



# **SAVOR THE FLAVOR!**

**How Herbs & Spices Can Be Used To Boost  
Our Love Of Fruits & Vegetables**

Presented by

**Guy H. Johnson, PhD & Wendy Reinhardt Kapsak, MS, RDN**

**PRODUCE FOR®  
BETTER HEALTH  
FOUNDATION**







# **WENDY REINHARDT KAPSAK, MS, RDN**

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**PRESIDENT & CEO  
PRODUCE FOR BETTER HEALTH FOUNDATION**

**MODERATOR**

# ABOUT PBH



# OUR PURPOSE

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The Produce for Better Health Foundation (PBH), a 501(c)3, is the only national non-profit organization 100% dedicated to helping people live happier, healthier lives by eating and enjoying more fruits and vegetables, in every form, each and every day.

PBH, along with its strategic partners, will elevate new fruit and vegetable consumption behaviors as a national priority – *accelerating growth and serving the public good.*





# THE AWARD-WINNING HAVE A PLANT® MOVEMENT REACHES MILLIONS

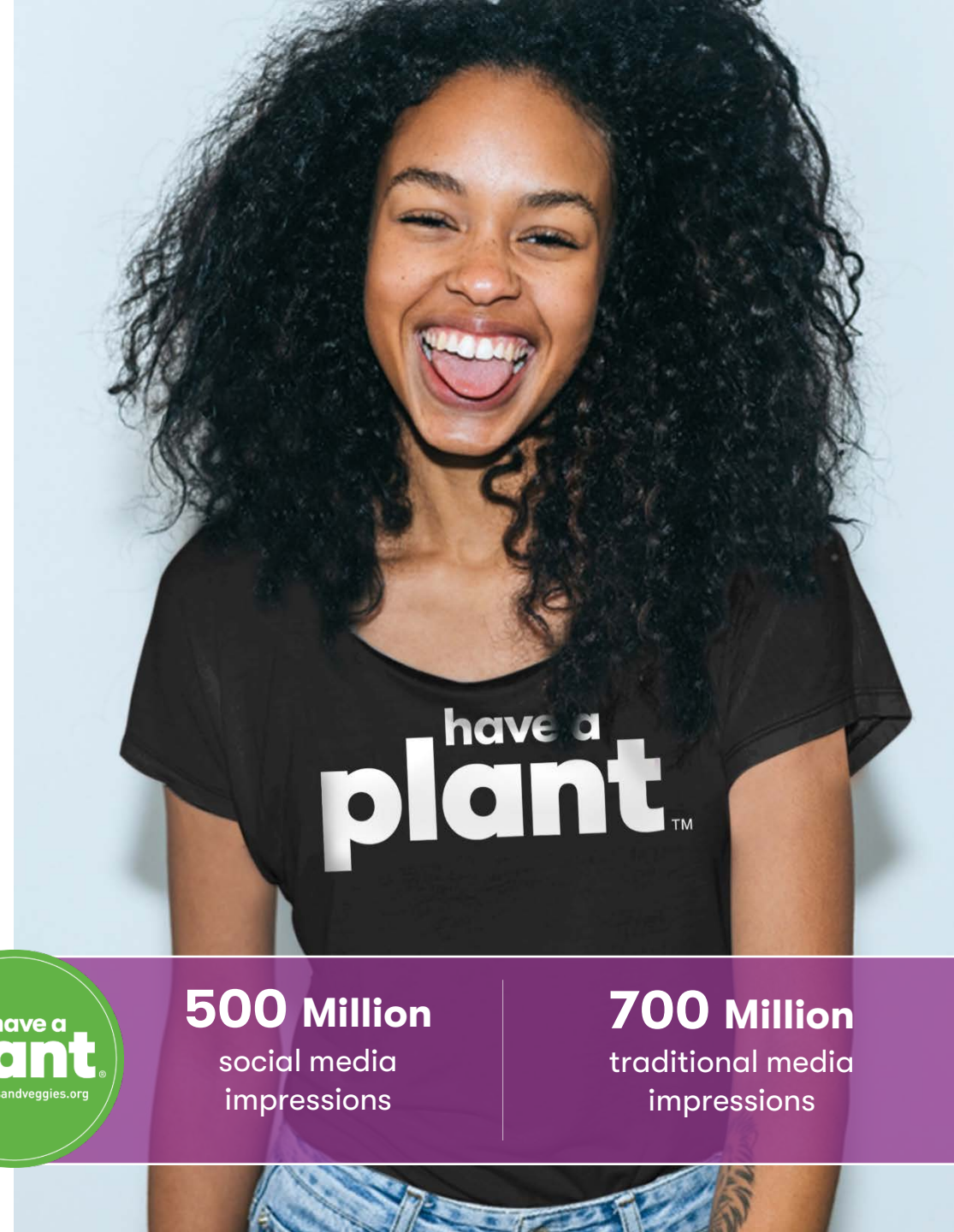
The award-winning **Have A Plant® Movement** is a way to inspire lasting behavior change by tapping into the emotional connection consumers have to the fruit and vegetable eating experience.

**PBH is an undeniable resource for health & wellness professionals**, given its trusted third-party credibility, breadth of nutrition and behavioral research, and strong consumer, influencer and industry reach.



**500 Million**  
social media  
impressions

**700 Million**  
traditional media  
impressions



# Have a Plant®: The Plant-Forward Eating Guide

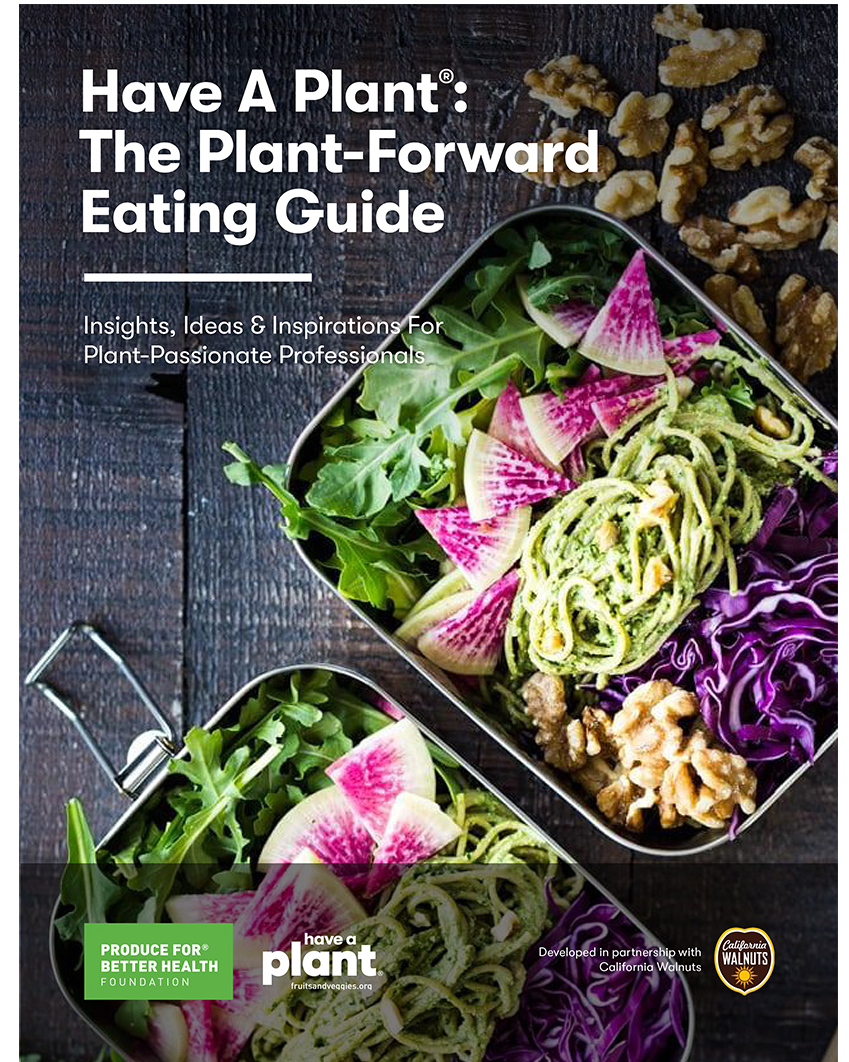
*Insights, Ideas & Inspirations for  
Plant-Passionate Professionals*

Find the guide at:

[www.fruitsandveggies.org/plantforwardguide](http://www.fruitsandveggies.org/plantforwardguide)

Turnkey resources are also available to put  
your plans into action at:

[www.fruitsandveggies.org/plantforwardtoolkit](http://www.fruitsandveggies.org/plantforwardtoolkit)





# The 2020 PBH State Of The Plate Research Toolkit Provides Health and Wellness Professional With Helpful Resources.

## PUBLIC TOOLKIT

PBH State Of The Plate Research Toolkit with executive summary, key messages, consumer marketing and social media assets as well as activation ideas

[fruitsandveggies.org/  
stateoftheplatetoolkit](https://fruitsandveggies.org/stateoftheplatetoolkit)

Fruits & Veggies Stories Recipes Expert Advice State Of The Plate

**PBH FOUNDATION** **STATE OF THE PLATE**

### 2020 PBH State Of The Plate Toolkit

[f](#) [t](#) [e](#) [p](#)

The results are in. As a society, we are chronic underachievers at eating our fruits and veggies and, subsequently, we are short-changing the health and well-being of generations of Americans. In 2020, PBH commissioned an update to our trended fruit and vegetable consumption research. Sadly, the news is not as encouraging as we would hope. America's fruit and vegetable consumption continues to erode over time. We must act NOW to reverse this trend.

We owe it to Americans to help them easily eat, enjoy and maybe even love more fruits and vegetables for improved health and happiness. Please use the resources and insights at the links below to join us in making a new era of conscious consumption a reality! #haveaplant

**2020 PBH State Of The Plate Executive Summary**  
Additional access to the PBH 2020 State of the Plate research is exclusive to PBH members and [Lead The Change](#) supporters. Send us an [email](#) to request access.

**Key Messages & Supporting Data Points**  
[\[pdf\]](#) [\[docx\]](#)

**Frequently Asked Questions**  
[\[pdf\]](#) [\[docx\]](#)

**Sample Social Media Posts**  
[\[pdf\]](#) [\[docx\]](#)

**Digital & Social Media Graphics**  
[\[pdf\]](#) [\[docx\]](#)

**View Official 2020 PBH State of the Plate Press Release**  
[\[pdf\]](#) [\[docx\]](#)

**Sample Media Pitch**  
[\[pdf\]](#) [\[docx\]](#)

**Activation Ideas**  
[\[pdf\]](#) [\[docx\]](#)

#### Solutions To Help Americans Easily Enjoy More Fruits & Vegetables

**Start With Fruits & Veggies**  
Make a habit of eating a fruit or veggie first during at least 1 meal each day.

**Have A Plan, Have A Plant®**  
Map your meals and snacks, making fruits and veggies the stars.

**Count All Forms**  
Mix up fresh, frozen, dried, canned and 100% juice.

**Make The Doing Easy**  
Keep it simple and pair 1 more fruit or vegetable with a fave food each day.

**Hit Repeat**  
Consistent repetition will turn consciously eating more

IF YOU LIKED IT THEN YOU SHOULD PUT A RING ON IT

For more information on the PBH State of the Plate research visit [www.fruitsandveggies.org/stateoftheplate](https://www.fruitsandveggies.org/stateoftheplate)  
Follow PBH on social media for plant-packed inspiration. #haveaplant

plant

# Housekeeping



**1 CPEU available through the Commission on Dietetic Registration (CDR)**

**You will receive a link to the certificate of attendance, the webinar recording and PDF of the presentation.**

**Type your questions and/or comments into the Q&A section located at the bottom of your screen at any time during the webinar.**





## **TODAY'S SPEAKER**

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**DR. GUY H. JOHNSON**

**SENIOR ADVISOR**

**MCCORMICK SCIENCE INSTITUTE**

# Savor the Flavor

## How Spices & Herbs Can Be Used to Boost Our Love of Fruits And Vegetables

The McCormick Science Institute

Guy H. Johnson, Ph.D.  
Senior Advisor








# Diet quality has never been more important!

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*Review*




## Strengthening the Immune System and Reducing Inflammation and Oxidative Stress through Diet and Nutrition: Considerations during the COVID-19 Crisis

Mohammed Iddir <sup>1,†</sup>, Alex Brito <sup>1,2,†</sup>, Giulia Dingeo <sup>3</sup>, Sofia Sosa Fernandez Del Campo <sup>1</sup>, Hanen Samouda <sup>1</sup>, Michael R. La Frano <sup>4,5</sup> and Torsten Bohn <sup>1,\*</sup>

*Nutrients* 2020;12:1562

*Review*





## Optimal Nutritional Status for a Well-Functioning Immune System Is an Important Factor to Protect against Viral Infections

Philip C. Calder <sup>1</sup>, Anitra C. Carr <sup>2</sup>, Adrian F. Gombart <sup>3</sup> and Manfred Eggersdorfer <sup>4,\*</sup>

*Nutrients* 2020;12:1181

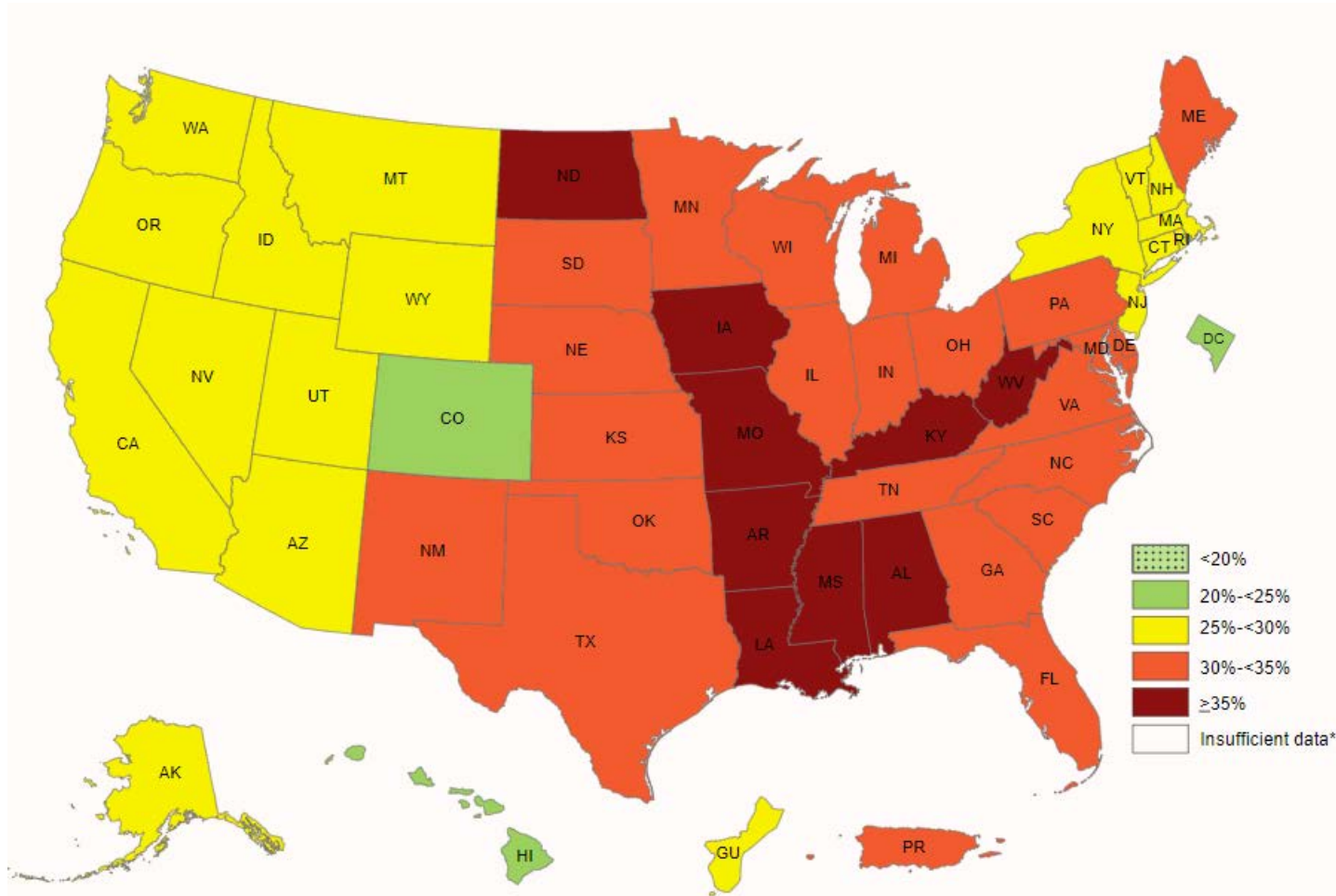
*Review*

## COVID-19: The Inflammation Link and the Role of Nutrition in Potential Mitigation

Ioannis Zabetakis <sup>1,2,\*</sup>, Ronan Lordan <sup>2,3</sup>, Catherine Norton <sup>2,4</sup> and Alexandros Tsoupras <sup>1,2</sup>

*Nutrients* 2020;12:1466

# The obesity epidemic continues to worsen





# Healthfulness of the U.S. diet has not improved in recent years



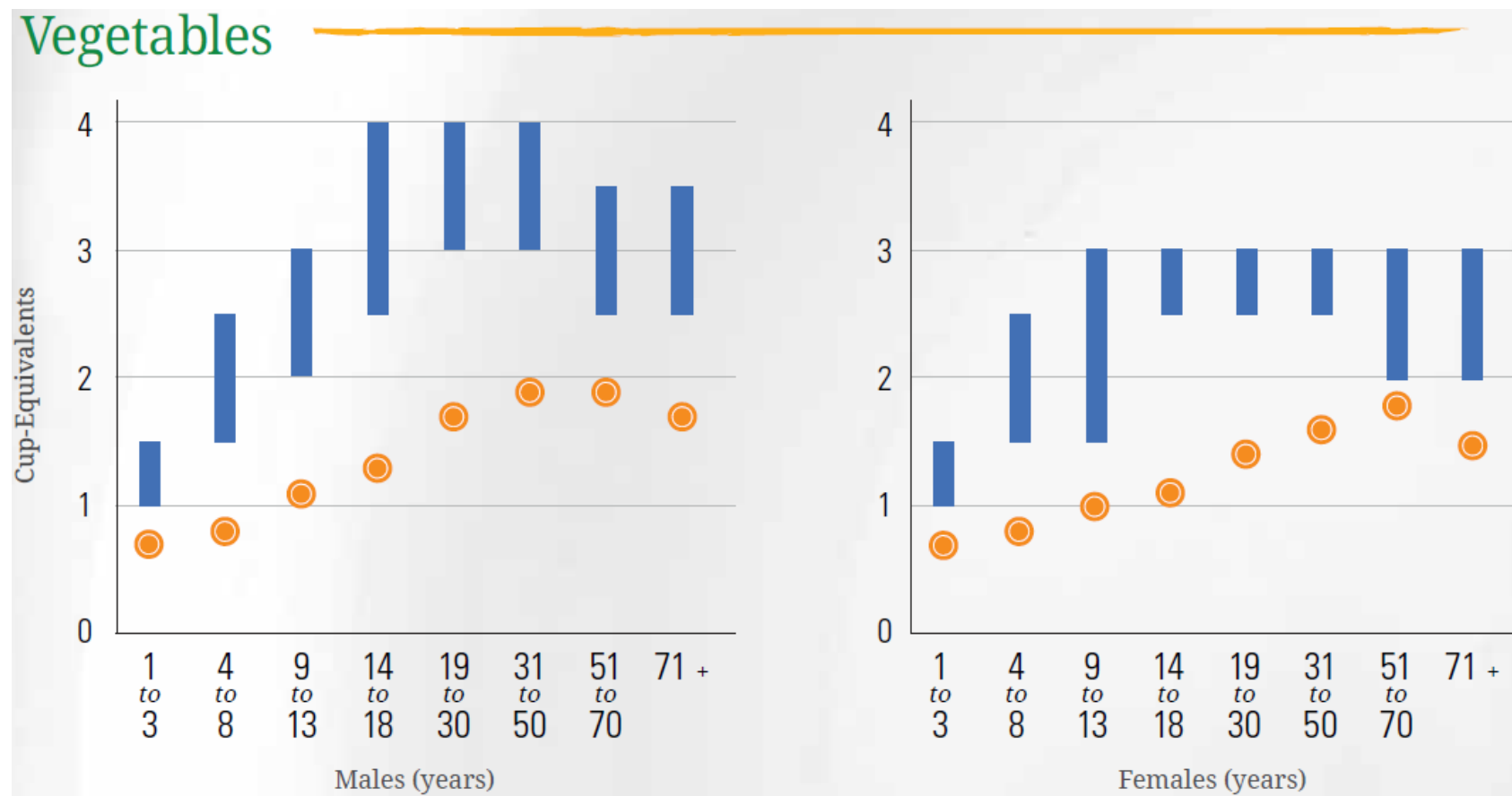
## Adherence of the U.S. Population to the *Dietary Guidelines* Over Time, as Measured by the Average Total Healthy Eating Index-2015 Scores



**NOTE:** HEI-2015 total scores are out of 100 possible points. A score of 100 indicates that recommendations on average were met or exceeded. A higher total score indicates a higher quality diet.

**Data Source:** Analysis of What We Eat in America, National Health and Nutrition Examination Survey (NHANES) data from 2005-2006 through 2015-2016, ages 2 and older, day 1 dietary intake data, weighted.

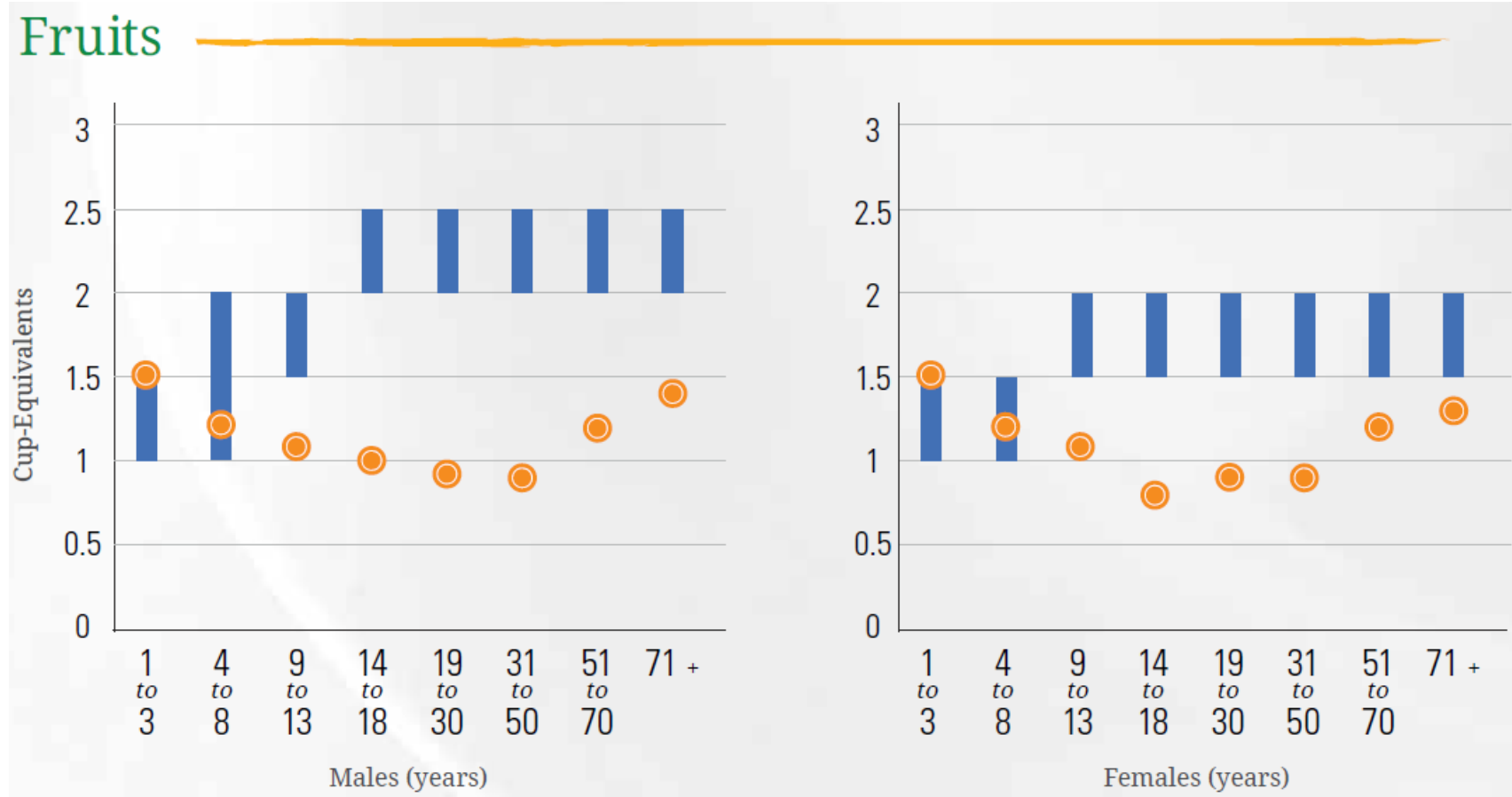
# Vegetable intake is way below recommended intakes



Source: 2020-2025 *Dietary Guidelines for Americans*



# And fruit intake is not much better



Source: 2020-2025 *Dietary Guidelines for Americans*

# Consumers may be more willing to change behavior

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## Nutritional status and COVID-19: an opportunity for lasting change?

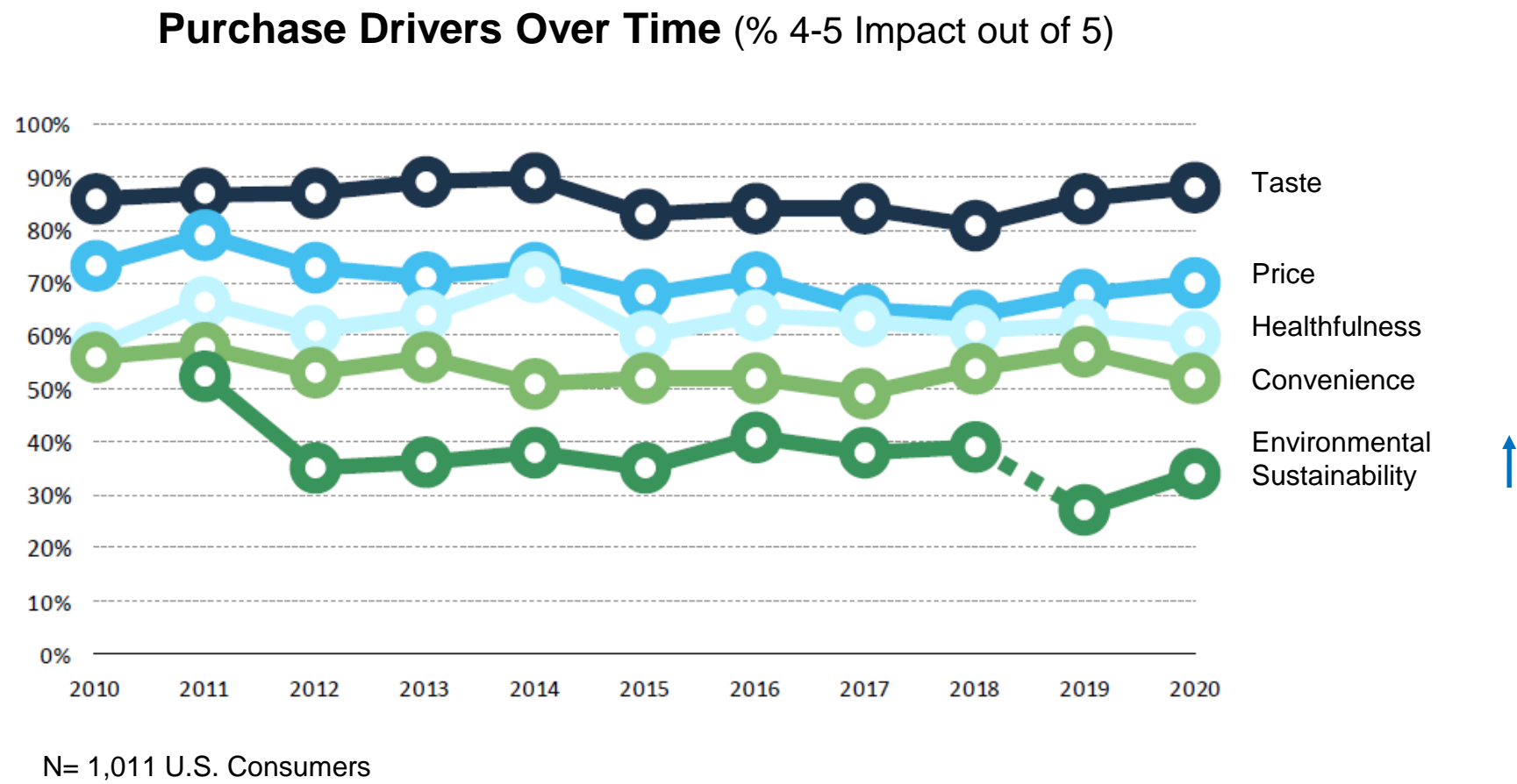
Author: Shameer Mehta<sup>A</sup>

This period could be looked upon as an opportunity. The onus is on those in authority to promote and facilitate a nutritional culture, on the population to achieve behavior change and on healthcare professionals to embed nutritional care into routine practice.

None of these measures are new or groundbreaking, but perhaps have not been at the forefront in recent years. If we are collectively able to implement and sustain these strategies during and after this pandemic, there may be at least one positive legacy of COVID-19. Necessity is, after all, the mother of (re)invention

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# Taste has remained the most important driver of food purchases



Source: IFIC, 2020 Food & Health Survey





# The 2020-2025 DGA Science Committee's new report cites taste as a primary driver in consumer food choice

“**Taste** and cost have been reported as primary drivers of food choice; **future work should address these dimensions**”

“An approach would examine multilevel social ecologic determinants such as the large array of determinants of food choice (e.g., **food palatability**, food cost, convenience, advertising, and exercise patterns”

“A powerful aspect of using a dietary patterns approach is that it enables multiple adaptations to fit cultural, personal, and individual needs and **preferences in food choices**”

## The 2020-2025 DGA Final Recommendations

**“Spices and Herbs can help flavor foods when reducing added sugar, saturated fat, and sodium, and they also can add to the enjoyment of nutrient-dense foods, dishes, and meals that reflect specific cultures (page 27).**

**“And flavoring foods with herbs and spices instead of salt based on personal and cultural foodways (page 46)**

Spices & herbs  
can add flavor to  
healthier foods  
without  
appreciable  
amounts of  
calories, sugar,  
saturated fat or  
sodium

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In 2006, McCormick launched the McCormick Science Institute (MSI) to develop 21<sup>st</sup> century scientific understanding about the potential health benefits of spices & herbs

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MSI has assembled  
some of the finest  
minds in global  
health and nutrition  
as our Scientific  
Advisory Council  
and principal  
investigators

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## Guidelines

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- No experimental animal studies
  - Culinary spices/herbs only – no botanicals or bioactives
  - No research on McCormick proprietary or commercial formulations
  - MSI has no interest in intellectual property
  - All results must be submitted to a peer-reviewed journal
  - Full disclosure of all funding
-



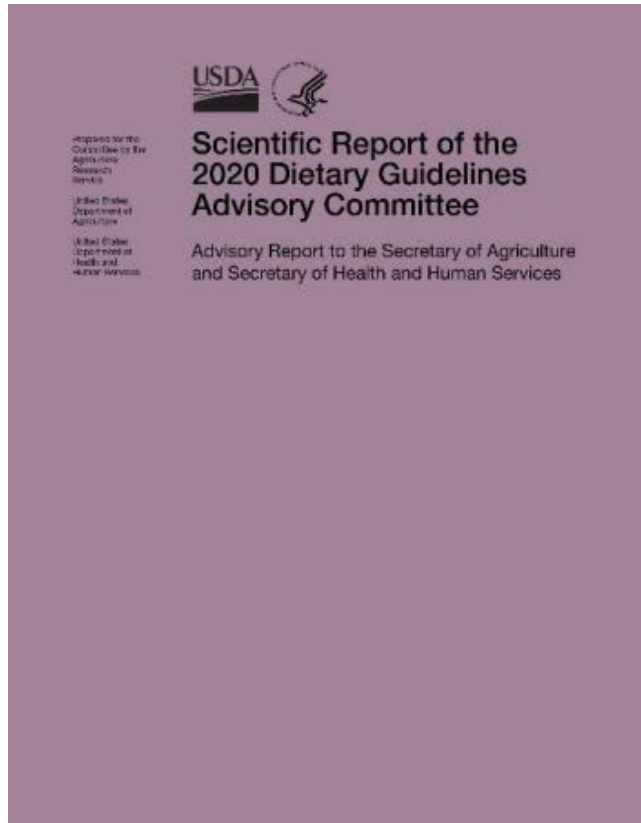
A woman with voluminous curly grey hair and a bindi is looking thoughtfully out of a window. She is wearing a black and white horizontally striped t-shirt and holding a glass of green smoothie with a black straw. The background shows a modern kitchen with dark grey cabinets, a large stainless steel refrigerator, and a built-in oven. The lighting is warm and natural, coming from the window.

# Spices & Health

# Diet Quality

# The DGAC report defines diet quality

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- 
- Healthy dietary patterns age two years and older

More:

**Vegetables**

**Fruits**

Legumes

Whole grains

Low or non-fat dairy

Lean meat & poultry

Seafood

Nuts

Less:

Red & processed meats

Sugar-sweetened foods & drinks

Refined grains

# Potential of spices and herbs to improve diet quality

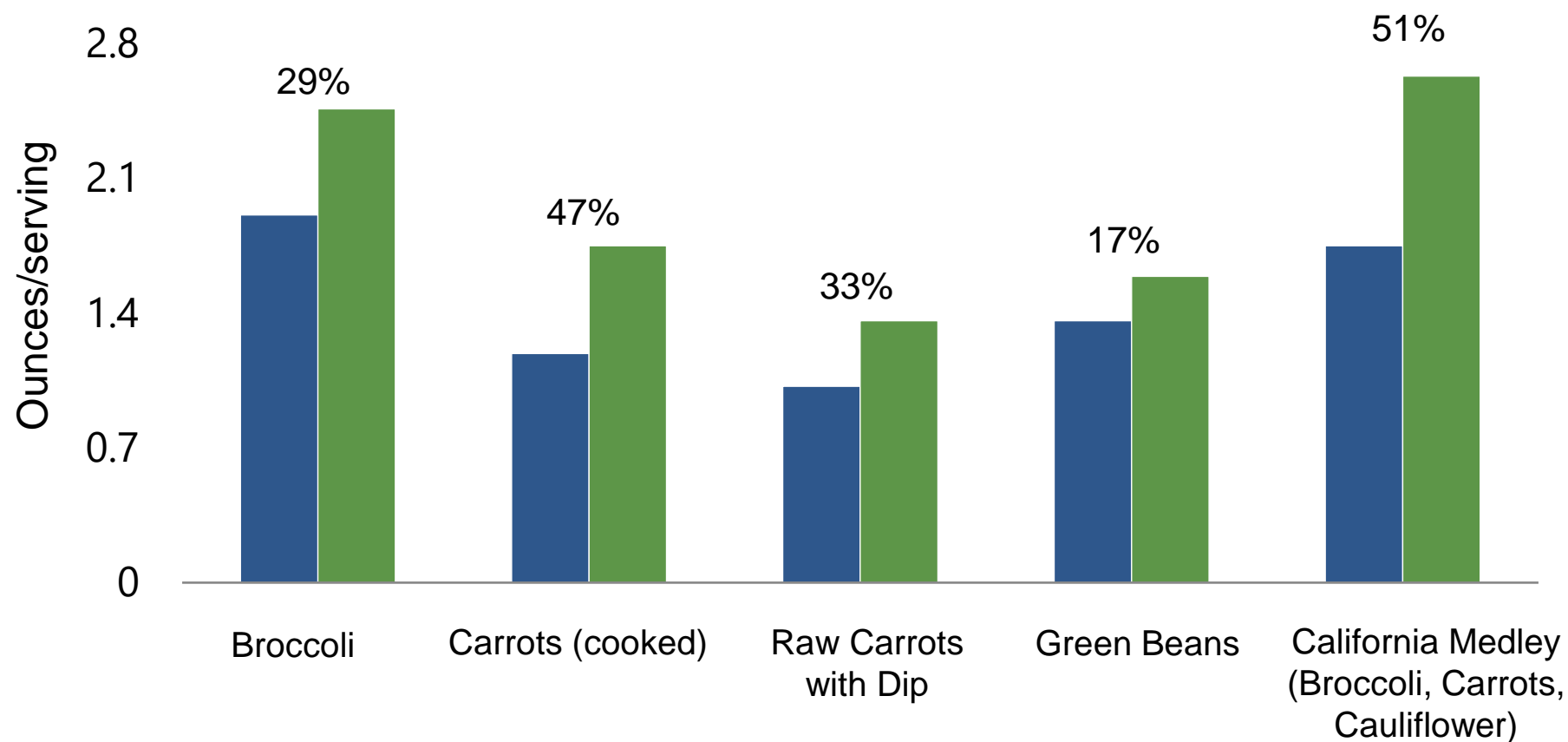
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- 
- Increase liking and/or consumption of vegetables
-



# Spices & herbs increased consumption of vegetables in an urban high school cafeteria

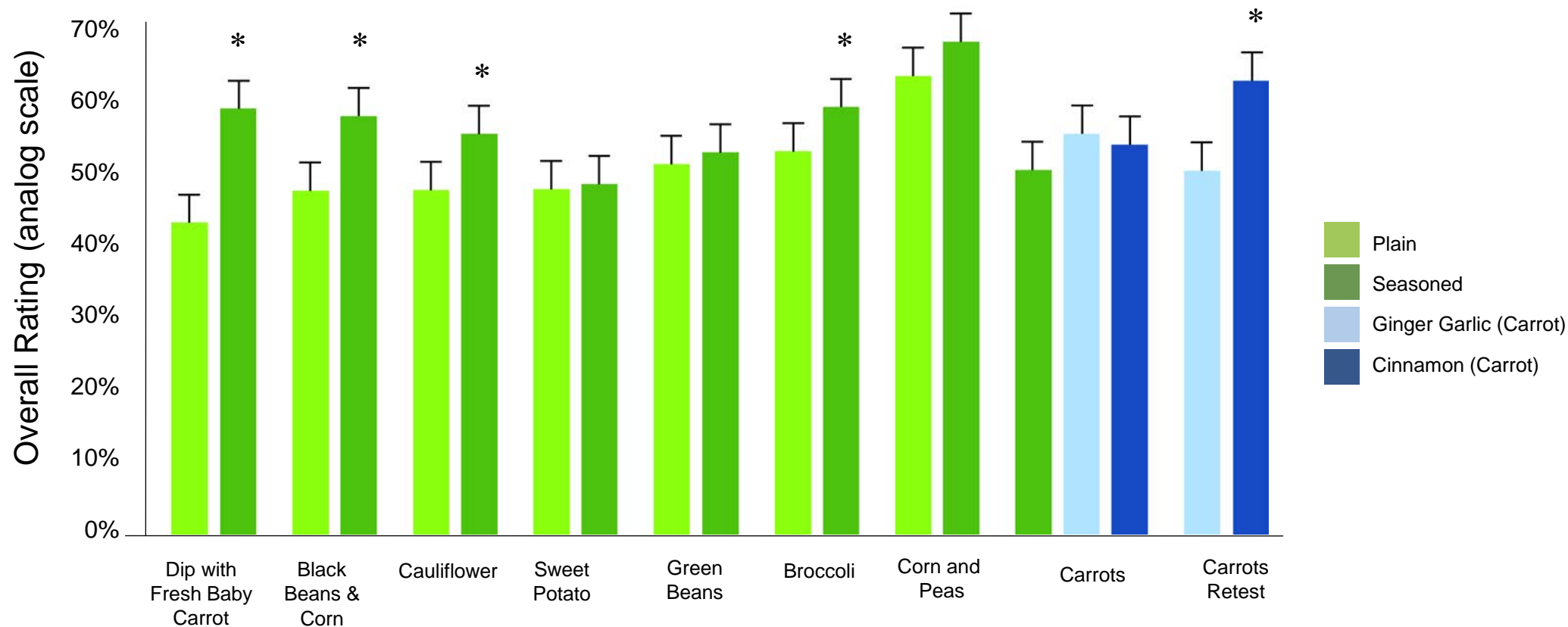


Source: D'Adamo et al., Submitted for publication in *Appetite*

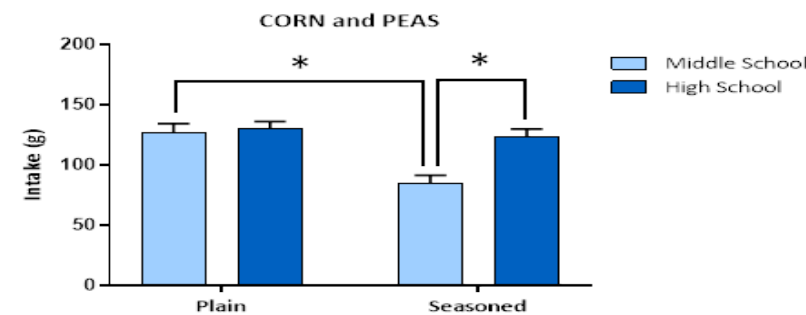
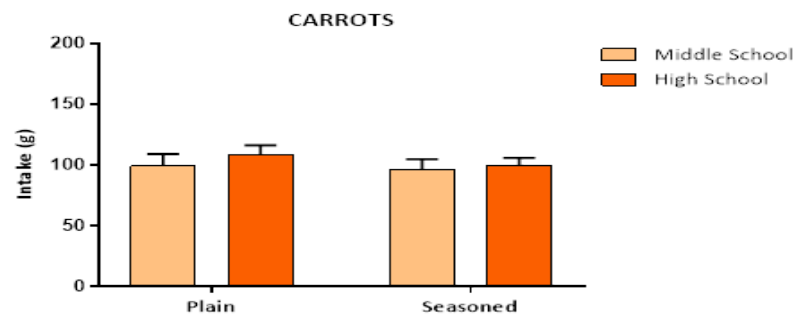
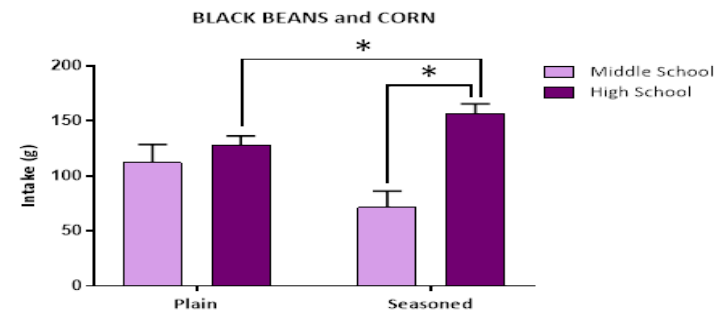
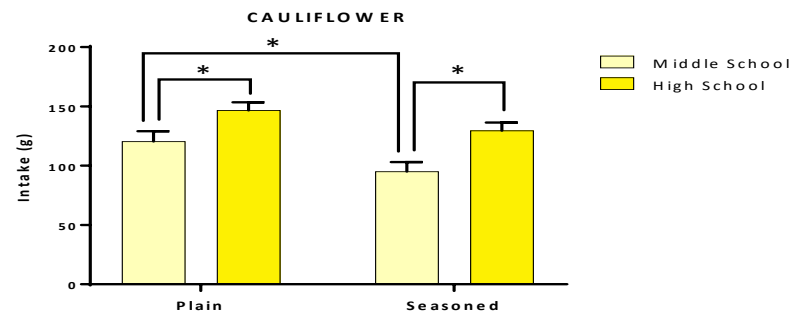
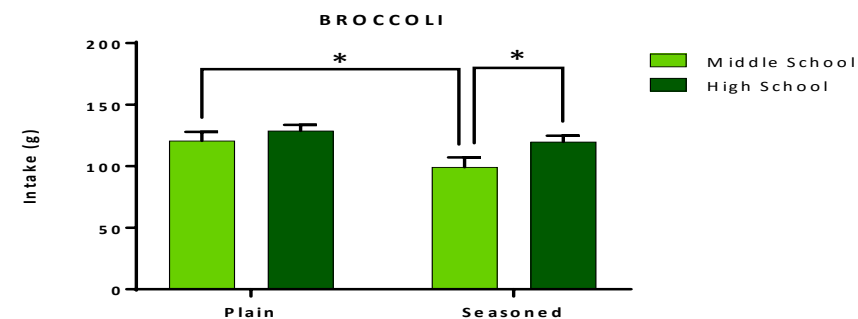
# Spices & herbs also increased the liking of most vegetables among rural high & middle school students



**Overall Rating of Food (MM)**



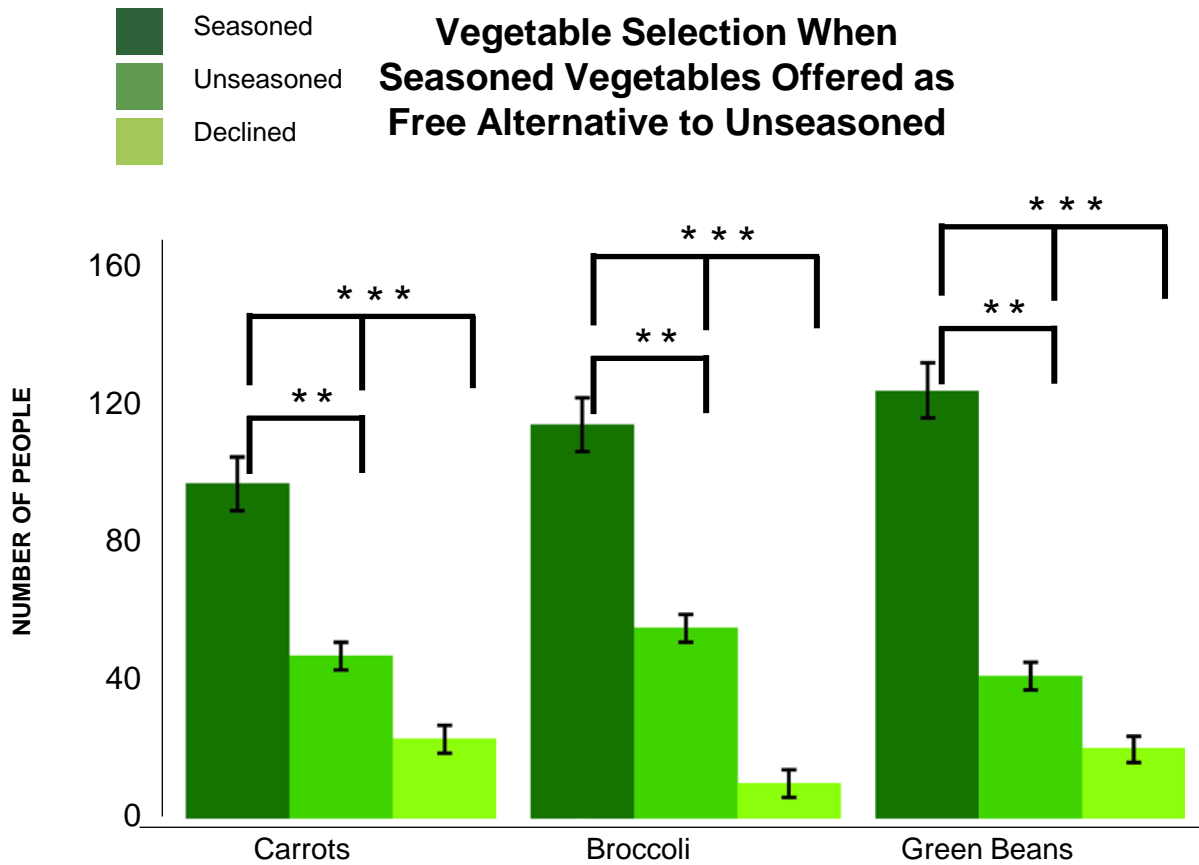
# But the effect on cafeteria consumption was less consistent



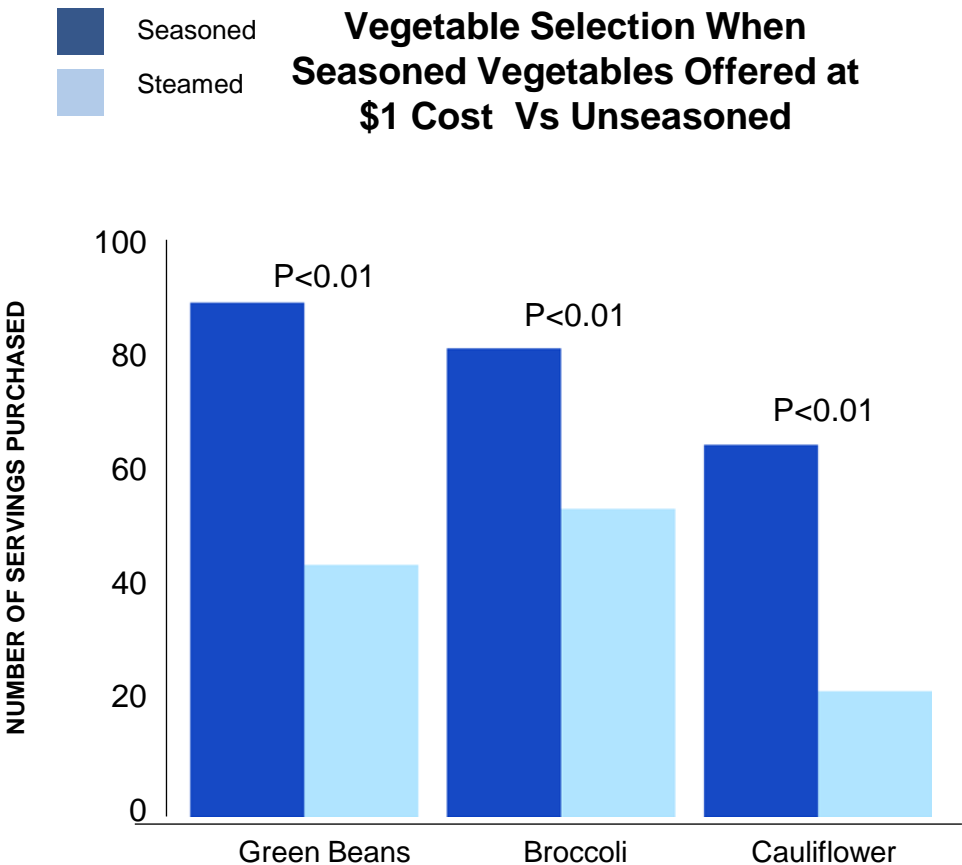
Source: Fritts *et al.* *J Nutr Ed Behav* 2019;51:806



# Cafeteria patrons preferred vegetables seasoned with spices/herbs more often than their unseasoned counterparts



Source: Manero et al., *Appetite* 2017;116:239



Source: Luu et al., *Food Qual Pref* 2020;82:103890

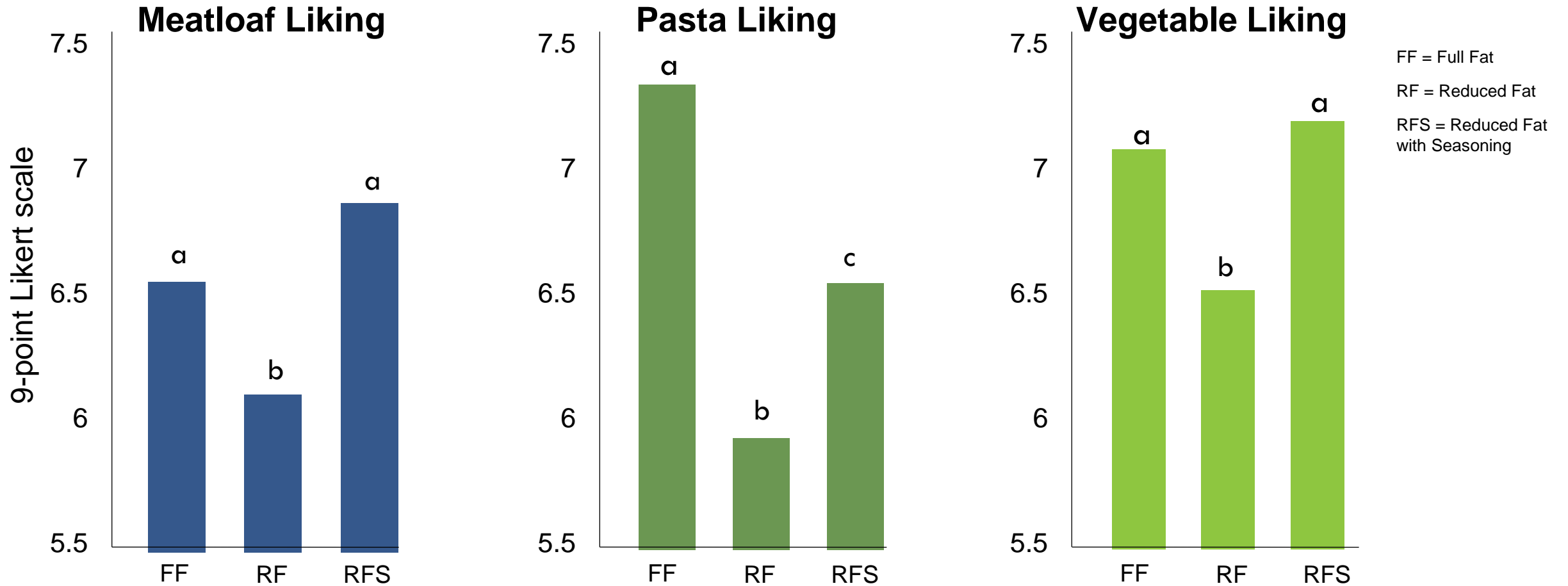
# Potential of spices and herbs to improve diet quality

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- 
- Increase liking and/or consumption of vegetables
  - Compensate for loss of flavor in foods lower in added fat, sugars and/or sodium
-

# Spices and herbs increased liking of components of a (60%) reduced-fat meal



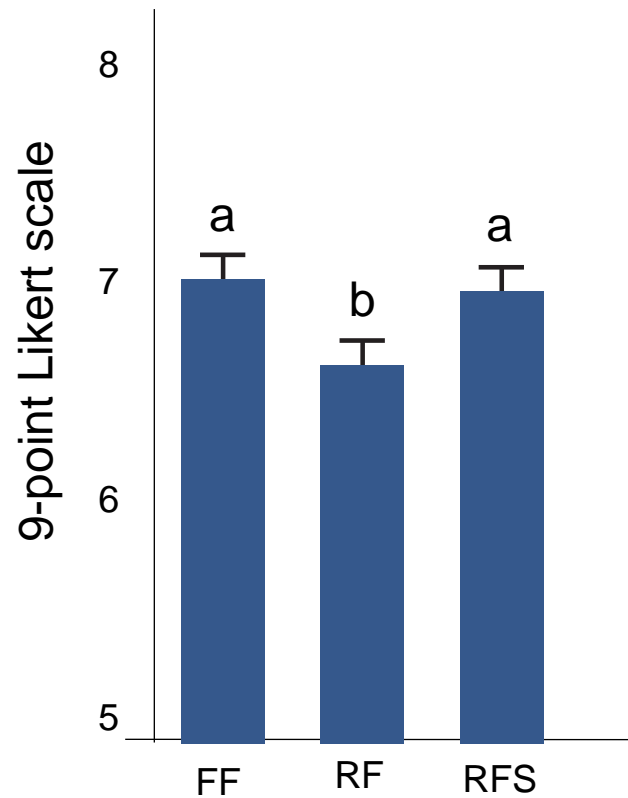
Source: Peters et al., *Appetite* 2014;79:183



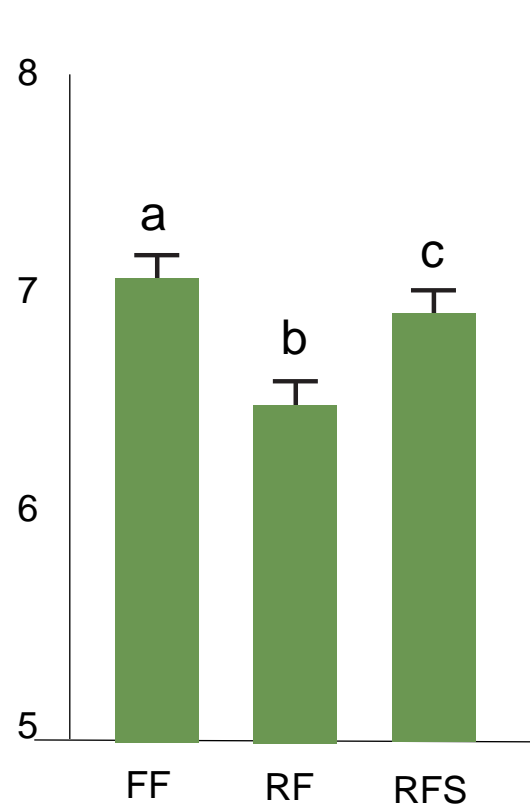
# Spices and herbs increased liking of components of a (42%) reduced-fat breakfast



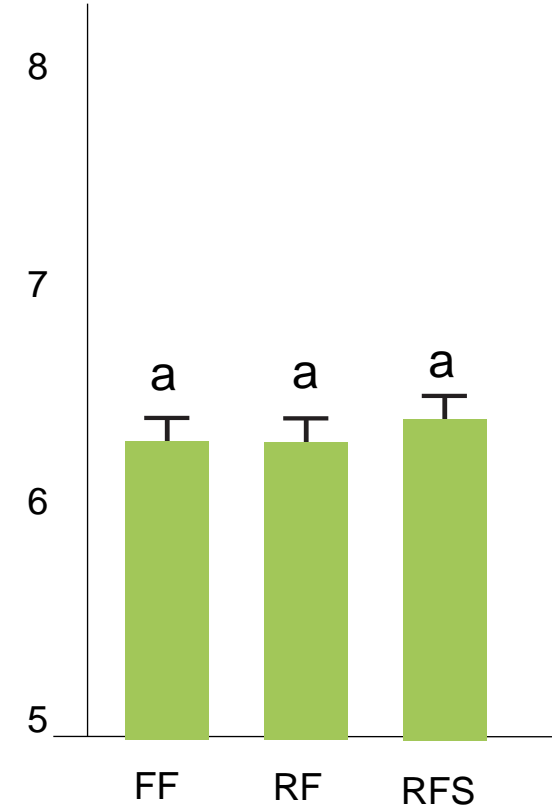
## Overall Meal



## French Toast

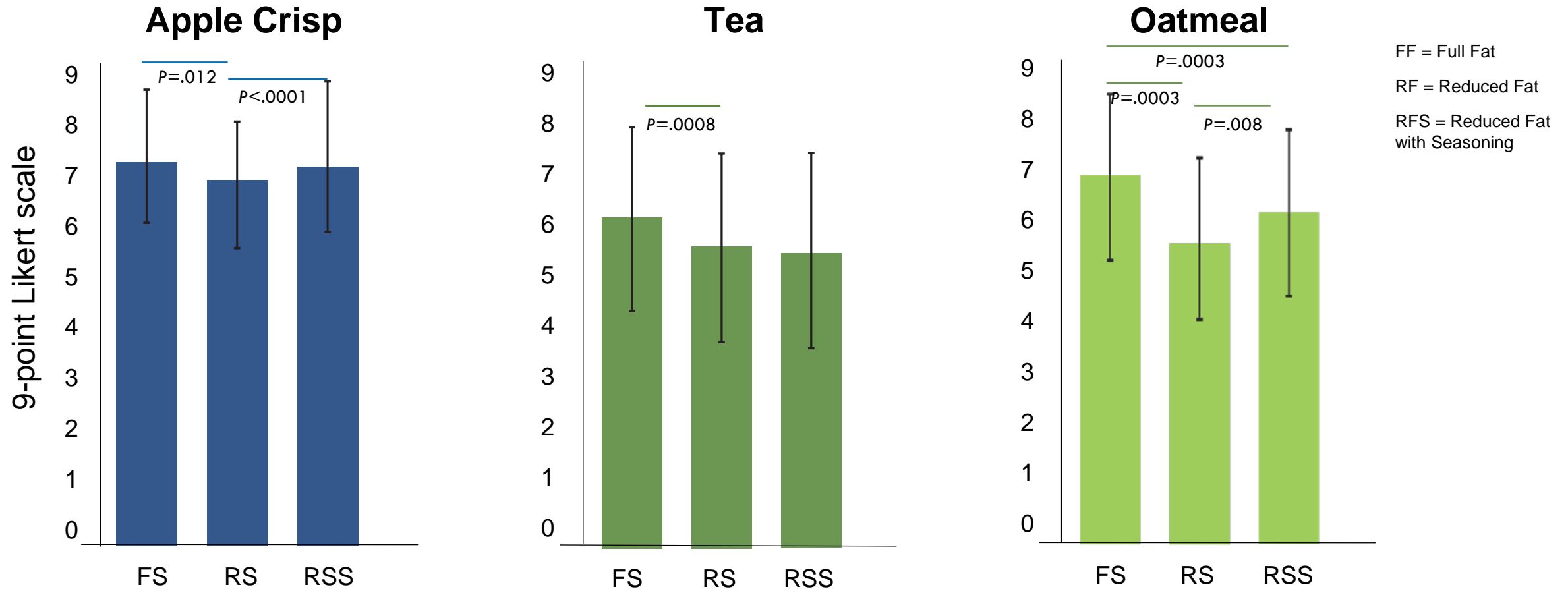


## Sausage

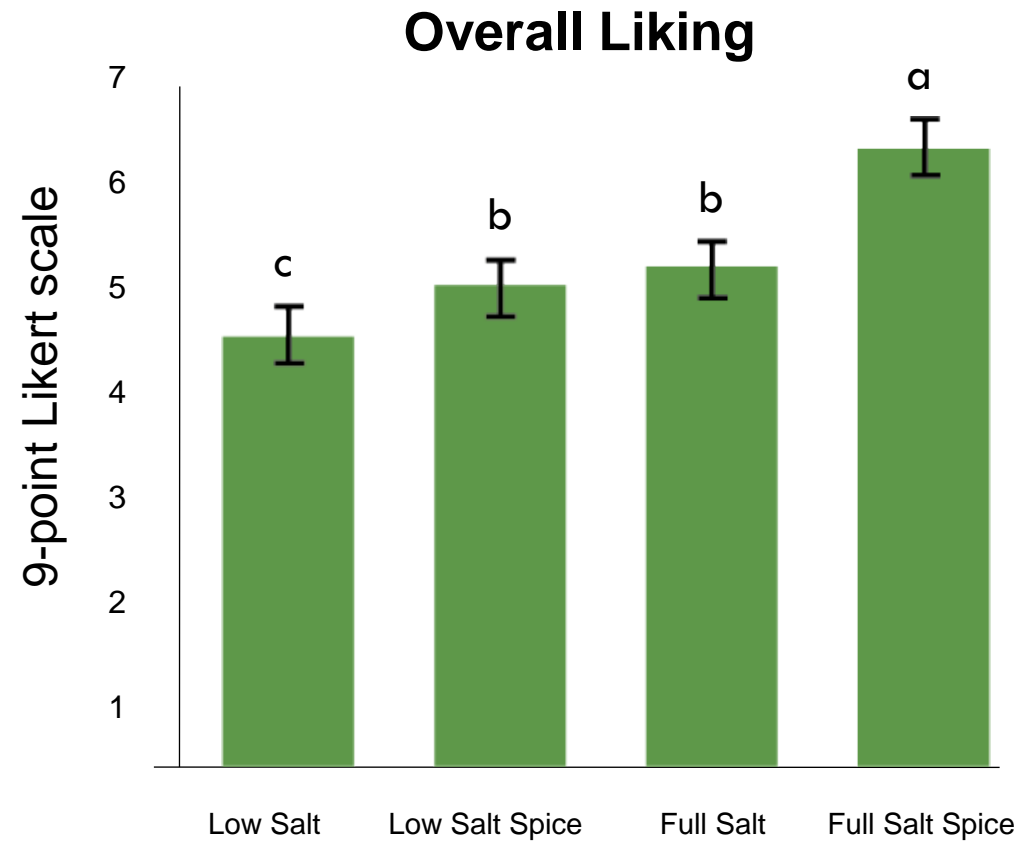


FF = Full Fat  
RF = Reduced Fat  
RFS = Reduced Fat  
with Seasoning

# Spices may also improve the liking of foods with 35-100% reduced added sugar content

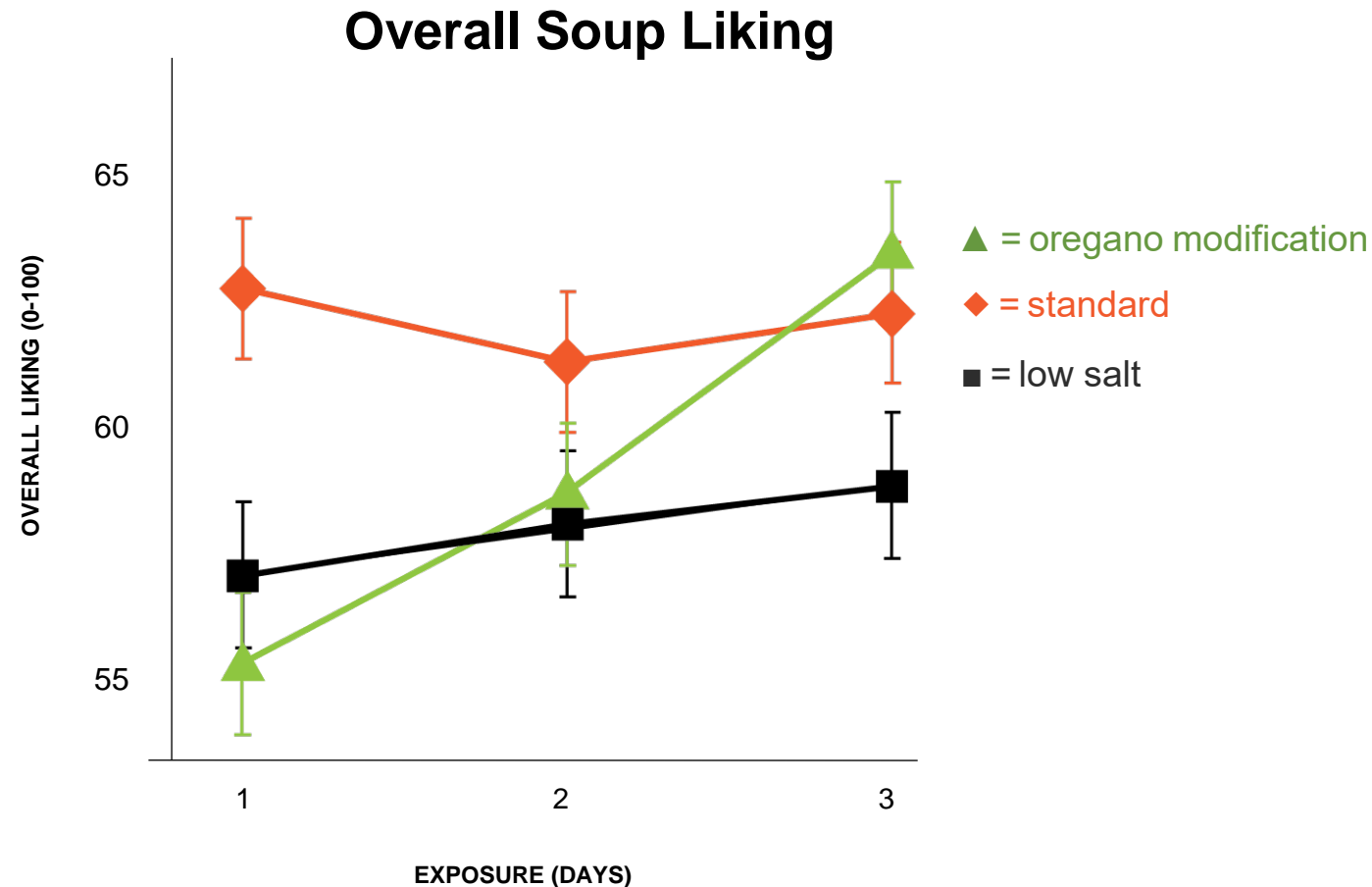


# A cumin-based seasoning fully compensated for reduced liking of a 50% lower-salt legume-based mezze





# Liking of reduced-sodium tomato soup with oregano-based seasoning increased with repeated exposure



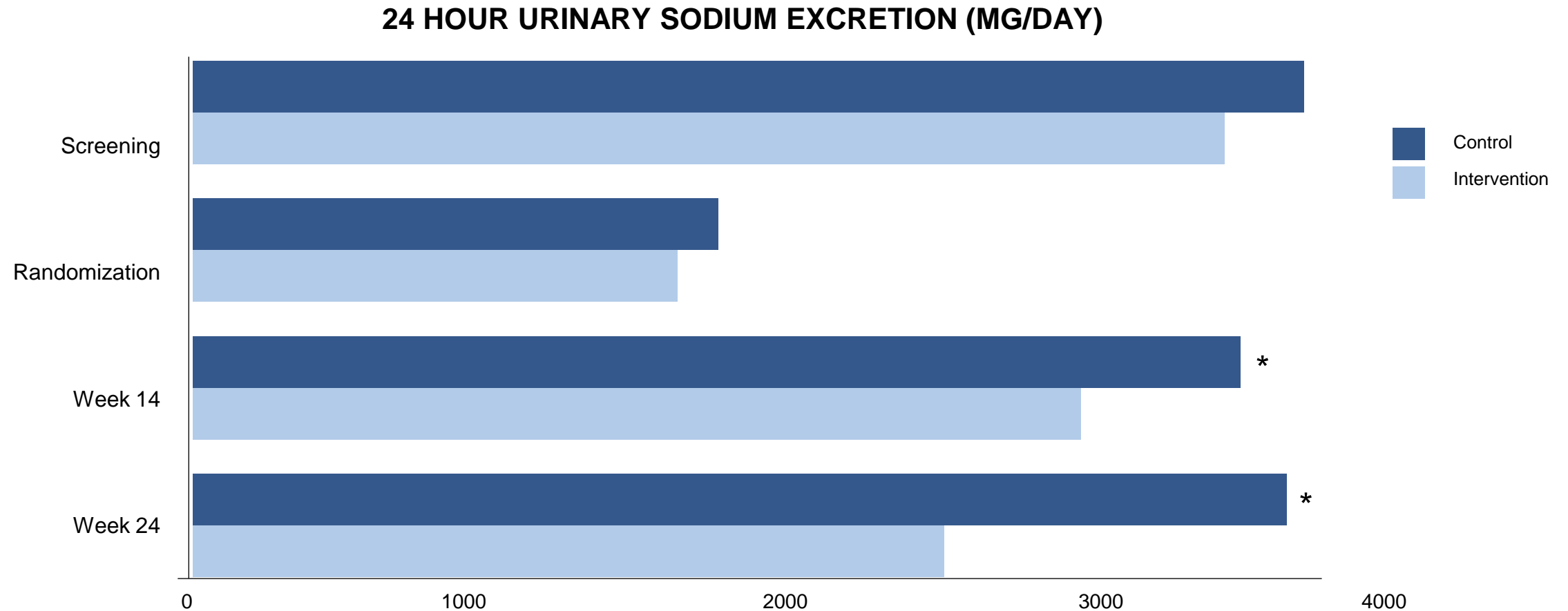
# Potential of spices and herbs to improve diet quality

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- 
- Increase liking and/or consumption of vegetables
  - Compensate for loss of flavor in foods lower in added fat, sugars and/or sodium
  - Help consumers adhere to lower sodium DASH diet
-

# A spice-based intervention improved free-living adults' ability to adhere to a low-sodium DASH diet after five months



Source: Anderson et al., *Am J Clin Nutr* 2015;102:671



# Spices and herbs may also have beneficial physiological effects

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## The Health Benefits of Selected Culinary Herbs and Spices Found in the Traditional Mediterranean Diet

ALLYSON BOWER,<sup>1</sup> SUSAN MARQUEZ,<sup>2</sup> and ELVIRA GONZALEZ DE MEJIA<sup>1,2</sup>

<sup>1</sup>Division of Nutritional Sciences, Department of Food Science and Human Nutrition, University of Illinois Urbana-Champaign, Urbana, Illinois USA

<sup>2</sup>Department of Food Science and Human Nutrition, University of Illinois Urbana-Champaign, Urbana, Illinois USA

*Crit Rev Food Sci Nutr* 2016;56:2746

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## Chronic diseases, inflammation, and spices: how are they linked?

Ajaikumar B. Kunnumakkara<sup>1\*</sup>, Bethsebie L. Sailo<sup>1</sup>, Kishore Banik<sup>1</sup>, Choudhary Harsha<sup>1</sup>, Sahdeo Subash Chandra Gupta<sup>3</sup>, Alok Chandra Bharti<sup>4</sup> and Bharat B. Aggarwal<sup>5\*</sup>

*J Transl Med* 2018;16:14

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## Spices in Meals: A Novel Approach to Cool Down Inflammation



Arpita Basu

*J Nutr* 2020;150:1348

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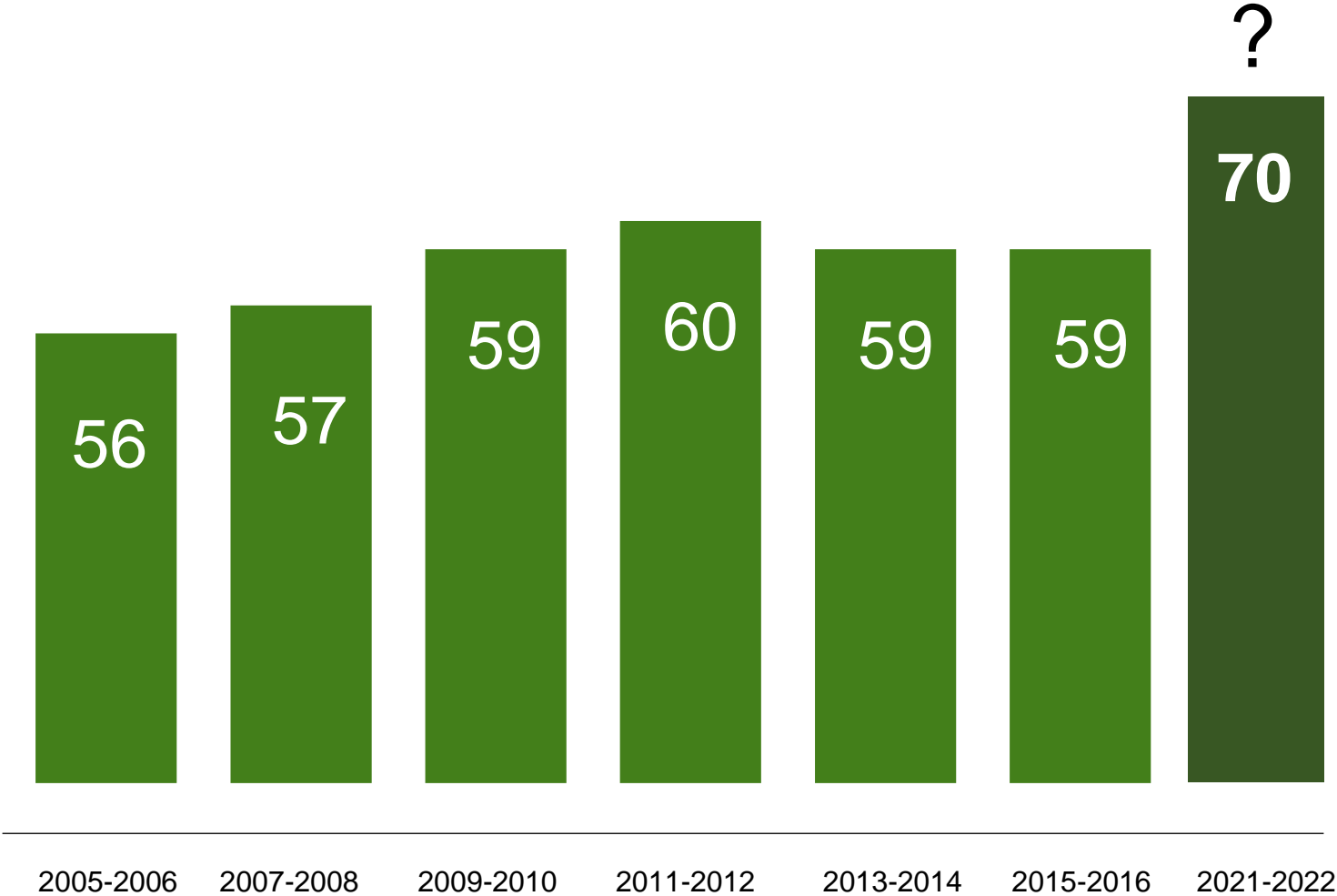
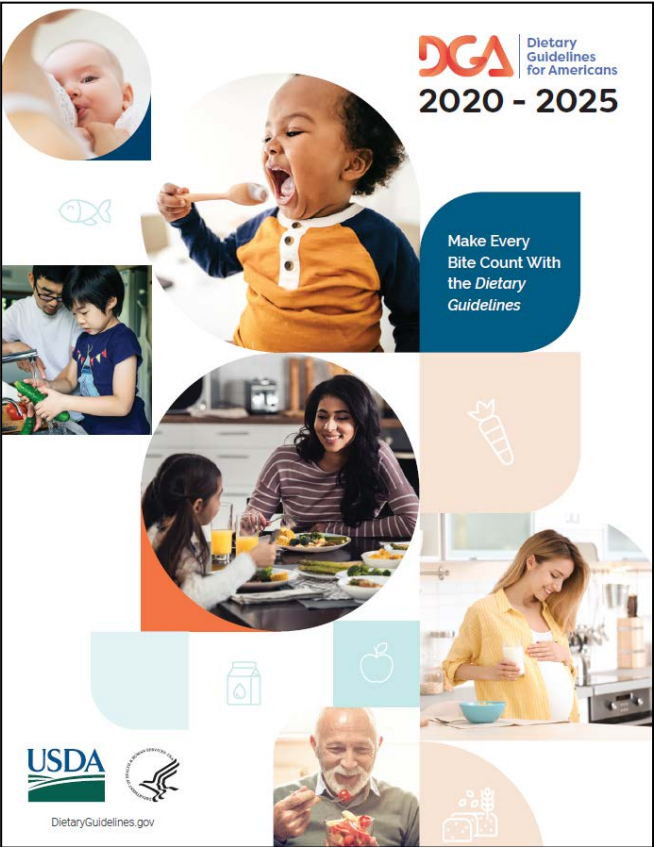
## Spices and Atherosclerosis

Pi-Fen Tsui<sup>1,2,†</sup>, Chin-Sheng Lin<sup>2,†</sup> , Ling-Jun Ho<sup>3</sup>  and Jenn-Haung Lai<sup>4,\*</sup>

*Nutrients* 2018;10:1724

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# Could adding FLAVOR be the key to finally increasing diet quality?







Thank you!







# Q&A

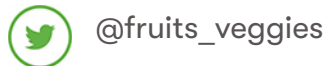
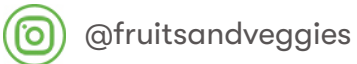
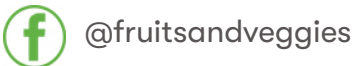
# Join The Movement



have a  
**plant**  
fruitsandveggies.org

Show your support by taking and sharing the Have A Plant® pledge at fruitsandveggies.org. While you're there, check out the useful resources to equip you with the tools you need to enhance your nutrition knowledge and empower consumers to enjoy more fruits and vegetables every day.

Follow PBH's social channels to keep up to date on all the insights and inspiration. #haveaplant



**SEPTEMBER IS NATIONAL  
FRUITS & VEGGIES  
MONTH**  
#HAVEAPLANTPLEDGE  
#HAVEAPLANT #NFVM2021

September is National Fruits & Veggies Month and each year we celebrate Have A Plant® during this monumental moment. This year's theme:

PBH celebrates the International Year of Fruits and Vegetables in the U.S. during National Fruits and Veggies Month 2021!  
Have A Plant® Nation Goes Global!

**Start planning today for this  
year's celebration with our  
National Fruits & Veggies Month  
Toolkit!**

<https://fruitsandveggies.org/nfvm-toolkit/>





**A catalog of PBH's past webinars is available at [fruitsandveggies.org/expert-professionals/webinars](https://fruitsandveggies.org/expert-professionals/webinars).**

**Continuing professional education units (CPEU) are available for live and pre-recorded webinars.**



# THANK YOU

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We live at the center of produce,  
partnership and passion.

**WE ARE SO HAPPY  
YOU'RE WITH US!**

