

Study explores potential of spices and herbs use to increase vegetable consumption

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Researchers at the University of Illinois interested in developing interventions to encourage adults to make better food choices are investigating whether using more spices and herbs, like ginger, curry, rosemary, or garlic, for example, can help adults consume more vegetables as part of their diet.

Parents may have their tricks to get kids to eat their vegetables, but what about getting adults to eat theirs?

According to recent reports, most Americans, of all ages and genders, do not meet the recommended [vegetable](#) intake of 2 to 3.5 cups per day, consuming an average of only 1.5 cups per day. Although tactics such as providing vegetables as a juice or hidden as a puree in entrees have been suggested, many people still say no thanks to vegetables, citing adverse taste perception.

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Cassandra Nikolaus, a nutrition doctoral student at U of I, says that for registered dietitians, recommending the use of spices and herbs to promote [healthy food choices](#) is already encouraged. "If you use spices and herbs to flavor up your dishes, then you're not adding sodium or fat,

which we are trying to reduce in the diet, generally," she says.

But Nikolaus and Brenna Ellison, an assistant professor of agricultural and consumer economics at U of I conducted a study to first establish which consumers already use spices and herbs, and to determine how they use them. The results are published in the American Journal of Health Behavior.

"We want to see if spices and herbs can be a facilitator to increase [vegetable intake](#), but what's not in the literature so far is how people use them, or which ones they use," Ellison says. "We really don't know much about that. So this was the first attempt, to help inform future studies, to see which spices and herbs are well liked and frequently used. And, who is using them? This information can help us identify target populations for study interventions and provide insight on the best spices and herbs to promote to these groups."

In their study, the researchers collected information on what spices and herbs consumers like, how frequently they use them, whether they are used when cooking vegetables, and whether the participants feel proficient in cooking with spices and herbs. Participants were given a list of 20 spices and herbs to choose from.

Nikolaus says the results were surprising.

Younger respondents in the survey (18-29 years) and those who identified as Asian/Pacific Islander or other used 19 of the 20 spices and herbs more frequently than their older and white/Caucasian, African-American, or Hispanic counterparts. Women were more likely to use spices and herbs when cooking at home. Women and individuals ages 18-49 felt more confident in their ability to cook with spices and herbs, while those who identified as white/Caucasian or those with an annual income below \$50,000 exhibited less confidence.

"The high level of variability across groups was the biggest takeaway," Nikolaus says.

But does identifying these socio-demographics really matter when trying to get adults to eat more vegetables?

Ellison says it does.

For one thing, Ellison explains that the data show that age and cultural differences were linked to which ones, out of the 20 spices, people were more inclined to like or use. For example, she says that older participants were less inclined to like and use bolder spices and herbs like cayenne pepper or cilantro and tended to stick to milder flavors such as paprika or garlic.

Knowing information like that can help dietitians or other health educators when developing intervention strategies. Nikolaus explains, "There are so many community education efforts that are already underway. If they have one more piece of evidence to determine recipes for certain groups of people, they can select something more well-liked by that population."

As part of the study, Nikolaus created a chart categorizing which spices were most well-liked, less well-liked, and least well-liked, based on the demographic subpopulations that participated in the study. Ellison says this is a resource that nutrition or health educators can use as they make recommendations for healthier food choices.

Another piece of information the researchers learned from the study is that some people simply don't feel confident in cooking vegetables, or cooking with spices and herbs.

"What can we do to educate these groups of people on how to use spices

and herbs in hopes of improving their vegetable consumption? One issue may be limited knowledge on how to cook vegetables in the first place," Ellison says. "We actually had questions on the survey about which cooking methods people used. Boiling and steaming were the most common cooking methods, so spices and herbs might be useful there to enhance flavor."

Nikolaus adds that along with low knowledge of culinary techniques, the availability of specific cooking equipment—think zucchini spiralizer—might also determine if (and how) consumers will prepare vegetables for themselves.

The researchers, as part of a larger team, are currently collecting data in an actual dining setting, observing diners' consumption of vegetables when spices or herbs have been added. They want to see if diners choose the vegetables that have been cooked with spices and herbs, and if less of those vegetables go to waste.

"Taste is king. That is one of the most powerful reasons behind why we make our food choices," Nikolaus says. "If we can make things more appealing based on spices and herbs and flavors that people are more prone to appreciate, they may choose to eat more vegetables because they enjoy what they are consuming." This research was supported by a grant from the McCormick Science Institute.

More information: Cassandra J. Nikolaus et al. Spice and Herb Use with Vegetables: Liking, Frequency, and Self-efficacy among US Adults, *American Journal of Health Behavior* (2017). [DOI: 10.5993/AJHB.41.1.5](https://doi.org/10.5993/AJHB.41.1.5)

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