

Association between green tea and oat bran improves the lipid profile and oxidative stress markers in Metabolic Syndrome individuals

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Introduction: Metabolic syndrome (MetS) is characterized by a combination of several cardiovascular risk factors, including abdominal obesity, hypertension, hyperglycemia, hyperlipidemia, inflammation, insulin resistance and endothelial dysfunction. MetS has been related to accelerated atherosclerosis and increased risk of diabetes and cardiovascular disease. **Objective:** The aim of the present study was to evaluate the efficacy of an oat bran and green tea-enriched diet on lipid profile, inflammation and oxidative stress markers in patients with MetS. **Methods:** This was a randomized controlled trial with a single-blind design. Fifty-two patients with MetS were enrolled in this study. The group consisted of individuals between 37 and 60 years old selected according to National Cholesterol Education Program - Adult Treatment Panel III criteria. Patients were instructed to consume 30 grams of oat bran per day (with 10% of β -glucan) plus 500 mL of green tea (prepared by brewing 3 g of dry leaves in 500 mL of water for 10 min; solution contains 145 mg of epigallocatechin gallate). Patients were followed up every thirty days to check blood pressure, body weight and waist circumference. Blood sampling and evaluation of the nutritional status (to ensure that there was no change in eating habits) occurred at the beginning and at the end of the study. Data were analyzed by the Wilcoxon matched-pairs test and was presented as median and 25th – 75th quartiles. **Results:** After 90 days of treatment, there was a significant decrease in total cholesterol [221.50 (187.50 – 257.75) vs. 210.00 (195.00 – 240.50)], low density lipoprotein cholesterol [142.20 (102.05 – 177.20) vs. 129.10 (111.60 – 153.95)] and insulin levels [13.75 (11.00 – 18.72) vs. 12.85 (9.85 – 20.10)]. The others (high density lipoprotein cholesterol, C-reactive protein, triacylglycerols, uric acid and glucose) were not significantly influenced by the intervention. Regarding oxidative stress markers, the intervention was associated with a significant increase in total plasma antioxidant capacity [759.37 (707.48 – 846.95) vs. 764.54 (730.91 – 846.72)] and in total plasma antioxidant capacity/lipid hydroperoxide ratio [0.03 (0.01 – 0.05) vs. 0.04 (0.02 – 0.08)]; with a decrease in nitric oxide metabolites [4.37 (3.20 – 5.39) vs. 3.04 (1.83 – 3.75)], lipid hydroperoxide by spectrophotometry [0.99 (0.83 – 1.28) vs. 0.81 (0.66 – 0.98)] and by chemiluminescence [27180.52 (15658.71 – 43485.00) vs. 18237.51 (9072.07 – 34325.75)]. **Conclusion:** The association of oat bran and green tea for 90 days improved lipid profile and oxidative stress markers in MetS individuals.

Keywords: Metabolic syndrome, Lipid profile, Green tea, Oat, Oxidative stress.

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