



Is Advertising Responsible for Childhood Obesity?

YES: The Kaiser Family Foundation, from "The Role of Media in Childhood Obesity," *Issue Brief* (February 2004)

NO: The Federal Trade Commission Bureau of Economics Staff, from "Children's Exposure to Television Advertising in 1977 and 2004: Information for the Obesity Debate," *Federal Trade Commission Bureau of Economics Staff Report* (June 1, 2007)

ISSUE SUMMARY

YES: In a review of research on media exposure and childhood obesity the Kaiser Family Foundation concludes that exposure to advertising, more than inactivity, best explains the increasing rates of childhood obesity.

NO: In contrast, the Federal Trade Commission Bureau of Economics Staff specifically evaluated television advertising to children and found that increasing rates of childhood obesity do not correspond with increasing exposure to food advertising.

Groups from the World Health Organization to the United States Centers for Disease Control have spent considerable effort in recent years warning us about an "epidemic" of obesity. According to the Kaiser Family Foundation report, since 1980 the proportion of overweight children in the United States has doubled, and for adolescents it has tripled. They estimate that 20% of 2-5-year-olds and 30% of 6-19-year-olds are at least "at risk" for being significantly overweight. Although the epidemic is certainly not limited to children, children are a primary focus of scholarly investigation because they represent the future of our public health.

The developmental norms that are relevant to obesity are a complex mix of biological, psychological, and social factors. From a biological perspective, there does seem to be a genetic component to obesity—but that component depends heavily upon an interaction with environmental factors. For example children today are simply less physically active than in the past and thus are more prone to put on weight. From a psychological perspective, it is clear that attitudes toward both physical activity and food contribute significantly to

obesity and other weight issues. As such, much attention is devoted to facilitating the development of healthy attitudes toward food and exercise. That attention, however, is only part of broader social influences that shape eating and exercise patterns. The availability and popularity of fast food, for example, is a relatively new social phenomenon that is a part of most childhoods.

While there is not one clear culprit in the childhood obesity epidemic, the influence of advertising and electronic media is a popular target for blame because it relates in various ways to the biological, psychological, and social issues at hand. The popularity of advertising and media may lead children to be less physically active because the attitudes toward food and physical activity are often guided by advertising, and the social world is saturated with a commercial and somewhat sedentary food culture.

In their report, the Kaiser Family Foundation presents data suggesting that advertising and electronic media do indeed play a significant role in the obesity epidemic. They note that media consumption correlates with being overweight, and that food advertising commonly encourages children to make unhealthy diet choices. Thus, while the Kaiser Family Foundation acknowledges that other factors play a significant role in childhood obesity, their data seem to suggest that advertising plays an important role and should be regulated.

The United States Government's Federal Trade Commission, on the other hand, in an analysis of food-related advertising on television, finds no reason to assume it plays any causal role in childhood obesity. They think that the usual estimates about children's exposure to food marketing are too high, and find that advertising exposure has not really gone up significantly during the last 30 years. Yet, this 30-year period is exactly when the obesity epidemic came into being. The Federal Trade Commission notes that regulating food advertising to children has the potential to merely exacerbate the problem since children would be likely to see much more advertising for sedentary activities and entertainments.

POINT

- The exposure of children to food advertising is likely one of several factors contributing to increased rates of obesity.
- Children who consume more electronic media generally are more likely to be overweight.
- Food advertising tends to encourage children toward unwise food choices.
- Limiting advertising directed at children could help to reduce obesity.

COUNTERPOINT

- The estimates of the amount of ads children view are likely significantly too high.
- Most ads that children see are for nonfood products.
- Children in 2004 saw fewer ads than children in 1977, thus the rise in obesity has not corresponded with a rise in advertising.
- Restricting food advertising might just lead to more ads for other products that contribute to obesity.



The Role of Media in Childhood Obesity

Introduction

In recent years, health officials have become increasingly alarmed by the rapid increase in obesity among American children. According to the Centers for Disease Control and Prevention (CDC), since 1980 the proportion of overweight children ages 6–11 has more than doubled, and the rate for adolescents has tripled. Today about 10% of 2- to 5-year-olds and 15% of 6- to 19-year-olds are overweight. Taking into consideration the proportion who are “at risk” of being overweight, the current percentages double to 20% for children ages 2–5 and 30% for kids ages 6–19. Among children of color, the rates are even higher: 4 in 10 Mexican American and African American youth ages 6–19 are considered overweight or at risk of being overweight.

According to the American Academy of Pediatrics, the increase in childhood obesity represents an “unprecedented burden” on children’s health. Medical complications common in overweight children include hypertension, type 2 diabetes, respiratory ailments, orthopedic problems, trouble sleeping, and depression. The Surgeon General has predicted that preventable morbidity and mortality associated with obesity may exceed those associated with cigarette smoking. Given that an estimated 80% of overweight adolescents continue to be obese in adulthood, the implications of childhood obesity on the nation’s health—and on health care costs—are huge. Indeed, the American Academy of Pediatrics has called the potential costs associated with childhood obesity “staggering.”

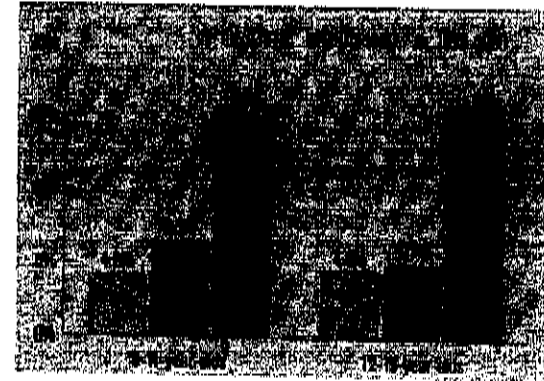
In an effort to seek the causes of this disturbing trend, experts have pointed to a range of important potential contributors to the rise in childhood obesity that are unrelated to media: a reduction in physical education classes and after-school athletic programs, an increase in the availability of sodas and snacks in public schools, the growth in the number of fast-food outlets across the country, the trend toward “super-sizing” food portions in restaurants, and the increasing number of highly processed high-calorie and high-fat grocery products.

The purpose of this issue brief is to explore one other potential contributor to the rising rates of childhood obesity: children’s use of media.

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Figure 1

Proportion of Overweight Children in the United States



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Health, United States, 2009, Table 69.

During the same period in which childhood obesity has increased so dramatically, there has also been an explosion in media targeted to children: TV shows and videos, specialized cable networks, video games, computer activities and Internet Web sites. Children today spend an average of five-and-a-half hours a day using media, the equivalent of a full time job, and more time than they spend doing anything else besides sleeping. Even the very youngest children, preschoolers ages six and under, spend as much time with screen media (TV, videos, video games and computers) as they do playing outside. Much of the media targeted to children is laden with elaborate advertising campaigns, many of which promote foods such as candy, soda, and snacks. Indeed, it is estimated that the typical child sees about 40,000 ads a year on TV alone.

For the first time, this report pulls together the best available research, going behind the headlines to explore the realities of what researchers do and do not know about the role media plays in childhood obesity. In addition, the report lays out media-related policy options that have been proposed to help address childhood obesity, and outlines ways media could play a positive role in helping to address this important public health problem.

Pediatricians, child development experts, and media researchers have theorized that media may contribute to childhood obesity in one or more of the following ways:

- The time children spend using media displaces time they could spend in physical activities;
- The food advertisements children are exposed to on TV influence them to make unhealthy food choices;

- The cross-promotions between food products and popular TV and movie characters are encouraging children to buy and eat more high-calorie foods;
- Children snack excessively while using media, and they eat less healthy meals when eating in front of the TV;
- Watching TV and videos lowers children's metabolic rates below what they would be even if they were sleeping;
- Depictions of nutrition and body weight in entertainment media encourage children to develop less healthy diets.

The research to date has examined these issues from a variety of perspectives ranging from health sciences and public health, to child development and family relations, to advertising and mass communications. These investigations have been methodologically diverse, and the results have often been mixed. As with any research, caution must be used when comparing the outcomes of studies because of variations in the methods and measures used. For example, some studies are regional, while others use large, nationally representative samples. Some focus on specific demographic subsets, such as 6th-grade girls, while others are broader. Some studies rely on detailed data sets, others on fairly simplistic measures. For example, television use may be measured through self-reports, parental reports, or detailed diaries. Likewise, body fat may be assessed through multiple clinical measures or by self-reports of height and weight.

The following section of this report reviews the major research that has been conducted on the key issues concerning media and childhood obesity, and summarizes the major findings.

Defining Childhood Obesity

The phrases "obese," "overweight," and "at risk for being overweight" are commonly used in the public health community. With regard to children, the terms "obese" and "overweight" are generally used interchangeably in the medical literature. The Body Mass Index (BMI), which measures the ratio of weight to height, is a standard tool used to define these terms. BMI definitions for children and adolescents are age- and gender-specific in order to accommodate growth patterns. The Centers for Disease Control and Prevention (CDC) classify children as "overweight" if they are above the 95th percentile for their age and sex, and "at risk of being overweight" if they are between the 85th and 95th percentile.

Research on Media and Childhood Obesity

Do major studies find a relationship between childhood obesity and the time children spend using media? The first major evidence that children's media consumption may be related to their body weight came in a 1985 article by William Dietz and Stephen Gortmaker in the journal *Pediatrics*, and it was

dramatic. An analysis of data from a large national study of more than 13,000 children, the National Health Examination Survey (NHES), found significant associations between the amount of time children spent watching television and the prevalence of obesity. The authors concluded that, among 12- to 17-year-olds, the prevalence of obesity increased by 2% for each additional hour of television viewed, even after controlling for other variables such as prior obesity, race, and socio-economic status. Indeed, according to the authors, "only prior obesity had a larger independent effect than television on the prevalence of obesity." In a commentary published in 1993, the authors went on to note that another interpretation of their findings is that "29% of the cases of obesity could be prevented by reducing television viewing to 0 to 1 hours per week."

Since then, several more studies have found a statistically significant relationship between media use and rates of obesity, while others have found either a weak relationship or no relationship at all. In addition to the Dietz and Gortmaker study, other large-scale national studies have found a correlation between media use and body weight:

- Analysis of data from a nationally representative survey of more than 700 kids ages 10-15, conducted in the late 1980s, concluded that "the odds of being overweight were 4.6 times greater for youth watching more than 5 hours of television per day compared with those watching for 0-1 hours," even when controlling for prior overweight, maternal overweight, race, and socio-economic status. The authors concluded, "Estimates of attributable risk indicate that more [than] 60% of overweight incidence in this population can be linked to excess television viewing time."
- Data from the 1988-1994 waves of the National Health and Nutrition Examination Surveys (NHANES) were analyzed to explore the relationship between TV watching and obesity among 8- to 16-year-olds. The study concluded that "television watching was positively associated with obesity among girls, even after controlling for age, race/ethnicity, family income, weekly physical activity, and energy intake." The study did not find a correlation for boys.
- Another analysis of the 1988-1994 NHANES data found that among 8- to 16-year-olds, both boys and girls "who watched the most television had more body fat and greater BMIs than those who watched less than 2 hours a day."
- A study based on the CDC's 1999 Youth Risk Behavior Survey which sampled more than 12,000 high school students nationwide, found that watching television more than 2 hours a day was related to being overweight; these findings were consistent for the entire student population, controlling for race, ethnicity, and gender.
- A later study found a link between television viewing and obesity using a different methodology. The Framingham Children's Study was a longitudinal study in which slightly more than 100 children were enrolled as preschoolers, and followed into early adolescence. In this study, published in 2003, the authors found that "television watching was an independent predictor of the change in the child's BMI" and

other measures of body fatness. They noted that the effect of TV viewing was "only slightly attenuated" by controlling for factors such as the child's body-fat measures at the time they were enrolled in the study, and their parents' BMI or education. The authors concluded that "television watching is a risk factor for change in body fat, not simply reflective of more obese children tending to watch more television as a consequence of their obesity making it difficult to exercise."

Other studies—one from a nationally representative cross-sectional sample and the others from specific regions or communities—have not found a relationship between television viewing and childhood obesity:

- A recent analysis of data from a national study of more than 2,800 children ages 12 and under, which relied on detailed time-use diaries, found a "striking" lack of relationship between time spent watching television and children's weight status. On the other hand, this study did find a relationship between obesity and time spent playing video games, although that relationship was not linear: Children with higher weight played moderate amounts of games, while those with low weight played electronic games either very little or a lot.
- A 1993 study of 6th- and 7th-grade girls in Northern California found that over a two-year period "baseline hours of after-school television viewing was not significantly associated with either baseline or longitudinal change in BMI." The authors argued that their study "refutes previous suggestions that . . . television viewing is causally related to obesity."
- A study of nearly 200 preschoolers in Texas observed the children for several hours on each of four different days a year, over the course of three years, recording the amount of TV the children watched and their physical activities. This study found that although television watching was weakly negatively correlated with physical activity levels, it was not associated with body composition.

In evaluating this research, it is important to note that some of these studies are cross-sectional rather than longitudinal—that is, they take a specific point in time and look at whether TV viewing is associated with obesity. One problem with this approach is that while a study may indicate a relationship between TV viewing and being overweight, it does not prove that the TV viewing *caused* the increased weight. Controlling for other risk factors such as socio-economic status and parental body weight (as many studies do) can help clarify the results. Another problem with the cross-sectional approach is that the causal relationship could run in the opposite direction: that is, being obese may cause children to engage in more sedentary (and isolated) activities, including watching more television.

Longitudinal studies can help address the causality issue; however, the results of these studies have varied. As noted above, the two-year longitudinal study of adolescent girls in Northern California did not find a causal relationship between children's weight and the time they spent with media. On the other hand, the Framingham Children's Study, which tracked preschoolers

through early adolescence, did find such a relationship. The authors of the latter study have theorized that the effects of media use on body weight may emerge slowly over time, and hence were not revealed in the two-year study in Northern California. It has also been argued that the lack of effect in that study may be due to factors specific to the sample of 6th- and 7th-grade girls in Northern California. Additionally, the study of 700 10- to 15-year-olds referenced above used height and weight data from 1986 and compared it to TV viewing and BMI measures in 1990. These authors concluded that "no evidence was found for a selective effect of overweight; i.e., children who were overweight in 1986 were unlikely to watch more television in 1990 than were children who were not overweight."

Others argue that the only way to truly demonstrate a causal relationship is through an experimental trial; for example, reduce TV viewing and see whether that affects children's weight when compared to a control group. Several interventions of this nature have been found to have a positive impact in reducing children's body weight.

Do experimental interventions that reduce children's media time result in weight loss? Experimental trials are considered the best way of determining whether there is a causal relationship between television viewing and childhood obesity. Some experiments have incorporated reductions in media time as part of a more comprehensive program involving diet and increased physical activity as well. Another experiment used reduced media time as the only intervention, yet still found an impact on children's weight and body fatness.

- During the 1996-97 school year, Stanford University researchers conducted a randomized controlled trial in which they reduced the amount of time a group of about 100 3rd- and 4th-graders in Northern California spent with TV, videos, and video games. Two matched elementary schools were selected to participate, one of which served as the control group. The intervention involved a "turnoff" period of no screen time for 10 days followed by limiting TV time to 7 hours per week, as well as learning media literacy skills to teach selective viewing. At the end of a 6-month, 18-lesson classroom curriculum, students who received the intervention achieved statistically significant reductions in their television viewing and meals eaten in front of the TV set, as well as decreases in BMI, triceps skinfold thickness, waist circumference, and waist-to-hip ratio. While these changes were not accompanied by reduced high-fat food intake or increased physical activity, the findings do appear to demonstrate the feasibility of decreasing body weight by reducing time spent with screen media.
- Another school-based intervention found improved diet, increased physical activity, and decreased television time to be effective. The study, which measured prevalence, incidence, and remission of obesity among ethnically diverse middle-school boys and girls, involved a randomized controlled field trial with five intervention and five control schools. Classroom teachers in math, science, language arts, social studies, and physical education incorporated lessons within the existing curricula over two years. The lessons focused on decreasing television

viewing to 2 hours per day, increasing physical activity, reducing consumption of high-fat food, and increasing servings of fruits and vegetables. For each hour television viewing was reduced, the prevalence of obesity was reduced among girls in the intervention schools compared with the control schools; no similar effect was found for boys. The program also resulted in an increase in girls' consumption of fruits and vegetables.

- A family-based weight-control program found that decreasing sedentary behaviors (such as screen media use) is a viable alternative to increasing physical activity in treating childhood obesity. Families with obese children ages 8–12 were randomly assigned to one of four groups that included dietary and behavior change information, but differed in whether they tried to decrease sedentary activities or increase physical activity. Results indicated that significant decreases in percent of overweight and body fat were associated with decreasing sedentary behaviors such as watching TV or videos, or playing video or computer games.

These interventions indicate that reducing the time children spend with media may indeed be an effective way to address childhood obesity. Researchers, health professionals, and advocates have theorized several ways media may contribute to childhood obesity. The following sections summarize some of the major scientific studies in order to provide an understanding of media's potential influence on the incidence of overweight among children and adolescents in the United States.

Does the time children spend using media displace time spent in more physical activities? From toddlers to teens, American youth are spending a substantial part of every day of their lives using media. But the time children spend using media does not necessarily mean a decrease in time spent in physical activities. Surprisingly, few studies have examined this relationship, and results have been mixed. Some studies have found a weak but statistically significant relationship between hours of television viewing and levels of physical activity, while others have found no relationship between the two.

- A study of 6th- and 7th-grade adolescent girls in four Northern California middle schools found that the number of hours they spent watching TV after school was negatively associated with their level of physical activity; however, the relationship accounted for less than 1% of the variance and there was no connection with body weight.
- A study of a small sample of preschool children in Texas, conducted in a naturalistic setting, found a weak but statistically significant relationship between TV viewing and physical activity, although it did not find a relationship between viewing and body weight.
- A recent national telephone survey of parents of children ages 4–6 found that children who spent more than two hours watching TV the previous day spent an average of a half-hour less playing outside that day than did other children their age.
- A review of data from the 1999 National Youth Risk Behavior Study, which includes a nationally representative sample of more than

15,000 high school students, found that among white female students only, time spent watching TV was associated with being sedentary.

- A survey of close to 2,000 9th-graders in Northern California found a weak but statistically significant relationship between TV viewing and physical activity for white males only.
- A study of national data from the 1988–1994 NHANES found no relationship between TV viewing and the number of bouts of vigorous physical activity, although it did find a statistically significant relationship between TV viewing and body weight.

While logic suggests that extensive television viewing is part of a more sedentary lifestyle, the evidence for this relationship has been surprisingly weak to date. In order for this relationship to be true, as one study noted, children who watch less TV would have to be choosing physically vigorous activities instead of TV, rather than some other relatively sedentary pastime such as reading books, talking on the phone, or playing board games.

Another possibility is that the act of watching TV itself actually reduces children's metabolic rate, contributing to weight gain. One study of 8- to 12-year-olds found that TV viewing decreased metabolic rates even more than resting or sleeping, but several other studies found no such effect.

The fact that most studies have failed to find a substantial relationship between the time children spend watching TV and the time they spend in physical activity may suggest that the *nature* of television viewing—that is, how children watch and what they watch—may be as or more important than the number of hours they watch.

Do the food ads children are exposed to on TV influence them to make unhealthy food choices? Many researchers suspect that the food advertising children are exposed to through the media may contribute to unhealthy food choices and weight gain. Over the same period in which childhood obesity has increased so dramatically, research indicates that the number of ads children view has increased as well. In the late 1970s, researchers estimated that children viewed an average of about 20,000 TV commercials a year; in the late 80s, that estimate grew to more than 30,000 a year. As the number of cable channels exploded in the 1990s, opportunities to advertise directly to children expanded as well. The most recent estimates are that children now see an average of more than 40,000 TV ads a year.

The majority of ads targeted to children are for food: primarily candy (32% of all children's ads), cereal (31%), and fast food (9%). One study documented approximately 11 food commercials per hour during children's Saturday morning television programming, estimating that the average child viewer may be exposed to one food commercial every 5 minutes. According to another study, even the two minutes of daily advertising targeted to students in their classrooms through Channel One expose them to fast foods, candy, soft drinks, and snack chips in 7 out of 10 commercial breaks.

A review of the foods targeted to children in commercials on Saturday morning television indicates that the nutritional value has remained consistently

low over the past quarter-century. Over the years, the most prevalent foods advertised have been breakfast cereals. Up until the 1990s, the next most-advertised products were foods high in sugar, such as cookies, candy, and other snacks. By the mid-1990s, canned desserts, frozen dinners, and fast foods overtook ads for snack foods. The data indicate that ads for these high-fat and high-sodium convenience foods have more than doubled since the 1980s. While studies vary as to the exact percentages, the same pattern emerges: a predominance of ads for high-sugar cereals, fast food restaurants, and candy, and an absence of ads for fruit or vegetables.

The Effect of Food Advertising on Children

The vast majority of the studies about children's consumer behavior have been conducted by marketing research firms and have not been made publicly available. Clearly, the conclusion advertisers have drawn is that TV ads can influence children's purchases—and those of their families. Fast food outlets alone spend \$3 billion in television ads targeted to children. Recent years have seen the development of marketing firms, newsletters, and ad agencies specializing in the children's market. The New York Times has noted that "the courtship of children is no surprise, since increasingly that is where the money is," and added that marketing executives anticipate that children under 12 will spend \$35 billion of their own money and influence \$200 billion in household spending in 2004. The enthusiasm of marketers can be felt in the February 2004 edition of Harris Interactive's "Trends and Tudes" newsletter, which notes that "This generation has become a huge consumer group that is worthy of attention from many businesses seeking to maximize their potential. Kids, teens and young adults spend significant amounts of their own money, and they influence the shopping behavior of their parents, their siblings, their relatives, and other adults in their lives."

Scientific studies that are available in the public realm back up these marketing industry assessments of the effectiveness of advertising directed at children. Studies have demonstrated that from a very young age, children influence their parents' consumer behavior. As many parents can attest after a trip down the grocery aisle with their children, television viewing has also been found to impact children's attempts to influence their parents' purchases at the supermarket. For example, several studies have found that the amount of time children had spent watching TV was a significant predictor of how often they requested products at the grocery store, and that as many as three out of four requests were for products seen in TV ads. These studies have also found that children's supermarket requests do indeed have a fairly high rate of success.

One study found that among children as young as 3, the amount of weekly television viewing was significantly related to their caloric intake as well as their requests and parent purchases of specific foods they saw advertised on television. Another study manipulated advertising shown to 5- to 8-year-olds at summer camp, with some viewing ads for fruit and juice, and others ads for candy and Kool-Aid. This study found that children's food choices were significantly impacted by which ads they saw.

Experimental studies have demonstrated that even a brief exposure to food commercials can influence children's preferences. In one study, researchers designed a randomized controlled trial in which one group of 2- to 6-year-olds from a Head Start program saw a popular children's cartoon with embedded commercials, and the other group saw the same cartoon without commercials. Asked to identify their preferences from pairs of similar products, children who saw the commercials were significantly more likely to choose the advertised products. Preference differences between the treatment and control group were greatest for products that were advertised twice during the cartoon rather than only once.

Researchers are beginning to document a link between viewing television and children's consumption of fast foods and soda, a possible result of exposure to food advertising. A recent study found that students in grades 7-12 who frequently ate fast food tended to watch more television than other students. Another study found that middle-school children who watched more television tended to consume more soft drinks.

Other evidence of television's potential impact on children's dietary habits indicates a negative relationship between viewing television and consuming fruits and vegetables. The USDA's Dietary Guidelines recommend that youth eat three to five daily servings of fruits and vegetables, yet only 1 in 5 children meet the guideline, and one-quarter of the vegetables consumed reportedly are french fries. In a recent study, more than 500 middle school students from ethnically diverse backgrounds were studied over a 19-month period to determine whether daily television and video viewing predicted fruit and vegetable consumption. Using a linear regression analysis, researchers found that for each additional hour of television viewed per day, daily servings of fruits and vegetables decreased among adolescents. The researchers who conducted the study conclude that this relationship may be a result of television advertising.

Some researchers believe that TV ads may also contribute to children's misconceptions about the relative health benefits of certain foods. One of the earlier studies found that 70% of 6- to 8-year-olds believed that fast foods were more nutritious than home-cooked foods. Another study showed a group of 4th- and 5th-graders a series of paired food items and asked them to choose the healthier item from each pair (for example, corn flakes or frosted flakes). Children who watched more television were more likely to indicate that the less healthy food choice was the healthier one. These results replicated the results of an earlier study conducted with children of the same age.

Do cross-promotions between food products and popular TV and movie characters encourage children to buy and eat more high-calorie foods? Recent years have seen what appears to be a tremendous increase in the number of food products being marketed to children through cross-promotions with popular TV and movie characters. From SpongeBob Cheez-Its to Hulk pizzas and Scooby-Doo marshmallow cereals, today's grocery aisles are filled with scores of products using kids' favorite characters to sell them food. Fast food outlets also make frequent use of cross-promotions with children's media characters.

A recent article in the New York Times business section noted that "aiming at children through licensing is hardly new. What has changed is the scope and intensity of the blitz as today's youth become unwitting marketing targets at ever younger ages through more exposure to television, movies, videos and the Internet." One food industry executive was quoted as saying that licensing "is a way to . . . infuse the emotion and popularity of a current kids' hit into a product."

Some promotions involve toys based on media characters that are included in the food packages or offered in conjunction with fast food meals. McDonald's and Disney have an exclusive agreement under which Happy Meals include toys from top Disney movies. In the past, Happy Meals have reportedly also included toys based on the Teletubbies TV series, which is aimed at pre-verbal babies. Burger King has also featured Teletubbies tie-ins, along with Rugrats, Shrek, Pokemon and SpongeBob. More than a decade ago, researchers were finding that the typical "kid's meal" advertised to children consisted of a cheeseburger, french fries, soda, and a toy. One study found that about 1 in 6 (16.9%) food commercials aimed at children promise a free toy. In addition to the use of toys as an incentive in marketing food to children, many commercials use cartoon characters to sell products, which research has shown to be particularly effective in aiding children's slogan recall and ability to identify the product.

A recent example of the effectiveness of this technique is the growth in the dried fruit snack market. Almost half (45%) of fruit snacks had licensing agreements in 2003 compared to 10% in 1996. Sales have increased substantially every year since 1999: 5.6% in 2000, 8.7% in 2001, 3.2% in 2002, and 5.5% in 2003. Marketing experts attribute the sales growth to children's influence on their parents' purchasing decisions and parental beliefs that dried fruit snacks are healthier than other sweets. . . .

Reduce or regulate food ads targeted to children For decades, policymakers, child advocates, pediatricians, and others have advocated for policy measures to protect children from advertising, including ads for unhealthy food. In light of the rapid increase in childhood obesity, food ads aimed at children have come under increasing scrutiny. Policy suggestions to reduce or regulate food advertising targeted to children take a wide array of forms, from voluntary action taken by media companies or the food industry to government regulation. [See box on next page.]

Most researchers agree that children do not understand commercials in the same way adults do. Most children under age 6 cannot distinguish between program content and commercials, and most children under age 8 do not understand that the purpose of advertising is to sell a product. Even children ages 8-10 who have the cognitive ability to understand the nature of advertising may not always discern the persuasive intent or understand the wording of a disclaimer. The American Academy of Pediatrics reviewed the publicly available research about children and advertising and concluded that "advertising directed toward children is inherently deceptive and exploits children under 8 years of age."

Children's advertising guidelines are currently regulated by the Federal Communications Commission (FCC), which requires compliance before renewing a station's license. One guideline requires that a clear distinction between program content and commercial messages be maintained by using separation devices known as "bumpers" to signal the beginning and end of a commercial break. Others prohibit ads with character endorsements from running during or immediately adjacent to that character's show. The Children's Television Act, passed by Congress in 1990, also mandates advertising limits during programming aired primarily for children under age 12 to 10.5 minutes per hour on weekends and 12 minutes per hour on weekdays.

Children's advertising is also subject to self-regulatory policies adopted under the Children's Advertising Review Unit (CARU). The Grocery Manufacturers Association has pointed out that CARU guidelines suggest that advertising should: not mislead children about the nutritional benefits of products; depict appropriate amounts of a product for the situation portrayed; depict food products "with a view toward development of good nutritional practices"; refrain from portraying snacks as substitutes for meals; and show mealtime products in the context of a balanced diet. The latter policy, for example, is illustrated in cereal ads that show a bowl of cereal with milk and juice, and a voice-over noting that cereal should be part of a balanced, healthy breakfast.

Among the Options That Have Been Suggested Are:

- A ban on any advertising to preschoolers
 - A ban on advertising of "junk" food to very young children
 - An FTC investigation into marketing of "junk" food to children
 - A prohibition on food product placement in children's programming
 - The provision of "equal time" for messages on nutrition or fitness, to counteract food ads in children's shows
 - Parental "warnings" about the nutritional value of advertised foods
 - A repeal of the tax deduction for company expenses associated with advertising "junk" food products to children
 - A prohibition on food advertising in school-based TV programs such as Channel One
 - Explicit announcement of food-related product placement deals in popular TV shows or movies seen by large numbers of children
 - Eliminating or limiting cross-promotions between popular children's media characters and unhealthy food products
 - Increasing the use of popular media characters and celebrities to promote healthy food alternatives
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In December 2003, while on the campaign trail, Senator Joseph Lieberman called for a Federal Trade Commission (FTC) investigation into the marketing

practices of companies that target unhealthy foods to children. Just recently a coalition of obesity experts, health professionals, and child advocates asked Sesame Workshop not to air sponsorship messages for McDonald's before or after "Sesame Street." In response, children's TV producers note that banning food advertising or underwriting would remove one of the most lucrative sources of funding for children's television, particularly given the lack of public funds available in this country for that purpose.

Several industrialized democracies have adopted policies designed to protect children from excessive marketing practices. Sweden, Norway, and Finland, for instance, do not permit commercial sponsorship of children's programs. Sweden also does not permit any television advertising directed to children under age 12. Belgium imposes restrictions on commercials five minutes before and after as well as during children's programming. The BBC decided to prohibit use of its cartoon characters in fast food ads, and England is pushing for stricter guidelines for advertising aimed at children. . . .

Conclusion

The rising rates of childhood obesity present one of the most significant public health challenges we face. While there are many factors that contribute to the problem, this review of the major studies indicates that children's use of media is an important piece of the puzzle. Fortunately, there are an array of options for policymakers, food companies, media companies and parents to consider that may help minimize any negative effect media may be having and maximize the positive role media can play in addressing the problem.

Most large national cross-sectional studies and several longitudinal studies indicate that children who spend more time with media are more likely to be overweight than children who don't. While several regional studies have come to different conclusions, experimental interventions clearly indicate that there is an opportunity to reduce children's body weight by curbing the time they spend with media.

Exactly *how* media may contribute to childhood obesity has not been conclusively documented. Contrary to common assumptions, most studies have found only limited evidence for the theory that the time children spend with media displaces time they would otherwise spend in more vigorous physical activities. There may be limitations to the measures used in these studies, and more research needs to be done in this area.

But in the absence of such research at this time, it appears likely that the main mechanism by which media use contributes to childhood obesity may well be through children's exposure to billions of dollars worth of food advertising and cross-promotional marketing year after year, starting at the very youngest ages, with children's favorite media characters often enlisted in the sales pitch. Research indicates that children's food choices—and parents' food purchases—are significantly impacted by the advertising they see. The number of ads children see on TV has doubled from 20,000 to 40,000 since the 1970s, and the majority of ads targeted to kids are for candy, cereal, and fast food.

More research, perhaps removing ads from children's media while not reducing their overall time spent with media, could help clarify this issue.

While the magnitude of the impact of media's effects on childhood obesity is not clear, the body of evidence indicates there is a role for media-related policies to play in a comprehensive effort to prevent and reduce childhood obesity. While this report does not endorse any specific policies, it does lay out a variety of possibilities for consideration, from reducing the time children spend with media, to reducing their exposure to food advertising, to increasing the number of media messages promoting fitness and sound nutrition.





Children's Exposure to TV Advertising in 1977 and 2004: Information for the Obesity Debate

Executive Summary

Obesity has become a major health concern in the U.S. and other countries as overweight and obesity rates have increased markedly since the early 1980s. The rise in children's obesity is a particular concern, because overweight children are more likely to become overweight adults, and because obese children are likely to suffer from associated medical problems earlier in life.

Food marketing is among the postulated contributors to the rise in obesity rates. Food marketing to children has come under particular scrutiny because children may be more susceptible to marketing and because early eating habits may persist. Some researchers report that children's exposure to television advertising has been increasing along with the rise in children's obesity rates.

This report presents a comprehensive analysis of the exposure of children, ages 2-11, to television advertising based on copyrighted Nielsen Monitor-Plus/Nielsen Media Research audience data from the 2004 television programming season. The detailed data covers the individual advertisements shown during four weeks of national and local ad-supported programming and includes paid commercials, public service announcements, and promotions for television programming. These data are projected to annual estimates.

Thirty years ago similar assessments of children's television advertising were done for the Federal Trade Commission's 1978 Children's Advertising Rulemaking. Since these research reports were done before the rise in children's obesity, they provide a baseline to measure changes in children's exposure to television advertising.

Since the late 1970s, other marketing has likely changed and new forms of marketing have emerged, including Internet-based advertising techniques. This report does not cover these marketing activities, but the FTC is in the process of conducting another study to attempt to gauge the extent of all forms of marketing to children.¹

Federal Trade Commission Bureau of Economics Staff Report, June 1, 2007, pp. ES-1-ES-9.

This report can also be used to measure future changes in children's exposure to television advertising as industry, parents, and children react to these health concerns.

Summary of Major Findings for 2004

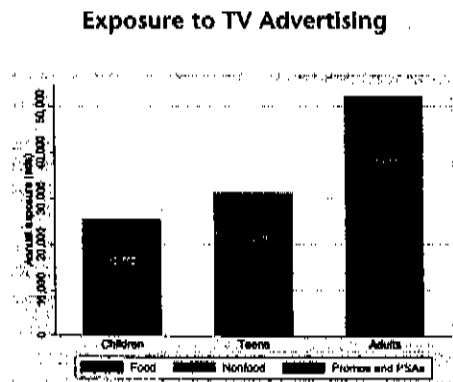
Children's Exposure to Television Advertising In 2004 we estimate that children ages 2-11 saw about 25,600 television advertisements. In this study, advertisements include paid ads, promotions for other programming, and public service announcements. Of these 25,600 ads, approximately 18,300 were paid ads and most of the remaining 7,300 ads were promotions for other programming. The average ad seen by children was about 25 seconds long. Thus, children saw about 10,700 minutes of TV advertising in 2004. For comparison, adults saw approximately 52,500 ads and 22,300 minutes of advertising.

Our estimates differ from other published estimates of children's exposure to television advertising; one widely cited estimate, that children see around 40,000 ads per year, is more than 50 percent higher than ours. Our estimates are based on very detailed data not available to most researchers. Most published estimates are based on aggregate estimates of the amount of time children watch television, combined with counts of ads aired per hour on selected samples of TV programming. This approach can be accurate as long as the component estimates are accurate representations of children's viewing habits. But our results indicate, for instance, that ad-supported television accounts for only 70 percent of children's TV viewing in 2004, and children get much of their advertising exposure from prime time and other nonchildren's programming. These and related issues must be reflected in the component estimates for such aggregate estimates to be accurate.

Amount of Time Children Spend Viewing Ad-Supported Television We estimate that in 2004 children 2-11 watched about two and one-quarter hours of ad-supported television per day, for a total of 16 hours per week, about 70 percent of their total television viewing time, about 23 hours per week. Teens, ages 12-17, watched about two and one-half hours of ad-supported television daily. Adults watched nearly four and one-quarter hours daily, almost twice as much as children, and this accounts for most of adults' greater ad exposure.

When Children Are Exposed to Ads We find considerable dispersion in when children accumulated their ad exposure. Saturday morning between 8 AM and noon was an important contributor to children's ad exposure, but was only 4.3 percent of the total. Sunday morning contributed 2.5 percent. Evenings between 8 PM and 12 AM contributed nearly 29 percent of children's total ad exposure. The time between 4 PM and 8 PM contributed another 26 percent of the total. Prime-time viewing peaked around 8 PM and was the primary time when ad exposure from broadcast programming exceeded that from cable programming. These patterns of ad exposure have important implications for studies that sample children's programming in an effort to produce broad

Figure 1



estimates of children's ad exposure, and they help to explain some of the differing results found in the research literature.

Children's Exposure to Food Advertising Children 2-11 saw approximately 5,500 food ads in 2004, 22 percent of all ads viewed. The leading categories of food advertising seen by children include Restaurant and Fast Food (5.3 percent of total ad exposure); Cereal (3.9 percent; Highly Sugared Cereals are 85 percent of this category); Desserts and Sweets (3.5 percent); Snacks (1.9 percent); Sweetened Drinks (1.7 percent); Dairy (1.4 percent); and Prepared Entrees (0.9 percent). All other food categories combined are 3.1 percent of ad exposure.

We also group shows according to whether the children's share of the audience is at least 20 percent (family shows) or at least 50 percent (children's shows). Food advertising is a larger share of children's advertising exposure as child share increases—from 22 percent of ad exposures on all shows to 32 percent on children's shows. The proportion of children's ad exposure is higher on children's shows for all of the food categories listed above, except for Restaurant and Fast Food ads. Children get nearly 80 percent of their Cereal ad exposure on children's shows and about one-third of their Sweetened Drink and Restaurant and Fast Food advertising there. The other food categories are between these extremes.

Sedentary Entertainment Dominates Other Ads Seen by Children Seventy-eight percent of the ads children saw in 2004 were for nonfood products. The top three nonfood product categories were Promotions for television programming (28 percent), Screen/Audio Entertainment (7.8 percent), and Games, Toys and Hobbies (7.5 percent). Together these three categories of sedentary entertainment products amounted to 43 percent of children's ad exposure, approximately double the number of food ads seen by children.

Children got approximately 85 percent of their Games, Toys and Hobbies ad exposure on children's shows, as well as 44 percent of their Screen/Audio

Entertainment exposure, and 33 percent of their Promotions exposure. Together these three categories constituted 85 percent of children's nonfood ad exposure from children's shows.

Children's TV Viewing Is Concentrated on Cable Cable programming was a major source of children's television viewing and ad exposure in 2004. Sixty-one percent of children's ad exposure and 72 percent of their food ad exposure was from cable programming. For children's programming, the concentration was even higher; 96.5 percent of all children's ad exposure from children's shows and 97.6 percent of their food ad exposure from children's shows was from cable programming.

Changes in Children's Exposure to Advertising Between 1977 and 2004

Children's Exposure to Paid Advertising Has Fallen; Overall Ad Exposure Is Up Studies from the FTC's Children's Advertising Rulemaking indicate that children 2-11 saw about 19,700 paid ads and 21,900 ads overall in 1977. When compared to our estimates of 18,300 paid ads and 25,600 ads in 2004, we find that children's exposure to paid advertising fell by about 7 percent and exposure to all advertising rose by about 17 percent since 1977. This difference reflects the substantial increase in children's exposure to promotional ads for television programming over this time period. Children saw approximately 2 percent fewer minutes of advertising and 19 percent fewer minutes of paid advertising in 2004 than in 1977. These reductions reflect the combined impact of the reduced amount of time children spend watching ad-supported television in 2004 compared to 1977 and ads that are shorter on average.

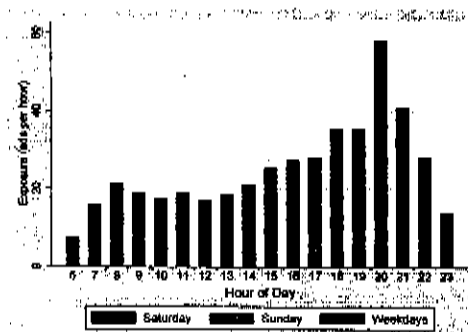
Children's Exposure to Food Advertising Has Not Risen The 1977 studies do not give a complete estimate of children's exposure to food ads, but using other data from the period we find that food ad exposure has not risen and is likely to have fallen modestly. In our primary scenario, we estimate that children saw 6,100 food ads in 1977. This suggests that children saw about 9 percent fewer food ads in 2004 than in 1977.

In 1977 ads for Cereals and for Desserts and Sweets dominated children's food ad exposure, with the Restaurant and Fast Food and the Sweetened Drinks categories also among the top categories. As seen above, in 2004 these categories were still among the top categories of food ads children saw, though Cereals and Desserts and Sweets no longer dominated. Restaurant and Fast Food ads had an increased presence, and were joined by Snacks, Dairy and Prepared Entrees as substantial sources of children's food ad exposure. Thus, the mix of food ads seen by children in 2004 is somewhat more evenly spread across these food categories than in 1977.

Children's Exposure to Ads for Sedentary Entertainment Has Grown The reduction in food advertisements seen by children has been more than compensated for by substantially increased Promotions for television programming

Figure 2

Time of Children's Exposure to Advertising



and increased advertising for Screen and Audio Entertainment. These two categories are both larger than any food category in 2004 and exceed Games, Toys and Hobbies, which had been the top nonfood category in 1977.

Children's Ad Exposure Is More Concentrated on Children's Cable Programming in 2004 Children get approximately half of their food advertising and about one-third of their total advertising exposure from programs in which children are at least 50 percent of the audience in 2004, compared to about one quarter in 1977. Ads for some food categories and for toys appear to be targeted to children.² Virtually all of this 2004 ad exposure on children's programming is from cable shows; in 1977, when cable programming was in its infancy, children's shows came from national broadcast and local sources.

Discussion of Empirical Findings and Obesity

Evidence on TV Advertising's Relation to Obesity Many commentators have suggested that marketing to children may be a significant factor in the growth of obesity in U.S. children. This hypothesis is well beyond anything we could test formally with the television advertising data analyzed here. Nonetheless, our data can shed light on aspects of this hypothesized link.

First, our data do not support the view that children are exposed to more television food advertising today. Our best estimates indicate that children's exposure to food advertising on television has fallen by about 9 percent between 1977 and 2004. Children's exposure to all paid television advertising has fallen as well.

Second, our data do not support the view that children are seeing more advertising for low nutrition foods. In both years the advertised foods are concentrated in the snacking, breakfast, and restaurant product areas. While the foods advertised on children's programming in 2004 do not constitute a balanced diet, this was the case as well in 1977; before the rise in obesity.

Evidence Related to Ad Restrictions on Children's Programming Some have called for various restrictions on advertising to children, including a complete ban on advertising to younger children and further restrictions on the number of minutes of advertising on children's television programming. Others have called for self-regulation or legislation that would limit advertising on children's programming to foods that meet specified nutrition characteristics. Some industry members have proposed voluntary commitments along these lines. This report does not provide a basis to assess the likely effects of any of these approaches, or the substantial legal issues that would have to be addressed for regulation, but it does have several findings that relate to this discussion.

First, children today do get half of their food advertising from shows where children are at least 50 percent of the audience. Thus, changes to the mix of ads on children's shows could potentially have an effect on the mix and number of food advertisements that children see. This effect would be considerably larger than would have been the case in 1977, when programming was not as specialized and children did not get much of their advertising exposure from children's programs. That said, children also get half of their food advertising exposure from nonchildren's shows and food ads on those shows might increase if restrictions were placed on children's programming.

Second, our study does provide some insight on another issue that has received little attention in the public discussion: what type of advertising would likely replace the restricted food advertising, if it is replaced? The hope is that advertising for better food might increase. Beyond that, the best guidance on this question is found by looking at the other products currently advertised on children's programs, since these are the products most likely to increase their advertising if food advertising is reduced. Currently, advertisements for sedentary entertainment products outnumber food advertisements by two to one and constitute most of the other advertising on children's programming. Presumably these products would expand their advertising further, if food advertising is reduced. Whether such a shift in advertising seen by children would affect obesity in U.S. children—either positively or negatively—is an open question which has received little attention.

Finally, it is worth noting that a restriction on advertising on children's programming would not fall evenly on industry participants. In 2004 broadcast networks had very few programs where children were more than 50 percent of the audience. Successful children's programming is now largely on children's cable networks. In fact, over 97 percent of food advertisements children see on children's shows are from cable programming.

Final Notes

Our study is limited to advertising on television. Television is still the medium where food advertisers spend most of their advertising dollars. In 2004 approximately 75 percent of all food advertising spending on measured media was spent on television, down from 83 percent in 1977. Many producers are exploring other advertising media and methods as television audiences

become more expensive to reach. This is true for advertising to children as well. Advergaming, child-oriented producer-sponsored websites, product placements and other tie-ins with movies and television programming are all part of the marketing landscape, and research to quantify these efforts is only beginning.³

This study was conducted to provide a comprehensive assessment of the amount and type of television advertising seen by children in 2004. It has been nearly 30 years since the last evaluation of children's television ad exposure using detailed viewing data. Advertising seen by children has received considerable attention in recent years as a possible contributor to rising obesity in American children, and as a possible vehicle to help reverse that trend. Hopefully, this report will provide useful information to guide discussion of the issues. The report also provides a baseline against which to measure future changes in children's exposure to television advertising as parents, firms and children react to obesity concerns.

Notes

1. *Federal Register* / Vol. 72, No. 74 / Wednesday, April 18, 2007 / Notices. See also Moore (2006) on advergaming.
2. See Gantz et al. (2007) for a recent content analysis of television advertising on children's and general interest programming. Neither this report nor Gantz et al. (2007) considers whether children may respond differently to the types of ads aired on children's programs.
3. The FTC is beginning a study to attempt to gauge the extent of these other forms of marketing to children. *Federal Register* / Vol. 72, No. 74 / Wednesday, April 18, 2007 / Notices.

CHALLENGE QUESTIONS



Is Advertising Responsible for Childhood Obesity?

- Both sides acknowledge that advertising alone is not responsible for increasing rates of child obesity. Of the other factors, is it possible that some interact with the influence of the media to create weight problems?
- While the Federal Trade Commission focuses on direct food advertising, the Kaiser Family Foundation also considers the cross-marketing of food with media figures. What seems most likely to influence the eating choices of children?
- One of the arguments for limiting any advertising directed at children is that at young ages they have not yet developed the ability to take a critical perspective on information. Based on what you know about childhood as a developmental stage, how would you expect children to respond to advertising?
- The Federal Trade Commission offers a comparison of advertising between 1977 and 2004 partially because 1977 was before the rise in obesity. What other influences on children's health and diet choices may have differed significantly in 1977?

Suggested Readings

- Dateline NBC Special Report: Food Fight, <http://www.msnbc.msn.com/id/14349691/>
- C. Ebbeling, D. Pawlak, and D. Ludwig, "Childhood Obesity: Public-Health Crisis, Common Sense Cure," *The Lancet* (August 10, 2002)
- M. Gard and J. Wright, *The Obesity Epidemic: Science, Morality and Ideology* (2005)
- W. Gibbs, "Obesity: An Overblown Epidemic?" *Scientific American* (June 2005)
- C. Hawkes, "Marketing Food to Children: Changes in the Global Regulatory Environment 2004-2006," (The World Health Organization)
- J. Hersey and A. Jordan, "Reducing Children's TV Time to Reduce the Risk of Childhood Overweight: The Children's Media Use Study Highlights Report," Prepared for the Centers for Disease Control and Prevention Nutrition and Physical Activity Communication Team (2007)
- Institute of Medicine, *Food Marketing to Children and Youth: Threat or Opportunity?* (2006)

