**Effects of oat beta-glucans enriched white wheat bread on mildly hypercholesterolemic subjects with overweight/obesity following a hypocaloric dietary plan**

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**Objective:** The study investigates the effect of consumption of white wheat bread enriched with oat beta-glucans on lipid profile as well as other metabolic parameters of mildly hypercholesterolemic adults with overweight/obesity. **Methods:** Oat beta-glucans enriched white wheat breadwas developedby incorporating **s**oluble beta-glucans preparation in bread formulation and the final product contained 2.1g beta-glucans/100g. The metabolic effects of the developed bread were evaluated by a single blind 8-week randomized clinical trial. Forty-one subjects with LDL-C levels 115-170 mg/dL and BMI 25-40 Kg/m2 were randomly assigned to consume daily 4 slices (=120 g) of either the wheat bread enriched with oat β-glycans (OBG, n=21, 8M/13F) or a common isocaloric white wheat bread (WWB, n=20, 7M/13F) in the context of a mediterranean-style dietary plan, applying a caloric deficit of 500 kcal of their total energy expenditure. Lipid profile, anthropometric and clinical characteristics were evaluated at baseline and at the end of the intervention. **Results:** In both groups, a statistically significant decrease in body weight, BMI, fat mass, waist and hip circumference was observed (*p*<0.05). In OBG group there was a significant reduction in diastolic blood pressure while in WWB group there was a reduction in fat free mass (*p*<0.05). Total cholesterol (TC) and triglycerides’ levels were reduced in both groups reaching statistical significance in OBG group (*p*<0.05 compared to baseline values for both parameters). The OBG group had also a trend towards lower LDL-C (*p*=0.058) and Apo-B (*p*=0.069). No significant difference in HDL-C was observed however, ApoA1 was significantly reduced at the end of the intervention (*p*<0.05). In WWB group, there was a decrease in HDL-C (*p*<0.05) and ApoA1 (*p*<0.05). Fasting glucose and triglycerides’ concentrations were significantly lower in the OBG group, compared to WWB group at the end of the intervention (*p*<0.05). **Conclusion:** The systematic consumption of white wheat bread enriched with oat beta-glucans contributed to higher improvement of metabolic profile compared to that caused by the hypocaloric diet. The incorporation of bakery products with beneficial metabolic effects in a hypocaloric dietary plan of mildly hypercholesterolemic subjects with overweight/obesity could act complementary and enhance the positive effects of weight loss.

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