

Updated Meta-Analysis of Studies from 2011 to 2021 Comparing the Effectiveness of Intermittent Energy Restriction and Continuous Energy Restriction

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Background: Despite the considerable number of trials and meta-analyses of studies on intermittent energy restriction (IER), it is not preferred to continuous energy restriction (CER) by the majority of obesity specialists. In this meta-analysis, we compare the effects of IER and CER on obesity using evidence from randomized controlled trials (RCTs).

Methods: A systematic electronic literature search was conducted to find RCTs published between January 1, 2011, and December 31, 2021 that directly compared IER and CER for an active weight loss period of at least 12 weeks and reported obesity indices or metabolic markers in adults with overweight or obesity. Finally, 16 RCTs from 25 articles with 1,438 participants were included.

Results: The attrition rates were 26.6% and 24.1% in the IER and CER groups, respectively, with no significant differences in changes in body weight, waist circumference, or body fat composition. CER changed blood glucose levels more than IER, but there was no significant difference in glycated hemoglobin levels. Systolic blood pressure was significantly lower in the CER group than the IER group, but diastolic blood pressure did not differ significantly between the groups. Changes in blood lipids did not differ significantly between the interventions. No differences between IER and CER were observed in the sensitivity analyses.

Conclusion: IER can be an alternative to CER because it induces comparable weight reduction and metabolic improvement. However, the effect of IER was not superior to that of CER, and its attrition rate was not lower than that of CER.

Keywords: Fasting, Intermittent energy restriction, Continuous energy restriction, Caloric restriction, Obesity, Diabetes mellitus