

How Healthy Is the National School Lunch Program?

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Abstract

This research evaluates the dietary components of the National School Lunch Program (NSLP) and the long term effects it has on the students who eat the meals. The NSLP aims to provide at least one-third of the recommended daily allowance (RDA) for food energy, protein, vitamins, and minerals. Based on studies in school lunchrooms, NSLP lunches generally manage to meet or exceed the RDAs for vitamins and minerals but the average amounts of total fat, saturated fat and sodium exceed the goals of the *Dietary Guidelines*. The amount of sodium also exceeds the recommendations of the National Research Council (NRC). NSLP participants in general consume more nutrients than do non-participants both in individual lunches and on a daily basis. These school lunches may help set in motion certain eating habits that contribute to obesity, coronary disease, and type II diabetes. With these findings it can be argued that NSLP lunches do fit the food pyramid and RDA guidelines in many ways, but also exceed recommendations in ways that can be dangerous to the health of students.

Introduction

Every day, an average of 28 million elementary, middle, and high school students sit down to a school lunch provided through the National School Lunch Program (NSLP). The NSLP lunches ought to be as nutritious as possible. All across the country the most common lunches include pizza, cheeseburgers, and hot dogs. Deep-fried French fries are on the list of the most commonly served vegetables and many veggies are drizzled with cheese. Even when a student chooses the lowest-fat options, in many schools they will still exceed the recommendations of the *Dietary Guidelines* and the National Research Council (NRC) for these macronutrients.³ Fats, saturated fats, and sodium are all harmful when too much is consumed. Maintaining a diet in which they are eaten at high levels almost every day could easily result in health concerns. Americans of all ages are increasingly suffering from problems such as obesity and diabetes. Studies suggest that children develop lifelong eating patterns early in life.^{7, 11}

Method

This research was conducted by combining studies found in peer-reviewed literature and consulting websites of knowledgeable organizations on the topic of school nutrition. The main journal articles utilized were from the American Journal of Clinical Nutrition and examined the types of meals offered, the nutrient content, and the dietary effects of the National School Lunch Program. These focal studies were published in 1995 and some of the data may have changed especially due to certain intervention plans that have begun in some schools aimed at improving nutrition. In addition, studies conducted on food choices made by students were also included. Tables were extracted from these studies and modified to include necessary information.

Results

In order to receive federal reimbursement, schools must conform to the NSLP requirements which, among other things, aim to provide at least one-third of the recommended daily allowances (RDA) for vitamins and minerals.³ As shown in Table 1, NSLP lunches meet and in most cases exceed these requirements by providing anywhere from 33% of some vitamins and minerals (zinc) to 104% of others (vitamin B-12). School lunches provide all grade levels with more than half of the RDA for protein, vitamin C, and riboflavin as well.³ With the exception of vitamin C, lunches of NSLP participants have been found to be richer in vitamins and minerals than those of non-participants. This is also true, though to a lesser extent, of 24-hour dietary intakes.⁵

According to the *Dietary Guidelines* less than 30% of food energy should come from fat and less than 10% from saturated fat. As shown in Table 2, the average NSLP participant derives 38% of his/her food energy from fat and 15% from saturated fat, exceeding the guidelines by 8% and 6% respectively. Even when choosing the lowest-fat options, 20% of elementary schools had 37-40% of their food energy coming from fat, as shown in Table 3. Furthermore, in 36% of elementary schools and 13% of middle schools, 15-18% of food energy comes from saturated fats. Levels of sodium also exceed NRC recommendations at all schools.³

School lunches have also been shown to have a small relationship to the weight of school-aged children. Statistically significant increases in weight and triceps fatfold thickness are associated with participation in the NSLP, though some of this may be attributed to the students' sex, height, and ethnic background.¹⁰

Studies examining lunch choices made by students show that children are more likely to select low-fat entrees if a household member is known to have an elevated blood cholesterol level. Also, the proportion of students choosing entrees low in fat increased with maternal education level. There was no difference in the frequency of choosing low-fat entrees among children receiving free or reduced-priced lunches (<185% of the federal poverty level) and their peers paying full price. The proportion of students selecting the low-fat option also increased with grade level.¹¹

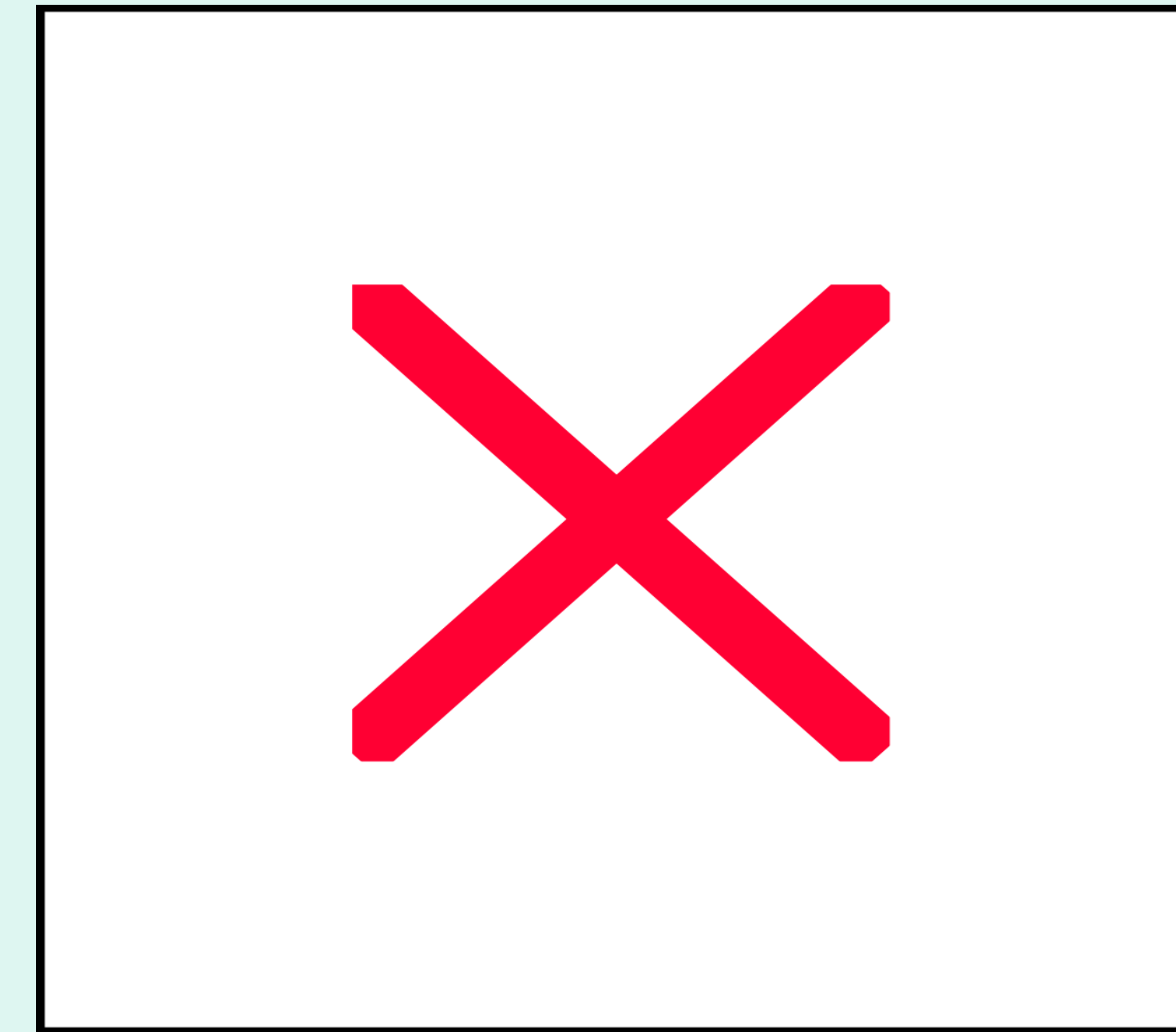


Table 1: Percentage of RDAs of nutrients in NSLP lunches^{3*}

Nutrient	Average for all schools (%)
Food energy	34
Protein	81
Vitamin A	50
Vitamin C	61
Thiamin	52
Riboflavin	62
Niacin	45
Vitamin B-6	35
Folate	63
Vitamin B-12	104
Calcium	48
Iron	37
Phosphorus	57
Magnesium	43
Zinc	33

*Adaptation of original table

Table 3: Percentage of schools offering NSLP lunches with a particular composition of fat and sodium^{3 *}

Dietary Component	Elementary schools (n=278)		Middle schools (n=92)		High schools (n=145)		All schools (n=515)	
	Av.	Low-fat	Av.	Low-fat	Av.	Low-fat	Av.	Low-fat
Food energy from fat								
≤30%	1	31	1	62	2	77	1	44
31-34%	13	36	19	22	24	8	16	29
35-36%	14	11	21	10	15	7	15	10
37-38%	31	10	17	2	15	3	26	8
39-40%	20	10	18	4	15	3	19	1
>40%	22	1	23	<1	30	2	23	1
Food energy from saturated fat								
<10%	0	16	0	50	0	43	<1	25
10-12%	5	19	3	15	5	19	5	19
13-14%	18	28	38	22	26	30	22	28
15-16%	43	28	43	12	50	6	44	22
17-18%	25	8	14	1	14	2	22	6
>18%	10	1	2	0	5	0	8	1
Sodium								
≤800 mg	0	0	0	0	0	1	0	<1
801-1000 mg	4	7	0	3	0	6	3	6
>1000 mg	96	93	100	97	100	93	97	94

*Adaptation of original table

Table 2: Mean macronutrients and sodium in NSLP lunches offered^{3*}

Dietary component	Elementary schools (n=278)	Middle schools (n=92)	High schools (n=145)	All schools (n=515)
Food energy				
(kcal)	723	803	832	753
Protein				
(g)	30	32	34	31
(% of food energy)	17	16	16	17
Carbohydrate				
(g)	85	97	99	89
(% of food energy)	47	48	47	47
Fat				
(g)	30	33	35	31
(% of food energy)	37	37	38	38
Saturated Fat				
(g)	12	13	14	13
(% of food energy)	15	15	15	15
Sodium (mg)	1406	1560	1704	1479

*Adaptation of original table

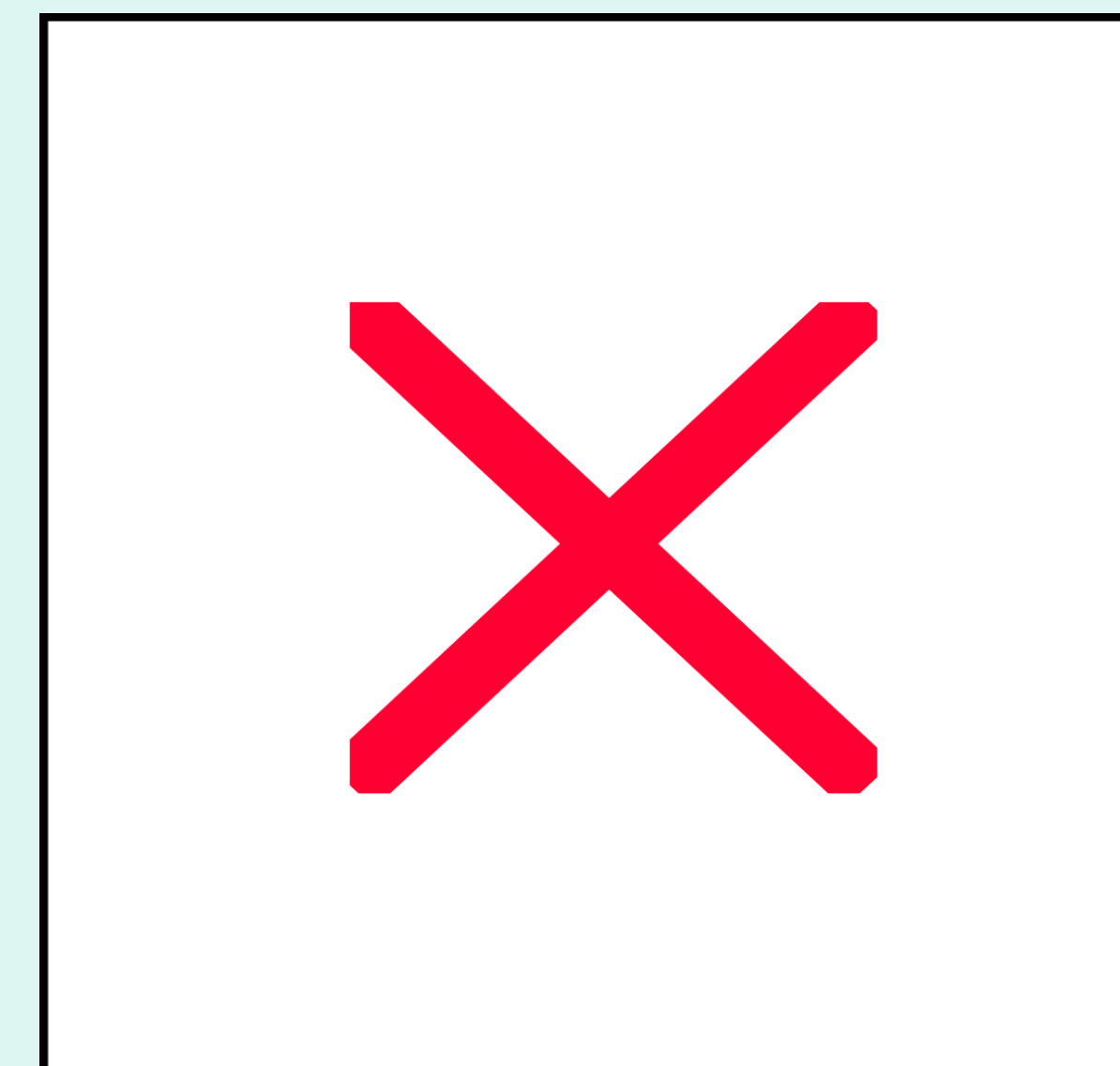
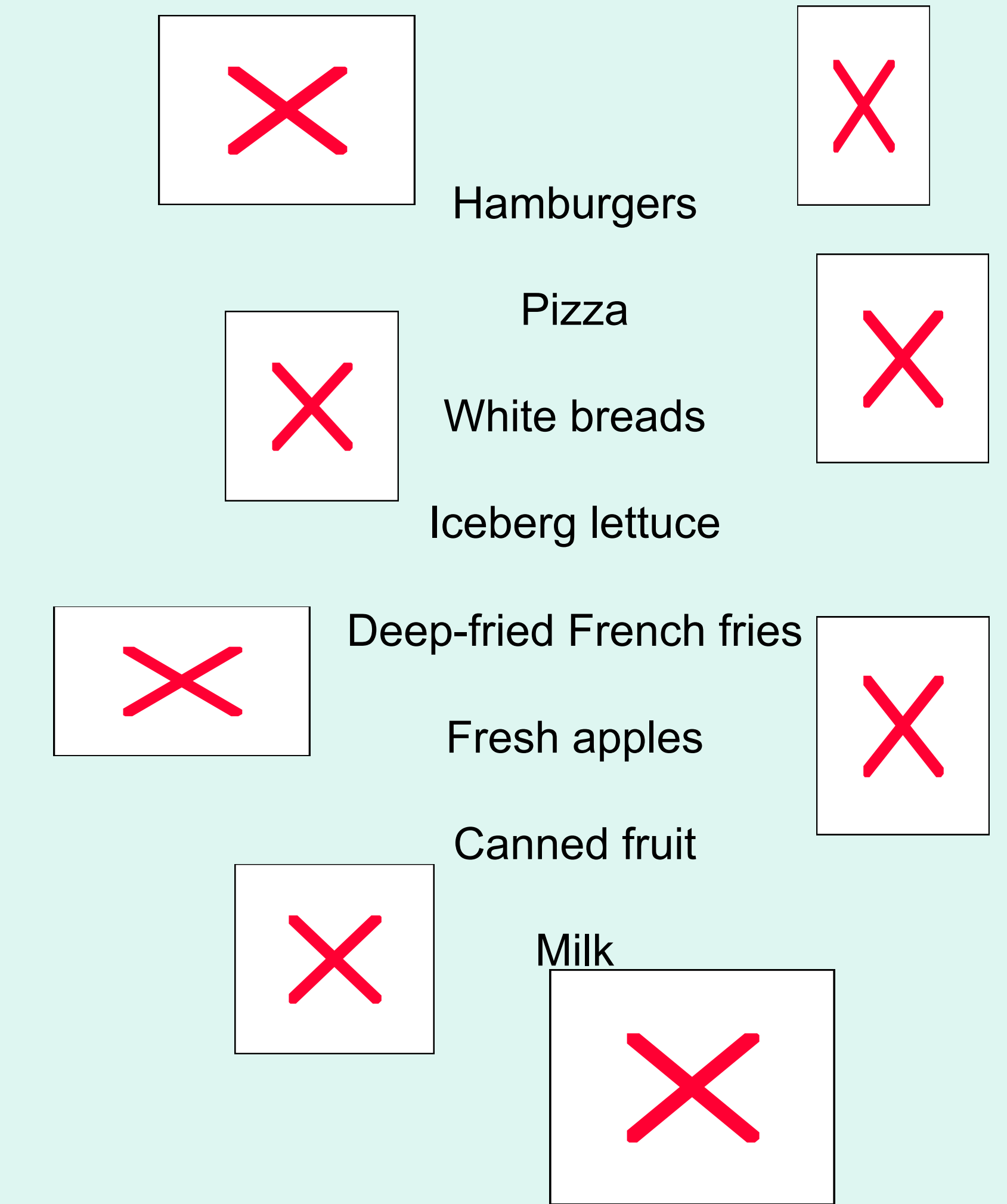


Figure 1: Most frequently offered foods in NSLP lunches³



Conclusion

Based on this research, while most students consuming NSLP lunches are offered meals richer in vitamins and minerals than non-participant peers, the fat and sodium levels are too high. Therefore, the push should not be to discourage people from eating school lunches, but to make school lunches lower in these more harmful areas. It has been shown that eating habits at school are reflected in 24-hour dietary intake as well. Findings also suggest that a student's knowledge of health problems in their family and other educational factors contribute to their selection of low-fat entrees. Knowing this, students are likely to make better choices in the foods they eat and develop healthier eating habits with education and healthy options, therefore lowering the risk of contracting such problems as obesity, type II diabetes, and cardiovascular diseases.

References

- Bartholomew, J B., and E M. Jowers. "Increasing Frequency of Lower-Fat Entrees Offered At School Lunch: an Environmental Change Strategy to Increase Healthful Selections." *Journal of the American Dietetic Association* 106 (2006): 248-252.
- Burghardt, John A., Barbara L. Devaney, and Anne R. Gordon. "The School Nutrition Dietary Assessment Study: Summary and Discussion." *American Journal of Clinical Nutrition* 61 (1995): 252s-257s.
- Burghardt, John A., Anne R. Gordon, and Thomas M. Fraker. "Meals Offered in the National School Lunch Program and the School Breakfast Program." *American Journal of Clinical Nutrition* 61 (1995): 187s-198s.
- Chapman, Nancy, Anne R. Gordon, and John A. Burghardt. "Factors Affecting the Fat Content of National School Lunch Program Lunches." *American Journal of Clinical Nutrition* 61 (1995): 199s-204s.
- Gordon, Anne R., Barbara L. Devaney, and John A. Burghardt. "Dietary Effects of the National School Lunch Program and the School Breakfast Program." *American Journal of Clinical Nutrition* 61 (1995): 221s-231s.
- Hanes, S, J Vermeersch, and S Gale. "The National Evaluation of School Nutrition Programs: Program Impact on Dietary Intake." *American Journal of Clinical Nutrition* 40 (1984): 390-413.
- Hartman-Frey, Corinna. "Improving Nutrition Education for Children: How Health Conscious Families and Schools Make Healthy Kids." Beloit College.
- "Local Support for Nutrition Integrity in Schools." *Journal of the American Dietetic Association* 106 (2006): 122-133.
- Radzikowski, Jack, and Steven Gale. "The National Evaluation of School Nutrition Programs: Conclusions." *American Journal of Clinical Nutrition* 40 (1984): 454-461.
- Vermeersch, J, S Hanes, and S Gale. "The National Evaluation of School Nutrition Programs: Program Impact on Anthropometric Measures." *American Journal of Clinical Nutrition* 40 (1984): 382-398.
- Whitaker, RC, JA Wright, TD Koepsell, and AF Finch. "Characteristics of Children Selecting Low-Fat Foods in an Elementary School Lunch Program." *Archives of Pediatrics & Adolescent Medicine* 148 (1994): 1085-1091.