

School Lunches: Effects on Student Health and Academic Performance



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The Origin of School Lunches

- 1946: President Harry S. Truman signed the National School Lunch Act
 - established the National School Lunch Program (NSLP)
 - provides lunch to K-12 students at a normal, reduced, or free cost
- 2010: Healthy, Hunger-Free Kids Act (HHFKA) is passed to improve the nutrition of school lunches
- 2019: the NSLP served 5,000 million lunches nationwide

The NSLP was established to improve the health outcomes of school children by providing them with necessary nutrition. The program is specifically beneficial to the large population of children living in food insecure homes (Figure 1).

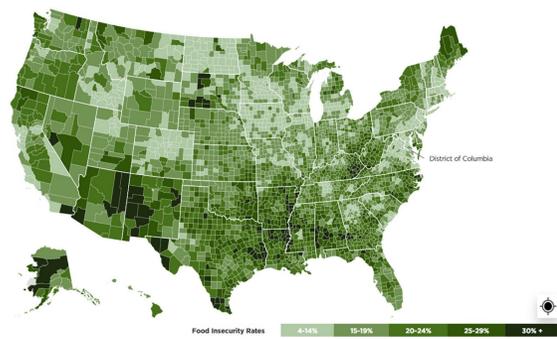


Figure 1: Food insecurity estimates for children (0-18) from Feeding America's Mapping the Meal Gap study.

NATIONAL SCHOOL LUNCH PROGRAM FACTS

- Students in households with incomes below 130 percent of the poverty level and students receiving SNAP or TANF qualify for free meals.
- Students in households between 130 and 185 percent of the poverty line qualify for reduced-price meals.
- 5,000 million lunches were served in 2019 (Figure 2).

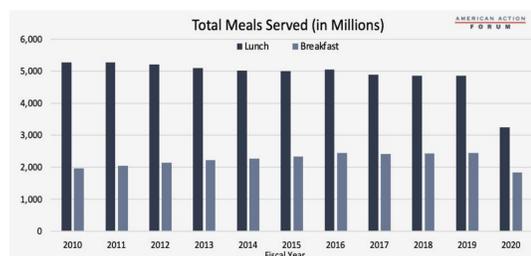


Figure 2: The total number of meals served by the NSLP in the fiscal years of 2010-2020 (Hayes and Williams, 2021, n.p.).

HEALTH BENEFITS

Students who participated in the school lunch program have been found to have specific health benefits in multiple studies (Figure 3). Some of the specific benefits found were:

- school lunches provide a crucial contribution to the daily fruit and vegetable intake among ethnically diverse, low socioeconomic status children (Robinson-O'Brien et al., 2010, n.p.)
- "the average NSLP participation rate for schools with lunches having high Healthy Eating Index (HEI)-2010 scores was 60 percent, compared with 50 percent for schools with lunches with low HEI-2010 scores" (Fox et al., 2019, n.p.)
- school lunches reduce poor health outcomes by an estimated 24% (Gunderson, 2012, n.p.)

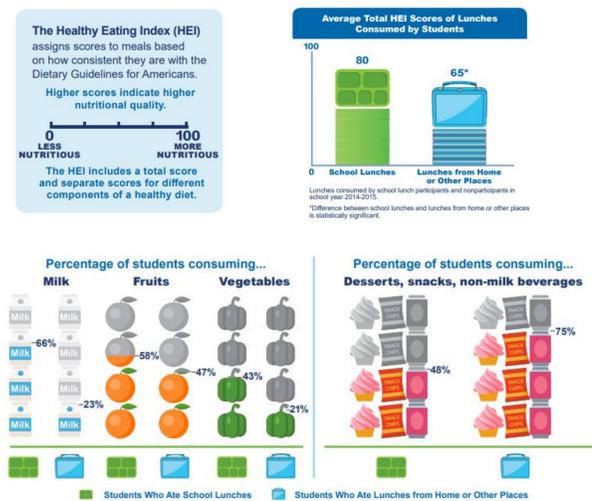


Figure 3: Top: The Healthy Eating Index (HEI) for home vs. school lunches. Bottom: Graphs depicting the percentage of students consuming fruits, vegetables, desserts, and beverages in home vs. school lunches (United States Department of Agriculture, 2021, p.1).

FEDERAL COSTS

The cost of the NSLP is not negligible. Each fiscal year, millions of dollars are allocated to the program. :

- In 2020, about \$23 million was federally spent on funding school food programs
 - more funding was allocated due to the COVID-19 pandemic

The amount of money it takes to successfully operate the NSLP has created some opposition to the program. Critics of the program claim that the cost of the program could be mitigated by privatization, and that the benefits of the program do not adequately correlate to its cost.

ACADEMIC BENEFITS

Along with the health benefits, studies have shown that there are cognitive benefits to eating nutritious school lunches. The cognitive benefits correlate directly with students' academic performance:

- "nutrition can affect the brain's macrostructure, microstructure, and level and operation of neurotransmitters, all of which can have an impact on cognitive development" (Bryan et al., 2004, p. 295)
- Children who lived in households reporting very low food security had:
 - 0.65 times the odds (OR=0.65; 95 % CI 0.44, 0.96) of meeting expectations for reading
 - 0.62 times the odds (OR=0.62; 95 % CI 0.45, 0.86) of meeting expectations for mathematics
- "hunger affects a child's behavior. It affects concentration, creativity and problem-solving", which are vital aspects of academic performance (Collier, 2015, p. E11)

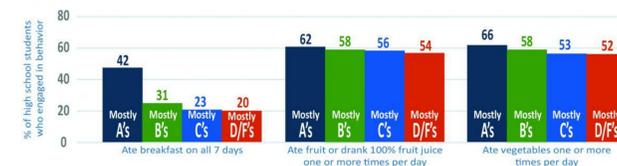


Figure 4: The average grades of students who ate breakfast, drank juice, or ate vegetables.

THEORY

- According to Maslow's Hierarchy of Needs, every human has 5 categorical needs that must be fulfilled (Tikkanen, 2009, n.p.).
- Food is a basic physiological need, which is why providing food makes such a large impact.



Figure 7: The total federal costs of the school lunch programs in the fiscal years of 2010-2020 (Hayes and Williams, 2021, n.p.).

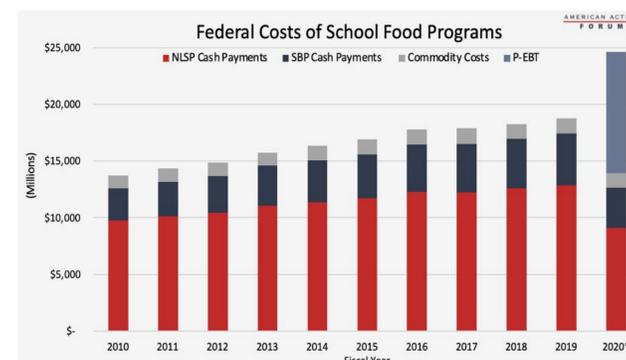
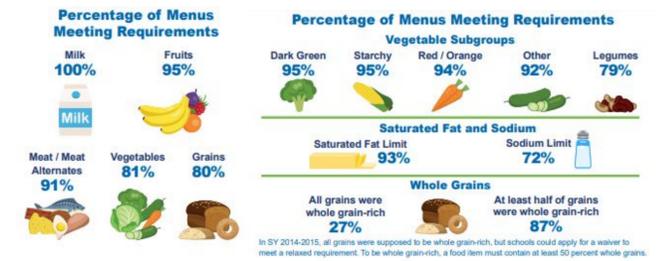


Figure 5: Graphs depicting the percentage of school lunches that met requirements for fruit, vegetables, grain, dairy, salt, and fat (United States Department of Agriculture, 2021, p.1).



Areas for Improvement

However, school lunches do not always meet the nutrition standards set by the United States Department of Agriculture. Some issues with the current lunches include:

- only 27% of school menus had all grains as whole-grain rich (Figure 5)
- the calorie amount offered in school lunches is not adequate (Figure 6)
 - 66% of highschool lunches did not provide enough calories for the average student

There are also mounting concerns about the health education that coordinates to food choices. While schools do provide nutrient-rich food, students do not make the best food choices.

- Less than half of the students met the national meal standards for vitamins A and C, or Fe" (Smith and Cunningham-Sabo, 2014, n.p.)

Reform may be needed for health education for students to make life-long healthy food choices.

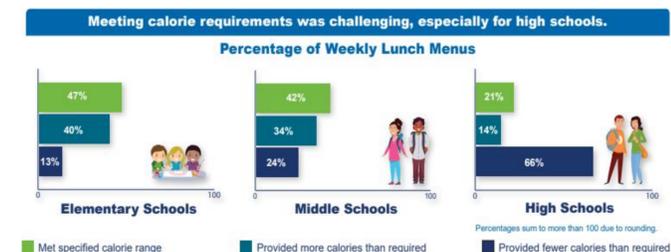


Figure 6: Graphs depicting the percentage of school lunches that met, exceeded, or fell below the average calorie requirements of the age group they were served to (United States Department of Agriculture, 2021, p.1).

REFERENCES:

