

Intermittent Fasting in Weight Loss and Cardiometabolic Risk Reduction: A Randomized Controlled Trial

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Abstract

Intermittent fasting is a powerful technique to sell weight reduction. The optimum version of intermittent fasting in accomplishing weight control and cardiometabolic hazard discount is an underexplored however essential issue. This look at become designed to take a look at the outcomes of alternate-day fasting (ADF) and sixteen/eight time-confined fasting (sixteen/eight TRF) on weight reduction, blood glucose, and lipid profile in obese and overweight adults with prediabetes. A randomized managed trial become carried out on a pattern of one zero one obese and overweight adults with prediabetes. The individuals had been randomized into the ADF organization (n=34), sixteen/eight TRF organization (n=33), and manipulate organization (n=34). The intervention lasted for three weeks. Data on frame weight, frame mass index, waist circumference, blood glucose, and lipid profile had been amassed at baseline, on the cease of the intervention, and on the three-month follow-up. The discounts in frame weight, frame mass index, and waist circumference withinside the ADF and sixteen/eight TRF companies had been extra massive than the ones withinside the manipulate organization throughout the look at length (all $ps < 0.05$). Moreover, massive discounts on blood glucose and triglycerides had been determined withinside the intervention companies as well. Furthermore, the discounts in frame weight and frame mass index withinside the ADF organization had been extra massive than the ones withinside the sixteen/eight TRF organization (all $ps < 0.001$). However, variations at the modifications in blood glucose, waist circumference, and low-density lipoprotein ldl cholesterol among the 2 intervention companies had been now no longer massive. The blessings of ADF and sixteen/eight TRF in selling weight reduction in obese/overweight adults with prediabetes had been proven on this look at. ADF become proven to have extra-massive discount outcomes on frame weight and frame mass index than sixteen/eight TRF. These findings suggest the capacity gain of integrating intermittent fasting regimens into regular nutritional styles to lessen the hazard of diabetes and cardiovascular sickness on this population.

Keywords: Weight loss • Cardiometabolic • Risk reduction

Introduction

These become a randomized managed trial (RCT) look at that used comfort sampling. Participants had been randomized to the ADF organization (n=34), the sixteen/eight each day TRF organization (n=33), and the same old care organization (n=34) the usage of a computer-generated randomization listing created with the aid of using an offsite studies group of workers who become now no longer worried withinside the sensible behavior of this look at. Random numbers with allocation codes had been stored in opaque sealed envelopes that had been sequentially numbered and allotted to individuals with the aid of using a studies assistant in keeping with individuals' enrolment sequence [1].

The individuals had been recruited from a weight control health facility in Hunan Provincial People's Hospital, Changsha, China, from August 2018 to April 2019. The inclusion standards had been as follows: (a) age of 18–sixty five years, (b) having a prognosis of prediabetes (blood glucose degree: 100–one hundred twenty five mg/dl; American Diabetes Association, 2020), (c) being obese or overweight (BMI: $\geq 23 \text{ kg/m}^2$), and (d) being capable of supply written knowledgeable consent. Patients had been excluded from the look at if they (a) had been pregnant or making plans to end up pregnant; (b) had an ingesting disorder, a critical cognitive impairment, a psychiatric sickness, or a gastrointestinal disorder; (c) had been being handled with insulin, glyburide, or different antiobesity drugs; or (d) were worried in a diary-associated software at some stage in the preceding 12-month length [2,3].

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The pattern length become decided as ok for detecting a 5% distinction withinside the discount of frame weight among the 2 intervention companies. The strength evaluation software program PASS 14.0 become used to estimate the strength while regression evaluation becomes carried out. Thus, it become predicted that a pattern length of 29 individuals according to arm become had to supply 80% strength at a 5% degree of importance (sided). Allowing for a 10% attrition rate, 33 individuals had been recruited for every arm [5-8].

The intervention lasted for three weeks. The individuals in each of the intervention companies acquired an person training consultation on wholesome eating regimen supplied with the aid of using a nurse withinside the weight control health facility. This consultation blanketed subjects which include eating regimen and health, blessings of power manipulate, and abilities to keep a wholesome eating regimen. The individuals withinside the ADF organization had been told with the aid of using a dietitian to eat six hundred kcal on fasting days and to eat a traditional eating regimen on ingesting days. The fasting days alternated with ingesting days during the intervention length. The ADF organization individuals had been unfasted to divide up the energy into exceptional food at some stage in fasting days. The sixteen/eight TRF organization become requested to eat their each day calorie consumption at some stage in an eight-hour window at some stage in the daylight after which speedy for the closing sixteen hours every day during the intervention length. Participants had been unfasted to set up the eight-hour ingesting window primarily based totally on non-public preferences. The each day calorie requirement become decided in keeping with Chinese Dietary Reference Intakes wherein each day calorie necessities are predicted primarily based totally on degree of bodily pastime and gender (Chinese Nutrition Society, 2016). This flexibility become anticipated to assist the individuals adapt to their person life and to facilitate compliance with the nutritional intervention. In addition, each the ADF and sixteen/eight TRF companies acquired individualized menus tailor-made to their nutritional interventions and person counseling supplied with the aid of using a dietitian. Weekly cellphone calls had been carried out with the aid of using a studies nurse to facilitate individuals' adherence to their nutritional intervention. Furthermore, the individuals had been requested to report and document unfavourable outcomes skilled at some stage in the look at length.

To reduce capacity interest bias, the individuals withinside the manipulate organization additionally acquired the equal person academic consultation. All

of the individuals had been requested to keep their traditional bodily pastime during the look at length. The number one final results of this look at become the extrade in frame weight. Body weight become measured the usage of a calibrated virtual scale with mild apparel and without footwear or jewelry.

Secondary results protected blood glucose, BMI, waist circumference, and a lipid profile that protected overall ldl cholesterol, high-density lipoprotein ldl cholesterol (HDL-C), low-density lipoprotein ldl cholesterol (LDL-C), and triglyceride. Blood glucose become measured thru blood trying out withinside the laboratory of the look at medical institution. The blood pattern become drawn with the aid of using a skilled studies nurse thru venepuncture after eight hours of in a single day fasting. BMI become calculated the usage of the formula: frame weight (kg)/frame height 2 m². Waist circumference become measured the usage of a tape at halfway among the lowest of the rib cage and the pinnacle of the iliac crest on the cease of regular exhalation. Lipid profile become measured thru blood trying out withinside the laboratory of the studied medical institution the usage of the equal blood pattern for blood glucose trying out.

Participants' bodily pastime might also additionally confound the intervention outcomes. Participants had been requested to finish the bodily pastime subscale of the Chinese model of the Health Promoting Lifestyle Profile II to tune modifications in bodily pastime degree. The Chinese model of the Health Promoting Lifestyle Profile II is a dependable and legitimate questionnaire, with a great Cronbach's alpha of .ninety five for the complete scale and .ninety one for the bodily pastime subscale in a Chinese pattern.

Ethical approval becomes received from the Joint Chinese University of Hong Kong–New Territories East Cluster Clinical Research Ethics Committee. Participants had been knowledgeable approximately their proper to withdraw from the look at at any time without penalty to their gift or destiny care. Furthermore, the look at conformed to the standards mentioned withinside the Helsinki Declaration. Patients who had been admitted for weight control had been screened for eligibility primarily based totally at the inclusion and exclusion standards with the aid of using a studies nurse. The studies nurse defined the look at purposes, procedures, and blessings/dangers to eligible sufferers and invited them to participate. After acquiring written knowledgeable consent, the individuals had been randomized to one of the 3 companies. Data series become carried out at 3 time points: baseline (T0), cease of the intervention (T1), and three-month follow-up (T2).

Data analyses had been finished the usage of SPSS Statistics 22.0. Descriptive statistics, which include mean (SD), median (interquartile range), frequency, and percentage, had been used as suitable to offer the records. Continuous records had been tested for regular distribution the usage of Q-Q plots. For comparisons many of the 3 companies, one-manner evaluation of variance, Kruskal–Wallis take a look at, and chi-rectangular take a look at had been used as suitable. The generalized estimating equation (GEE) version becomes finished to evaluate variations withinside the modifications among companies in every final results throughout the time points. The linear hyperlink characteristic becomes carried out for records that had been usually allotted. For nonnormal allotted non-stop records, the records had been herbal log-converted earlier than being subjected to GEE evaluation. The autoregressive versions (AR-1) become used for the operating matrix. As the GEE is capable of use partial statement records to estimate the regression parameters, the lacking records had been now no longer specially treated withinside the records evaluation on this look at. Adverse occasions at some stage in the period of the look at had been recorded. The intention-to-deal with precept becomes accompanied until indicated otherwise. The degree of importance becomes set at <0.05 (sided).

Discussion

This look at become designed to take a look at the outcomes of intermittent fasting interventions (ADF and sixteen/eight TRF) on weight reduction, blood glucose, and lipid profile in obese and overweight sufferers with prediabetes. The findings indicated that each intervention companies performed drastically higher consequences in phrases of decreasing frame weight, BMI, and waist

circumference throughout the look at length than the manipulate organization. The ADF organization performed extra massive discounts in frame weight and BMI through the years than the sixteen/eight TRF organization. However, no massive variations among the 2 intervention companies had been determined in phrases of discounts in blood glucose or LDL-C.

Conclusion

The outcomes of intermittent fasting interventions (ADF and sixteen/eight TRF) on weight discount, blood glucose, and lipids manipulate in obese or overweight adults with prediabetes had been investigated on this look at. The consequences offer proof that the 2 intermittent fasting interventions tested on this look at facilitate discounts in frame weight, BMI, and waist circumference that drastically exceed the ones performed with the aid of using following a traditional eating regimen. Compared with the same old eating regimen technique, ADF extra drastically stepped forward HDL-C and decreased blood glucose through the years, while sixteen/eight TRF confirmed in addition nice outcomes in decreasing triglyceride levels. In phrases of the 2 intervention companies, ADF become advanced to sixteen/eight TRF in decreasing frame weight and BMI however inferior in decreasing triglycerides. These interventions had been similar of their outcomes on decreasing blood glucose and LDL-C. Intermittent fasting nutritional interventions can be endorsed for obese or overweight adults with prediabetes to lessen their hazard of growing cardiovascular sickness. However, interest need to be taken while practising sixteen/eight TRF due to the diagnosed hazard of dizziness. Considering the restrictions of this look at, destiny trials the usage of a extra rigorous technique and a long-time period follow-up are endorsed to affirm the findings and to in addition discover the underlying mechanisms to clarify the intervention outcomes.

Conflict of interest

None.

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