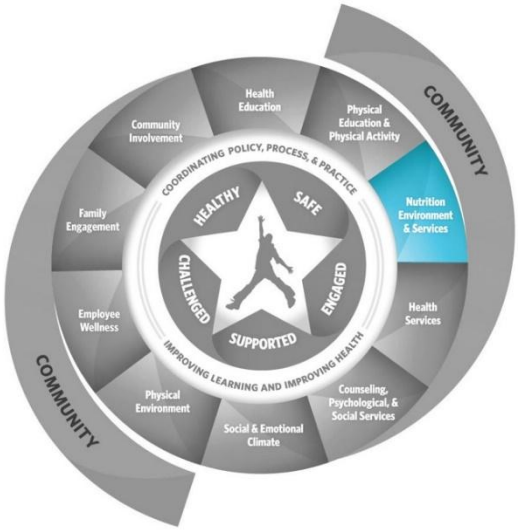
Version 4. Updated June 2025

Nutrition Environment: Evidence-Informed Practice Brief

WHAT DO WE MEAN?



The *Nutrition Environment and Services* domain of the WSCC model focuses on developing students' abilities to make healthy nutritional decisions.[1] Schools have been recognized as an ideal setting for nutrition education and intervention due to the high percentage of daily food consumption that takes place during the school day.[2,3] In 2023, nearly 1 in 5 U.S. families (6.5 million households) were experiencing food insecurity, with alarming increases in recent years.[4] By providing healthy foods and shaping eating behaviors, schools can help students develop lifelong healthy eating habits.[5,6]

The school nutrition environment encourages students to learn and practice healthy eating by providing nutritious food and beverage choices, nutrition education, and nutrition marketing and promotion throughout the school. School nutrition services are responsible for providing meals and are required to meet federal nutrition standards established by the United States Department of Agriculture (USDA).[7] In addition to food offerings in the cafeteria, the school nutrition environment encompasses food choices available through vending machines, school stores, concession stands, classroom rewards, classroom parties, school celebrations, and fundraisers.[1] It is recommended that the foods and beverages sold outside of the cafeteria meet guidelines set forth by the Smart Snacks in Schools Nutrition Standards.[8] Additionally, clean and free drinking water should be available for students throughout the day.[1]

School personnel can contribute to positively influencing student nutritional decisions through actions such as encouraging participation in federal school meal programs, collaborating with community food partners (e.g., local farms, food banks), and acting as role models for healthy eating.[1,9] To ensure that students receive optimal nutrition services and acquire necessary knowledge and skills, personnel providing these services should meet minimum education requirements and receive ongoing professional training.[10] By fostering healthy nutrition habits, schools can help students learn in the classroom, maintain their overall health, and facilitate healthy food access.

WHY IS IT RELEVANT TO CHILD OUTCOMES?

Physical Health Outcomes

Prior research has documented a relationship between nutrition and physical health. Children and adolescents need essential nutrients to support development and daily functioning.[11] Experiencing limited access to food, consuming too few or too many calories, or lack of essential nutrients can negatively impact a child's physical health and development.[12,13] Research has shown that children and adults who consistently maintain healthy diets are less likely to develop health problems.[6,12] Some studies suggest that dietary intake during childhood is just as important as dietary intake in adulthood in terms of disease prevention.[14] For example, adequate fruit and vegetable consumption during childhood may be associated with a lower likelihood of developing cancer as an adult.[14]

Social, Emotional, and Behavioral Outcomes

Research has also documented a potential link between nutrition and student mental health outcomes. Although few studies have focused on the link between mental health and nutrition in children, preliminary studies have suggested that children who consume inadequate vitamins and nutrients have a higher likelihood of developing social, emotional, or behavioral problems.[15] Further, numerous studies have found an association between mental health and nutrition in adults.[16,17,18] In addition, vitamin deficiencies, which can result from inadequate consumption of nutritious foods, are associated with a higher likelihood of experiencing symptoms of psychological distress.[18,19]

Academic Outcomes

Child and adolescent nutrition is associated with cognitive ability, including thinking, reasoning, and problem-solving.[20] Eating breakfast at school, for example, is associated with increased student cognitive performance, as well as improved attendance rates, test scores, and attention.[21,22,23] In addition, relationships exist between vitamin deficiencies, lower academic achievement, and decreased cognitive functioning.[6,24] Further, inadequate consumption of fruits, vegetables, and dairy products is associated with lower levels of academic achievement.[25,26] Proper hydration is associated with higher cognitive and academic functioning in students,[27] further emphasizing the importance of providing access to free, clean drinking water throughout the school day.

NUTRITION ENVIRONMENT: EVIDENCE IN ACTION

The strategies provided here summarize a review of available evidence and best practice recommendations in this domain. Strategies are grouped by anticipated resource demand (e.g., funding, time, space, training, materials).*

Level 1: Low resource demand

Ensure adequate time to eat with limited interruptions

- Students are more likely to eat too much or not enough if they are not provided enough time to eat their meals.[28]
- According to CDC recommendations, students should be allowed appropriate seat time for eating (i.e., at least 10 minutes for breakfast and 20 minutes for lunch).[29]

Promote school personnel involvement in a healthy nutrition environment

- School personnel involvement in the school nutrition environment is associated with positive changes in fruit and vegetable consumption, nutrition knowledge, dietary behaviors, and body mass index.[5,8,30]
- Schools can involve personnel in strategies such as incorporating nutrition instruction and activities into classes, modeling healthy nutrition habits, creating an inviting eating environment, verbal encouragement and praise for eating fruits and vegetables, and encouraging nutritional awareness.[30]
- School personnel can offer non-food rewards, such as individual recognition in front of peers, extra recess, free choice time, homework passes, and other incentives (see "Healthy Non-Food Rewards" in *Additional Resources*).

Level 2: Moderate resource demand

Incorporate student choice and hands-on learning activities

- Hands-on learning experiences are associated with increases in students' healthy food consumption and general nutrition knowledge when provided in addition to nutrition education.[5,31,32]
- Schools can offer opportunities for youth involvement (e.g., surveys, advisory boards). Hands-on activities, such as choosing foods, creating promotional materials, and cooking classes have been associated with increased healthy fruit and vegetable consumption and overall improved food-related preferences, attitudes, and behaviors.[33,34]

Collaborate with families and community organizations

- Family involvement has positive impacts on nutrition knowledge, body mass index, and overall nutrition behaviors.[5,30] Schools can support family involvement by providing newsletters, recipes, activities, and/or workshops that support healthy eating at home.[5,30]
- In addition, hands-on learning strategies (described above) can help students apply nutrition knowledge from the classroom to use at home and with their families. Activities that students can also apply to their home lives include cooking and food preparation, taste tests, and school garden maintenance.[5,31]
- Schools should engage with community partners (e.g., farms, food banks) and families to foster a healthy nutrition environment that incorporates student preferences and healthy foods familiar to students.[8]

Target multiple health behaviors when addressing nutrition

- School-based nutrition interventions have demonstrated greater effectiveness when multiple behaviors are addressed, such as increasing daily physical activity in addition to promoting healthy eating behaviors.[30,35,36,37]
- Interventions can be designed to coordinate initiatives across health domains, such as incorporating obesity prevention and physical education into nutrition education curriculum.[30,35,36,37]

Level 3: High resource demand

Improve the school nutrition environment

- Develop a strong and comprehensive school-wide food environment policy that aligns with best practices.[38,39]
- For example, by modifying the presence and marketing of healthy food and beverage options, students are more likely to increase their fruit and vegetable consumption, nutritional knowledge, and healthy eating behaviors.[5,30,40]
- Modifications to the school nutrition environment include providing nutritional information and healthier options throughout the school, as well as increasing access to clean and free drinking water.[5,30,40]

Provide competitive pricing for healthy foods

- Competitive pricing programs (e.g., supplying fruits and vegetables at little or no cost; competitive pricing restrictions on sugary beverages) encourage students to choose healthier foods instead of other snacks[39] and are associated with decreases in sugar-sweetened beverage and unhealthy snack consumption and increases in healthy food consumption, particularly fruits and vegetables.[39]
- Schools can apply for grants to support implementation of competitive food pricing. For example, the USDA Food and Nutrition Service provides funding to promote nutritious, local foods in schools through implementation, planning, and training grants. The USDA also provides incentive programs and Farm to School contacts for each state.[41]

For more information about the systematic review process we used to identify evidence-based practices, please refer to our overview brief which can be found **here.*

ADDITIONAL RESOURCES

Note: The WellSAT WSCC allows users to evaluate district policy alignment with 'best practices' in policy associated with Nutrition Environment and other WSCC model domains.

Action for Healthy Kids

Healthy Non-Food Rewards

This document includes ideas for providing elementary, middle, and high school students with rewards that are not food-based.

CDC

Comprehensive Framework for Addressing the School Nutrition Environment and Services

This guide provides resources and information to help schools develop nutrition environments and services to support healthy eating habits.

School Nutrition

This webpage provides resources and information for enhancing each aspect of the school nutrition environment.

Institute of Child Nutrition

Main Website

This website provides resources and trainings for child nutrition programs.

National Farm to School Network

Main Website

This organization is a networking hub for communities working to bring local food sourcing and food and agriculture education into school systems.

USDA Food and Nutrition Service

MyPlate

This webpage includes activities, lessons, posters, and other resources for children, caregivers, and educators to enhance student nutrition education.

Procuring Local Foods for Child Nutrition Programs Guide

This guide provides information and resources for districts interested in providing locally sourced food in school cafeterias.

Meals for School and Child Care

This webpage includes information about the federal school meal programs which aim to help provide healthy food to students by reimbursing schools and other organizations.

USDA's Team Nutrition

This webpage provides training and resources for children, educators, caregivers, and community members to help enhance student nutrition education.

University of Connecticut

UConn Rudd Center for Food Policy & Health

This website contains information and resources about food policy in schools, along with a database of resources and legislation on topics such as school meals, food marketing, and obesity prevention.

To cite this brief: UConn Collaboratory on School and Child Health (2025, June). *V4. WSCC Practice Brief: Nutrition Environment*. Storrs, CT: Authors.

Acknowledgements: We thank Sandra Chafouleas, Jessica Koslouski, and Helene Marcy for their work in developing this brief. We thank Dr. Marlene Schwartz, Shari Staeb, and Carolyn Pancarowicz for their expert review of this brief.

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