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ORIGINAL RESEARCH COMMUNICATION

The effects of a whole grain– enriched hypocaloric diet on cardiovascular disease risk factors in men and women with metabolic syndrome^{1,2,3}

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Background: Whole-grain foods are associated in observational studies with a lower body mass index and lower cardiovascular disease (CVD) risk. However, few clinical trials have tested whether incorporating whole grains into a hypocaloric diet increases weight loss and improves CVD risk factors.

Objective: The aim of this study was to determine whether including whole-grain foods in a hypocaloric (reduced by 500 kcal/d) diet enhances weight loss and improves CVD risk factors.

Design: Obese adults (25 M, 25 F) with metabolic syndrome were randomly assigned to receive dietary advice either to avoid whole-grain foods or to obtain all of their grain servings from whole grains for 12 wk. All participants were given the same dietary advice in other respects for weight loss.

Results: Body weight, waist circumference, and percentage body fat decreased significantly ($P < 0.001$) in both groups over the study period, but there was a significantly ($P = 0.03$) greater decrease in percentage body fat in the abdominal region in the whole-grain group than in the refined-grain group. C-reactive protein (CRP) decreased 38% in the whole-grain group independent of weight loss but was unchanged in the refined-grain group ($P = 0.01$ for group x time interaction). Total, LDL, and HDL cholesterol decreased in both diet groups ($P < 0.05$). Dietary fiber and magnesium intakes increased in the whole-grain but not the refined-grain group ($P = 0.007$ and $P < 0.001$, respectively, for group x time interaction).

Conclusions: Both hypocaloric diets were effective means of improving CVD risk factors with moderate weight loss. There were significantly ($P < 0.05$) greater decreases in CRP and percentage body fat in the abdominal region in participants consuming whole grains than in those consuming refined grains.

Key Words: Whole-grain foods • metabolic syndrome • weight loss • fiber • C-reactive protein • CRP • insulin resistance

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