Original Investigation

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Effectiveness of Early Time-Restricted Eating for Weight Loss, Fat Loss, and Cardiometabolic Health in Adults With Obesity

A Randomized Clinical Trial

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Key Points

Question Is early time-restricted eating more effective than eating over a period of 12 or more hours for losing weight and body fat?

Findings In a randomized clinical weight-loss trial involving 90 adults with obesity, early time-restricted eating was more effective for losing weight (−6.3 kg) than eating over a window of 12 or more hours (−4.0 kg) but not for losing body fat (−4.7 vs −3.4 kg). In a secondary analysis of completers, early time-restricted eating was more effective for losing weight and body fat.

Meaning Early time-restricted eating was more effective for weight loss than eating over a window of 12 or more hours; larger studies are needed on fat loss.

Abstract

Importance It is unclear how effective intermittent fasting is for losing weight and body fat, and the effects may depend on the timing of the eating window. This randomized trial compared time-restricted eating (TRE) with eating over a period of 12 or more hours while matching weight-loss counseling across groups.

Objective To determine whether practicing TRE by eating early in the day (eTRE) is more effective for weight loss, fat loss, and cardiometabolic health than eating over a period of 12 or more hours.

Design, Setting, and Participants The study was a 14-week, parallel-arm, randomized clinical trial conducted between August 2018 and April 2020. Participants were adults aged 25 to 75 years with obesity and who received weight-loss treatment through the Weight Loss Medicine Clinic at the University of Alabama at Birmingham Hospital.

Interventions All participants received weight-loss treatment (energy restriction [ER]) and were randomized to eTRE plus ER (8-hour eating window from 7:00 to 15:00) or control eating (CON) plus ER (≥12-hour window).

Main Outcomes and Measures The co-primary outcomes were weight loss and fat loss. Secondary outcomes included blood pressure, heart rate, glucose levels, insulin levels, and plasma lipid levels.

Results Ninety participants were enrolled (mean [SD] body mass index, 39.6 [6.7]; age, 43 [11] years; 72 [80%] female). The eTRE+ER group adhered 6.0 (0.8) days per week. The eTRE+ER intervention was more effective for losing weight (−2.3 kg; 95% CI, −3.7 to −0.9 kg; $P = .002$) but did not affect body fat (−1.4 kg; 95% CI, −2.9 to 0.2 kg; $P = .09$) or the ratio of fat loss to weight loss (−4.2%; 95% CI, −14.9 to 6.5%; $P = .43$). The effects of eTRE+ER were equivalent to reducing calorie intake by an additional 214 kcal/d. The eTRE+ER intervention also improved diastolic blood pressure (−4 mm Hg; 95% CI, −8 to 0 mm Hg; $P = .04$) and mood disturbances, including fatigue-inertia, vigor-activity, and depression-dejection. All other cardiometabolic risk factors, food intake, physical activity, and sleep outcomes were similar between groups. In a secondary analysis of 59 completers, eTRE+ER was also more effective for losing body fat and trunk fat than CON+ER.

Conclusions and Relevance In this randomized clinical trial, eTRE was more effective for losing weight and improving diastolic blood pressure and mood than eating over a window of 12 or more hours at 14 weeks.

Trial Registration ClinicalTrials.gov Identifier: NCT03459703

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