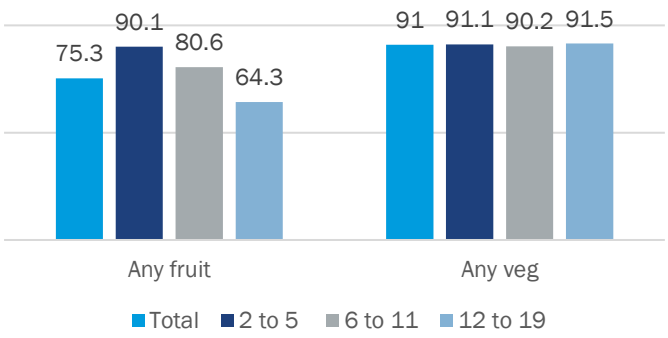
Thank you, Chairman Fetterman, Ranking Member Braun, and members of the subcommittee on Food and Nutrition, Specialty Crops, Organics, and Research for this opportunity and honor to speak with you today. My name is Dr. Meg Bruening. In my day job, I am a Professor and Department Head of the Department of Nutritional Sciences at The Pennsylvania State University. My research focuses on the food and nutrition security of underserved youth and families—much of my work is done in schools. I have lived and conducted school nutrition research in Pennsylvania, Minnesota, and Arizona. Today, I am speaking as an individual citizen, and my comments are not representative of the viewpoints of The Pennsylvania State University nor any of the granting agencies who have previously and currently provided my research funding.

The school meals program in the US is a critical safety net providing almost 30 million children with school meals each year, with an increase of 1M more children served breakfast and lunch in 2024 as compared to 2023.1 School meals are available for any school in the US and reaches approximately 60% of all American youth.[1] School meals programs are aligned with the Dietary Guidelines for Americans, ensuring a variety of healthy foods are offered to children while at school,[2] where children spend most of their waking (and eating) hours.

As I am sure you are aware, as members of this subcommittee, very few children meet dietary recommendations.[3] In fact, only 1 out of 10 children meet recommendations for the intake of fruits and vegetables.[4,5] Consumption of fruits and vegetables--foods with important nutrients needed for physical and emotional growth and well-being, decrease as children age. By the time kids are in middle and high school, ~43% report not consuming any fruits or vegetables on a given day. None—not even 100% fruit juice or French fries, resulting in the loss of the consumption of critical nutrition.

Fig 1. Percent of Children who Consume Any Fruits or Any Veg on a Given Day (NHANES 2015-2018)



School meals help to buffer the tendency of low fruit and vegetable consumption and school meals are consistently linked to improved dietary patterns for kids, especially since 2012.[6–8] In addition, school meals are important in fending off food insecurity for our most vulnerable children. School meals ensure that kids get the right amounts of the right types of foods for their growth and development during the school day.

Research shows us that food and nutrition security, including consuming healthy dietary patterns and diets rich in fruits and vegetables is linked with student outcomes and student cognition.[9–12] For example, a study by Anderson et al. found that school lunch quality was linked to higher scores in achievement tests, especially for those participating in free and reduced-priced meals.[13] A study from South Carolina found that meals for all were linked to slightly higher test scores for elementary and middle school students—although only statistically significant for elementary student scores.[14] Another study, this time from New York, found that universal school meals significantly increased math and English language arts scores for middle schoolers.[15] The research on linking student attendance and more long-term academic outcomes is needed.[16] So much of this research is focused on elementary students; much more research is needed for students of all ages. We are in the early phases of working on some of this data collection with schools in Pennsylvania.

We need to continue to test ways to get healthier foods on trays in school meals to promote student well-being, especially fruits and vegetables. Strategies that are effective at increasing fruits and vegetables increase accessibility and exposure to fruits and vegetables, increase variety and choice, and often involve nudging and encouragement. Some tools school nutrition researchers have tested with success include school salad bars and engagement with the Fresh Fruits and Vegetable Program. With my research partner at Arizona State University, Dr. Marc Adams, we conducted the first randomized control trial testing how effective salad bars were at increasing

fruits and vegetables in schools that didn't previously have salad bars. We allowed school nutrition managers to determine on their own what they would put on the salad bar and where they would put the salad bar in the cafeteria. We conducted this research with approximately 10,000 children across 37 schools in Arizona from elementary to high school. We used a methodology referred to as objective plate waste—in other words, we took pictures of individual students' trays of food before and after they ate, including weighing fruits and vegetables on the tray before and after. When extrapolated across a week, we found that salad bars effectively increased consumption by approximately 1.5 servings of fruits and vegetables across elementary, middle, and high schools. Consistently, our research shows that kids are more likely to consume foods if they are on their trays. If foods don't make it to the tray, there's a 0% chance of consumption. School meals help expose children to healthy foods through their offerings and promote consumption through selection. These findings are currently under review in peer-reviewed journals.

Fig 2. Plate Waste Methodology

Pre-lunch full lunch

Pre-lunch fruits and vegetables only

Post-lunch Full Lunch

Post-lunch fruits and vegetables only

The Fresh Fruit and Vegetable Program is available to low-income elementary schools to expose children to various fresh fruits and vegetables via nutrition education and taste testing. Importantly, this program is often linked to Farm-to-School initiatives, helping to bring local produce into schools from local farms, and often is then expanded into the lunch programs, expanding the economic impact of local foods. These programs have been shown to increase fruits and vegetables for students in participating schools compared to non-participating schools. [17,18] This research even shows what my colleague at ASU describes as spill-over-effects, also indicating increased consumption of fruits and vegetables at home.[17]

I want to end with data from my own research today. In addition to plate waste measures, we also collected data on the time it took individual students to eat and how that was related to fruit and vegetable consumption. We did this by placing a bar code on the tray—we scanned the bar code when the student went to eat, and then as they handed us their tray when they completed their lunch. Students who took more time to eat at lunch consumed significantly more fruits and vegetables. These findings indicate that if we can slow things down at lunch, kids will consume more healthy foods like fruits and vegetables.

In sum, good research shows that school meals are linked to cognition and academics. We know ways like school salad bars and the fresh fruit and vegetable program to leverage meal programs to promote the intake. Yet, so much more research is needed. People like myself are eager to help evaluate the best strategies to make the most of the federal dollars invested in school meals that support all kids. I can't leave today without acknowledging the heroic efforts of school food service directors and school meal workers to feed our children. I am in constant awe of their work. Thank you for your attention to these issues and the opportunity to speak with you today. I am happy to answer any questions.

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Supplemental material

Figure 1. Trends in school food quality (ideal, intermediate, poor) by sociodemographics, 2003-2018
From: Liu J, Micha R, Li Y, Mozaffarian D. Trends in food sources and diet quality among US children and adults, 2003-2018. JAMA Network Open. 2021 Apr 1;4(4):e215262-.