Multiple pieces of food are more rewarding than an equicaloric single piece of food in both animals and humans

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Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior, suggests that both animals and humans find multiple pieces of food to be more satiating and rewarding than an equicaloric, single-piece portion of food.

Increases in portion size lead to increased intake. We investigated here the impact of number and size of food .Both humans and animals use number as a cue to judge quantities of food, with larger numbers usually associated with larger quantities. Therefore, a food portion cut into multiple, bite-sized pieces may perceptually look more and therefore elicit greater satiation than the same portion presented as a single, large piece. E.J. Capaldi and colleagues (1989) showed that when rats were trained to associate one arm of a T-maze with a single 300 mg pellet and another with 4 (75 mg) pellets, they preferred the arm associated with the four pellets. We investigated if a portion of food in single or multiple, bite-sized pieces (both equal-calorie portions) would affect food selection and consumption in rats and humans.

Food-restricted rats were trained to associate one T-maze arm with 30 (10 mg) pellets and another with 1 (300 mg) food pellet. Following training, they were given 12 trials where arm choice and speed to the chosen arm were measured.

The results showed that rats preferred and also ran faster for the arm associated with the multiple (30) 10 mg pellets than that associated with the single 300 mg food pellet. This shows that foods in greater numbers may be more rewarding to animals than an equicaloric, single food pellet.

Here, a sample of 301 college students was given a pre-measured 82 g food portion (bagel) uncut or cut into quarters. Twenty minutes after the bagel was consumed, subjects were told that they could eat as much or as little from a complimentary test lunch (test meal). Any leftover bagel and test meal was then recorded.

Subjects who received the single, uncut bagel ate more calories from both the bagel and the test meal than those who received the multiple-piece bagel. This shows that food cut into multiple pieces may be more satiating than a single, uncut portion of food.

Devina Wadhera, the lead author, suggests that "cutting up energy-dense meal foods into smaller pieces may be beneficial to dieters who wish to make their meal more satiating while also maintaining portion control."

Provided by Society for the Study of Ingestive Behavior

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