

# Slower-paced meal reduces hunger but affects calorie consumption differently

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Obesity rates in the United States increased from 14.5% of the population in 1971-1974 to 35.9% of the population in 2009-2010. It's believed that one contributing factor to expanding waistlines is the reported increase in energy intake. Research suggests that the ability to control energy intake may be affected by the speed at which we eat, and a high eating rate may impair the relationship between the sensory signals and processes that regulate how much we eat.

In order to learn more about the relationship between eating speed and [energy intake](#), a team of researchers in the Department of Kinesiology at Texas Christian University took a look at how eating speed affects calories consumed during a meal in both [normal weight](#) subjects as well as overweight or obese subjects. The investigators also collected data on feelings of hunger and fullness before and after the fast-paced and slow-paced meals and [water consumption](#) during the meals. Their results are published in the *Journal of the Academy of Nutrition and Dietetics*.

While previous studies have reviewed the relationship between eating speed and body weight, most of those studies were conducted with normal-weight individuals. In this new study, investigators asked a group of normal-weight subjects and a group of overweight or obese subjects to consume two meals in a controlled environment. All subjects ate one meal at a slow speed, for which they were instructed to imagine that they had no time constraints, take small bites, chew thoroughly, and pause and put the spoon down between bites, and a second meal at a fast speed, for which they were instructed to imagine that they had a time

constraint, take large bites, chew quickly, and not pause and put the spoon down.

At the conclusion of the study, researchers found that only normal-weight subjects had a statistically significant reduction in caloric consumption during the slow compared to the fast meal: 88 kcal less for the normal weight group, versus only 58 kcal less for the overweight or obese group.

"Slowing the speed of eating led to a significant reduction in energy intake in the normal-weight group, but not in the overweight or obese group. A lack of statistical significance in the overweight and obese group may be partly due to the fact that they consumed less food during both eating conditions compared to the normal-weight subjects," explained lead author Meena Shah, PhD, professor in the Department of Kinesiology at Texas Christian University. "It is possible that the overweight and obese subjects felt more self-conscious, and thus ate less during the study."

Despite the differences in caloric consumption between the normal-weight and overweight and obese subjects, the study found some similarities. Both groups felt less hungry later on after the slow meal than after the fast meal. "In both groups, ratings of hunger were significantly lower at 60 minutes from when the meal began during the slow compared to the fast eating condition," added Dr. Shah. "These results indicate that greater hunger suppression among both groups could be expected from a meal that is consumed more slowly."

Also, both the normal weight and overweight or obese groups consumed more water during the slow meal. During the fast condition, participants across the study only consumed 9 ounces of water, but during the slow condition, that amount rose to 12 ounces. "Water consumption was higher during the slow compared to the fast eating condition by 27% in

the normal weight and 33% in the [overweight](#) or obese group. The higher water intake during the slow eating condition probably caused stomach distention and may have affected food consumption," said Dr. Shah.

With [obesity rates](#) continuing to rise among the adult population in the United States, information about how different weight groups approach and consume food will be helpful in crafting strategies to lower energy intake, but for now, Dr. Shah suggested, "Slowing the speed of eating may help to lower energy intake and suppress hunger levels and may even enhance the enjoyment of a meal."

**More information:** "Slower Eating Speed Lowers Energy Intake in Normal-Weight but Not Overweight/Obese Subjects," by Meena Shah, PhD; Jennifer Copeland, MS; Lyn Dart, PhD, RD, LD; Beverley Adams Huet, MS; Ashlei James, MS; Debbie Rhea, EdD, *Journal of the Academy of Nutrition and Dietetics*, [DOI: 10.1016/j.jand.2013.11.002](https://doi.org/10.1016/j.jand.2013.11.002)

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