Stomach capacity, desire to eat increases at buffets

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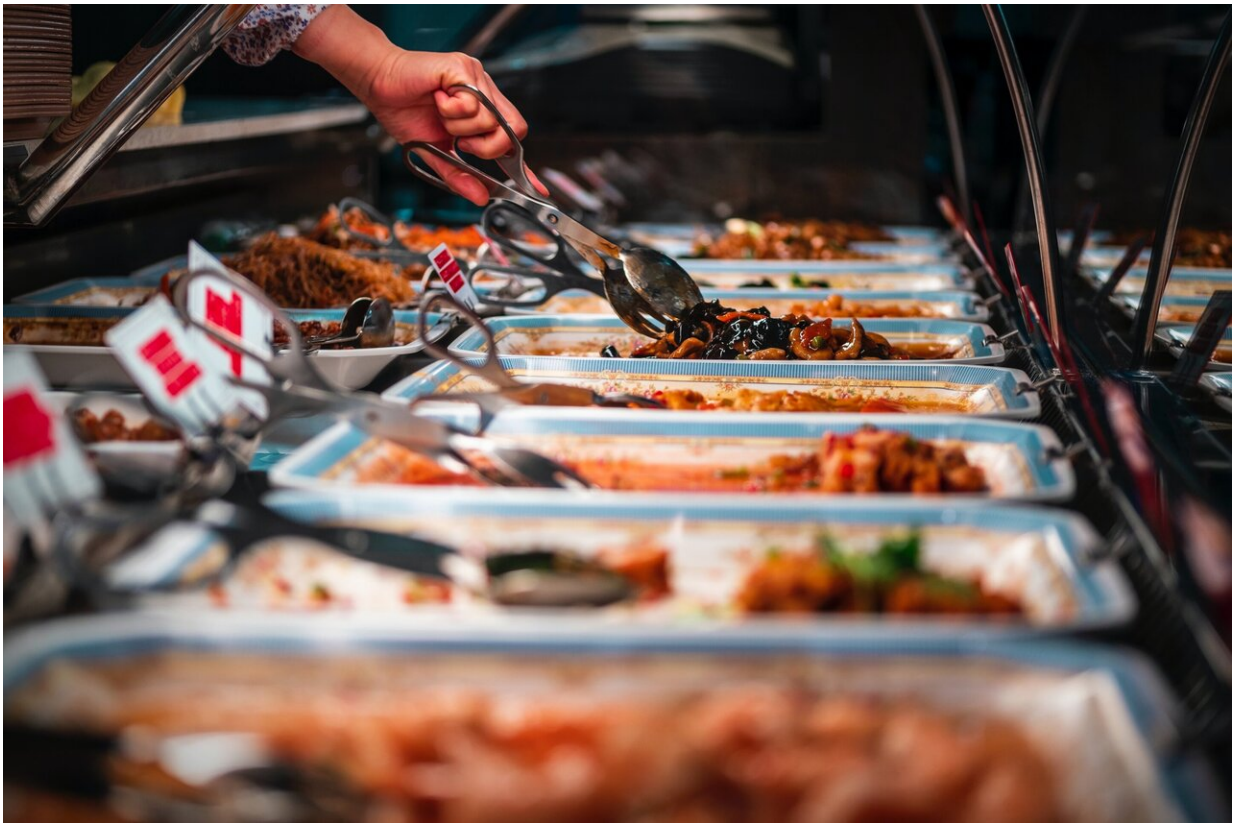

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Research suggests stomach capacity in obesity changes to accommodate different eating situations, which has an effect on feelings of fullness and the urge to overeat. The study is published in the *American Journal*

of Physiology-Gastrointestinal and Liver Physiology.

Studies have found that people with obesity have a greater gastric volume (stomach capacity) compared with those with a lower body mass index. Physical, genetic and social factors are just a few components that influence eating behavior, which includes the desire to stop eating due to fullness (satiety) and the physical state of fullness (satiation). The associations between stomach capacity—while fasting and after eating—and both satiety and satiation are unclear.

Researchers studied a group of obese but otherwise healthy participants while fasting, after drinking approximately 10 ounces of a liquid nutritional supplement and after eating a meal at a buffet. The volunteers were instructed to drink the nutritional supplement at a steady rate of 1 ounce per minute and rated their sense of fullness every five minutes. When the participants reached the state of "maximum or unbearable fullness," they were told to stop the drink test.

Four hours later, the volunteers were invited to eat as much as they wanted from the carbohydrate-rich buffet during a 30-minute period. The research team measured the volunteers' desire to keep eating through the number of calories they consumed and through a widely used lifestyle questionnaire that determines a person's ability to resist the urge to overeat. The study showed that a smaller fasting gastric volume has the potential to reduce calorie intake.

Using validated questionnaires, the researchers also assessed the ability of participants to control the urge to eat and found that greater control corresponded with a higher level of gastric accommodation (volume of the stomach) during a standard meal. The meal in this case consisted of 10 ounces of the nutritional supplement. However, the eating behaviors at the buffet meal did not follow this pattern. The researchers found that increased food intake at the buffet was associated with reduced ability to

control the urge to eat food, based on the responses to the questionnaire. Overall, the results suggest that the size of the stomach during fasting and its reflex enlargement after a meal are one set of determinants of food intake. However, the brain controls some of eating and drinking behavior, showing the urge to eat is sometimes difficult to control, regardless of fullness.

Future studies will focus on assessing "the physiological and behavioral traits [of lean, overweight and obese volunteers] in association with weight gain and weight loss in order to better understand the complex regulation of energy consumption and appetite," the researchers wrote.

More information: Priya Vijayvargiya et al. Associations of gastric volumes, ingestive behavior, calorie and volume intake, and fullness in obesity, *American Journal of Physiology-Gastrointestinal and Liver Physiology* (2020). DOI: 10.1152/ajpgi.00140.2020