

## Irregular Meal Pattern: What Is the Impact on Weight

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**Abstract :** Background: It is well established that dietary composition has effects on metabolism and therefore impacts on health; however other aspects of diet, such as meal pattern, could also be important in both obesity management and promoting health. The present study investigated the effect of irregular meal frequency on anthropometric measurements and energy expenditure (EE) in healthy women. Design: 11 healthy weight women (18-40 years) were studied in a randomized crossover trial with two phases of 2 weeks each. In Phase 1, participants consumed either a regular meal pattern (6 meals/day) or an irregular meal pattern (varying from 3 to 9 meals/day). In Phase 2, participants followed the alternative meal pattern to that followed in Phase 1, after a 2-weeks washout period. In the two phases, identical foods were provided to a participant in amounts designed to keep body weight constant. Participants came to the laboratory after an overnight fast at the start and end of each phase. EE was measured in fasting state by indirect calorimetry. Postprandial EE was measured during the 3 h period after consumption of a milkshake, test drink. Results: There were no significant changes in body weight and anthropometric measurements after both meal pattern interventions. There was also no significant difference in mean daily energy intake between the regular and irregular meal pattern ( $2043 \pm 31$  and  $2099 \pm 33$  respectively). EE in the fasting state showed no significant differences cross the experiment visits. There was a significant difference in Postprandial EE (measured for 3 h) by visit ( $P=0.04$ ). Postprandial EE after the regular meal pattern was significantly higher than at baseline ( $P=0.002$ ) or than after the irregular meal pattern ( $P=0.04$ ). Conclusion: Eating regularly for 14-day period significantly increases Postprandial EE which may contribute to weight loss and obesity management.

**Keywords :** energy expenditure, energy intake, meal pattern, weight loss

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