Get Up, Get Out, Get Moving: An Interactive Tool for Education at Your Local School

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Published online: 19 October 2012
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Abstract

Background Childhood obesity is a growing problem in America. Orthopaedic surgeons have an opportunity to interact with communities to educate children about healthy eating and physical activity. The American Academy of Orthopedic Surgeons (AAOS) Leadership Fellows Program [1] Class of 2012 created a presentation for AAOS members to bring to local schools. The goal was to teach

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All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research* editors and board members are on file with the publication and can be viewed on request.

Electronic supplementary material The online version of this article (doi:10.1007/s11999-012-2647-2) contains supplementary material, which is available to authorized users.

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the children about the potential complications of childhood obesity and the benefits of healthy living.

Questions/purposes We describe a program in which orthopaedic surgeons gave presentations to elementary school students about healthy eating and activity and the effects that extra weight can have on their bones.

Methods Each of the five members of the Leadership Fellows Program [1] 2012 class (JW, EM, MP, MR, MF) presented to a school in his or her hometown. The program was presented to 210 fifth grade children throughout the country. Before and after the presentation, students took a six-question multiple-choice quiz and answers compared to assess improvement in knowledge.

Results The average number of answers correct before the presentation was 4.5 out of six, and the average after the presentation was six of six. The presentations were well received, and the students and their teachers invited each presenter back the next year.

Conclusions The improvement in quiz scores demonstrated interest among the students in that they paid attention and understood the content. The children appeared enthusiastic to learn about this subject, and the schools were enthusiastic to include the curriculum.

Introduction

Childhood obesity is a growing problem in America today. According to the Centers for Disease Control and Prevention, a 2009–2010 survey determined that approximately 17% of American children are obese [8]. These children and adolescents are at an increased risk for cardiovascular problems (hypertension, hypercholesterolemia, etc) [5] and type 2 diabetes [11]. From a musculoskeletal standpoint, some childhood orthopaedic disorders (tibia vara and slipped

capital femoral epiphysis) have been suggested to be weight-related [3, 6, 7, 9, 12]. Increase in fracture risk, musculoskeletal discomfort, higher surgical complication rates, and impairments in mobility have also been reported [4, 14]. As obese adults, those with a history of childhood obesity tend to be more severely obese [10, 13]. Whitaker et al. [13] have shown that in children 10 to 15 years old, 83% of those with a BMI-for-age > 95th percentile were obese at age 25 years. This growing problem has long-term implications for the health of the nation with future obesity-related problems and increasing healthcare costs [9].

The US Bone and Joint Initiative has an interactive program targeted at teenagers called “Protect your Bones and Joints.” This interactive program also begins and ends with a multiple-choice quiz and teaches about trauma, arthritis, and osteoporosis (http://www.usbjd.org/projects/pbj_op.cfm). We believe that programs at the grass roots level have a possibility for greater impact if offered at a wider level, perhaps by other healthcare providers. The “Get Up, Get Out, Get Moving” program was designed to provide an educational program presented by orthopaedic surgeons on healthy diet and exercise habits in fifth graders at multiple schools across the country.

The AAOS began to focus on Childhood Obesity Prevention in 2012. The rerelease of the “Sedentary” [2] (a video that was used in our presentations) was cosponsored by the AAOS and the Pediatric Orthopaedic Society of North America (POSNA). This video, in which an overweight child is seen playing video games, walking his dog on a treadmill, and calling his grandmother on the telephone to request a soda refill, provides a witty yet sobering statement on the overwhelming challenge we face in promoting healthy active living in children in the United States today. We presumed this program would be well received among students at the fifth-grade level regarding the types of diet and exercise habits they can use to maintain their musculoskeletal health.

The goal of this article is to describe a program in which orthopaedic surgeons gave the “Get Up, Get Out, Get Moving” presentation to elementary school students about healthy eating and activity and the effects that extra weight can have on their bones.

Materials and Methods

The presentation was given to 210 fifth grade students. The presentation was given to 10 classrooms with an average of 20 students in each classroom. Before each presentation, a six-question multiple-choice test was administered about healthy eating and activity (see [Appendix](#)). The presentation and discussion lasted approximately 45 minutes with allowance made for interaction and questions throughout. After the presentation, the quiz was again administered.

As part of the focus on healthy and active living for children, the members of the 2012 Leadership Fellows Program [1] designed a program to promote education about childhood obesity and prevention to elementary school children. We presumed learning could be demonstrated among grammar school children by providing a short interactive program in the classroom. Five members of the Leadership Fellows Program [1] 2012 class (JW, EM, MP, MR, MF) brought the program to a school in his or her hometown.

The program consisted of the following.

A 1-minute long video entitled “Sedentary” [2] was played for each class in the beginning of the presentation. A PowerPoint presentation, entitled “Get Up, Get Out, Get Moving” (see online supplementary materials), was given with attention to interaction and questions from the children. The PowerPoint presentation is a 30-minute presentation that includes age-appropriate visuals that are colorful. It features “The Bones Family,” which is a set of animated colorful vegetable characters. The content includes discussion on healthy physical activity, nutrition, and sleep. Regarding exercise, discussion includes the many benefits, including mood improvement, energy level, bone and joint strengthening, and weight control. The presentation is designed to be interactive, and the children are encouraged to share their activities and thoughts on food and exercise. The concept of BMI is discussed. The decision was made not to have each student calculate their own BMI so that participating children who are overweight did not feel uncomfortable. The discussion then moves on to slipped capital femoral epiphysis and Blount’s disease. Radiographs are included, and the presenter is encouraged to take this opportunity to talk more about orthopaedic surgery. A before-and-after case is included of a teenage girl who was able to lose 40 pounds after anterior cruciate ligament reconstruction. A calendar contest was held in which students drew pictures illustrating healthy eating and exercise. Twelve pictures were then chosen to create a “Get Up and Move” calendar. This calendar contains monthly tips to enhance healthy eating and exercise for children written by the Leadership Fellows Program [1] class and AAOS team. The PowerPoint presentation is available online as supplementary material.

To demonstrate the effect of the program on the children, and to quantify their learning, a short multiple-choice quiz was used (see [Appendix](#)). The quiz was designed so that the questions were completely representative of the information taught to the class. All relevant terminology was explained to the students during the presentation at a level that was clear and digestible to them. Each question included a key concept that a fifth grader can potentially apply to his or her daily routine to attain a healthier and more active lifestyle. Before the presentation, the participating students took the quiz.

After the presentation, the quiz was repeated. Each student participated. The scores from before and after the program were compared to demonstrate that the children paid attention during the presentation.

Results

The average improvement achieved on the postpresentation quiz compared with the prepresentation quiz was calculated for the entire student group that took part in the program. The average number of answers correct before the presentation was 4.5 out of six, and the average after the presentation was six of six. This was an improvement of 1.5 questions per child.

All presentations were well received by the teachers and the students. The children appeared excited by the topic, asked questions, and actively participated in the presentations. All of the Leadership Fellows were asked to return to give the presentation to other classes in the same school. Although there is no numerical measure to assess the schools'/students' receptiveness to the presentation, we have taken their enthusiasm and invitation to present the project in other classes as positive feedback.

Discussion

The AAOS Leadership Fellows Program [1] class of 2012 created a presentation to teach fifth graders about healthy diet and exercise habits. Our goal was to create interest in this program, which was designed to educate the students on diet and exercise modifications that they can introduce in their daily routines to avoid unhealthy weight gain and obesity. The interest in the program was determined by improvements in average scores of the students on the postpresentation quiz compared with the prepresentation quiz and in the requests from the school for repeat presentations in the future.

The limitations of this study are considerable. First, the presentations were provided to a small number of children by a small number of doctors. We do not know whether our findings would apply to a wide range of school situations and environments. Second, we had no way to measure the impact the presentation has had on students in that there was no followup to measure retention of knowledge or, most importantly, impact on the students' eating and exercise habits. To implement the program on a large scale, proof of impact measured by healthier eating and increase in activity should be measured. Third, this project would have benefited from inclusion of other age cohorts—both older and younger students—as well as larger numbers of

students to determine how well students in different age groups respond to such educational programs.

The improvement in quiz scores indicated that the children were enthusiastic to learn about this topic and to interact with the orthopaedic surgeons who came to their schools.

The presentation is now available to AAOS members, who are encouraged to approach schools across the country. As orthopaedic surgeons, we are often asked to come to local schools. AAOS members are encouraged to use these opportunities to reinforce the message of active and healthy living to their local communities. Future studies should focus on whether the students' improvement on the assessment quiz truly translates into real action and whether they actually make any lifestyle changes that they learned about in the program. Assessment of how the subjects' understanding about a healthy lifestyle actually impacts their behavior would involve prospective studies.

Acknowledgments We thank Hooman Nikizad for his help editing the manuscript.

Appendix. Quiz for Get Up, Get Out, Get Moving

- How much aerobic activity does the Centers for Disease Control and Prevention (CDC) recommend for children ages 6–17 years?
 - 30 minutes per day
 - 45 minutes per day
 - 60 minutes every other day
 - 60 minutes everyday**
- Which one of the following activities is a “bone strengthening” activity?
 - Running**
 - Swimming
 - Bicycle riding
 - Sit-ups/push-ups
- What are some benefits of physical activity?
 - Help maintain or lose weight
 - Lowers blood pressure
 - Decrease risk for diabetes, osteoporosis, heart disease, and other health problems
 - All of the above**
- The First Lady, Michelle Obama, has helped change the Food Pyramid to what symbol to reflect a balanced diet?
 - Refrigerator
 - Plate**
 - Square
 - Dinner table

5. The recommended calcium intake for people ages 9 to 18 years is 1300 mg per day. How many milligrams of calcium is in an 8-oz glass of milk?
 - A. 100 mg
 - B. **300 mg**
 - C. 500 mg
 - D. 1000 mg
6. What is the most important age to focus on calcium and nutrition for developing strong bones and preventing osteoporosis?
 - A. Infancy/early childhood (0–4 years)
 - B. Childhood (5–10 years)
 - C. **Adolescence (11–18 years)**
 - D. Adulthood (20+ years)

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