

Study finds meal timing strategies appear to lower appetite, improve fat burning

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Researchers have discovered that meal timing strategies such as intermittent fasting or eating earlier in the daytime appear to help people lose weight by lowering appetite rather than burning more calories, according to a report published online today in the journal *Obesity*, the

flagship journal of The Obesity Society. The study is the first to show how meal timing affects 24-hour energy metabolism when food intake and meal frequency are matched.

"Coordinating meals with circadian rhythms, or your body's internal clock, may be a powerful strategy for reducing appetite and improving [metabolic health](#)," said Eric Ravussin, Ph.D., one of the study's authors and associate executive director for clinical science at Louisiana State University's Pennington Biomedical Research Center in Baton Rouge.

"We suspect that a majority of people may find meal timing strategies helpful for losing weight or to maintain their weight since these strategies naturally appear to curb appetite, which may help people eat less," said Courtney M. Peterson, Ph.D., lead author of the study and an assistant professor in the Department of Nutrition Sciences at the University of Alabama at Birmingham.

Peterson and her colleagues also report that meal timing strategies may help people burn more fat on average during a 24-hour period. Early Time-Restricted Feeding (eTRF)—a form of daily intermittent fasting where dinner is eaten in the afternoon—helped to improve people's ability to switch between burning carbohydrates for energy to burning fat for energy, an aspect of metabolism known as metabolic flexibility. The study's authors said, however, that the results on fat-burning are preliminary. "Whether these strategies help people lose body fat need to be tested and confirmed in a much longer study," said Peterson.

For the study, researchers enrolled 11 [adult men](#) and women who had excess weight. Participants were recruited between November 2014 and August 2016. Adults, in general good health, aged 20-to-45-years old were eligible to participate if they had a body mass index between 25 and 35 kg/m² (inclusive), body weight between 68 and 100 kg, a regular bedtime between 9:30 p.m. and 12 a.m., and for women, a regular

menstrual cycle.

Participants tried two different meal timing strategies in random order: a control schedule where participants ate three meals during a 12-hour period with breakfast at 8:00 a.m. and dinner at 8:00 p.m. and an eTRF schedule where participants ate three meals over a six-hour period with breakfast at 8:00 a.m. and dinner at 2:00 p.m. The same amounts and types of foods were consumed on both schedules. Fasting periods for the control schedule included 12 hours per day, while the eTRF schedule involved fasting for 18 hours per day.

Study participants followed the different schedules for four days in a row. On the fourth day, researchers measured the metabolism of participants by placing them in a respiratory chamber—a room-like device—where researchers measured how many calories, carbohydrates, fat and protein were burned. Researchers also measured the appetite levels of participants every three hours while they were awake, as well as hunger hormones in the morning and evening.

Although eTRF did not significantly affect how many calories participants burned, the researchers found that eTRF did lower levels of the hunger hormone ghrelin and improved some aspects of appetite. It also increased fat-burning over the 24-hour day.

"By testing eTRF, we were able to kill two birds with one stone," said Peterson, adding that the researchers were able to gain some insight into daily [intermittent fasting](#) (time restricted-feeding), as well as meal timing strategies that involve eating earlier in the daytime to be in sync with circadian rhythms. The researchers believe that these two broader classes of meal timing strategies may have similar benefits to eTRF.

Hollie Raynor, Ph.D., RD, LDN, who was not associated with the research, said "this study helps provide more information about how

patterns of eating, and not just what you eat, may be important for achieving a healthy weight." Raynor is a professor and interim dean of research in the Department of Nutrition, College of Education, Health, and Human Sciences at The University of Tennessee, Knoxville.

Peterson and colleagues said prior research was conflicted on whether meal timing strategies help with weight loss by helping people burn more calories or by lowering appetite. Studies in rodents suggest such strategies burn more calories, but data from human studies were conflicting—some studies suggested meal [timing](#) strategies increase calories burned, but other reports showed no difference. The study's authors said, however, that previous studies did not directly measure how many calories people burned or were imperfect in other ways.

More information: "Early Time-Restricted Feeding Reduces Appetite and Increases Fat Oxidation But Does Not Affect Energy Expenditure in Humans," *Obesity* (2019).

Provided by The Obesity Society

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