

Neural Evidence for an Internal ‘Calorie Counter’

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As you peruse the shelves in a supermarket, you may be thinking about each food’s taste and nutritional value, or you may be trying to decide what you’re in the mood for. A new neuroimaging study published in *Psychological Science* and funded by the Canadian Institutes of Health Research suggests that while you’re thinking all these things, an internal calorie counter of sorts is also evaluating each food based on its caloric density.

“Our study sought to determine how people’s awareness of caloric content influenced the brain areas known to be implicated in evaluating food options,” says lead study author Alain Dagher, a neurologist at the Montreal Neurological Institute and Hospital. “We found that brain activity tracked the true caloric content of foods.”

Twenty-nine healthy participants were asked to examine pictures of 50 familiar foods. The participants rated how much they liked each food (on a scale from 1 to 20) and were asked to estimate the calorie content of each food. Surprisingly, they were poor at accurately judging the number of calories in the various foods, yet the amount participants were willing to bid on the food in a simulated auction matched up with the foods that actually had higher caloric content.

Results of functional brain scans acquired while participants looked at the food images showed that activity in the ventromedial prefrontal cortex, an area known to encode the value of stimuli and predict immediate consumption, was also correlated with the foods’ true caloric content.

According to Dagher, understanding the reasons for people’s food choices could help to control the factors that lead to obesity, a condition that is linked to many health problems, including high blood pressure, heart disease, and Type 2 diabetes.