

« HOW TO ENCOURAGE CHILDREN  
TO ADOPT A HEALTHIER DIET? »

## Editorial

Children are the future of the world, but if we have to judge the future health level we have a terrible view of the future, based on the actual children's eating habits. Children nowadays eat a lot of processed foods rich in fat and sugar or salt, while their intake of fruit and vegetables is far below their needs. This is not only a personal or family problem, but is one of the most important problems in public health. Obviously many public health experts tried to modify children's eating habits through different methodologies.

Teaching the nutrient composition of the healthy foods was the most common technique applied in different settings, but this approach has not been effective in improving children's eating habits.

The result is quite obvious, as food choice by children is rarely related to health consciousness, being instead strongly related to familiarity and hedonic value of a specific food.

Technology is one of the main components of our lives and children are very expert in its use, thus using technology in nutritional education is a smart idea. However, the use of new technologies such as advergames should be carefully applied, as the results could be quite disappointing and opposite to the aim.

Children like stories and stimulating them to develop stories involving fruit and vegetables could be a positive method to give them an active role in deciding their own eating habits.

In a world overwhelmed by financial problems, the development of innovative and exciting low cost programs designed to improve children's food choice, would have the advantages of being highly sustainable, and able to be implemented over the long term.

Whatever method is implemented it is important to remember that adults are responsible for the health of children and it requires long-term effort to promote healthy eating habits.

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# Playing advergames that promote fruit increases energy-dense snack intake among children

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*As childhood obesity rates in Western societies continue to rise, health professionals and pro-health advocates are looking to use interactive media tactics for childhood obesity prevention. To compete against the overwhelming amounts of unhealthy food-based "advergames", many pro-health initiatives have begun implementing advergames and other forms of interactive media into their campaigns as well. These online games that are used to advertise a product, brand, or an organisation, are very popular with kids, as more and more children spend increasing amounts of time on advergaming websites<sup>1</sup>. While such interactive media technologies have the potential to influence children's food preferences and snack consumption, more research is needed to fully understand how advergames can be used as an educational or promotional tool to teach children about nutrition and healthy eating habits.*

## Promoting food through advergames

Earlier research has shown that children who played an advergame highlighting energy-dense food ate more energy-dense snacks and fewer fruit and vegetables than did children who played an advergame highlighting fruit or those in the control condition<sup>2</sup>. Pempek and Calvert<sup>3</sup> showed that children who played an advergame promoting fruit ate significantly more fruit than did those who played a version promoting energy-dense food. Because these studies faced some methodological difficulties (ie, small samples<sup>2,3</sup> or the use of different games in different conditions<sup>2</sup>), we re-examined the effects of advergames with large representative groups and with the same games that varied only according to the advertised content.

We examined the effect of advergames that promoted candy or fruit on children's discretionary snack and fruit consumption. We were interested whether these games affected actual food intake of children, and whether this consumption differed according brand and product type. Furthermore, we were interested whether the advergame promoting fruit would be useful to stimulate fruit intake among children. We used an online memory game that was designed by a professional game designer. We randomly assigned 270 children (age 8–10 year) to one of the four different conditions. The conditions that we distinguished were one group of children that played:

- an advergame promoting energy-dense snacks;
- an advergame promoting fruit;
- an advergame promoting nonfood; or
- no game at all.

Subsequently, the children were seated at a different table and we presented four bowls with four different food snacks directly after they played the advergame. The children could freely eat for five minutes from two bowls that contained energy-dense food snack and two bowls that contained sliced fruit snacks. Two bowls

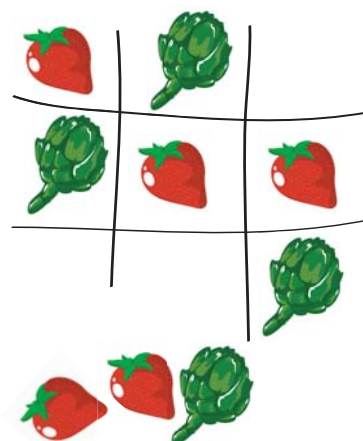
of test food, cola bottles and bananas, were identical to one of the food products that were shown in the advergame. We measured the free intake of candy and fruit by weighing the bowls before the child entered the room and when the child left the room. After the children ate, they completed questionnaire measures and we weighed and measured them to estimate BMI.

## Playing advergames containing food cues and caloric intake

The main findings were that playing an advergame containing food cues increased general caloric intake, regardless of the advertised brand or product type (candy or fruit), and this activity particularly increased the intake of candy. Children in the energy-dense condition had a total energy intake of 197.2 kcal on average, children in the fruit condition 184.1 kcal, while children in the nonfood condition ate only 128.9 kcal, and children in the control condition ate 121.7 kcal. Furthermore, children who played the fruit version of the advergame did not eat significantly more fruit than those in the other groups.

## Playing advergames that promote fruit increases energy-dense snack intake among children

The findings suggest that playing advergames that promote food, either candy or fruit, increases the candy intake of children, and does not increase the intake of fruit. Social marketers should be aware of this effect when they try to promote healthy food. Promoting healthy food can lead to craving and eating behavior. According to our study, children will choose for more energy-dense snacks instead of more fruit. This is of course the opposite effect of what social marketers try to accomplish.



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3: Pempek, T.A., & Calvert, S.L. Tipping the balance: use of advergames to promote consumption of nutritious foods and beverages by low-income African American children. *Arch Pediatr Adolesc Med* 2009; 163: 633-7.

# Promoting fruits and vegetables using a theory-based, comic book approach

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The purpose of our study<sup>1</sup> was to pilot test the Comics for Health program, a theory based-child obesity prevention program (after-school intervention), which contained four lessons:

- Lesson 1: engaging in no more than two hours of screen time per day;
- Lesson 2: consuming water and sugar-free drinks instead of sugar-sweetened beverages;
- Lesson 3: participating in at least 60 minutes of physical activity per day;
- Lesson 4: consuming 5 servings of fruits and vegetables (F&V).

Each lesson was broken down into the following four modules, each lasting 30 minutes.

## This article is focus on F&V consumption (Lesson 4).

**During the Introduction & Purpose of Lesson module**, the instructor introduced and reviewed the lesson's key objectives and covered necessary knowledge and skills in order to perform the targeted behavior. With regards to F&V consumption, a number of issues were discussed. First, F&V were broken down into subcategories, which were classified by the MyPyramid food system (now replaced by MyPlate). Fruits were broken down into Melons, Berries, Mixed Fruit, and Other Fruits. Vegetables were broken down into Green Leafy Vegetables, Orange Vegetables, Beans, Starchy Vegetables, and Other Vegetables. After F&V were identified, the instructor challenged the children to think about foods that may appear to be a fruit or vegetable, but in fact are not. For example for fruits, children were asked about 'fruit-flavored' foods, such as fruit snacks, or pastries such as a strawberry pop tart. For vegetables, children were asked about deep-fried foods, such as potato chips, French fries, and onion rings. In both cases, it was made clear that these types of foods do not count as fruits or vegetables, and healthier alternatives were discussed. Finally, the recommended daily amounts of F&V were discussed.

**In the Benefits module**, children learned positive health-related benefits associated with the targeted health behavior and sketched a comic-panel showing at least one benefit. With regards to F&V, children were able to identify a number of benefits. Some included: helps you stay healthy, cleans out your body, have a healthy weight, helps you have healthy skin and hair, and helps your eyes stay healthy.

**In the Role-Playing module**, children participated in role-plays as themselves and the instructor played the role of a friend or family member. Each role-play was set up as follows:  
# First a scenario was given, such as: "In this role-play Jonny will be himself, and I will be Jonny's best friend. We are going to pretend that it is afterschool, we were playing basketball and now we are both hungry for a snack. I want to have potato chips, and Jonny is going to try to teach me why having a fruit or a vegetable is better."  
# Second, goals were established for the role-play. During the role-play, it was Jonny's job to tell his best friend:

- What is a fruit and what are the different types of fruits?
- How are they different from fruit-flavored foods?
- What are vegetables and what are the different types of vegetables?
- How are they different from fried vegetables like potato chips and French fries?
- How many fruits and vegetables should we have each day?
- Why would we want to have fruits or vegetables in the first place?

**Finally, during the Goal Setting module** the instructor reviewed the key objectives of the lesson, and children were asked to sketch a comic-book panel of themselves setting goals, monitoring and self-rewarding themselves for consuming five servings of F&V per day.

We show in this study that F&V consumption significantly increased between baseline and post-test and baseline and three-month follow-up tests ( $p < 0.005$ ). Additionally, children's self-efficacy, or personal confidence, in their ability to choose and consume F&V significantly increased between baseline and post-test ( $< 0.015$ ).

During the Comics for Health program, children were also instructed on the core elements of creating an original comic book or comic strip, with hopes that they would create a story that incorporated a healthy behavior, such as consuming more F&V. The basics of this component of the intervention is covered here, but is further elaborated upon in another study<sup>2</sup>.

Comic Book Basics	During this activity, children were instructed upon the essential elements of comic books, such as caption boxes, word balloons, thought balloons, and comic book panels.
Basic Storytelling	In this activity, children were instructed upon how to build a cast of characters, including a main character, supporting characters, and opposing characters, such as villains or foils. In addition, children were shown how to organize their stories into a three-act structure.
Integrating It All	In the final activity children were asked to put all of the elements together, and create an original comic book or comic strip.

## Using a comic book approach may be one way to attract a child's attention

In today's world children have access to a number of technologies, which can distract them and shorten their attention span. When promoting a healthy diet, it is our job as health professionals to develop innovative and exciting programs, which include more than lecturing to children about what to eat and what not to eat.

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# Attractive Vegetable Names Improves Their Consumption in Schools

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Marketing has long been known as a tool to influence purchase and consumption of food in general, yet it is rarely used to facilitate selection and consumption of healthier foods specifically. Consider school lunch in the United States where children obtain a significant amount of their daily calorie intake. Marketing enters the lunchroom via private (food industry)-public (school district) contracts that make available a wide variety of foods—not all of them healthy. One way nutrition has improved recently is through the US Department of Agriculture (USDA). The USDA has recently revamped their National School Lunch Program by reimbursing schools for free and reduced-priced meals offered only if the meals meet strict dietary guidelines resulting in healthier food options. However, simply increasing healthier food options may not necessarily result in children choosing and consuming them. Improving perceptions of healthier foods—such as vegetables—may help to increase consumption. We attempted to understand if simply giving vegetables attractive names during school lunch could improve their selection and consumption. If successful, this approach could provide a simple, cost-effective and sustainable way to increase vegetable consumption in schools. Read on!

## X-Ray Vision Carrots

In the first example, 147 students (8-11 years old) from five different schools were served lunch at their school as usual—except roughly a third were offered carrots labeled “X-Ray Vision Carrots”, a third carrots labeled “Food of the Day,” and a third carrots with no label. While no differences in carrot labeling were found regarding amount of carrots chosen, the

percentage of carrots consumed was much greater for “X-Ray Vision Carrots.” That is, students given “X-Ray Vision Carrots” consumed 65.9% of their carrots compared to 32% of carrots labeled “Food of the Day,” and 35.1% of the unlabeled carrots.

## Does this Work Over Time?

To understand if the idea of giving attractive names to vegetables worked over time in a much larger group of students, we implemented this strategy with other vegetables, over two months, and in two different schools. In lunch lines, vegetables were given attractive names that were printed on cards and placed next to each item. With over 40,000 lunch transactions and compared to when vegetables were unnamed, we found a 109.4% increase for selecting broccoli (i.e., “Power Punch Broccoli”), 176.9% increase in selecting green beans (i.e., “Silly Dilly Green Beans”), and a 30.2% increase in selecting carrots (i.e., “X-Ray Vision Carrots”).

## Parting Observations

Perhaps most encouraging about these results is that the attractive names were created by a student volunteer who also implemented the second study by himself. That is, simple changes in lunchrooms devised locally and implemented easily can sometimes have large impacts on the behavior of others, which over-time, can improve the health of many. In this case, simple marketing principles can have somewhat dramatic effects on vegetable selection and consumption.



## BASED ON:

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