

Associations between time to eat and school meal selection and consumption among elementary schools with varying lunch period lengths and free school meal policies

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Summary:

School meals play an important role in supporting children's nutrition. Despite substantial improvements in the nutritional quality of school meals, concerns remain regarding both access and sufficient time to eat the healthier meals available. Free school meal policies—including participation in the Community Eligibility Provision (CEP), as well as state-level Healthy School Meals for All (HSMFA) policies—can help to ensure that all children have access to school meals. While these policies are effective at increasing participation rates, it is unknown if they may result in longer lunch lines and therefore less seated time for students to eat their meals (and thus potentially impact school meal consumption). The Centers for Disease Control and Prevention (CDC) recommends that students have at least 20 minutes of seated time to consume their meals. However, there are currently no national standards for lunch period lengths or seated time in schools, which may result in insufficient time for students to eat. Additionally, only a few states have laws requiring at least 20 minutes of seated time at lunch. To better understand how seated time, free school meal policies, and time to eat policies are associated with school meal selection and consumption, a plate waste study was conducted in 20 elementary schools across four states. This brief presents findings from 7,027 school meals collected within this multi-state sample. Most students with 20-minute lunch periods did not meet CDC recommendations for seated time, whereas most students with 30-minute lunch periods met these recommendations. State-level time to eat policies were associated with longer lunch periods and therefore more time to eat. Conversely, students in higher-poverty CEP schools had less time to eat on average compared with students in higher-income schools. When examining school meal component *selection*, there were no associations between seated time or free meal policies. When examining school meal *consumption*, students with less than 15 minutes of seated time consumed significantly less of their school meals—in particular milk, fruit, and whole grain sides—compared with students who had at least 25 minutes of seated time. HSMFA policies were not adversely associated with school meal consumption. Overall, the results of this study suggest that sufficient seated time—which can be strengthened by state-level time to eat policies—plays an important role in supporting school meal consumption and reducing food waste for milk, fruits, and whole grains, and schools should prioritize scheduling lunch periods that are greater than 20 minutes where possible. Policymakers should also consider developing strong policies to ensure all students have sufficient time to eat the healthy meals provided by schools.

Background:

School meals play an important role in supporting children's nutrition, with many children receiving up to half their daily energy intake from school meals.¹ The Healthy, Hunger-Free Kids Act of 2010 (HHFKA) made substantial improvements to the healthfulness of meals served in schools—including more fruits, a variety of vegetables, and whole grains, as well as lower sodium levels—making schools the healthiest source of nutrition on average for US children.²⁻⁴ However, complementary policies that provide consistent access to these healthier foods and ensure sufficient time to eat are also necessary.

Free school meal policies can play an important role in addressing some of the challenges that students face regarding access to school meals. First, the Community Eligibility Provision (CEP)— created as part of the HHFKA— enables higher-poverty schools or school districts to provide free meals to all students within the school or district.⁵ More recently, Healthy School Meals for All (HSMFA) policies—free meals provided to all students at the state-level—have been passed by multiple states.⁶ While both CEP and HSMFA have been effective at increasing participation rates, it is currently unknown if they may result in longer lunch lines and therefore less seated time for students to eat their meals (potentially impacting school meal consumption).⁷

The Centers for Disease Control and Prevention (CDC) currently recommends that students have at least 20 minutes of *seated* time to eat their school meals.⁸ However, there are currently no national standards for lunch period lengths or seated time, and therefore there are substantial variations across schools in the amount of time scheduled for lunch, which may have important implications for school meal consumption. Currently, only a small number of states have time to eat policies, and little is known about their impact. Therefore, the aims of this study were to examine the associations between lunch period lengths and seated time in the cafeteria on school meal consumption, as well as differences among schools with varying free meal policies and time to eat policies.

Methods:

In Spring 2025, a plate waste study was conducted as part of a larger national school meal study. A total of 7,027 school meals were collected in Arizona, California, Connecticut, and Massachusetts among 20 elementary schools with distinct lunch periods (i.e., no rolling lunch periods) (Table 1). One state (Connecticut) had a time to eat policy requiring at least 20 minutes of seated time. Lunch period lengths were collected from food service directors and verified during data collection. Plate waste measures were collected on two days within each participating school. Research assistants (RAs) also recorded the time as students left the lunch line to calculate the amount of seated time that students had to eat lunch. Results were analyzed using multi-level modeling accounting for students nested within schools (school as a random effect), adjusting for students' sex, grade, day of data collection, and timing of the lunch period (e.g., early morning before 11:30am, late afternoon after 1:00pm, etc.).

Summary of Findings:

Seated Time with Varying Lunch Period Lengths:

20-Minute Lunch Periods

- Students had on average 15.9 minutes to eat (range 7-24 minutes).
- 16% met CDC recommendations of ≥ 20 minutes of seated time.

25-Minute Lunch Periods

- Students had on average 19.8 minutes to eat (range 9-28 minutes).
- 55% met CDC recommendations of ≥ 20 minutes of seated time.

30-Minute Lunch Periods

- Students had on average 24.7 minutes to eat (range 12-33 minutes).
- 89% met CDC recommendations of ≥ 20 minutes of seated time.

Overall, there were no significant differences in seated time by free school meal policies, but CEP schools were more likely to have shorter, 20-minute lunch periods. Seated time was inversely associated with school poverty levels (i.e., the Identified Student Percentage [ISP]) with students in higher-poverty schools having less time to eat on average. Conversely, **state-level time to eat policies were associated with longer lunch periods and more time to eat;** students in Connecticut had on average 6 more minutes to eat lunch compared to students in states without time to eat policies (24 minutes compared with 18 minutes).

School Meal Selection:

There were no significant differences in school meal component selection by seated time or by free school meal policies.

School Meal Consumption:

Seated Time

- Seated time was positively associated with greater milk, whole grain side, and fruit consumption.
- Students with <15 minutes of seated time consumed on average 7% less milk, 14% less of their whole grain sides, and 9% less of their fruit compared with students with at least 25 minutes of seated time.

Free Meal Policies

- HSMFA policies were not associated with decreases in school meal consumption.
- Students in CEP schools consumed less fruit on average (45%) compared with students in higher-income schools (HSMFA schools [67%] or schools with traditional means-tested programs [57%]).

Table 1. Characteristics of participating schools¹

	Arizona (n=4 schools)	California (n=4 schools)	Connecticut (n=6 schools)	Massachusetts (n=6 schools)
Average ISP, % (min-max)	60% (53%-69%)	21% (6% - 42%)	42% (25% - 61%)	23% (6% - 72%)
Number of CEP schools	4	1	2	1
Lunch Period Length				
20 Minutes, n	3	2	0	3
25 Minutes, n	1 ²	2	1	2
30 Minutes, n	0	0	5	1
Seated Time in minutes, average (SD)	17.4 (3.5)	19.5 (4.1)	23.8 (4.2)	18.2 (3.6)
Urbanicity ³				
Rural, n	1	1	2	2
Urban, n	1	1	2	2
Suburban, n	2	2	2	2

CEP= Community Eligibility Provision; ISP= Identified Student Percentage; SD = Standard Deviation

¹ California and Massachusetts have state-level Healthy School Meal for All (HSMFA) policies to provide free meals for all students; Connecticut has a time to eat policy requiring at least 20 minutes of seated time at lunch.

² Two additional CEP schools provided 25-minute lunch periods for younger grades (e.g., Kindergarten only or K-2) and 20 minutes for older grades.

³Based on Rural-Urban Commuting Area (RUCA) codes.

Implication and Recommendations:

The results of this study suggest that sufficient seated time plays an important role in supporting school meal consumption. The majority of students with 20-minute lunch periods did not meet CDC recommendations for seated time, whereas roughly half of students with 25-minute lunch periods and most students with 30-minute lunch periods met CDC recommendations. Importantly, time to eat policies were associated with longer lunch periods and therefore more time to eat; this greater time to eat was associated with reduced food waste, particularly for milk, fruits, and whole grains. Conversely, students with less than 15 minutes to eat consumed significantly less of their meal compared with students who had at least 25 minutes of seated time. Notably, HSMFA policies were not adversely associated with seated time, school meal selection, or consumption, but more research is warranted in other diverse school settings. Overall, this research suggests that schools should prioritize scheduling lunch periods that are greater than 20 minutes where feasible. Policymakers at the local, state, and federal levels should also consider strengthening time to eat policies to ensure all students have sufficient time to eat the healthy meals offered in schools.



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