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Original Investigation

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September 28, 2020

Effects of Time-Restricted Eating on Weight Loss and Other Metabolic Parameters in Women and Men With Overweight and Obesity

The TREAT Randomized Clinical Trial

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Key Points

Question What is the effect of time-restricted eating on weight loss and metabolic health in patients with overweight and obesity?

Findings In this prospective randomized clinical trial that included 116 adults with overweight or obesity, time-restricted eating was associated with a modest decrease (1.17%) in weight that was not significantly different from the decrease in the control group (0.75%).

Meaning Time-restricted eating did not confer weight loss or cardiometabolic benefits in this study.

Abstract

Importance The efficacy and safety of time-restricted eating have not been explored in large randomized clinical trials.

Objective To determine the effect of 16:8-hour time-restricted eating on weight loss and metabolic risk markers.

Interventions Participants were randomized such that the consistent meal timing (CMT) group was instructed to eat 3 structured meals per day, and the time-restricted eating (TRE) group was instructed to eat *ad libitum* from 12:00 PM until 8:00 PM and completely abstain from caloric intake from 8:00 PM until 12:00 PM the following day.

Design, Setting, and Participants This 12-week randomized clinical trial including men and women aged 18 to 64 years with a body mass index (BMI, calculated as weight in kilograms divided by height in meters squared) of 27 to 43 was conducted on a custom mobile study application. Participants received a Bluetooth scale. Participants lived anywhere in the United States, with a subset of 50 participants living near San Francisco, California, who underwent in-person testing.

Main Outcomes and Measures The primary outcome was weight loss. Secondary outcomes from the in-person cohort included changes in weight, fat mass, lean mass, fasting insulin, fasting glucose, hemoglobin A_{1c} levels, estimated energy intake, total energy expenditure, and resting energy expenditure.

Results Overall, 116 participants (mean [SD] age, 46.5 [10.5] years; 70 [60.3%] men) were included in the study. There was a significant decrease in weight in the TRE (−0.94 kg; 95% CI, −1.68 to −0.20; *P* = .01), but no significant change in the CMT group (−0.68 kg; 95% CI, −1.41 to 0.05, *P* = .07) or between groups (−0.26 kg; 95% CI, −1.30 to 0.78; *P* = .63). In the in-person cohort (*n* = 25 TRE, *n* = 25 CMT), there was a significant within-group decrease in weight in the TRE group (−1.70 kg; 95% CI, −2.56 to −0.83; *P* < .001). There was also a significant difference in appendicular lean mass index between groups (−0.16 kg/m²; 95% CI, −0.27 to −0.05; *P* = .005). There were no significant changes in any of the other secondary outcomes within or between groups. There were no differences in estimated energy intake between groups.

Conclusions and Relevance Time-restricted eating, in the absence of other interventions, is not more effective in weight loss than eating throughout the day.

Trial Registration ClinicalTrials.gov Identifiers: [NCT03393195](#) and [NCT03637855](#)

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September 29, 2020

[A Study that was Poorly Done](#)

Danielle Hammond |

16 hours of fasting isn't often enough to lose weight, and the participants were allowed zero calorie beverages. As far as I'm concerned no one should have wasted time and money on this study to try to say that fasting doesn't work.

Try fasting with only black coffee, tea, or water. And for at least 18-20 hours.

Have the participants do this for 3 months to become fully adapted. Then present the results.

CONFLICT OF INTEREST: None Reported

September 29, 2020

No Objective Measure of Compliance and Differential Attrition

Robert Kaestner, Ph.D. | University

The study measured compliance through self-reports. According to these self reports, 92.1% complied with CMT and 83.5% complied with TRE.

Further, it is unclear what non-compliance in the CMT group means? Did it include partial intermittent fasting--e.g., skipping breakfast? Did it mean ever not complying? Or not complying consistently?

Similar questions apply about compliance for the TRE group? And which group is more likely to misreport compliance?

The absence of compliance information is potentially quite important. For example, if we scale the weight change of compliers was -1.13 (0.94/0.835) kg. Doing the same for CMT group ...

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Disease markers?

Fips Alfredsson, PhD | University of Bogota

Fasting is not just about weight loss. The study did not measure parameters that could assess general health status, which, in the long run, might be more important than weight loss.

Apart from this, I find another comment a bit misplaced -- more extreme forms of fasting for much longer times of course will have likely promoted statistically significant differences in weight loss; yet, the idea behind studies like this is that a rhythm of 16:8 is what most people can do it, while 18:6 or 20:4 is much harder to achieve and live by for a broad ...

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Time-restricted Eating Misunderstood in Study

MH Tang, MSc | The study states that 3 meals were consumed - obviously the participants will not lose weight if total caloric intake remains unchanged.

The study states that 3 meals were consumed - obviously the participants will not lose weight if total caloric intake remains unchanged.

The study authors have also taken the time-restricted eating out of proper context i.e. time-restriction is to be seen in the context of not consuming 2 of the typical 3 meals in a day - usually breakfast and lunch is skipped, or just breakfast.

CONFLICT OF INTEREST: None Reported

September 30, 2020

Why even do such a study without controlling for what a subject eats?

Rod Erickson, DC, MS | Miramar College

As long as the subjects eat the SAD (standard American diet) ad libitum but limit it to 8 hrs/day does not suggest anything different from what is already known.

CONFLICT OF INTEREST: None Reported

October 4, 2020

Everyday American Diet is the Culprit

Sudah Shaheeb, MD | University

A clever health care lobbyist made a graph of rate of obesity compared to the increasing number of nutritionists, midlevel providers and diabetologists in the USA. There was a good correlation but does it mean that the rise in the number of professionals is the cause of obesity in the USA ? or does it mean that the uncontrollable rate of obesity gave rise to an increasing number of professionals devoting themselves to nutrition, obesity etc.

I am a medical anthropologist and as someone has mentioned the problem is the quality of food available for an average American in the ...

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October 5, 2020

What about circadian rhythm?

Maria Kravchenko, MD |

The subjects in the TRE group were allowed to eat until 8 pm. There are many studies looking at the relationship of meal intake to circadian rhythm; these all show that eating later in the day is associated with adverse metabolic effects and weight gain. This study would be stronger if it had compared several groups with different time periods involved.

CONFLICT OF INTEREST: None Reported

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