.)	PreK-2nd Grade Edition	OWG Guy/Gal lesson plans are at website below.†	(NOTE: Activities listed below can be done in any order. Sample order is below.)	(NOTE: Wear all FoM Button throughout the summer to promote healthy food discussis
1	☐ Perform Kickoff Assembly	□ Read It's a Teethday Party	☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday	☐ Intro to all organs & their jobs in body; Use OrganWise Guy/Gal Lesson Plan	□ Introductory Page-Serving Up MyPlate (read & show to children) □ Be Physically Active Your Way (Food Relay) (K-2) □ OWG-MyPlate- ActivitySheet-Color Food Groups (K-2)	Send home May FoM newsle Hang up May posters, read th to children Discuss May FoM - Eggs Download Eggs coloring she **
2	Perform Kickoff Assembly	☐ Read An OrganWise Field Trip	☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday	Children toss Peri Stolic to each other & name fruits & veggies they would grow in a garden	☐ MyPlate Maze (K-2)☐ Emergent Reader: Dairy(K)*	☐ Discuss May FoM - Spinach ☐ Download Spinach coloring sheet ** ☐ Read "Spinach Lane" (pdf file ☐ Conduct food tasting with Fo or read FoM posters to childr
3	☐ Activity 1 (K-2) ☐ Activity 2 (K-2) (on disc)	Read Counting on you to Play	☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday	Children toss Windy to each other & name an activity they like to do outside in the fresh air	□ MyPlate Have Fun Fruit/ Veg Word Search (1-2) □ Emergent Reader: Vegetables (K)* □ OWG-MyPlate- ActivitySheet (K-2)	□ Send home June FoM newslet □ Hang up June posters, read th to children □ Discuss June FoM - Berries □ Download Berries coloring sheet** □ Read "Strawberry Patch" (pd □ OWGFOM-ActivitySheet-Berr
4	☐ Activity 3 (K-2) ☐ Activity 4 (K-2) (on disc) ☐ Certificate of Completion (on disc)	Read Keeping your "Pets" Healthy	☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday	Children toss Sir Rebrum to each other & name a healthy food they would like to put in a recipe.	☐ Fruit Imposters (1-2) ☐ Emergent Reader: Fruits (K)*	☐ Discuss June FoM - Peppers ☐ Download Peppers coloring sheet** ☐ Conduct a food tasting with F or read FoM posters to childs

Healthy Eating and Physical Activity (HEPA) Standards

The HEPA standards were created in 2011 to create upto-date, evidence-based, practical values that foster the best possible nutrition and physical activity outcomes for children in grades K-12 attending out-of-school time (OST)

Healthy Eating programs. The HEPA standards have been adopted by many organizations, including NRPA. The standards help ensure foods are nutritious in park settings with aims such as serving fruits and vegetables at every meal, serving only whole grains, serving no foods with transfats, serving reduced fat dairy products, providing water all day long, and serving no sugar-sweetened beverages.

Regarding physical activity, HEPA encourages parks to Serve only non-caffeinated beverages. provide at least 30 minutes of activity daily for half-day programs, and 60 minutes for full day programs, and the National Recreation and Park Association limitation of digital/screen time.



Children

Children learned a lot about nutritious foods, the organs of their bodies, and how to become healthier overall thanks to the nutrition literacy program provided by NRPA, and many changed their eating behaviors as a result. Specifically, statistically significant improvements in correct responses from pre- to post-survey were found regarding nutrition knowledge topics:

- The main antioxidants/vitamins found in fruits/vegetables (14.8% to 34.0%, McNemar Test; p=0.000) - "What are the three main antioxidants/vitamins that are found in fruits and vegetables?"
- Which type of cereal is best (57.7% to 72.3%; p=0.000) - "Pretend you are getting ready to choose which cereal you would like to have for breakfast. Which of the following would be the best choice?" (options included varying levels of fat and fiber)
- The types of food that are proteins (64.1% to 72.5%,; p=0.000) - "Which food is a protein?" (egg, whole wheat bread, or broccoli)

Children were asked about their consumption of foods that were part of the Foods of the Month educational efforts. Statistically significant improvements in child eating behaviors were found regarding increases in fruits (z-2.801; p=0.005) and bell peppers (z-2.483; p=0.013); and improvements that did not quite reach statistical significance were found for spinach, and lowfat dairy, and a decrease in consumption of sugary beverages.

Parents

Parents did learn about, and then make changes to improve, eating habits due to their children having been campers in locations where nutrition literacy programming was implemented!

Specifically, significantly more parents reported having heard about the educational programs called The OrganWise Guys, and/or the USDA MyPlate program, at the end of summer as compared to the beginning. More parents indicated at the end of the summer (as compared to the beginning) that they:

- "know which foods have the most antioxidants in them,"
- "know what foods have lots of fiber in them,"
- "know how to cook/prepare healthy foods,"
- "know what the large intestines do in your body,"

"know what dairy foods are low in fat,"

 "know what kinds of foods are the best for keeping your body healthy,"

The types of foods with most fiber (43.9%)

to 65.3%; p=0.000) - "Which food below

would have the highest amount of fiber?"

51.9%; p=0.002) - "Which organ of the body

from pre to post, children also reported

learning more about the types of protein

and dairy items that are low in fat, as well

as the role of their intestines and pancreas

(white bread, brown rice, white rice)

helps regulate sugar in our body?"

in healthy living.

Although not statistically significant

Which organ regulates sugar (39.7% to

- "know the difference between nutritious and unhealthy foods," and
- "know how to plant a garden." (The number of parents reporting having planted a garden rose by the end of the summer.)

Regarding eating behaviors of parents, although parents did not participate directly in Foods of the Month programming, it is apparent that the important nutrition messages about the health benefits of nutrient-rich foods were taken home by children. Parents reported significant increases in consumption of vegetables generally (z-score -2.22; p=0.026), and bell peppers (z-2.166; p=0.030), spinach (z-3.213; p=0.001), summer squash (z-2.867; p=0.004), and fish (z-2.553; p=0.011), as well as tropical fruits, stone fruits (peaches, nectarines, etc.), and low-fat dairy (the latter categories did not reach statistical significance, however.).

Park and recreation staff changed their eating and physical activity behaviors due to learning by teaching nutrition literacy during summer camps. Staff knowledge of nutrition and healthy living behaviors increased by the end of summer, but due to small sample size statistical significance is not reported. Specifically, staff reported increases in knowledge about:

- "which foods have the most antioxidants in
- "what the large intestines do in your body,"
- "what foods have lots of fiber in them,"
- "what proteins are low in fat,"
- "what foods are healthy for your heart," "how to cook/prepare healthy foods," and
 - "how to plant a garden."

The increase in knowledge among staff had a strong influence on foods they consumed. Specifically, fewer staff reported never consuming targeted nutritious foods at the end of the summer as compared to the beginning-thus they were trying new foods!

And because of teaching the Foods of the Month program (including experiential food tasting activities in many instances), staff reported increases in consumption of Foods of the Month: bell peppers, spinach, tropical fru its, stone fruits, summer squash, and lean proteins. Finally, similar to reports by the parents, a large number of staff reported at the end of summer, as compared to the beginning, that they had planted a food garden at home.







CONCLUSION

This study shows child and adult healthy eating behaviors can be improved via summer camp programming. The impressive gains in nutrition knowledge and associated changes in healthy eating behaviors, and their potential to improve the health of children and their parents throughout our nation, give much support for expansion of similar out-of-school time efforts. NRPA's commitment to expanding Commit to Health and its components (providing of nutritious meals, ensuring healthy environment standards, and teaching nutrition literacy) has great potential to improve obesity rates among young children throughout our nation in a fun, engaging way that uses park and recreation agencies as leaders of such efforts.

¹President, Healthy Networks Design and Research, a nonprofit organization, Shepherdstown, WV, www.HealthyNetworksDesignandResearch.org; DanielleHollar@gmail.com;







² Manager of Grants and Partnerships, National Recreation and Park Association, Ashburn, VA;

³ Senior Program Manager, National Recreation and Park Association, Ashburn, VA; www.nrpa.org.