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# Thought for food: New research shows imagining food consumption reduces actual consumption

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If you're looking to lose weight, it's okay to think about eating your favorite candy bar. In fact, go ahead and imagine devouring every last bite — all in the name of your diet.

A new study by researchers at Carnegie Mellon University, published in *Science*, shows that when you imagine eating a certain food, it reduces your actual consumption of that food. This landmark discovery changes the decades-old assumption that thinking about something desirable increases cravings for it and its consumption.

Drawing on research that shows that perception and mental imagery engages neural machinery in a similar fashion and similarly affect emotions, response tendencies and skilled motor behavior, the CMU research team tested the effects of repeatedly imagining the consumption of a food on its actual consumption. They found that simply imagining the consumption of a food decreases ones appetite for it.

"These findings suggest that trying to suppress one's thoughts of desired foods in order to curb cravings for those foods is a fundamentally flawed strategy," said Carey Morewedge, an assistant professor of social and decision sciences and lead author of this study. "Our studies found that instead, people who repeatedly imagined the consumption of a morsel of food — such as an M&M or cube of cheese — subsequently consumed

less of that food than did people who imagined consuming the food a few times or performed a different but similarly engaging task. We think these findings will help develop future interventions to reduce cravings for things such as unhealthy food, drugs and cigarettes, and hope they will help us learn how to help people make healthier food choices."

For the study, the research team, which included Young Eun Huh, Tepper School of Business Ph.D. candidate, and Joachim Vosgerau, assistant professor of marketing, ran a series of five experiments that tested whether mentally stimulating the consumption of a food reduces its subsequent actual consumption. In the first experiment, participants imagined performing 33 repetitive actions, one at a time. A control group imagined inserting 33 quarters into a laundry machine (an action similar to eating M&M's). Another group imagined inserting 30 quarters into a laundry machine and then imagined eating 3 M&M'S, while a third group imagined inserting three quarters into a laundry machine and then imagined eating 30 M&M'S. Next, all participants ate freely from a bowl filled with M&M'S. Participants who imagined eating 30 M&M'S actually ate significantly fewer M&M'S than did participants in the other two groups.

To ensure that the results were due to imagined consumption of M&M'S rather than the control task, the next experiment manipulated the experience imagined (inserting quarters or eating M&M'S) and the number of times it was imagined. Again, the participants who imagined eating 30 M&M'S subsequently consumed fewer M&M'S than did the participants in the other groups.

The last three experiments showed that the reduction in actual consumption following imagined consumption was due to habituation — a gradual reduction in motivation to eat more of the food — rather than alternative psychological processes such as priming or a change in the perception of the food's taste. Specifically, the experiments

demonstrated that only imagining the consumption of the food reduced actual consumption of the food. Merely thinking about the food repeatedly or imaging the consumption of a different food did not significantly influence the actual consumption of the food that participants were given.

"Habituation is one of the fundamental processes that determine how much we consume of a food or a product, when to stop consuming it, and when to switch to consuming another food or product," Vosgerau said. "Our findings show that habituation is not only governed by the sensory inputs of sight, smell, sound and touch, but also by how the consumption experience is mentally represented. To some extent, merely imagining an experience is a substitute for actual experience. The difference between imagining and experiencing may be smaller than previously assumed."

Other implications of this research include the discovery that mental imagery can enact habituation in the absence of pre-ingestive sensory stimulation and that repeatedly stimulating an action can trigger its behavioral consequences.

Provided by Carnegie Mellon University