

# The Food Environment in U.S. Elementary Schools

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## Introduction

Overweight and obesity have risen rapidly among US children, adolescents, and adults, reaching epidemic proportions in recent years. Two primary causes of overweight/obesity are poor dietary habits and a lack of physical activity. In recent years, environmental and policy interventions have been increasingly promoted and adopted in efforts to combat this growing epidemic. Many of these interventions are being adopted and implemented by schools and school districts, often in response to federal and state policies. To date, however, there is minimal available evidence on the nature, extent, and characteristics of these approaches. Moreover, there is little information available on the extent to which these policies and practices vary across districts/schools with differing socioeconomic and demographic characteristics. The “Food and Fitness Project” has collected information on food environments in a national sample of elementary schools. Here we present selected information regarding the classroom and school food environment.

## Methods

The Food and Fitness Project was launched in 2007 to assess obesity-relevant policies and practices among US elementary schools and their corresponding schools districts. Our sampling approach involved a two-stage procedure, whereby a nationally-representative sample of school districts was selected, and from within those districts, a sample of elementary schools were selected with probability proportional to size (3<sup>rd</sup> grade enrollment). In addition, we drew a representative sample of private schools serving elementary aged (3<sup>rd</sup> grade) students.

We sent a pen-and-paper survey to school principals beginning in spring 2007. Principals were provided pre-paid return envelopes, and we offered a \$100 honorarium for completing the survey. Multiple follow-up efforts were made by mail, email, and phone to all non-responders. By fall of 2007, we received responses from 587 public schools (54.5% response rate) and 259 private schools (66.2% response rate). We are currently in the process of developing post-sampling weights to adjust for non-response factors; thus, all analyses presented here are unweighted.

### School Characteristics:

	Public schools (n = 578)		Private schools (n = 259)	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Total students at school	561.9	(236.5)	446.6	(284.3)
Total 3 <sup>rd</sup> grade students	92.7	(47.8)	47.1	(23.8)
Number of grades at school	5.3	(1.4)	8.6	(2.0)
Percent free/reduced lunch	46.5	(28.3)	n/a	
Percent White students	57.7	(34.0)	79.7	(26.9)
Percent Black students	15.6	(23.9)	8.7	(19.9)
Percent Hispanic students	21.1	(28.8)	7.8	(16.0)

## Results

### Classroom Food and Beverage Practices

Respondents were asked a series of questions about various food-related practices in classrooms, and whether each practice is discouraged, left up to teachers, or not allowed at school. In many schools, candy was used as an academic or behavioral motivator.

	No, not allowed	Yes, it is up to the teachers	Yes, but it is discouraged
Teachers use food (e.g., candy) as a reward for good academic performance	34.9%	30.9%	29.9%
Teachers use food (e.g., candy) as a reward for good behavior	32.3%	32.1%	30.5%
Food coupons are used as an incentive for students (e.g., “Book-It” pizza party for reading)	28.6%	62.1%	4.7%
Classroom lessons involve candy (i.e., mathematics using M&M candies)	34.4%	48.3%	11.4%
Students are allowed to keep water bottles at their desks	8.4%	85.8%	1.6%
Foods are regularly allowed in class (other than at snack time, parties or events)	77.9%	14.7%	3.5%
Beverages other than water are regularly allowed in class (other than at snack time, parties or special events)	89.8%	4.3%	2.5%

Analyses compared differences among higher-SES schools vs. lower-SES schools, using percent of students qualifying for free lunch as an SES proxy. Two of the above-mentioned variables differed significantly by school SES. As shown below, the use of food as a reward for either good academics or for good behavior were prohibited in similar percentages (34.8% and 33.1%; 28.9% and 32.6%); however, schools differed in whether these practices were generally discouraged, or left up to the teacher’s discretion. For both practices, higher-SES schools tended to discourage the use of food as reward, whereas a greater proportion of the lower-SES schools left it up to the teachers to decide whether to use these practices in their classrooms.

	Higher SES (≤ 30% free/reduced lunch)	Lower SES (> 30% free/reduced lunch)	Chi-square
<b>Use of food as a reward for good academics</b>			
No	34.8%	33.1%	10.40**
Yes, up to teacher	24.6%	37.2%	
Yes, but discouraged	40.6%	29.8%	
<b>Use of food as a reward for good behavior</b>			
No	28.9%	32.6%	7.22*
Yes, up to teacher	29.4%	37.0%	
Yes, but discouraged	41.7%	30.4%	

\* p < .05, \*\* p < .01

### Bans on Sweetened Snacks and Party Foods

In a majority of schools (76.2%), a regularly-scheduled snack time occurred in any of the K-5<sup>th</sup> grade classes. Among these schools with snack time, 45.5% of schools had a school-wide policy limiting sugar-sweetened items (e.g., candy, cupcakes, cookies) as snacks, whereas 23.1% had such policies in some classes only.

Policies limiting sugar-sweetened items at school parties (e.g., birthdays, holidays) were reported by 30.3% of schools, with an additional 17.0% having such policies for some classes.

These practices did not differ by SES among the public schools.

## Discussion and Conclusions

Given the recent increase in childhood obesity rates and the importance of establishing healthy eating habits early in childhood, schools can play an important role in promoting children’s health. The use of food as a reward is problematic both from a pedagogical perspective and also because children develop a learned association between performance and candy. Because obesity rates tend to be higher among lower-SES communities, it may be even more important to promote policies among these schools that limit the use of food—particularly the use of candy and other energy-dense foods with low nutrient value— as classroom motivators. While we found that a fair number of schools had policies limiting sugar-sweetened items for snack time and classroom parties, there is room for improvement. The additional energy intake that accumulates from multiple birthday and holiday parties during a school year, is one of many sources of energy imbalance that in combination are contributing to childhood obesity rates. Our study will track changes over time in these types of school policies and practices.

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