

**SCHOOL NUTRITION AND MEAL COST STUDY: VOLUME 2 –
NUTRITIONAL CHARACTERISTICS OF SCHOOL MEALS (SUMMARY)**

Background

The United States Department of Agriculture (USDA), Food and Nutrition Service’s (FNS) School Nutrition and Meal Cost Study (SNMCS) is the first nationally representative comprehensive assessment of the National School Lunch Program (NSLP) and School Breakfast Program (SBP) since nutrition standards were updated and began being phased in during School Year (SY) 2012-13. SY 2014-2015 was the first year school meals were required to meet all of the updated requirements for both NSLP lunches and SBP breakfasts. The updated nutrition standards include four different types of requirements: (1) daily meal pattern requirements; (2) weekly meal pattern requirements; (3) dietary specifications for calories, saturated fat, and sodium; and (4) restrictions on specific forms of some foods. Separate standards are defined for three grade groups—kindergarten to grade 5, grades 6 to 8, and grades 9 to 12.

SNMCS is also the first national study to simultaneously examine the cost of producing school meals and the nutritional quality of those meals. The study addresses a broad array of research questions of interest to stakeholders at the national, State, and local levels. Study findings are presented in four report volumes plus a summary report that highlights key findings across the volumes. Report Volume 2 provides information on the food and nutrient content of reimbursable school meals and afterschool snacks and the overall nutritional quality of school meals.

Study Methods

SNMCS collected data primarily in the spring of SY 2014-15 from a nationally representative sample of public School Food Authorities (SFAs) participating in the NSLP. All findings in this volume are based on analysis of data from the Menu Survey completed by School Nutrition Managers in 1,207 schools¹ during a target week in SY 2014-2015. Data from the Menu Survey were used to:

- Calculate average calorie and nutrient content of menus prepared and served by linking to the Food and Nutrient Database for Dietary Studies (FNDDS; version 2011-2012) and calculate USDA Food Pattern food group content of menus prepared and served by linking to the Food Patterns Equivalents Database and Food Patterns

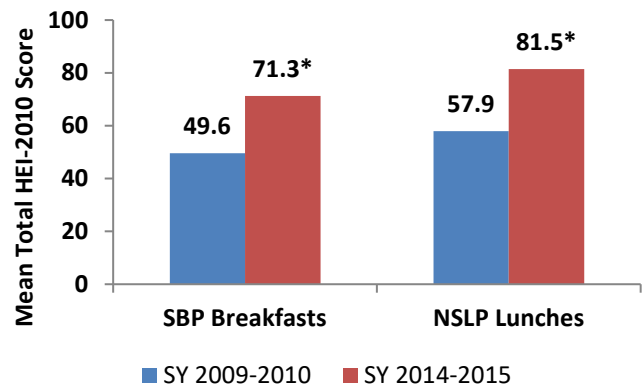
Equivalents Ingredients Database (FPED and FPID; version 2011-2012).

- Calculate the nutritional quality of school meals using the Healthy Eating Index-2010 (HEI-2010). The HEI consists of 12 components—9 adequacy components and 3 moderation components. The adequacy components focus on meeting nutrient needs, while the moderation components are encouraged to be limited. For all components, higher scores reflect higher nutritional quality and better conformance with the 2010 *Dietary Guidelines for Americans*. HEI-2010 scores for SY 2014-2015 were compared to HEI-2010 scores for SY 2009-2010 to examine trends.
- Compare types and amounts of food offered daily and across a school week to the daily and weekly meal pattern requirements.

Study Findings

The NSLP lunches and SBP breakfasts served to students are of high nutritional quality and consistent with the 2010 Dietary Guidelines for Americans. Overall, NSLP lunches served in SY 2014-2015 received an average total HEI-2010 score of 81.5 out of 100, while SBP breakfasts received a score of 71.3 (Figure 1).

Figure 1. Mean Healthy Eating Index (HEI)-2010 Total Scores in SY 2009-2010 and SY 2014-2015: All Schools



*Difference between SY 2009-2010 and SY 2014-2015 is significantly different from zero at the 0.05 level.

HEI = Healthy Eating Index; NSLP = National School Lunch Program; SBP = School Breakfast Program; SY = school year

¹ Of these 1,207 schools, 1,111 also participated in the SBP and provided menu data for breakfasts. Data on the SBP can be found in the full report.

Between SY 2009-2010 and SY 2014-2015, the mean total HEI-2010 score for NSLP lunches served increased significantly suggesting that the updated nutrition standards have significantly improved the nutritional quality of NSLP lunches. The total HEI-2010 score for NSLP lunches increased by at least 23 points for all school types. Scores for 7 of the 9 adequacy components in the HEI-2010 increased significantly between these 2 years with the largest gains seen in the whole grains, greens and beans, and total fruit components. Scores for all three moderation components significantly improved as a result of decreased concentrations of refined grains, empty calories, and sodium in NSLP meals (Figure 2).

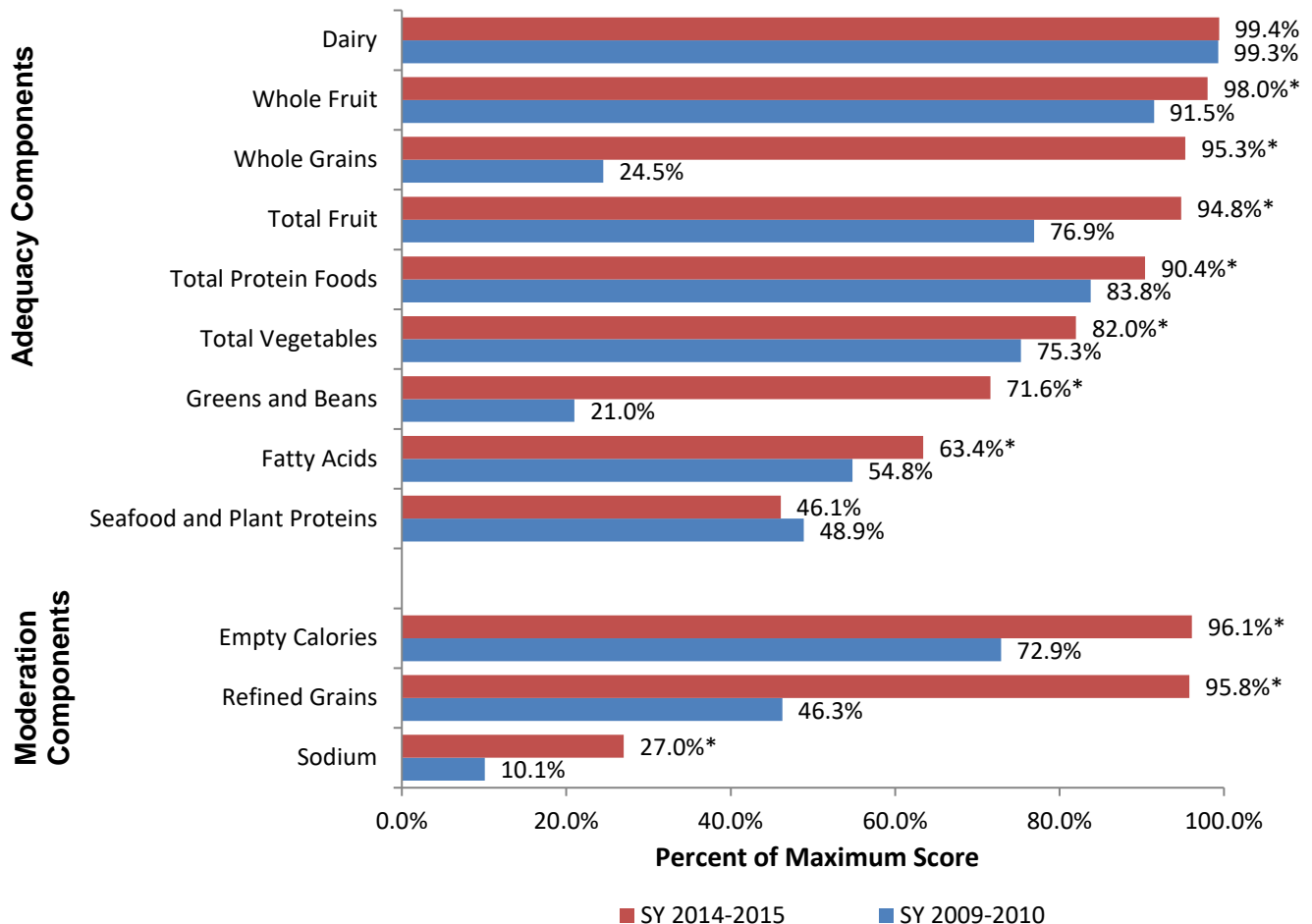
Key characteristics of school meals and school foodservice operations are associated with the nutritional quality of NSLP lunches. Schools that met the Target 1 sodium limit, schools that had weekly menus in which at least half of their grain products were whole grain-rich, and schools that met the minimum calorie level had higher average HEI-2010 scores. Schools that did *not* sell competitive foods during

meal times and schools that participated in a purchasing cooperative also had significantly higher HEI-2010 scores.

The vast majority (over 80 percent) of daily lunch menus met daily NSLP meal pattern quantity requirements. Over 90 percent of daily lunch menus met the daily quantity requirements for fruits (95 percent), meat/meat alternates (91 percent), and milk (99 percent). About 80 percent of daily lunch menus met the daily quantity requirements for vegetables (81 percent) and grains (80 percent) (Figure 3).

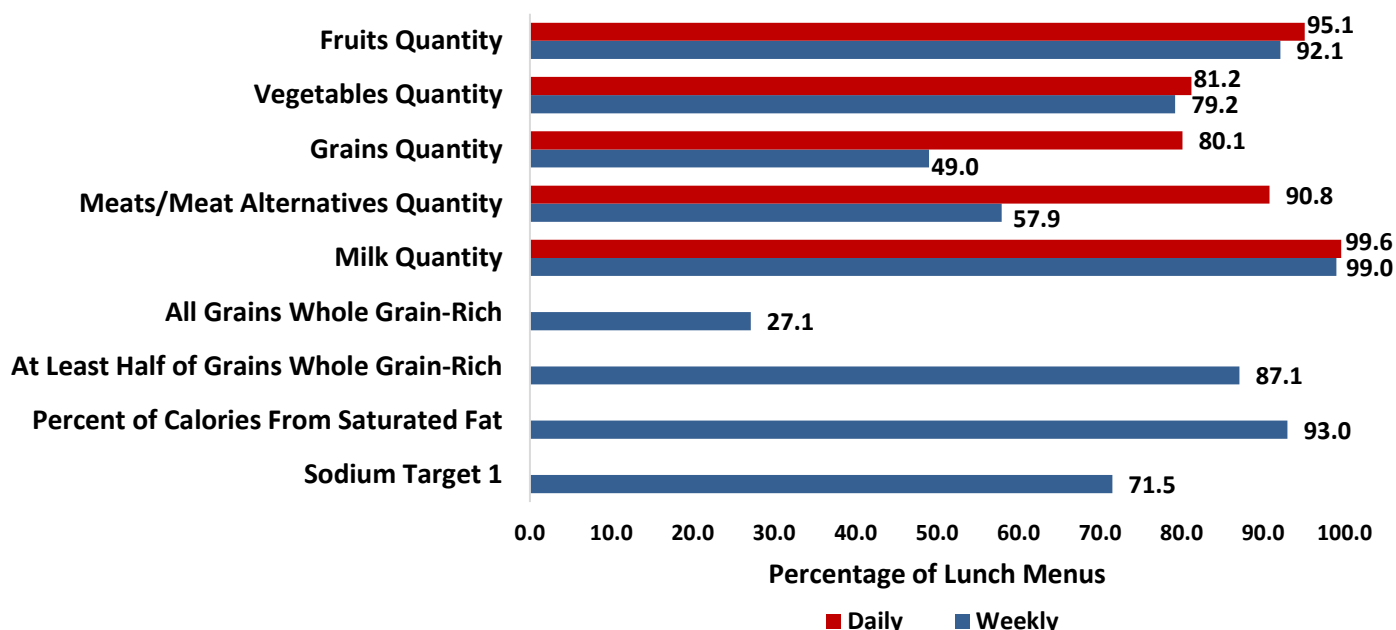
Most NSLP lunches met the weekly meal pattern quantity requirements for vegetable subgroups. Overall, between 92 and 95 percent of weekly lunch menus met the weekly quantity requirements for dark green vegetables, red and orange vegetables, starchy vegetables and other vegetables, while a smaller percentage (79 percent) met the weekly quantity requirement for legumes.

Figure 2. Comparison of Healthy Eating Index-2010 Component Scores, as a Percentage of Maximum Scores, for NSLP Lunches Served in SY 2009-2010 and SY 2014-2015: All Schools



*Difference between SY 2009-2010 and SY 2014-2015 is significantly different from zero at the 0.05 level.

Figure 3. Percentage of Daily and Weekly Lunch Menus That Met Meal Pattern Requirements: All Schools



Schools found it challenging to meet the new requirement to include only whole grain-rich grain products in school meals. Only about one quarter (27 percent) of weekly lunch menus met the new requirement, which was first implemented in SY 2014-2015. The majority (87 percent) of weekly lunch menus met the relaxed grain requirements from the prior school year – that at least 50 percent of grains be whole grain-rich.

Overall, 41 percent of weekly lunch menus fell within the specified calorie range. Average weekly lunch menus in elementary and middle schools were more likely to exceed the maximum calorie level, while weekly high school lunch menus were more likely to fall below the minimum calorie level. Over 60 percent of the elementary and middle schools and about 50 percent of the high schools that did not meet the calorie requirements prepared lunches that were within 10 percent of the calorie targets.

Overall, 72 percent of average weekly lunch menus met the Target 1 sodium limit and another 12 to 14 percent were within 10 percent of this sodium limit. About three-fourths of average weekly lunch menus in elementary and middle schools and about two-thirds of average weekly lunch menus in high schools met the sodium limit.

For More Information

U.S. Department of Agriculture, Food and Nutrition Service, School Nutrition and Meal Cost Study Final Report Volume 2: Nutritional Characteristics of School Meals, by Elizabeth Gearan *et.al.* Project Officer, John Endahl, Alexandria, VA: April 2019. Available online at: www.fns.usda.gov/research-and-analysis.