

A study has found that a financial incentive can help stressed-out people choose to eat fruit and vegetables instead of an easier fast-food option.

That's what researchers at the University of Colorado Boulder found to be true when they studied the effects of stress and incentives on fruit and vegetable consumption.

The results of their study, titled "Stress and number of servings of fruit and vegetables consumed: Buffering effects of monetary incentives," were published in October in the *Journal of Health Psychology*.

These results are an important contribution to the growing body of literature about the psychology of incentives and other public health topics.

More broadly, the findings support the implementation of health programs that incorporate incentives—for example, companies that offer lower health insurance premiums for employees who exercise or visit the doctor for preventative care.

"What we know is that people tend to eat less healthy when they are stressed," said Angela Bryan, professor of psychology and neuroscience and one of the study's co-authors.

"We wondered if we associated a more positive thing with healthy behaviors, is there any way we might be able to offset that stress effect? So, if you see a carrot less as something like, 'Ugh, gosh, I have to eat a carrot' and more, 'I get paid to eat a carrot,' does that mitigate the effects of stress on healthy eating?"

To get an answer to those questions, Bryan and graduate students Casey Gardiner and Sarah Hagerty asked a group of 128 participants to record their stress levels and the number of fruit and vegetable servings they ate each day for three weeks. Some study participants got paid \$1 for each serving of fruits and vegetables they ate, up to \$5 per day, while other participants received no incentive.

The experiment confirmed that people ate fewer servings of fruits and vegetables on days when they reported feeling stressed. But, notably, participants who received cash incentives maintained their daily fruit and vegetable consumption, even when stressed.

The incentives, in essence, shielded the participants from the negative effect stress would typically have on their diets. Even the researchers were surprised at the clear link between cash, food choices and stress.

"Obviously, we had the hypothesis that incentives might buffer the effects of stress and diet,

but I didn't think it would be this clear," said Bryan. "I thought there might be a glimmer of something going on, so when we actually saw the effects and the size of the effects, I was pretty stunned."

The researchers noted in their paper that future studies might improve upon their design by using a more objective measurement method, rather than having participants self-report. Future research might also track participants over a longer period of time to measure whether—and for how long—they kept up the healthy behaviors.

On a more personal level, the findings suggest that we should find ways to reward ourselves for making healthy choices—watching TV as a reward for eating fruits and vegetables, for example.

Angela Bryan, professor of psychology and neuroscience and one of the study's co-authors.

These incentives not only help us make good choices in the moment, but they also help us practice behaviors we want to maintain over the long term, Bryan said.

And on days when we're stressed, it may help to make note of how we're feeling before deciding what to eat, she added. Even being aware of our behavior can lead to better choices, said Bryan, whose lab will continue to study how people make decisions about food, as well as broader public health topics like obesity and metabolic diseases.

"Instead of just weighing yourself or just tracking what you ate, maybe you should ask yourself how stressed you felt or what emotions you felt that day," she said.

"You can go back and see, 'Oh, gosh, when I was stressed, I ate Doritos and chocolate cake, and on days when I wasn't stressed, I had a salad for lunch.' Then once you know that association exists, you might put a little extra effort into whatever the healthy behavior is on days when you're stressed."