

Time-Restricted Eating for Metabolic Syndrome

People who limited their eating to an eight to ten hour period each day had modest health benefits after three months.

November 4, 2024 By Vicki Contie and National Institutes of Health

In recent years, there's been a growing interest in an eating pattern called time-restricted eating, or intermittent fasting. With this approach, eating is limited to about an 8 to 10 hour window of time each day. There's no calorie counting. Several animal and clinical studies have found evidence that this approach can lead to metabolic improvements, including weight loss and better control of blood glucose, or blood sugar. But the results of clinical trials have been mixed.

Many previous trials of time-restricted eating focused on people with obesity but no other identified metabolic conditions. In a new study, a research team led by Drs. Satchidananda Panda of the Salk Institute for Biological Studies and Pam R. Taub of the University of California, San Diego, decided to look instead at people who have both metabolic syndrome and prediabetes, including those taking medications for those disorders. Metabolic syndrome is a set of conditions that can raise the risk for serious health problems, including heart disease, diabetes, and stroke. Prediabetes occurs when blood sugar levels are higher than normal but not high enough to be considered diabetes.

The study included 108 adults—56 women and 52 men. Their average age was around 59. At the start of the study, participants on average ate during an approximately 14-hour time period each day.

All participants were given standard nutritional guidance and asked to track their daily food intake via a smartphone app. Half of the participants were randomly assigned to also follow an eight- to ten-hour eating pattern. Each person's eating period was based on their normal sleep and eating patterns at the start of the study. Researchers aimed to reduce each person's eating window by at least four hours. Eating periods began at least one hour after waking and ended at least three hours before sleep.

At the start of the study and three months later, the scientists measured all participants' body weight, blood glucose, and other metabolic factors. Results were published on October 1, 2024, in [Annals of Internal Medicine](#).

People in the time-restricted eating group showed a modest but statistically significant improvement in their hemoglobin A1C levels, a marker of blood glucose control. This group also had about 3% to 4% reductions in weight, body mass index (BMI), and trunk fat. This type of fat is a risk factor for diabetes and other metabolic diseases. The average weight loss of about 6.6 pounds in the restricted eating group was mainly due to loss of fat and not lean muscle mass, which is a potential problem with weight loss.

Although these results are promising, the researchers point out that larger, longer-lasting clinical trials are needed to understand the long-term effects of time-restricted eating.

“For many patients, metabolic syndrome is the tipping point that leads to serious and chronic diseases like diabetes and heart disease,” Taub says. “There is an urgent need for more effective lifestyle interventions that are accessible, affordable, and sustainable for the average American.”

“Unlike expensive pharmaceuticals [that] require lifetime use, time-restricted eating is a simple lifestyle change that doesn’t cause side effects and can be maintained indefinitely,” says study first author Dr. Emily Manoogian at Salk. “Patients appreciate that they don’t have to change what they eat, just when they eat.”

This [research summary](#) was published by the National Institutes of Health on October 22, 2024.