

Improving Nutrition on the School Lunch Line: Literature Review



Are children eating enough fruits and vegetables?

- For a child who needs 1,800 calories a day to maintain weight and health, the Dietary Guidelines, from which the National School Lunch Program's rules are modeled, recommend 1 1/2 cups of fruit (including juice), 2 1/2 cups of vegetables, and 3 ounces of whole grains.
- On average, American children and adults only meet 42 percent of fruit, 59 percent of vegetable, and 15 percent of whole grain recommended intake levels.¹
- Only 34 percent of children eat fruit at least twice a day and 15 percent eat vegetables at least three times a day.²
- The new federal changes to the National School Lunch and Breakfast Programs to increase the quantity and variety of fruits and vegetables have already increased consumption of fruits and vegetables among children, bringing intakes closer to recommended levels.³

Health: Why offer more plant-based options?

- Plant-based diets:
 - Help prevent childhood obesity. Vegetarian children are leaner, and plant-based diets are typically low in energy density and high in complex carbohydrates, which may increase satiety and resting energy expenditure.⁴
 - Help establish healthful eating patterns.⁵
- Vegetarian children have lower intakes of cholesterol, saturated fat, and total fat and higher intakes of fruits, vegetables, and fiber than non-vegetarians.⁶
- Evidence indicates that intake of at least 2 1/2 cups of fruits and vegetables per day is associated with a reduced risk of cardiovascular disease, including heart attack and stroke, along with reduced risk of certain types of cancer.⁷
- Processed meat and dairy products are the major sources of fat, calories, sodium, and cholesterol in children's diets, and processed meat has been linked to an increased risk of colorectal cancer and cardiovascular disease.⁸

Education: Why educate staff and students about healthful foods?

- Nutrition education is a key element to promoting lifelong healthy eating and exercise behaviors and should start from the early stages of life.⁹
- Teachers, peers, and additional staff within school systems, working together with media and social leaders, play a pivotal role in children's development of food preferences and eating habits.¹⁰
- In addition to the provision of nutrition information in school, the development of skills and behaviors related to the following areas are important:¹¹
 - Food preparation
 - Food preservation and storage
 - Social and cultural aspects of food and eating
 - Enhanced self-esteem and positive body image
- Kitchen training for foodservice staff improves healthful choices at meal time.¹²
- Nutrition education in schools increases students' consumption of fruits and vegetables.¹³
- Continuing education for school foodservice personnel supports the increase of healthier food options for children.¹⁴

Consumption: How do schools get kids to eat fruits and veggies?

The following simple interventions to modify the school cafeteria environment have been shown to boost fruit and vegetable consumption:

- Putting healthful foods first on the buffet line¹⁵
- Offering only healthful foods on the buffet line¹⁶
- Moving and highlighting fruits and vegetables¹⁷
- Offering an active choice between at least two healthful options (e.g., carrots or celery as opposed to only carrots)¹⁸
- Introducing a salad bar or moving a salad bar to an area where students must walk around it¹⁹
- Making healthier items more convenient, such as offering reimbursable grab-and-go bags²⁰
- Giving fruits and vegetables attractive names such as “X-ray Vision Carrots”, “Power Punch Broccoli”, and “Silly Dilly Green Beans”^{21,22}
- Adding stickers such as Elmo icons to fruit and vegetables²³
- Suggesting students take a fruit or vegetable²⁴
- Allowing students to pre-order meals²⁵

Financing: How can schools pay for more healthful meals?

- Experts estimate that schools using purchasing strategies such as group purchasing organizations (GPOs) may see savings of 10 to 20 percent in their food and beverage purchases.²⁶
- Schools can develop requests for information (RFIs) and engage in bidding processes to source more fresh and local produce and to increase the quantity of whole grain items.^{27,28}
- Schools can contract with food hubs to source fresh and local produce and herbs.²⁹

Resources: What kitchen equipment do schools need?

- The most common equipment inadequacy noted by school food authorities was equipment needed to provide more fruits and vegetable items on daily menus and to offer a greater variety of fruits and vegetables.³⁰
- Top five pieces of equipment needed for school kitchens:³¹
 - Utility carts for efficiently transporting food (43 percent)
 - Serving portion utensils (42 percent)
 - Knife sets with cutting boards (42 percent)
 - Food processors (40 percent)
 - Industrial scales (39 percent)
- Schools that do not have adequate equipment employ some type of workaround, such as:³²
 - Manually chopping or slicing fruits and vegetables
 - Storing fruits and vegetables off site and transporting them daily
 - Keeping fruits and vegetables in temporary storage containers

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