Full Title: Metabolic Responses of Diet–Exercise Combinations in Women with Obesity: A Comparative Lifestyle Intervention Study with Different Diet Types

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Statistical Analysis

Statistical analysis was performed using SPSS software (v21.0; IBM Corp., Armonk, NY, USA), and graphs were generated with GraphPad Prism (v8.2, trial; USA). Data were expressed as mean ± standard deviation (SD). Pre- and post-test values were compared through a mixed two-way ANOVA, with time and group as within-subject and between-subject factors, respectively. When significant effects were identified, Bonferroni-adjusted post hoc tests were conducted. Statistical significance was set at $p < 0.05$, and partial eta squared (ηp^2) values were reported for main and interaction effects. Correlations between variables were examined using Pearson correlation analysis. Multivariate data were assessed through Principal Component Analysis (PCA) in XLSTAT software (New York, USA). This analysis reduced dimensionality and identified intergroup variations based on metabolic and myokine-related biomarkers, including adiponectin, IGF-1, irisin, myostatin, glucose, and insulin from fasting plasma samples. Two principal components were retained: the first (F1) separated metabolic indicators (glucose and insulin) from myokine/adipokine markers (adiponectin, IGF-1, irisin, and myostatin), whereas the second (F2) reflected intergroup variation, particularly distinguishing participants in post-intervention measurements (Yasul et al. 2025; Bolat et. al. 2025; Yılmaz et al. 2025).