TACSM Abstract

Effects of 8-Week Ketogenic Diet on Anthropometrics, Body Composition, Metabolic Parameters, and Psychological Factors in Young Obese Population

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ABSTRACT

Obese have a significantly higher Body Mass Index (BMI), which can be associated with poor nutritional intake and sedentary lifestyles. The ketogenic diet is a form of a dietary intervention which is often implemented for metabolic syndrome individuals such as obese populations. **PURPOSE**: The purpose of this study was to measure the effects of a ketogenic diet on anthropometrics, body composition, metabolic parameters, and psychological factors in young obese population. **METHODS**: Seven young obese participants (n=7, height (cm); 174.8 ± 10.9, weight (kg); 105 ± 20.7, BMI ($kg \cdot m^{-2}$); 34.6 ± 4.8) completed an 8-week intervention with a 70:20:10 ratio of fats to proteins to carbohydrates. Participants within the study were provided three meals per day, for a total of 8 weeks. Statistical analyses were performed with IBM Statistical Package for Social Science (SPSS 27.0, SPSS Inc., Chicago, USA). All data was reported as mean and standard deviation (SD). Dependent paired t-Test was used to determine ketogenic diet intervention effects. Frequencies were used to measure results from psychological factors. Statistical significance was set a priori $p \leq 0.05$. **RESULTS**: Participants within the study noted significant reductions in anthropometric variables during 8 weeks: body mass (Pre: 105.8 ± 20.5 kg Post: 98.9 ± 18.8 kg, p= 0.000), BMI (Pre: 34.6 ± 4.8 $kg \cdot m^{-2}$, Post: 32.2 ± 4.2 $kg \cdot m^{-2}$, p= 0.001), waist circumference (Pre: 101.5 ± 13.9 cm, Post: 96.3 ± 13.3 cm, p= 0.000), and hip circumference (Pre: 112.6 ± 11.5 cm, Post: 107.3 ± 10.8 cm, p= 0.000). Significant reductions were shown in body composition variables: body fat (Pre: 25.6 ± 0.8%, Post: 21.1 ± 1.4%, p=0.000), and lean body mass (Post: 78.9 ± 14.9 kg, Post: 78.2 ± 14.5 kg, p=.0035). Significant reductions were shown in metabolic parameters: systolic blood pressure (Post: 126.6 ± 10.0 mmHg, Post: 120 ± 6.6 mmHg, p=0.029), diastolic blood pressure (Pre: 81.7 ± 4.9 mmHg, Post: 76.3 ± 1.8 mmHg, p= 0.020), and VO_{2max} (Pre: 47.6 ± 8.9 mL • kg^{-1} • min^{-1}, Post: 51.8 ± 9.2 mL • kg^{-1} • min^{-1}, p=0.001. Question 1 within the psychological questionnaire results shown a reduction in the negative aspect in poor health score, with a significant increase shown towards good health. Question 3g results shown that here was a significant increase in frequencies of improvement towards having no limitations regarding walking a one-mile distance. Question 9g had significant increase in individuals selecting improved overall energy levels in comparison to baseline. **CONCLUSION**: The 8 weeks of ketogenic diet intervention may contribute or change bioenergetics pathways and results in significant adaptations on anthropometrics, body composition, metabolic parameters, and psychological factors in young obese population.