Effect of plant sterols and Glucomannan on lipids in individuals with and without type II diabetes.

Eur J Clin Nutr.
2006 Apr;60(4):529-37
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OBJECTIVE: The purpose of this study was to determine whether supplements of plant sterols and/or glucomannan improve lipid profile and cholesterol biosynthesis in mildly hypercholesterolemic type II diabetic and non-diabetic subjects and to compare the response of these two subject groups to the treatments. DESIGN: A randomized, crossover study consisting of four phases of 21 days, with each phase separated by a 28-day washout. SETTING: The Mary Emily Clinical Nutrition Research Unit of McGill University. SUBJECTS: Eighteen non-diabetic individuals and 16 type II diabetic individuals aged 38-74 years. INTERVENTIONS: Subjects were supplemented with plant sterols (1.8 g/day), glucomannan (10 g/day), a combination of glucomannan and plant sterols, and a placebo, provided in the form of bars. RESULTS: Overall plasma cholesterol concentrations were lowered ($P<0.05$) after combination treatment (4.72+/-0.20 mmol/l) compared to control (5.47+/-0.18 mmol/l). Plasma low-density lipoprotein (LDL) cholesterol concentrations were decreased ($P<0.05$) after glucomannan (3.16+/-0.14 mmol/l) and combination treatments (2.95+/-0.16 mmol/l) compared to control (3.60+/-0.16 mmol/l). The results of lipid profiles did not differ between subject groups. Overall plasma lathosterol concentrations, an index of cholesterol biosynthesis, were lowered ($P<0.05$) after the combination treatment compared to the plant sterol treatment. CONCLUSIONS: The results suggest that glucomannan and a combination of glucomannan and plant sterols substantially improves plasma LDL cholesterol concentrations.