CONJUGATED LINOLEIC ACID WITH PHYTOSTEROLS SUPPLEMENTATION REDUCES ADIPOSE TISSUE IN LEAN RATS

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Conjugated linoleic acid (CLA) has received considerable attention as a result of animal experiments that report anti-carcinogenic, anti-atherogenic and anti-diabetic properties, and modulation of body composition. Phytosterols supplementation has also been related to reduce the visceral fat accumulation. The aim of this study was to investigate the effects of CLA and phytosterols supplementation on hormonal profile and in adipose tissue weight in animals. Forty Sprague-Dawley rats received diets supplemented with 2% of soybean oil (group S), safflower oil (group LA), mixture of c9,t11 and t10,c12 CLA isomers (group CLA), phytosterols (group P) and mixture of CLA and phytosterols (group CLA+P) for 9-weeks. The weight gain was monitored weekly. Animals were sacrificed by decapitation preceded by 12-h-fasting. Epididymal adipose tissue was removed and weighed. Blood samples were collected and serum leptin, ghrelin and adiponectin were analyzed using enzyme-linked immunosorbent assay method. The animals that received the combination of CLA and phytosterols (CLA+P) did not change weight gain, but they showed a clear decrease on epididymal adipose tissue weight (42%) compared to S and LA groups (p<0.001). The serum leptin concentration in CLA group was significantly lowered (2.5-fold) compared to LA group. Differences in adiponectin concentrations were observed for CLA and P groups, with highest and lowest values, respectively (p<0.05). There was no significant difference among the experimental groups for ghrelin concentrations. In summary these finds suggest that the association between CLA and phytosterols could be beneficial for the prevention of metabolic syndrome by suppressing fat accumulation and modification on hormonal profile.

Keywords: Conjugated linoleic acid, phytosterols, hormonal profile, adipose tissue.

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