



## Lipids Significantly Reduced by Diets Containing Barley in Moderately Hypercholesterolemic Men

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### Abstract

**Objective:** To determine whether barley, as the soluble fiber source, would beneficially change cardiovascular risk factors. Soluble fiber from oats has been recognized as beneficial in decreasing blood cholesterol levels. Although barley contains high amounts of soluble fiber, it is not consumed as extensively as oats.

**Methods:** Eighteen moderately hypercholesterolemic men (2862 y) consumed a controlled equilibration diet (Step 1, 30% fat, 55% carbohydrate, 15% protein, < 300 mg cholesterol) for 2 weeks followed by the diet with about 20% of energy replaced with brown rice/whole wheat, 1/2 barley & 1/2 brown rice/whole wheat or barley (< 0.4 g, 3 g and 6 g added soluble fiber/2800 kcal, respectively) for 5 weeks in a Latin square design. Fasting blood was drawn twice weekly. Total cholesterol, HDL cholesterol, and triacylglycerols were measured enzymatically and lipid fractions were measured by nuclear magnetic resonance spectroscopy.

**Results:** Compared with prestudy concentrations, total cholesterol (14%, 17%, and 20%, respectively) and LDL cholesterol (17%, 17%, and 24%, respectively) were significantly lower ( $p < 0.0001$ ) after the low, medium, and high-soluble fiber diets. Triacylglycerol was 6%, 10%, and 16% lower ( $p = 0.09$ ) whereas HDL cholesterol (9%, 7%, and 18%) was higher ( $p < 0.001$ ) after the experimental diets. Total cholesterol and LDL cholesterol after the high-soluble fiber diet were significantly lower than concentrations after the low- or medium-soluble fiber diets. Mean LDL particle number significantly decreased ( $p = 0.007$ ) and the large LDL cholesterol fraction showed a trend toward lower concentrations ( $p = 0.06$ ).

**Conclusion:** Increasing soluble fiber through consumption of barley in a healthy diet can reduce cardiovascular risk factors.