

Middle School Students' Understanding of Calories, Energy Expenditure and the Nutrition Facts Panel

COPPIN JD², McNEAL CJ¹, SPAULDING CJ², WARREN CA², SRINIVASAN V³, SHIMAK C², PAULHILL K², and DOUCET L².

¹Scott & White Hospital, ²Institute for Obesity Research and Program Evaluation, Texas A&M University, ³Department of Visualization, Texas A&M University; College Station, Texas

ABSTRACT

Background: Balancing the caloric content of foods against caloric expenditure from exercise is key to achieving energy balance and a healthy weight. Multiple studies show that the caloric information contained in the nutrition facts panel (NFP) is underutilized and misunderstood even by adults. **Purpose:** The purpose of this study was to assess middle school students' conceptual understanding of calories and energy expenditure, the NFP, and a novel, informational energy expenditure icon as a supplement to the NFP. **Methods:** A brief multiple choice questionnaire was administered to 54 seventh-grade students (ages 12-15 years) at an inner-city school. Prior to its use, the questionnaire was validated within the target population using cognitive interviews, along with input from experts in survey design. **Results:** A high percentage of students (44%) believed that a calorie was the amount of fat in a food, while 50% indicated it was the amount of energy in a food. Two-thirds of the students (63%) answered 2 or less of the 4 questions about the NFP correctly, with the remaining students (37%) answering 3-4 of these questions correctly. A small percentage (9%) of the students indicated the NFP *always* influenced their choice of food. When provided an example of the illustrated representation of the caloric content of the food in terms of energy expenditure, 78% of the students indicated it helped improve their comprehension of caloric information in the NFP, and 85% thought that the graphic would be a helpful addition to the NFP. **Conclusions:** The results indicate that our sample of middle school students do not understand that calories are a measure of the energy content of food, nor do they understand how much physical activity is required to expend the calorie content described in the NFP. They also lack the knowledge to properly interpret and apply the caloric information in the NFP to food choices. A novel, informational energy expenditure icon markedly improved comprehension of this information and may improve energy balance in children.

KEY WORDS: Middle school students, Energy expenditure, Calories, Nutrition facts panel