The Effects of Game Based Nutrition Intervention on 5th Graders School Lunch Choices

Adam Ackerman
Karina Eastman
Albert Emery
Paige Georgiadis
Camilo Martinez

See next page for additional authors

Follow this and additional works at: https://scholarworks.uvm.edu/comphp_gallery

Part of the Community Health and Preventive Medicine Commons, and the Health Services Research Commons

Recommended Citation

Ackerman, Adam; Eastman, Karina; Emery, Albert; Georgiadis, Paige; Martinez, Camilo; Reisman, David; Wubeshet, Maramawit; Heusner, Sarah; Homan, Caroline; and Luby, Robert, "The Effects of Game Based Nutrition Intervention on 5th Graders School Lunch Choices" (2012). Public Health Projects, 2008-present. 73.
https://scholarworks.uvm.edu/comphp_gallery/73

This Article is brought to you for free and open access by the Public Health Projects, University of Vermont College of Medicine at ScholarWorks @ UVM. It has been accepted for inclusion in Public Health Projects, 2008-present by an authorized administrator of ScholarWorks @ UVM. For more information, please contact donna.omalley@uvm.edu.
Authors
Adam Ackerman, Karina Eastman, Albert Emery, Paige Georgiadis, Camilo Martinez, David Reisman, Maramawit Wubeshet, Sarah Heusner, Caroline Homan, and Robert Luby

This article is available at ScholarWorks @ UVM: https://scholarworks.uvm.edu/comphp_gallery/73
The Effects of Game Based Nutrition Intervention on 5th Graders School Lunch Choices

Ackerman A.1, Eastman K.1, Emery A.1, Georgiadis P.1, Martinez C.1, Reisman D.1, Wubeshet M.1, Heusner S.3, Homan C.2, Luby R.1
University of Vermont College of Medicine1, City Market 2, Burlington School Food Service3

Introduction
Evidence shows that consumption of fruits and vegetables has health benefits, yet children across the country consume less than levels recommended by the USDA.[i] Briefel et al. showed that children aged 5-18 consume up to half of their daily nourishment in the school setting.[iii] The National School Lunch Program (NSLP) aims to ensure access to nutritious food for school aged children. The Burlington School Food Project aims to provide nutritious and appealing meals to all students which meet the NSLP guidelines. Observations demonstrate that although the food is available children do not always take advantage of the healthy options provided.[iii] Studies have shown that where food is eaten as well as how food is marketed impacts the choices children make on what they consume.[iii],[iv] A recent study showed that intervention coupled with food-based education was successful in improving eating habits.[v]

Our goal was to improve the food choices made by 5th graders eating lunch at school through a game-based intervention. We hypothesized that game-based activities evaluating fruits and vegetable in a fun and dynamic manner, in conjunction with education and role-modeling, we could increase the amount and variety of fruits and vegetables consumed by students at lunch.

Methodology
We selected a public elementary school that was representative of schools within Burlington, VT. A survey about food choices was given to both the 4th and 5th grades directly before the intervention. Only the 5th grade took part in the intervention, which consisted of an integrated game that was designed to meet 3 key goals: nutrition education, exposure to both familiar and unfamiliar, healthy food choices available on the school lunch line, and an entertainment component.

The intervention was a life-size game using food images as a game board and students as game pieces. The game consisted of nutritional trivia and taste tests of kiwi, lacto-fermented beets, carrots and Kolhrabi with hummus, and edamame. The game consisted of an entertainment component.

Results
There were 47 fifth grade students and 36 fourth grade students surveyed pre-intervention, and 44 5th graders and 32 4th graders post-intervention. Statistical analysis was performed using a t-test. Prior to the intervention, 5th graders liked the taste of fruits significantly more than 4th graders (97.9% vs 77.8%, p = 0.009), and also had a significantly higher belief that fruits were good for them (78.7% vs 55.6%, p = 0.028). After the intervention, a significantly higher proportion of 5th graders liked both the color of vegetables (50.0% vs 31.9%, p = 0.041), and the texture of fruits (32.3% vs 25.5%, p = 0.004) compared to pre-intervention. 4th graders showed no significant changes.

Discussion:
More than half of elementary school students in Burlington are enrolled in the school lunch program, but many are not meeting daily nutrition goals as outlined by the USDA. Our pre-intervention survey demonstrated that a significantly higher proportion of 5th graders liked the taste of fruits and thought fruits were healthy compared to 4th graders. Post-intervention, a significantly higher proportion of 5th graders reported liking the color of vegetables and the texture of fruits as compared to 4th graders. Fourth grade responses did not change, demonstrating that the attitudes of the 5th graders did not influence the choices of the 4th graders. Our intervention was aimed to expose the students to familiar and unfamiliar fruits and vegetables to encourage them to try new healthy foods in the future. Although we observed an increase in the appreciation of fruits and vegetables in the 5th graders, we did not measure an increase in consumption of salad bar items, perhaps due to the fact that some items were not immediately available on the salad bar.

While a one hour lesson may be enough to encourage more positive attitudes about fruits and vegetables, it may not be enough to influence eating habits. A larger study that introduces regular nutrition lessons and taste tests in classrooms may have a greater effect on students’ attitudes and choices regarding healthy foods.

Limitations of the Study:
The lack of accuracy of self reporting of the students limited our data analysis. Due to limited time, we were only able to provide one 1 hour intervention, but a longer program may have had a greater effect.