


Abstract

Ten Hour Time-Restricted Eating (TRE) Is Associated with Improvements in Energy, Mood, Hunger and Weight in Free-Living Settings: The ZOE BIG IF Study [†]

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Abstract: Background and objectives: TRE is an intermittent fasting (IF) technique adopted for its flexibility, which focuses on the timing of eating rather than on the quantity or quality of caloric intake. Tightly controlled metabolic studies show the beneficial health effects of TRE; however, the impact of TRE in free-living settings is unknown. A community experiment on 148,374 people aimed to explore acceptability, and changes in weight, energy, mood and hunger with TRE. Methods: The BIG IF study (NCT05558423) was carried out using the ZOE Health Study smartphone app. UK users completed a baseline habitual eating phase (1 week) followed by an intervention TRE phase (2 weeks) (eating window (EW) of ≤ 10 h), with additional IF weeks optional. Users self-reported their weight pre- and post-intervention and logged EW, energy, mood, and hunger daily. A subgroup of engaged users included those who regularly logged and completed questionnaires pre and post-intervention. Mixed-effects growth models examined changes in health metrics over time. Results: Of 246,000 active ZHS users, 148,374 users signed up, 37,545 completed the core intervention period (3 weeks), 36,231 opted for additional weeks, and 27,371 were classified as highly engaged. Of engaged users ($n = 27,317$), 78% of the participants were female, with a mean (\pm SD) age of 60 (10) years, BMI of 25.6 (3.02) and baseline EW of 11.3 h (95% CI: 11.2–11.4). Overall, 51% of engaged users reported a small reduction in weight over 2–16 weeks (mean change -1.09 kg (IQR: -0.8 , -1.4), which was greater in those with larger EW changes (Q1 0.90 h; -1.07 ± 0.01 kg vs. Q4 3.18 h; -1.14 ± 0.01 kg). Practising TRE over a longer duration was associated with higher reported energy (time \times EW coefficient (β): 0.016 ± 0.02), mood (β : 0.008 ± 0.02) and lower hunger (β : -0.016 ± 0.02) ($p < 0.01$ for all). Interestingly, inconsistencies in EWs were associated with lower energy, mood and higher hunger. Conclusion: In this study, 60% of users were prepared to try TRE, which improved their self-reported health in real-world life conditions. People wanting to practise TRE may benefit more if their EW is long at baseline and should consider consistency and the duration of time required to observe effects.



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