



2019-2020 INTERN PROJECT

VEGETABLE INITIATIVE

WHAT'S SO SPECIAL ABOUT FRUITS AND VEGETABLES?



INSUFFICIENT INTAKE OF FRUITS AND VEGETABLES



14%

Of gastrointestinal
cancer deaths

11%

Of ischemic heart
disease deaths

9%

Of stroke deaths

HIGH INTAKE OF FRUITS AND VEGETABLES



11%

Reduction in risk of
stroke with 3-5
servings/day

26%

Reduction in risk of
stroke with >5
servings/day

CURRENT DATA ON VEGETABLE CONSUMPTION

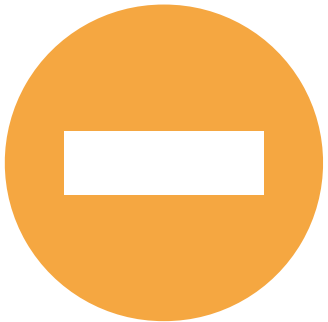


HEALTHY PEOPLE 2020:

Vegetable intake across educational levels



Highest among those with higher levels of educational attainment



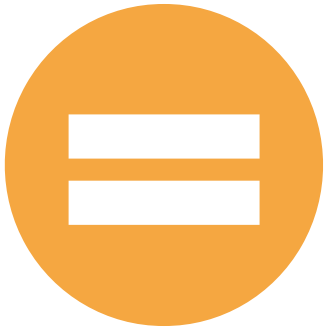
Lowest among the group with less than high school education

Lowest among families with incomes below, at, or up to twice the poverty threshold

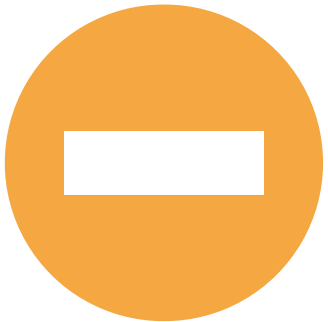


HEALTHY PEOPLE 2020:

Vegetable intake among age groups



Average daily intake increased as age increased, but remains below recommended levels



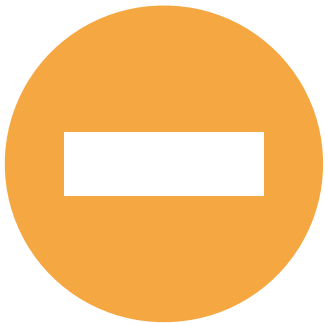
Boys ages 9 to 13 years and girls ages 14 to 18 years had the lowest average intakes



HEALTHY PEOPLE 2020: Vegetable intake among ethnic groups



Non-Hispanic Asians had the highest daily vegetable intake among groups



Non-Hispanic blacks had the lowest daily vegetable intake



HEALTHY EATING INDEX: A measure of diet quality



56/100

score 2-year-old and
older

3.3/5

vegetable score
2-year-old and
older

2.3/5

vegetable score
2 -18 years old

CDC VITAL SIGNS: Children eating more fruit, not vegetables

9 in 10

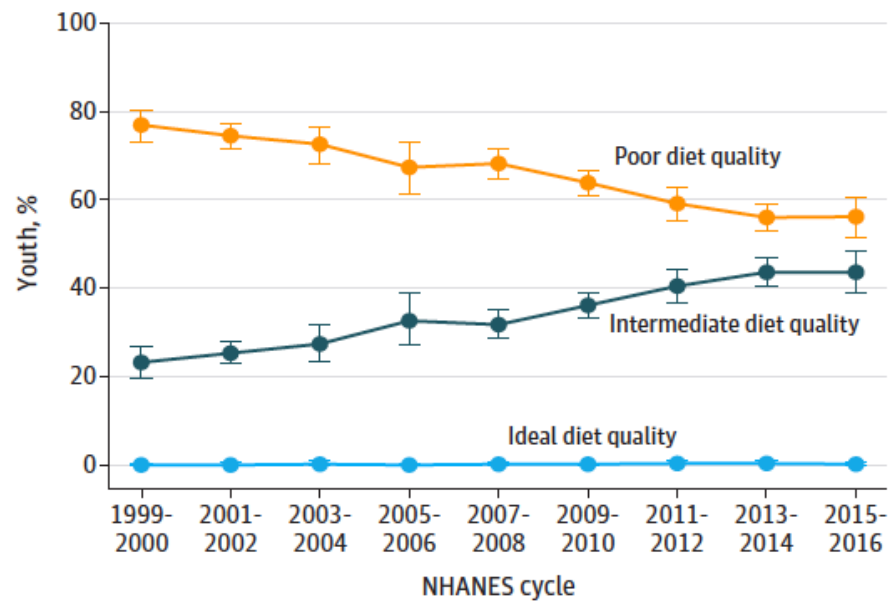
Children did not eat enough vegetables in 2001-2010

1/3

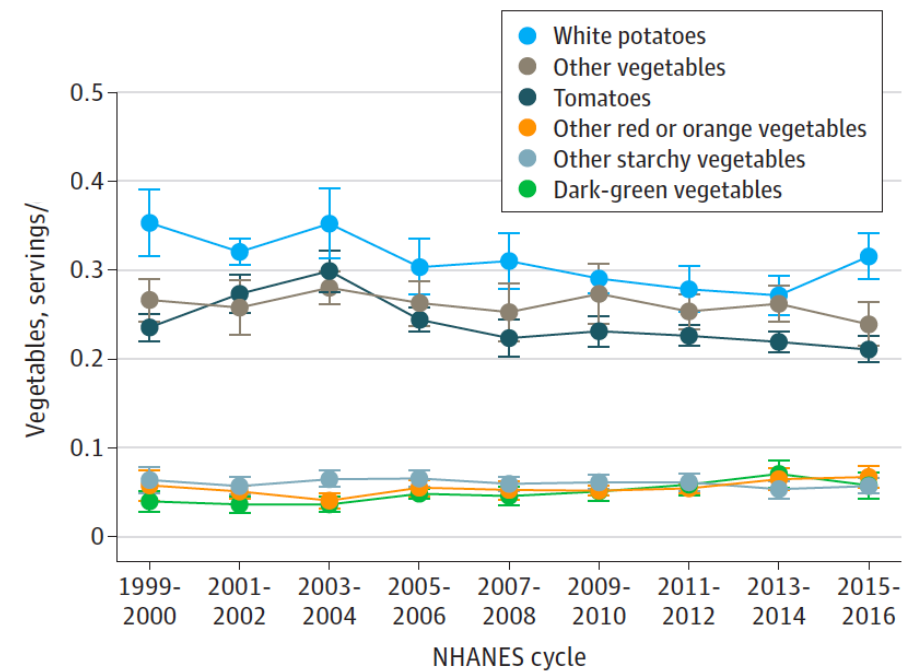
Of vegetables consumed by children were white potatoes, most often consumed in the form of french fries or chips



JAMA ORIGINAL INVESTIGATION: Over half of US youth consumes poor diet



Trends in estimated proportions of US youth aged 2 to 19 years with poor, intermediate, or ideal diet quality



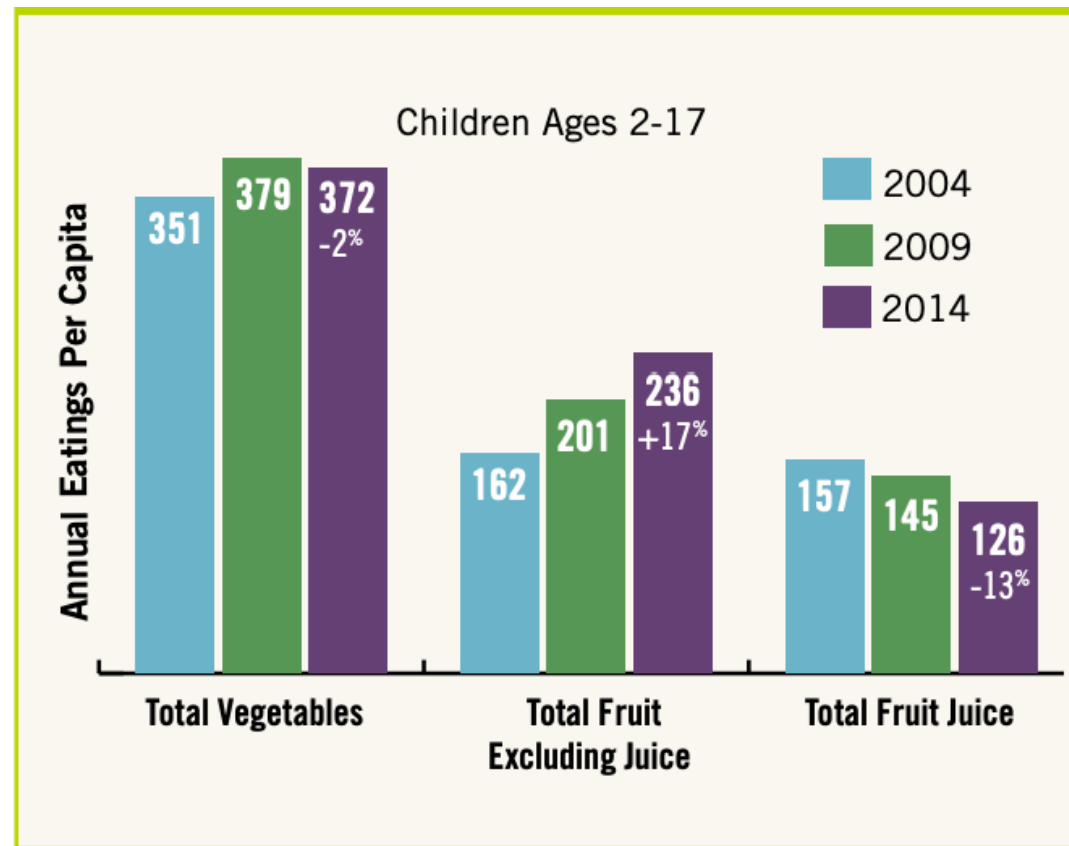
Trends in estimated mean consumption of key food groups and nutrients among US youth aged 2 to 19 years by NHANES cycles from 1999-2000 to 2015-2016

PBH STATE OF THE PLATE: Decrease in annual eatings per capita



PBH STATE OF THE PLATE:

Decrease in annual eatings per capita



Fruit and vegetable consumption, All children, 2004-2014

BARRIERS TO INCREASE VEGETABLE CONSUMPTION





ACCESS TO HEALTHY FOODS AND COST PERCEPTION

6

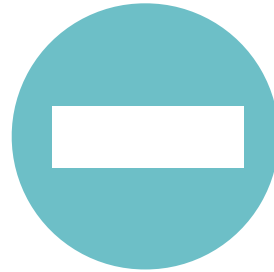
million children live in areas lacking access to adequate food grocery stores and supermarkets

\$1.79

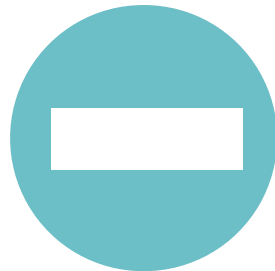
higher for healthier eating patterns per 2000 calories, when compared to less healthy patterns



CONCERNS ABOUT SAFETY AND NUTRITIONAL CONTENT



Low-income shoppers concerned about pesticides are less likely to purchase any kind of produce



Overemphasizing the quality of fresh produce over canned or frozen, results in a decreased intent to consume all types of produce

OTHER FACTORS AFFECTING VEGETABLE CONSUMPTION



Past experiences



For children, competing foods (such as soda, junk, and sugary foods), taste/flavor/smell, and forgetting to eat vegetables



Lack of skills in handling and cooking vegetables (store, season, and prepare vegetables)

STRATEGIES TO INCREASE VEGETABLE CONSUMPTION



BEHAVIORAL ECONOMICS APPROACH



Assumes that consumers are not perfectly rational, and it is up to the marketers and policy makers to make it easier for consumers to make better choices.



BEHAVIORAL ECONOMICS APPROACH



1

Making foods prominent and easy to access at the point of purchase

2

Increasing variety

3

Asking every customer if they would like to include vegetables as one of their side dishes

4

Hiding veggies in food

LANGUAGE: LIMITING VERSUS INCLUSIVE



Overemphasizing the value of fresh foods can create confusion especially among lower educated individuals.

This can lead to choosing nothing out of fear of choosing the wrong foods



LIMITING VS. INCLUSIVE LANGUAGE



1

Using inclusive language increased consumers' intent to purchase packaged fruits and vegetables, without decreasing their intent to purchase fresh produce

2

Language devaluing packaged forms of fruits and vegetables could cause a decrease of packaged fruits and vegetables in vulnerable consumers

3

Negative messaging about pesticides /biotechnology could cause confusion in low income consumers or decreased consumption of fruits and vegetables

SUCCESSFUL PROGRAMS



Methods found that have shown success in encouraging school age children to increase fruit and vegetable intake.

Researchers found children had an improved view of fruits and vegetables, during the program and beyond completion.



FOOD DUDES PROGRAM (UK)



1

Small rewards with a set of peer modeling videos featuring superheroes eating fruits and vegetables, plus short video clips of pop stars as reinforcing.

2

Studies show the program has a significant effect on the amount of fruits and vegetables children eat

3

Effects are the largest among the children who had the lowest levels of fruit and vegetable consumption prior to the start of the program.

SMARTER LUNCHROOMS MOVEMENT



1

Designed to improve child eating behavior by providing evidence-based tools and strategies to school lunchrooms

2

Intended to 'nudge' students to select and consume healthy foods

3

Strategies are low-cost/no-cost solutions that preserve choice, decrease waste, increase participation, and maintain or increase revenue

5 A DAY POWER PLUS (1998)



1

Multi-component intervention aimed at increasing fruit and vegetable consumption among 4th and 5th graders.

2

Components include behavioral curricula for students, parental involvement/education, school food service changes, and industry support.

3

Students consumed more daily servings of fruits and vegetables, less fat, and had greater perceived need to eat fruits and vegetables.

INITIATIVES PROMOTING VEGETABLE CONSUMPTION





FEDERAL INITIATIVES



Healthier US School Challenge (HUSSC)

Recognition for schools promoting nutrition and physical activity and creation healthier school environments through promotion and are participating in the NSLP.



WIC Farmers' Market Nutrition Program

Coupons for use at authorized farmers markets to purchase fresh fruits and vegetables plus educational information about the importance of fruits and vegetables





STATE INITIATIVES



Fresh Fruit and Vegetable Program

Introducing elementary age children to fresh fruits and vegetables in the classroom along with nutrition education encouraging acceptance and consumption



Farm to School

Provide fruits and vegetables along with nutrition-based curricula and hands-on learning experiences, such as schools gardens and farm visits, increasing student access to locally grown produce.





STATE INITIATIVES



State Nutrition Action Coalition (SNAC)

USDA's FNS-supported implementation of state and local initiatives focused on reducing obesity and promoting nutrition. Includes FDACS, DCF, Elder Affairs, and DOH.



State Health Improvement Plan (SHIP)

9 priority areas, including healthy weight, nutrition, and physical activity, for which it establishes the goal of improving Floridians' food environment and nutrition habits to increase healthy weight.





OTHER INITIATIVES



Produce for Better Health (PBH)

A non-profit organization with a mission to increase daily consumption of fruits in vegetables for better health. It does this by leveraging private industry and public sector resources, motivating key consumer influencers, and promoting fruits and vegetables directly to consumers.

THE ROLE OF SCHOOL NUTRITION



THE IMPACT OF SCHOOL MEALS



Recipients of school meals are more likely to consume vegetables, fruit, and milk, and less likely to have nutritional inadequacies.

School lunches tend to be of superior nutritional quality than meals from other sources, particularly for low-income children.



THE ISSUE OF FOOD WASTE



75%

of directors in survey believe that vegetable plate waste increased after the updates to school nutrition standards in 2012

~20K

pounds of food waste in 6 months in 46 schools, of which nearly 1/3 is vegetables

WHAT DO SCHOOL NUTRITION PROFESSIONALS HAVE TO SAY?



A 2020 FNW survey gathered the perceptions of 94 school nutrition Managers across Florida.

Participants answered questions about availability of vegetables in their programs, as well as food service practices related to vegetables.



FDACS FNW SURVEY RESULTS



70%

Say the variety of vegetables choices is “about right” or “really good”

83%

Have access to more than 10 standardized vegetable side dish recipes

84%

Can provide input for changes to recipes

USE OF RECIPES



2%

Can modify recipes for
taste to their taste
preferences

100%

Must follow
recipes as written

82%

Avoid using recipes
that state "season to
taste"

ACCESS TO SPICES AND SEASONING BLENDS



99%

Have access to spices
(i.e., oregano, thyme,
paprika, garlic powder)

73%

Have access to
seasoning blends? (i.e.,
Mrs. Dash, Italian)

86%

Consistently use other
seasonings instead
of salt

MOST POPULAR AND MOST DISCARDED VEGETABLES



Corn
Green beans
Mashed potatoes

Salads
Carrots
Cucumbers



Sweet potatoes
Black beans
Squash/zucchini

Salad
Broccoli
Celery



FOOD FOR THOUGHT...



How can school foodservice professionals encourage higher consumption of vegetables with their students?



TOOLS AND STRATEGIES



Correct handling of vegetables



Appropriate cooking techniques



Enhancing flavor with spices and seasoning blends



Vegetable Steamer Chart

Timetable for Cooking or Steaming Fresh or Frozen Vegetables

For 100 Servings, 1/4 Cup Each

Vegetables Fresh or (As Purchased)	Amount to Purchase Frozen	Ready to Cook (Pounds)	Amount of Water (Pounds)	BOILING		STEAMING (Minutes)
				Cooking Time After Water Boils (Quarts)	Time at 5 Pounds Pressure (Minutes)	
Asparagus: spears cuts and tips	Fresh 12.3	20.7 12.3	11.0 1 1/4	3 1/4 7 to 10	10 to 25 5 to 10	7 to 10
Beans or peas, blackeye	Fresh Frozen	19 8.9	9.7 8.9	2 1/2 1 3/4	30 to 45 15 to 30	20 to 40 20 to 30
Beans, green, cut	Fresh Frozen	9 8.7	7.9 8.7	1 3/4 1	15 to 30 10 to 20	20 to 30 10 to 15
Beans, lima: Baby Fordhook	Fresh Frozen Frozen	21.1 9.2 9.0	9.3 9.2 9.0	2 1/2 1 1/2 1 1/2	15 to 25 12 to 15 6 to 12	15 to 20 10 to 15 12 to 20
Beet greens	Fresh	28.6	13.7	water on leaves	15 to 25	15 to 25
Beets, whole for slicing	Fresh	13.0	9.5	to cover	45 to 60	60 to 75

Seasoning Chart⁵

Spice Mixture Chart										50 1/4 cup Proportions				
Mixture	Salt	Pepper	Garlic Powder	Onion Powder	Ginger Powder	Curry Powder	Chili Powder	Cumin	Dry Mustard	Paprika	Oregano	Tarragon	Basil	Parsley
American	1 tsp	1 tsp	2 tsp	2 tsp										1 Tbsp
Asian	1 tsp		1 Tbsp	3 Tbsp	2 tsp				2 tsp					2 tsp
Cajun	3/4 tsp	1 tsp	2 tsp	2 tsp						1/4 tsp				
Curry	1 tsp	1/2 tsp	1 Tbsp	1 1/2 Tbsp	1 tsp	1 tsp						1 tsp		
Indian	1 tsp		2 tsp	1 tsp		2 tsp								
Italian	1 tsp	1/2 tsp	2 1/2 Tbsp	2 Tbsp							1 tsp		2 tsp	
Mexican	1 tsp		2 tsp	1 tsp			2 tsp							
Tex Mex	1 tsp	1/2 tsp	1 Tbsp	1 1/2 Tbsp			4 tsp	1/2 tsp		1/2 tsp	1 tsp			

TOOLS AND STRATEGIES



Strategic use of food displays and language



Engaging kitchen staff, students, and other members of the school community



Changing the culture around school meals



Summary

What do Florida School Nutrition Professionals have to say?

Due to their unique position, school nutrition professionals are important players in facilitating students' consumption of nutritious foods throughout the day, including vegetables. To uncover their perspective in select Florida schools, 94 professionals completed the FNW Nutrition Standards survey via Survey Monkey.

- The survey asked about their district's/school's food service practices related to the variety and availability of vegetables, any seasonings and sauces used, standardized vegetable recipes, access/use of salt, etc.
- Most respondent's perception was positive for students having access to a variety of vegetables and reported **not** having the approval/ability to make their own seasoning blends, modify recipes according to their preference, or "season to taste" when preparing vegetables.
- Respondents also reported following standardized recipes as written and access to salt was **not** readily available as inventory item.
- Respondents indicated students' selection for hot vegetables:
 - Most popular are corn, green beans, and potatoes.
 - Least popular are sweet potatoes and legumes (reported most often discarded).

Additional Resources/Conclusions from Researchers

Resources: The Institute of Child Nutrition (ICN), Produce for Better Health (PBH), and FNW Chef Paula Kendrick.

Goals: Information is used to assist NSLP programs in:

- Improving any "real" or perceived poor quality and palatability of the vegetables offered in the NSLP.
- Evaluating menu plans to see where additional varieties of fresh, canned, and frozen options can be added.
- Implementing cooking methods that provide flavor to vegetables - such roasting and stir frying.
- Offering new/additional low sodium or sodium free seasonings/seasoning blends for cooked vegetables and/or offering "Flavor Stations/Shakers" for students' use.
- Inspiring nutrition professionals to become stewards of quality cooking and advocates of school nutrition programs to foster behavior change and secure healthier futures.

THANK YOU!

