# Effect of Two Types of Time-Restricted Eating on Glycemic, Lipid Indices and Weight of Women with Polycystic Ovary Syndrome

Maryam Aminian[1], Masoumeh Hajshafiha[2], Mohammad Heidari[3], Sevana Daneghian[1*]

[1]School of Medicine, Urmia University of Medical Sciences, Urmia, Iran
[2]Department of Obstetrics and Gynecology, School of Medicine, Reproductive Health Research Center, Urmia University of Medical Sciences, Urmia, Iran
[3]Social Determinants of Health Research Center, Clinical Research Institute, Urmia University of Medical Sciences, Urmia, Iran

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***Corresponding Author:**
School of Medicine, Urmia University of Medical Sciences, Urmia, Iran

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## ABSTRACT

**Introduction:** Polycystic ovary syndrome (PCOS) is the most common endocrine and metabolic disorder in women of reproductive age globally. It is linked to a higher prevalence of metabolic syndrome, cardiovascular diseases, and type 2 diabetes. Time-restricted eating is a type of intermittent fasting. That is a promising strategy for weight loss and glucose and lipid metabolism improvements. However, the exact time for the restriction of food intake is controversial. It is unclear to the beginning (early TRE, eTRE) or the middle of the day (middle TRE, mTRE). So, this study aims to determine whether eTRE or mTRE is a better dietary approach to improving the metabolic disorder of polycystic ovary syndrome.

**Methods and Materials:** In this clinical randomized trial, we conducted a 6-week study to compare the effects of e-TRE (8:00-18:00/n=25) and m-TRE (11:00-21:00/n=25) on anthropometric indices, insulin sensitivity, and other glycemic and lipid profiles. A total of fifty overweight or obese women, aged between 18-40 and diagnosed with PCOS by modified Rotterdam criteria, were randomly assigned to one of two groups. We evaluated changes in body weight, waist circumference (WC), body mass index (BMI), fasting blood sugar (FBS), fasting insulin, homeostasis model assessment of insulin resistance (HOMA-IR), total cholesterol (TC), triglycerides (TG), high-density lipoprotein (HDL), and low-density lipoprotein (LDL). We used independent t-test and paired t-test (and their non-parametric equivalent) to analyze the differences.

**Results:** The analyses showed that significant changes in body weight, WC, BMI, FBS, and HOMA-IR were found after 6 weeks in both intervention groups ($p$ = 0.0001). In addition, e-TRE significantly improved fasting insulin, TC, and LDL ($p$ = 0.0001); however, no significant relation was observed in the m-TRE group ($p$ = 0.05). Changes in TG and HDL were not statistically significant ($p$ = 0.05). A comparison of the two groups revealed a substantial difference in weight, BMI, FBS, TC, LDL, fasting insulin, and HOMA-IR ($p$ = 0.05).

**Conclusion and Discussion:** Overall, our findings suggest that e-TRE is more effective than m-TRE for losing weight and reducing insulin resistance in patients with polycystic ovary syndrome. However, results on lipid profile are conflicting, and further randomized control trials are needed.

*Keywords:* Insulin resistance, Polycystic ovary syndrome, Weight loss

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