

Invest in the Future with 5 A Day

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ABSTRACT

The “5 A Day” program is the nation's largest public/private partnership and the only initiative promoting all produce. This program encourages people to eat 5-9 servings of fruits and vegetables everyday for good health. There is a substantial need for U.S. children to attain healthy eating practices (such as increasing fruit and vegetable consumption) that will enable them to attain healthful weights and prevent long-term health problems, such as coronary heart disease, cancer, obesity, stroke and osteoporosis.

Members of Phi Upsilon Omicron researched the 5 A Day program and generated ideas for fun and effective classroom activities. From these ideas, four unique programs were developed. One, a play, sought to introduce 5 A Day to fourth grade students through song and dance. In another, second graders prepared and sampled healthy snacks made with celery and raisins. A third program, targeted at fourth graders, turned the school lunch menu into a game entitled “The Great Fruit and Vegetable Search.” Finally, adolescents identified serving sizes and learned supermarket tips for selecting fruits and veggies. These programs reached students ranging from ages 8-17 in Wisconsin and Minnesota.

The hard work and dedication that went into this project will not be seen immediately. It is our desire that the information provided to the youth will be applied in their daily life and passed down from generation to generation leading to decreased incidence of chronic diseases.

Literature Review

There is a substantial need for U.S. children to attain healthy eating practices (such as increasing fruit and vegetable consumption) that will enable them to attain healthful weights and prevent long-term health problems, such as coronary heart disease, cancer, obesity, stroke and osteoporosis (Skinner, Carruth, Houck, Bounds, Morris, Cox, Moran & Coletta, 1999). Many studies have shown that higher intakes of fruits and vegetables are associated with a lower risk of cancer at most sites and may reduce the risk of coronary heart disease. In fact, people who eat five or more servings of fruits and vegetables each day have half the risk of developing cancer compared to those who only eat one or two servings a day. Additionally, several studies have found that poor nutrition has negative effects on growth, development and cognitive abilities, which are major concerns for children. But, children are not eating the recommended amounts of fruits and vegetables; children ages 2-18 have an average daily consumption of 2.6 servings of vegetables and 1.6 fruits (U.S. Department of Agriculture, 2001). Additionally, fewer

than 15 percent of elementary students eat the recommended five or more servings of fruits and vegetables every day. Poor nutrition affects kids' energy levels, ability to concentrate, and ability to learn, which leads to increased illness and absenteeism (Dole, 2001).

Diets low in fruits and vegetables not only affect people physically, but also economically. Nearly 250 billion dollars are spent each year on health care costs due to diet related diseases from diets that are too high in fat and too low in fruits and vegetables (5 A Day, 2001).

The 5 A Day program is the nation's largest public/private partnership and the only initiative promoting all produce. Its mission is to increase consumption of fruits and vegetables to an average of five or more servings a day to improve the health of Americans through a partnership among the health community, government agencies, the fruit and vegetable industry, and other private sectors.

Dole Food Company is a founding member of the National 5 A Day for Better Health Program. As part of its commitment to children's nutrition and the National 5 A Day For Better Health Program, Dole's 5 A Day web site provides access to a number of educational resources designed to help increase awareness of 5 A Day.

As a result of The 5 A Day program, children and adults are learning about eating more fruits and vegetables. In fact, since the 5 A Day program began in 1991, consumer awareness of 5 A Day has increased from 8 percent to 39 percent at the same time as the average fruit and vegetable consumption increased half a serving from 3.9 servings a day to 4.4 servings (5 A Day, 2001).

Our chapter wanted to contribute to such a successful program. We thought a school setting would be appropriate since studies have shown that some of the most important factors in determining someone's fruit and vegetable intake are the number of servings they think they should have in a day and whether they have been in the habit of eating many fruits and vegetables since childhood (Krebs-Smith, Heimendinger, Patterson, Subar, Kessler & Pivonka, 1995). In this setting, we could focus on these factors.

Methods

Members were given the objectives, which are seen below, as well as an assessment to give to the students. This allowed members the ability to plan activities in a manner to teach the students and then effectively find out what they learned from the activity.

Specific outcomes to be achieved

- 1) Participants will have greater knowledge of the importance of eating 5-9 servings of fruits and vegetables every day
- 2) Participants will have greater knowledge of the Food Guide Pyramid (FGP)

Parameters on the scope and content of the project

- 1) Projects must be developed to inform students of the 5 A Day program
- 2) Members will conduct educational sessions and discuss the following:
 - a. What is 5 A Day?
 - b. What is the FGP?
 - c. What are phytochemicals?

- d. What is the importance of physical activity?

Measurable Objectives

The students will be able to:

- a. Show awareness of the 5 A Day Program
- b. Match food items to appropriate food group
- c. Identify that phytochemicals give fruits and vegetables their bright colors
- d. Recognize that one should participate in at least 30 minutes of physical activity everyday

Evaluation

Project success was evaluated by employing a pre- and post-assessment. A sample questionnaire was provided and groups were allowed to modify them as they felt necessary. The pre- and post- assessments were the same. The questions that could be included (but not limited to) were as follows: 1) How many servings of fruits and vegetables should one eat in a day to stay healthy? (a response of 5 or greater was considered correct); 2) Matching foods to the proper food group; 3) Substances called phytochemicals (fight-o-chemicals) give fruits and vegetables their color and keep you healthy; 4) How many minutes should you be physically active a day (playing, running, sports)?; 5) How many times did you eat fruits and vegetables yesterday? and 6) What is your favorite fruit or vegetable?*

To determine student awareness of the 5 A Day program, Question #1 asked “How many fruits and vegetables should you eat each day to keep you healthy?” For this objective to be successful, the students had to answer this question correctly.

To determine if students were able to name and match food items to their appropriate location in the Food Guide Pyramid, answers to Question #2 were reviewed.

To determine if students chose to increase their fruit and vegetable consumption by at least 2 servings, the number given in Question # 5 in the post questionnaire had to be at least 2 servings greater than their pre-assessment answer. (This answer was compared to baseline answer and if the answer was greater by 2 or more in the post-assessment compared to the pre-assessment, it was assumed fruit and vegetable consumption increased by 2 servings per day.)

* One session used this question

The following sections explain each of the individual educational sessions.

Gilman Elementary School (Gilman, WI)

Who?

Fourth grade students attending Gilman Elementary School (27 students ages 9-10).

What?

The 5 A Day Live musical performance (obtained from the Dole 5 A Day website) was used as a component in this nutrition education program. Based on an evening news broadcast, 5 A Day Live got the students singing and dancing while delivering the 5 A Day message in an entertaining performance.

When?

December 4, 2001 at 8:30 a.m. and 1 p.m

Where?

Gilman, WI

Why?

Due to the fact that children want learning to be fun and they learn best by active participation, it inspired us to do the play. However, to date, there are no studies on the effectiveness of a play as a nutrition intervention; but, school-based interventions have shown considerable promise in promoting healthful dietary behaviors among children, particularly interventions involving multiple components (Perry & Bishop, 1998). Many of these studies have tested the effectiveness of school-based interventions that use the Social Cognitive Theory as a tool to develop fruit and vegetable nutrition education programs.

Professionals have suggested that intervention programs should provide concrete messages (such as consume 5 or more servings a day), and we believed this play would provide this concrete message.

How

Initial communication was made by contacting the principal of Gilman Elementary by phone and the two fourth grade teachers via e-mail. A copy of the play and a cast sheet were given to the teachers to select the cast members because they know the personalities and talents of the children. During the months of October and November 2001, we met with the class and teachers every Tuesday morning to rehearse the play.

Prior to beginning production, we distributed a 5-item assessment among students. This was used to determine if students were aware of the 5 A Day Program and knowledgeable of the Food Guide Pyramid (FGP). We held up six food models individually and asked the students to place them in the proper location of the FGP. They then completed the remaining questions. After the assessments were collected, we discussed where each food item belonged in the FGP and how 5 A Day was derived from the FGP. We utilized a FGP poster during this discussion.

We, along with the teachers and students, contributed a lot of time and effort into the making of this play. The three of us made posters and supplied most of the props. We obtained a FGP poster from Gilman Head Start and food models from UW-Stout. The students made their own costumes during art class. The fourth grade teachers helped construct props and teach the play's songs.

Fourth grade students performed the play for elementary students, community members, and parents on December 4, 2001 at 8:30 a.m. and 1 p.m. in Mrs. Stendel's classroom at Gilman Elementary School.

A post-assessment was administered to the students after the 8:30 a.m. performance. The results were compared to the pre-assessment and were then used to evaluate the program's effectiveness.

Promotion Strategies

Publicity was generated by informing a local television station, WEAU TV-13, and newspaper, The Star News, of the performance. Along with a description of the play, invitations were sent to parents/legal guardians.

Oaklawn Elementary School (Menomonie, WI)

Who?

Second grade students attending Oaklawn Elementary (16 students ages 7-8).

What?

Discussion of the FGP and importance of having 5 A Day

When?

Friday, January 25, 2002

Where?

Menomonie, WI

Why?

Repetition is a great way for students to learn. As first graders, the students learned about the FGP. The discussion was a great form of review and emphasized the importance of the 5 A Day program.

How?

On Wednesday, January 23, 2002, the students were given a pre-assessment to evaluate their knowledge prior to the January 25th discussion. After reviewing the assessments, we knew what needed to be the focus of the conversation. Only three out of 16 knew how many fruits and vegetables they should eat a day and only five out of 16 students knew what phytochemicals were.

The students were given an opportunity to speak out in class about examples of each food group. They also talked about what they ate for lunch and which food group each item fell under. The word phytochemicals was then placed on the board and the class learned how to pronounce it. They also learned that phytochemicals were responsible for the bright colors in fruits and vegetables. Upon completion of discussion, the students were given a healthy snack named “Ants on a Log” (celery, raisin and peanut butter).

United South Central Elementary School (Wells, MN)

Who?

Fourth grade students attending United South Central Elementary School (64 students ages 9-10).

What?

Discussion and activity containing the 5 A Day program and related topics

When?

Friday, January 18, 2002

Where?

Wells, MN

Why?

The students were enrolled in a health class and were about to begin a month concentrating on physical fitness. This session was to give the students a jump start in health class and a great way to gear up for their physical fitness month.

How?

The session began by explaining what a pre-assessment is. The students were each instructed to complete the 5 A Day pre-assessment. After all students completed the assessment, they went over the answers and the students self corrected the assessments. Next they discussed what the different types of nutrients are and their basic functions in the body. They talked a little about the importance of vitamins A and C and discussed what foods would be good sources of those vitamins.

Next, they did the “Great Fruit and Vegetable Search.” An excited fourth grader volunteers his answer in the above picture. They were given a lunch menu from their cafeteria and asked to identify the fruits and vegetables. Then they identified the fruits and vegetables that were good sources of vitamins A and C.

In the next part of the activity, the students took one of the fruits or vegetables from the menu and decided how many servings it counted as. Then they needed to determine how many other fruits and vegetables would need to be eaten as breakfast, snack or dinner to get their 5 A Day.

Lastly, they went through the meal plan for the rest of the lunches that week and double-checked to make sure they got 5 or more serving of fruits and vegetables in that day. At the end of the class period, the students were given the post-assessment. In two of the sessions, they were able to enjoy the “5 A Day” song and get a little exercise by dancing or walking in place.

Northwest Juvenile Detention Center (Eau Claire, WI)

Who?

Students in the Northwest Juvenile Detention Center (16 students ages 10-17)

What?

Presentation about the 5 A Day program and examples of serving sizes of each food group

When?

Saturday, December 15, 2001

Where?

Eau Claire, WI

Why?

Children and adults are learning more about increasing the daily consumption of fruit and vegetables. To make us healthier, the average of five or more servings a day of fruits and vegetables are needed. Fewer than 15% of elementary students eat the recommended five or more servings of fruits and vegetables every day. Over half of all elementary students eat no fruit on any given day. Three out of ten students eat less than one serving of vegetables a day. One-quarter of all vegetables eaten by elementary students include french fries, a high fat, low nutrient vegetable option.

How?

The presentation began with a display of food models representing the essential pyramid food groups. The models included a slice of bread, a box of rice, a gallon milk carton, a pork chop, cauliflower, a slice of pizza and a piece of apple pie. To make the presentation a bit real, a bunch of bananas and a few red apples were added. The presentation began with an explanation of the 5 A Day program.

A lecture about the origin of the 5 A Day program was given. One of the greatest forces behind the 5 A Day program is the National Cancer Institute. About one-third of all cancer occurrences can be attributed to diet alone. Fruit and vegetable consumption has been consistent in showing a reduction of the risk of many cancers.

The group talked about the importance of exercise and how it helps gain significant health benefits. Exercising 30 minutes a day and maintaining a healthier diet is one

efficient way to control weight. Exercise uses extra calories that would be stored as fat. Exercise at the detention center includes playing basketball at least one hour every day.

A question about the nutrient content of pizza was posed because it contains four of the food groups (grain, vegetable, dairy and meat). Pizza could be a daily consumption of the essential food groups. The members proceeded to explain that pizza also contains lots of calories and fat. Other forms of the food groups need to be added.

The presentation was concluded with supermarket tips for proper selection of fruits and vegetables. These tips included: how to buy fruits at different ripeness levels, look for new products, add one fruit or vegetable to the weekly shopping trip, pick brightly colored fruits and vegetables and stock the freezer with assorted frozen vegetables for a quick addition to dinner.

Results

Gilman Elementary School (Gilman, WI)

This project produced significant improvement in all areas of the evaluation criteria. Pre-assessment findings showed that six students (23.0%) were able to properly match food items to their location in the FGP. With one student absent, nine of 26 (34.6%) students correctly answered that one should eat at least 5 fruits and vegetables each day to keep healthy. Fourteen (53.8%) students correctly answered that phytochemicals give fruits and vegetables bright colors. Six (23.0%) students were correct when asked how long you should be active each day for good health. The pre-assessment results also recorded 4 (15.4%) students meeting the recommended intake of at least 5 servings of fruit and vegetables each day.

The post-assessment results were outstanding. The student absent from the pre-assessment did not take the post-assessment. Twenty-four of 26 (92.3%) students were able to properly match food items to their location in the FGP. All 26 (100.0%) students correctly answered that you should eat at least 5 servings of fruit and vegetables each day to keep healthy. In addition, every student (100.0%) knew that phytochemicals supply bright colors. Twenty-three of the 26 (88.5%) respondents correctly answered that you should be active 30 minutes each day for good health. Post-assessment results also recorded 19 (73.1%) students meeting the recommended intake of at least 5 servings of fruit and vegetables each day. Seventeen of the 23 (73.9%) applicable students improved their daily fruit and vegetable consumption by 2 servings.

Figure 1 on the next page compares the percentage of students that answered pre- and post assessment questions 2-5 correctly. { EMBED MSGraph.Chart.8 \s } Questions 2-5: 2. How many fruits and vegetables should one have in a day? 3. Phytochemicals give fruit and vegetables their bright colors (answer was either true or false). 4. How many minutes of physical activity should be done in a day? 5. How many fruits and vegetables do you (the student) eat in one day (answering less than 5 was undesirable)?

Oaklawn Elementary School (Menomonie, WI)

A post-test was given to see if the discussion was helpful in understanding the 5 A Day program and the FGP. When comparing results of the pre- and post- assessments, a higher percentage of students correctly answered every post-assessment question. All students successfully matched foods to their appropriate FGP group. Fifteen out of 16

(93.8%) students correctly answered that everyone should have five to nine servings of fruits and vegetables a day compared to 3 (18.8%) in the pre-assessment. Eleven students (68.8%) correctly answered that phytochemicals give fruits their bright colors compared to 5 (31.3%) in pre-assessment. Seven (43.8%) students correctly answered that one should be physically active for 30 minutes every day compared to 5 (31.3%) in the pre-assessment.

Figure 2 below compares the percentage of students that answered pre-and post-assessment questions 2-4 correctly.

{ EMBED MSGraph.Chart.8 \s }Questions 2-4: 2. How many fruits and vegetables should one have in a day? 3. Phytochemicals give fruit and vegetables their bright colors (answer was either true or false). 4. How many minutes of physical activity should be done in a day?

United South Central Elementary School (Wells, MN)

In the pre-test, 55% of the students answered the question about “How many fruits and vegetables should you have in a day?” correctly. The post-test boasted a 97% success rate to the same question.

Northwest Juvenile Detention Center (Eau Claire, WI)

Thirteen out of sixteen students correctly answered the question “How many fruits and vegetables should you eat in a day?” Everyone knew the answers pertaining to the FGP. Ten of the 16 learned that phytochemicals provide bright colors to fruits and vegetables and 13 students learned that they need 30 minutes of exercise a day.

Conclusion

As a result of the educational sessions at Gilman Elementary, Oaklawn Elementary, United South Central Elementary and the Northwest Juvenile Detention Center, students learned about the importance of eating five to nine fruits and vegetables a day. The results suggest that an increase in knowledge of the 5 A Day program was successful through the chosen methods.

The hard work and dedication that went into this project will not be seen immediately. It is our desire that the information provided to the youth will be applied in their daily life and passed down from generation to generation leading to decreased incidences of chronic diseases.

References

Dole Food Company. 5 a day facts: are your students eating their 5 a day?. <{ HYPERLINK "http://www.dole5aday.com/Teachers/Facts/T_KidsIntake.html" }> Accessed September 25, 2001.

Economic Research Service/US Department of Agriculture. Briefing room-diet and health: food consumption and nutrient intakes tables. <{ HYPERLINK "http://www.ers.usda.gov/briefing/DietAndHealth/data/foods.htm" }> Accessed October 20, 2001.

Eat 5 a day for better health. <{ HYPERLINK
"http://www.5aday.com/about/youknow.html" }> Accessed October 23, 2001.

Krebs-Smith SM, Heimendinger J, Patterson BH, Subar AF, Kessler R, Pivonka E.
Psychosocial factors associated with fruit and vegetable consumption. *Am J Health
Promot.* 1995;10:98-104.

Perry, CL, Bishop, DB. Changing fruit and vegetable consumption among children: The
5-a-Day Power Plus program in St. Paul, Minnesota. *Am J of Public Health.* 1998;
88:603-609.

Skinner JD, Carruth BR, Houck KS, Bounds W, Morris M, Cox DR, Moran J, Coletta F.
Longitudinal study of nutrient and food intakes of white preschool children aged 24 to 60
months. *J Am Diet Assoc.* 1999; 99:1514-1521.