Smarter Lunchrooms Scorecard Literature Review

Researchers from many universities and countries have published papers that focus on encouraging children to select and eat nutritious food, which corroborate and strengthen the behavioral research that is the foundation of the Smarter Lunchrooms Movement. Some of this research is included below.

**Focus on Fruit:**

- **At least two kinds of fruit are offered.**
  - Serving a variety of vegetables and fruit as a snack increased intake in preschool children
  - Increasing Consumption of Fruits and Vegetables in the School Cafeteria: The Influence of Active Choice.

- **Sliced or cut fruit is offered.**
  - Promoting consumption of fruit in elementary school cafeterias. The effects of slicing apples and oranges
  - Childhood overweight and the relationship between parent behaviors, parenting style, and family functioning
  - Psychosocial correlates of dietary intake: advancing dietary intervention
  - How to promote fruit consumption in children. Visual appeal versus restriction

- **A variety of mixed whole fruits are displayed in nice bowls or baskets (instead of stainless steel pans).**
  - How to promote fruit consumption in children. Visual appeal versus restriction
- **Fruit is offered in at least two locations on all service lines, one of which is right before each POS.**
  - Determinants of fruit and vegetable consumption among 6–12-year-old children and effective interventions to increase consumption
  - Influencing healthful food choices in school and home environments: Results from the TEENS study

- At least one fruit is identified as the featured fruit-of-the-day and is labeled with a creative, descriptive name at the point of selection.
  - Choosing between an Apple and a Chocolate Bar: the Impact of Health and Taste Labels
  - Emerald dragon bites vs veggie beans: Fun food names increase children’s consumption of novel healthy foods

- A fruit taste test is offered at least once a year.
  - A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children
  - Parent food purchases as a measure of exposure and preschool-aged children's willingness to identify and taste fruit and vegetables

**Vegetable Variety:**
- At least two kinds of vegetables are offered.
  - Vegetable variety: an effective strategy to increase vegetable choice in children
- **Vegetables are offered on all service lines.**
  - Influencing healthful food choices in school and home environments: Results from the TEENS study
  - Determinants of fruit and vegetable consumption among 6–12-year-old children and effective interventions to increase consumption

- **Hot and cold vegetables are offered.**
  - Improvement of meal composition by vegetable variety
  - Vegetable variety: an effective strategy to increase vegetable choice in children

- **At least one vegetable is identified as the featured vegetable-of-the-day and is labeled with a creative, descriptive name at the point of selection.**
  - Emerald dragon bites vs veggie beans: Fun food names increase children’s consumption of novel healthy foods

- **Self-serve spices and seasonings are available for students to add flavor to vegetables.**
  - Changes in the Nutrient Content of School Lunches: Results from the CATCH Eat Smart Food Service Intervention

- **A serving of vegetables is incorporated into an entrée item at least once a month.**
  - Improvement of meal composition by vegetable variety
  - Vegetable variety: an effective strategy to increase vegetable choice in children
• Cut vegetables, when offered, are paired with a low-fat dip such as ranch, hummus, or salsa.
  o Offering “Dip” Promotes Intake of a Moderately-Liked Raw Vegetable among Preschoolers with Genetic Sensitivity to Bitterness
  o The Addition of a Plain or Herb-Flavored Reduced-Fat Dip Is Associated with Improved Preschoolers’ Intake of Vegetables

• A vegetable taste test is offered at least once a year.
  o Repeated taste exposure increases liking for vegetables by low-income elementary school children
  o A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children
  o Parent food purchases as a measure of exposure and preschool-aged children's willingness to identify and taste fruit and vegetables

**Salad:**

• Pre-packaged salads or a salad bar is available.
  o Salad Bars and Fruit and Vegetable Consumption in Elementary Schools: A Plate Waste Study

• Self-serve salad bar tongs, scoops, and containers are larger for vegetables and smaller for croutons, dressing, and other non-produce items.
  o Can schools save kids’ palates? Cooking from scratch in schools—The greatest food service challenge of our time
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1. Pre-packaged salads or a salad bar is in a high traffic area and is available to all students.
   - Location of school lunch salad bars and fruit and vegetable consumption in middle schools: A cross-sectional plate waste study
   - Salad Bars and Fruit and Vegetable Consumption in Elementary Schools: A Plate Waste Study

2. Pre-packaged salads or salad bar choices are labeled with creative, descriptive names and displayed next to each choice.
   - Salad Bars and Fruit and Vegetable Consumption in Elementary Schools: A Plate Waste Study
   - Location of school lunch salad bars and fruit and vegetable consumption in middle schools: A cross-sectional plate waste study

**Move More White Milk:**

- Milk cases/coolers kept full throughout meal service.
  - The nutritional role of flavored and white milk in the diets of children

- White milk is offered in all beverage coolers.
  - The nutritional role of flavored and white milk in the diets of children

- White milk is displayed in front of other beverages in all coolers.
  - The nutritional role of flavored and white milk in the diets of children
  - School Children's Consumption of Lower-Calorie Flavored Milk: A Plate Waste Study
• White milk is organized and represents at least 1/3 of all milk in each designated milk cooler.
  o The nutritional role of flavored and white milk in the diets of children

  o School Children's Consumption of Lower-Calorie Flavored Milk: A Plate Waste Study

• 1% or non-fat white milk is identified as the featured milk and is labeled with a creative, descriptive name.
  o The nutritional role of flavored and white milk in the diets of children

  o School Children's Consumption of Lower-Calorie Flavored Milk: A Plate Waste Study

**Increase Sales of Reimbursable Meals:**

• Cafeteria staff politely prompt students who do not have a full reimbursable meal to select a fruit or vegetable.
  o A Randomized School Trial of Environmental Strategies to Encourage Fruit and Vegetable Consumption among Children

  o The influence of a verbal prompt on school lunch fruit consumption: a pilot study

• One entrée is identified as the featured entrée-of-the-day, is labeled with a creative name next to the point of selection, and is the first entrée offered.
  o Choosing between an Apple and a Chocolate Bar: the Impact of Health and Taste Labels

  o Emerald dragon bites vs veggie beans: Fun food names increase children’s consumption of novel healthy foods

- **Creative, descriptive names are used for featured items on the monthly menu.**
  - Choosing between an Apple and a Chocolate Bar: the Impact of Health and Taste Labels
  - Emerald dragon bites vs veggie beans: Fun food names increase children’s consumption of novel healthy foods

- **One reimbursable meal is identified as the featured combo meal and is labeled with a creative name like The Chef’s Feast, The Athlete’s Meal, or The Brain Boosting Meal next to the point of selection.**
  - Choosing between an Apple and a Chocolate Bar: the Impact of Health and Taste Labels
  - Emerald dragon bites vs veggie beans: Fun food names increase children’s consumption of novel healthy foods

- **Signs show students how to make a reimbursable meal on any service line (for example, a sign that says “Add a milk, fruit and carrots to your pizza for the Power Pizza Meal Deal!”)***
  - Signage as a tool for behavioral change: Direct and indirect routes to understanding the meaning of a sign

- **The combo meal of the day or featured entrée-of-the-day is displayed on a sample tray or photograph.**
  - Photographs in Lunch Tray Compartments and Vegetable Consumption Among Children in Elementary School Cafeterias
Smarter Lunchrooms - Ohio: Using Production and Sales Records to Measure Change in Food Selection (Master’s publication)


- A (reimbursable) combo meal is offered as a grab-and-go meal (for example, a lunch bag with a sandwich, apple, carrots and ranch, and milk).
  - Making Lunchrooms Smarter in the Ithaca City School District

- Students can pre-order lunch in the morning or day before.
  - Effect of a free prepared meal and incentivized weight loss program on weight loss and weight loss maintenance in obese and overweight women: a randomized controlled trial.

- Students must use cash to purchase á la carte snack items if available.
  - Fat and Sugar Levels are High in Snacks Purchased From Student Stores in Middle Schools

- The Association of the School Food Environment With Dietary Behaviors of Young Adolescents

- Students have to ask a food service worker to select á la carte snack items if available.
  - Fat and Sugar Levels are High in Snacks Purchased From Student Stores in Middle Schools
- Students are offered a taste test of a new entrée at least once a year.
  - Factors in the School Cafeteria Influencing Food Choices by High School Students
  - Repeated taste exposure increases liking for vegetables by low-income elementary school children
  - Parent food purchases as a measure of exposure and preschool-aged children's willingness to identify and taste fruit and vegetables
  - A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children
  - Sampling tomorrow's lunch today: Examining the effect of sampling on school lunch participation
    - J Kolodinsky, E Pope, E Roche – 2017 - *Journal of Nutrition Education and Behavior*

### Lunchroom Atmosphere:

- Cafeteria staff smile and greet students upon entering the service line and continually throughout meal service.
  - Variables Affecting High School Students’ Perceptions of School Foodservice

- Attractive, healthful food posters are displayed in dining and service areas.
  - Photographs in Lunch Tray Compartments and Vegetable Consumption Among Children in Elementary School Cafeterias

- A menu board with today’s featured meal options with creative names is readable from 5 feet away when approaching the service area.
  - The effect of menu labels associated with affect, tradition and patriotism on sales
The roles of attitude, subjective norm, and perceived behavioral control in the formation of consumers’ behavioral intentions to read menu labels in the restaurant industry

The lunchroom is branded and decorated in a way that reflects the student body.
  - The Role Of Permanent Student Artwork In Students’ Sense Of Ownership In An Elementary School

  - Environmental personalization and elementary school children's self-esteem

  - Feeding strategies derived from behavioral economics and psychology can increase vegetable intake in children as part of a home-based intervention: results of a pilot study.

  - Use a rabbit or a rhino to sell a carrot? The effect of character–product congruence on children's liking of healthy foods.

  - Influence of food companies' brand mascots and entertainment companies' cartoon media characters on children's diet and health.

  - The influence of cartoon character advertising on fruit and vegetable preferences of 9-to 11-year-old children.

  - Influence of licensed characters on children's taste and snack preferences.
- Using brand characters to promote young children's liking of and purchase requests for fruit.

- Food branding and young children's taste preferences: a reassessment.

- Food packaging cues influence taste perception and increase effort provision for a recommended snack product in children.

- Cleaning supplies or broken/unused equipment are not visible during meal service.
  - *Effect of ambience on food intake and food choice*

- All lights in the dining and meal service areas work and are turned on.
  - *Effect of ambience on food intake and food choice*

- Compost/recycling and trash cans are at least 5 feet away from dining students.
  - *Effect of ambience on food intake and food choice*

- There is a clear traffic pattern. Signs, floor decals, or rope lines are used if necessary.
  - *Signage as a tool for behavioral change: Direct and indirect routes to understanding the meaning of a sign*

- Trash is removed between each lunch period if necessary.
  - *Effect of ambience on food intake and food choice*
A menu board with tomorrow’s featured meal with creative names is readable from 5 feet away in the service or dining area.

- The effect of menu labels associated with affect, tradition and patriotism on sales

**Student Involvement:**

- **Student artwork is displayed in the service area or dining space.**
  - The Role Of Permanent Student Artwork In Students’ Sense Of Ownership In An Elementary School

- Environmental personalization and elementary school children's self-esteem

- **Students, teachers, or administrators announce today’s menu in daily announcements.**
  - Teachers’ Interaction With Children in the School Meal Situation: The Example of Pedagogic Meals in Sweden

- **Students are involved in the development of creative and descriptive names for menu items.**
  - The Role Of Permanent Student Artwork In Students’ Sense Of Ownership In An Elementary School

- Environmental personalization and elementary school children's self-esteem

- **Students are involved in the creation of artwork or marketing materials to promote menu items.**
  - The Role Of Permanent Student Artwork In Students’ Sense Of Ownership In An Elementary School

  - Environmental personalization and elementary school children's self-esteem
• Students provide feedback (informal – ‘raise your hand if you like...’ or formal - focus groups, surveys) to inform menu development.
  o Improving the School Food Environment: Results from a Pilot Study in Middle Schools
  o “How Can We Stay Healthy when you’re Throwing All of this in Front of Us?” Findings from Focus Groups and Interviews in Middle Schools on Environmental Influences on Nutrition and Physical Activity
    ▪ Bauer, K. W., Yang, Y. W., & Austin, S. B. (2004). “How can we stay healthy when you’re throwing all of this in front of us?” Findings from focus groups and interviews in middle schools on environmental influences on nutrition and physical activity. *Health Education & Behavior*, 31(1), 34-46.
  o Factors Influencing Food Choices of Adolescents: Findings from Focus-Group Discussions with Adolescents

• Students have the opportunity to volunteer in the lunchroom.
  o Involving students in learning and health promotion processes - clarifying why? what? and how?

School Community Involvement:
• A monthly menu is posted in the main office.
  o The effect of menu labels associated with affect, tradition and patriotism on sales

• A menu board with today's featured meal options with creative, descriptive names is located in the main office.
  o The effect of menu labels associated with affect, tradition and patriotism on sales

• A monthly menu is provided to students, families, teachers, and administrators.
  o Randomized intervention to increase children's selection of low-fat foods in school lunches
● A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children

● Information about the benefits of school meals is provided to teachers and administration at least annually.

  ○ Teachers’ Interaction With Children in the School Meal Situation: The Example of Pedagogic Meals in Sweden

● Nutrition education is incorporated into the school day.
  ○ School-based nutrition education: lessons learned and new perspectives

  ○ Do school based food and nutrition policies improve diet and reduce obesity?

  ○ Longitudinal Behavioral Effects of a School-Based Fruit and Vegetable Promotion Program

  ○ A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children

  ○ Teachers’ Interaction With Children in the School Meal Situation: The Example of Pedagogic Meals in Sweden

  ○ Modifying the eating behavior of young children.
• The school participates in other food promotion programs such as: Farm to School, Chefs Move to Schools, Fuel Up to Play 60, Share our Strength, etc.
  o Long-Term Impact of a Chef on School Lunch Consumption: Findings from a 2-Year Pilot Study in Boston Middle Schools
  o Do Farm-to-School Programs Make a Difference? Findings and Future Research Needs
  o Effects of Choice Architecture and Chef-Enhanced Meals on the Selection and Consumption of Healthier School Foods A Randomized Clinical Trial

• The school has a garden.
  o School Gardens: An Experiential Learning Approach for a Nutrition Education Program to Increase Fruit and Vegetable Knowledge, Preference, and Consumption among Second-grade Students
  o A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children
  o The child in the garden: An evaluative review of the benefits of school gardening
  o Impact of the Use of Produce Grown in an Elementary School Garden on Consumption of Vegetables at School Lunch
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- **The Effects of School Garden Experiences on Middle School-Aged Students’ Knowledge, Attitudes, and Behaviors Associated With Vegetable Consumption**

- **Long-Term Impact of a Chef on School Lunch Consumption: Findings from a 2-Year Pilot Study in Boston Middle Schools**

- **Elementary schools provide recess before lunch.**
  - The relationship of meal and recess schedules to plate waste in elementary schools

- **The school has applied for the Healthier US School Challenge.**
  - Nutrient Intakes among Children and Adolescents Eating Usual Pizza Products in School Lunch Compared with Pizza Meeting HealthierUS School Challenge Criteria

- **Smarter Lunchrooms strategies are included in the District Wellness Policy.**
  - Schools and Obesity Prevention: Creating School Environments and Policies to Promote Healthy Eating and Physical Activity

**Further Resources on Marketing:**
- Encouraging children to eat more healthily: The influence of packaging.

- The impact of visual and child-oriented packaging elements versus information on children’s purchase influence across various age groups.