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compares 2nd and 3rd grade students' consumption of various subtypes of vegetables served as part of hot lunch.

Design, Setting, Participants, and Intervention: Second and 3rd grade students from 14 NYC public elementary schools were observed on at least 3 days during lunch. On observation days, 3–6 researchers observed 4 random students each, using the System of Observational Cafeteria Assessment of Foods Eaten (SOCAFE).

Outcome Measures and Analysis: Vegetable selection was recorded, as was amount consumed (0%, 10%/bite, 25%, 50%, 75%, 100%, >100%). Vegetables served were classified into 6 subtypes. One-way ANOVA and post-hoc Tukey HSD tested for differences in mean intake across subtypes.

Results: Students' consumption of vegetables was: white potato (49%, SD=51%); other starchy: corn, plantains (28%, SD=44%); dark green: broccoli, garden salad, kale (12%, SD=30%); red/orange: tomatoes, sweet potatoes, carrots (8%, SD=22%); beans: black beans, chickpeas, (1%, SD=4%); and other: cucumber, green beans, mixed vegetables in egg roll (10%, SD=24%). Consumption of white potato and other starchy vegetables were significantly higher than all other subtypes, all at $p<0.001$, with potato also higher than other starchy, $p<0.01$. Dark green vegetable consumption was statistically higher than beans, $p<0.05$.

Conclusions and Implications: This study confirms what others have found, that when white potatoes are served, students eat more vegetables. Students also eat more other starchy vegetables, yet, consumption of all other vegetables were low. Nutrition education that include motivational activities, tasting and cooking can be used to encourage students to eat a wider variety vegetables, specifically those less frequently consumed at school lunch.

Funding: Wellness In The Schools

P146 The Effect of School Lunch Interventions and Policy Changes on Student Food Behavior 2006-2016: A Systematic Review

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Objective: Childhood obesity is a global epidemic. One approach addressing childhood obesity is through federally subsidized school meals programs. The U.S. National School Lunch Program mandates school nutrition standards aligned with the Dietary Guidelines for Americans. As students consume a significant proportion of their total intake during the school day, increasing access to healthy foods at school is proposed to improve student dietary outcomes. The purpose of this review is to assess how school lunch interventions and policy changes in the last ten years (namely the 2006-2007 Wellness Policies and the Healthy, Hunger-Free Kids Act of 2010) affected student food behavior.

Design, Setting, and Participations: PubMed, Web of Science, and Science Direct were searched for primary research studies evaluating student food behavior in the U.S. school lunch setting. Only policy evaluations and interventions implemented during specified policy time periods were included. A total of twenty-nine studies meeting inclusion criteria were identified and reviewed.

Outcome Measures and Analysis: Plate waste, intake, selection, and purchasing patterns.

Results: Seventeen studies reported improved food behavior changes (increased selection, intake, and sales of healthy foods, and decreased plate waste). Twelve studies reported negative food behavior outcomes (decreased selection, intake, and sales of healthy foods, and increased plate waste).

Conclusions and Implications: The majority of studies indicated that increasing access to healthy foods during school lunch improved students' dietary outcomes. However, these findings are not consistent across the literature. Study Design, adaptation period, sample size, food culture, quality of foods, and policy implementation challenges contribute to the success/failure of school lunch. Ongoing evaluation of these programs is warranted.

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P147 Designing and Evaluating a Training Protocol for Visual Estimation of Fruits and Vegetable Intake Among K-2nd Grade Students

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Objective: To design a replicable training protocol for visual estimation of fruit and vegetable (FV) intake of K-2nd grade students through digital photography of lunch trays that results in trainees recording reliable data for food served and food eaten.

Design, Setting, Participants, and Intervention: Protocol development through literature and researcher input was followed by 3 trainings of 3 trainees and a practice session at a local elementary school. Data were then collected at 2 elementary schools for K-2nd graders' lunches. School 1 included nutrition education and salad bar; school 2 was control school.

Outcome Measures and Analysis: Intraclass correlation coefficients (ICC) for trainings and lunchroom data collection.

Results: By training 3, ICC was substantial for amount of FV served (0.86, $p<.01$); percentage FV consumed (0.954, $p<.01$), amount F served (0.97, $p<.01$); amount V served (0.81, $p<.01$); percentage V consumed (0.98, $p<.01$). In-school estimates for ICCs were all significant for amounts served at 1 school, and amount FV consumed at both schools. Mean percentages consumed differed between the 2 schools (fruit consumed: 76.9% + 38% school

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