

## How Long Does It Take Students to Eat Lunch? A Summary of Three Studies

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*Please note that this study was published before the implementation of Healthy, Hunger-Free Kids Act of 2010, which went into effect during the 2012-13 school year, and its provision for Smart Snacks Nutrition Standards for Competitive Food in Schools, implemented during the 2014-15 school year. As such, certain research may not be relevant today.*

### ABSTRACT

The Partnership to Promote Healthy Eating in Schools identified an adequate time to eat lunch around midday as one of 10 factors associated with developing healthy eating habits in school children. This article discusses three studies sponsored by the National Food Service Management Institute (NFSMI) to measure the average time required by K-12 students to consume lunch. The average time for students to consume lunch was between 7 and 10 minutes. The authors also discuss other timed elements of the dining experience, such as socializing, service, and clean-up activities. School foodservice directors can use the information from these time studies to advocate for reasonable lunch schedules that allow students at least 20 minutes to eat after they arrive at the table with their food.

### INTRODUCTION

In 2000, the U.S. Department of Agriculture (USDA) and five medical groups formed a unique partnership to address concerns about the increasing incidence of childhood obesity in the United States. Realizing that dietary habits are established early in life, this group of health professionals formed the Partnership to Promote Healthy Eating in Schools and developed *Prescription for Change: Ten Keys to Promote Healthy Eating in Schools* to guide school communities in developing their own strategies to improve students' diet and health (American Dietetic Association, 2000). Schools were targeted to teach by example in providing nutritious food choices and dining experiences that promote the development of healthy eating habits (Community Nutrition Institute, 2000).

The 10 keys to promote healthy eating addressed many of the challenges students face in eating nutritious meals at school, including adequate time to eat. According to the fifth key, "All students will have designated lunch periods of sufficient length to enjoy eating healthy foods with friends. These lunch periods will be scheduled as near the middle of the school day as possible" (American Academy of Family Physicians et al., 2000). Providing enough time for students to choose meals and sit with friends to enjoy them was among the top 10 factors identified by health professionals as important to the development of healthy eating behaviors.

Three years prior to the work of the Partnership to Promote Healthy Eating in Schools, researchers at the National Food Service Management Institute (NFSMI) considered adequate eating time from the perspective of school foodservice directors. Directors were on the firing

line, dealing with the chaos that a lunch period can bring to a school system that fails to consider mealtime as an integral part of the academic day. School foodservice directors were asking, "With increased enrollment in older buildings [that were] planned for half the number of students, block scheduling, staff shortages, and increased demand for more food choices, what evidence exists to help me make a case to school administrators that the scheduled lunch period just isn't long enough to serve everyone in a manner that promotes healthy eating?"

A place to start in making this case is to know exactly how long it takes for students to consume their lunch. Unfortunately, at the time of these studies, no information was available on the length of time the average child takes to eat a noontime meal at school. If this information were known, school foodservice directors could add other time factors associated with student travel to the cafeteria (including service, conversing with friends, and cleanup) in order to recommend a lunch period that meets the realistic needs of their student population. The purpose of this article is to discuss the findings of three studies sponsored by NFSMI to provide evidence of school lunch consumption time by K-12 students.

## **METHODOLOGY**

Researchers from Texas Tech University developed the methodology and conducted the first study (Sanchez, Hoover, & Sanchez, 1997). Scientists at Central Washington University and Spectrum Consulting in Utah used the techniques developed by Sanchez et al. to conduct two additional studies (Bergman, Buerger, Joseph, & Sanchez, 1999; Rodgers, Anderson, & Shuster, 1999).

In all three studies, data were collected by means of a time study based on multiple visits to schools in all divisions: elementary, middle, and high school. Trained research assistants used stopwatches to record time. They recorded data over 12- to 18-week periods. Research assistants observed students at the beginning, middle, and end of the lunch periods. Students were timed while in the serving lines, which included the cashier's stations, as well as traveling to the eating area, sitting at their lunch tables, and while carrying soiled trays to an area for clean-up. Time at the lunch table was divided into eating and non-eating elements. Overall, the results of these studies represented approximately 20,000 observations and timing of student behavior in five school systems nationwide.

## **RESULTS AND DISCUSSION**

### **Participating School Nutrition Programs**

Six elementary schools, six middle schools, and six high schools participated in the three studies. The schools were located in five school districts in four states: one district each in New York, Texas, and Washington, and two districts in Utah. The number of students eating lunch varied considerably (**Table 1**). All schools participated in the National School Lunch Program, and the eligibility for free and reduced-price meals varied from 26% to 93%.

**Table 1. Participating school characteristics (N=18)<sup>a</sup>**

School	Average Daily Attendance	Lunch Period(s)	Type of Service	Recess and Cafeteria Exit Policy
<b>Elementary</b>				
TX 1	330	5/30 min. staggered	1 straight line, Offer vs. Serve, POS key entry ID	Free to leave for recess when finished
TX 2	580	5/30 min. staggered	1 straight line, Offer vs. Serve, POS key entry ID	Returned to classroom together, then recess
UT 1	375	22 min. staggered	1 straight line, choice of two entrees, fruit cart & choice of beverages, ID card	Recess before lunch
UT 2	400	30 min. staggered at 10 min.	1 straight line, choice of two entrees, Provision 2, ID card	Recess after lunch
WA	203	5/15 min. staggered	1 straight line, 3 classes attending each period, debit card	Recess after lunch
NY	312	Combined 40-45 min. lunch/recess	1 straight line, students ate in classroom, cashier	Held in classroom until all were finished, recess after lunch
<b>Middle</b>				
TX 1	800	3/30 min.	3 straight lines (entree, pizza, hamburger), Offer vs. Serve, POS key entry ID	Free to leave when finished
TX 2	700	3/28 min.	3 straight lines (entree, pizza, hamburger), Offer vs. Serve, POS key entry ID	Free to leave when finished
UT 1	950	3/25 min.	5 straight lines (pizza, sandwich, entree, salad, and a la carte), ID card	Free to leave when finished
UT 2	480	2/30 min. staggered at 10 min.	3 straight lines (pizza, sandwich, and a la carte), ID card	Free to leave when finished
WA	196	2/35 min.	2 straight lines, 1 self-service bar, cashier	Free to leave when finished
NY	318	6/22 min.	1 straight line, 1 self-service bar, cashier	Must stay in lunchroom
<b>High</b>				
TX 1	350	2/30 min.	3 U-shaped lines (entree, pizza, hamburgers), POS key entry ID	Free to leave when finished
TX 2	300	40 min.	3 straight lines (entree, pizza, hamburgers), POS key entry ID	Free to leave when finished
UT 1	680	3/30 min.	4 straight lines (pizza/hamburgers, salad, entree, and a la carte), ID card	Free to leave when finished
UT 2	520	3/30 min.	4 straight lines (entree, sandwich, a la carte, and salad/potato bar), ID card	Free to leave when finished
WA	137	2/35 min.	2 straight lines, 1 self-serve bar, cashier	Free to leave when finished
NY	263	3/44 min.	1 straight line, 1 self-serve bar, cashier	Free to leave when finished

<sup>a</sup>Bergman et al., 1999; Rodgers et al., 1999; Sanchez et al., 1997

### Scheduled Lunch Periods

All elementary schools and middle schools had a closed-campus policy, and all high schools reported an open campus policy. Lunch periods varied in length and student release schedules. All elementary schools scheduled recess after lunch with the exception of one (**Table 1**).

## **Meal Service**

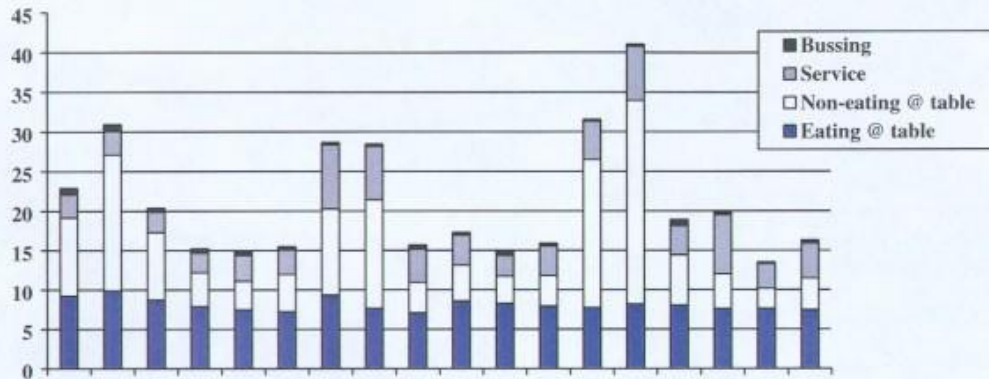
As shown in **Table 1**, the number of serving lines and the menu items offered on these lines differed. Most elementary schools used automated meal count systems, such as debit cards or PIN (personal identification number) entry to record sales. Middle schools and high schools in many districts used an automated system for recording meal counts and sales.

## **Time at the Table**

The focus of this article is to answer the question, "Once students arrive at a seat in the dining area with their food, how long does it take to consume their meal?" This portion of the time studies was called "time at table," which was the time available in the lunch period for eating. Time at table was divided into two smaller elements: eating and non-eating activities (organizing the eating area or socializing with friends). Eating time was defined as the chewing of food and the drinking of beverages. For example, if students started to talk with friends halfway through a sandwich, the researchers halted the stopwatch that timed the eating element and resumed timing only when students went back to eating or drinking (Sanchez, Hoover, Cater, Sanchez, & Miller, 1999; Sanchez, Hoover, Sanchez, & Miller, 1999).

In all three studies, K-12 students spent more time eating than in non-eating activities, except in Texas, where the lunch period was longer. Average eating time for students in all grades ranged from 7 minutes in a middle school in Utah to 10 minutes in an elementary school in Texas. As shown by the dark blue segment of the bar chart in **Figure 1**, the average eating time for all students, regardless of grade, was very consistent. This was not the case for non-eating time at the table shown in the white segment of the bar chart. Non-eating time changed in direct relation to the amount of time allotted for the lunch period. Time spent at the table socializing with peers or engaging in other non-eating activities averaged from 3 minutes in a high school in Washington to 26 minutes in a high school in Texas.

Figure 1. Elements of the Lunch Period in Participating Schools (N=18) a



a Bergman et al., 1999; Rodgers et al., 1999; Sanchez et al., 1997.

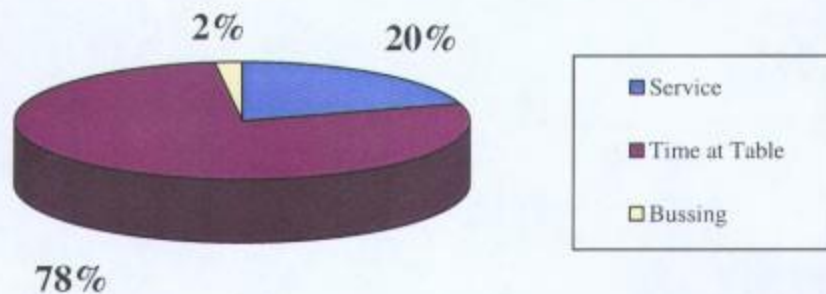
**Axis Legend:**

ETX1-ENY=Elementary schools in TX 1 and 2, UT 1 and 2, WA, and NY (N=6)  
 MTX1-MNY=Middle schools in TX 1 and 2, UT 1 and 2, WA, and NY (N=6)  
 HTX1-HNY=High schools in TX 1 and 2, UT 1 and 2, WA, and NY (N=6)

**Total Time in the Cafeteria**

The average total time spent in the cafeteria for service--including travel time to the table, time at the table, and bussing--was 20 minutes for elementary and middle schools and 24 minutes for the high schools, even though students in one high school averaged slightly over 40 minutes in the cafeteria (**Figure 1**). When the average time at the table was compared to the average service and bussing times for all 18 schools, the time available for students to eat was 78% of the total time in the cafeteria (**Figure 2**). This information is reassuring because the main purpose for the lunch period (eating) encompassed the majority of the time that was allotted. On average, service time varied across all schools, and bussing of trays took minimal time.

Figure 2. Average percent time students spent in lunch period activities in all participating schools (N=18)<sup>a</sup>



<sup>a</sup>Bergman et al., 1999; Rodgers et al., 1999; Sanchez et al., 1997

## CONCLUSIONS AND APPLICATIONS

How long did it take K-12 students to eat? School children took an average of 7 to 10 minutes to consume their lunch. Some students, however, required less time, while others needed more. Sanchez, Hoover, Sanchez, et al. (1999) reported that 39%, 27%, and 20% of students in elementary, middle, and high schools, respectively, took longer than 10 minutes to consume their lunch. We suggest school foodservice directors read the research articles generated by these studies to consider the entire spectrum of data collected (Bergman et al., 2000; Sanchez, Hoover, Sanchez, et al., 1999). In school districts where the scheduled lunch period is a contested issue, the only way school foodservice directors could know precisely whether this average reflects students in their program is to conduct a time study using similar methods. The procedures to follow for conducting such a time study have been published (Sanchez, Hoover, Cater, et al., 1999).

Eating time encompasses only the physical act of eating and drinking. This time did not seem to relate to the age of students, size of the school district, complexity of the menu, length of the lunch period, serving styles, holding students at the table, or scheduling recess prior to the meal

period (**Table 1**). An earlier study found that the timing of recess was associated with reduced plate waste, particularly with boys, when physical activities were scheduled prior to lunch (Getlinger, Laughlin, Bell, Akre, & Arjmandi, 1996). As shown in **Figure 1**, the researchers found that in one elementary school (EUT1) that scheduled recess prior to lunch, the averaged the same amount of time to eat. Because the time studies did not record plate waste, we can only assume students may have eaten more in the same amount of time, or the timing of recess may not have made a difference in consumption patterns with this group of elementary students.

Non-eating or socializing at the table was the most variable time among the schools, and not surprisingly, the amount of time spent in these activities seemed to change directly with the length of the lunch period. These acts included arranging the tray or food, eating, talking, laughing, and other types of social interaction with friends at the table. School foodservice directors could minimize the time used by students in arranging the food for eating by evaluating the manner in which condiments are packaged for ease of use. This would be especially important for elementary students (Sanchez, Hoover, Sanchez, et al., 1999).

Socializing is an important aspect of dining because allowing students sufficient time to relate to others provides a break in routine and refreshes them for afternoon classes. This may be the reason why members of the Partnership to Promote Healthy Eating in Schools mentioned the importance of enjoying meals with friends as a vital component of healthy eating (American Academy of Family Physicians et al., 2000). Perhaps if students were given at least a 20-minute period *at the table*, as recommended by food and nutrition professionals (USDA, 2000), both eating and socializing activities could be accommodated for the average individual.

If 20 minutes at the table were the goal, then school foodservice directors would need to factor in the following: average travel time to the cafeteria; time for service, including travel to the eating area; and bussing of trays after the meal to yield an ideal lunch period. The service aspect is the one element a school foodservice director can most directly influence. In this research, the bussing of trays consistently averaged under one minute, even for elementary students, but the average service time per student varied from approximately three minutes to slightly over eight minutes (**Figure 1**). Among the factors that positively influence service time are:

- the number of serving lines;
- whether all food choices are available on each line;
- training of service staff and cashiers to provide efficient service;
- the designation of a "runner" to replenish food on the line (Nettles & Conklin, 1996);  
and  
an automated point of sales system.

School foodservice directors should carefully review each of these areas to determine whether service efficiency could be improved, especially if doing so will enable students to enjoy their lunch for at least 20 minutes at the table.

If 20 minutes at the table represents 78% of the meal period (**Figure 2**), a goal for the entire time students spend in the cafeteria would be at least 26 minutes. This would allow four minutes for travel to and from the cafeteria in a 30-minute lunch period. Although this calculation is based

strictly on averages, a school foodservice director could use this type of logic in documenting an ideal lunch period with school administrators.

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