Abstract

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Inverse relation between dietary intake of naturally occurring plant sterols and serum cholesterol in northern Sweden

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BACKGROUND: Plant sterols are bioactive compounds, found in all vegetable foods, which inhibit cholesterol absorption. Little is known about the effect of habitual natural dietary intake of plant sterols.

OBJECTIVE: We investigated the relation between plant sterol density (in mg/MJ) and serum concentrations of cholesterol in men and women in northern Sweden.

DESIGN: The analysis included 37,150 men and 40,502 women aged 29–61 y, all participants in the Västerbotten Intervention Program.

RESULTS: Higher plant sterol density was associated with lower serum total cholesterol in both sexes and with lower LDL cholesterol in women. After adjustment for age, body mass index (in kg/m2), and (in women) menopausal status, men with high plant sterol density (quintile 5) had 0.15 mmol/L (2.6%) lower total serum cholesterol (P for trend = 0.001) and 0.13 mmol/L (3.1%) lower LDL cholesterol (P = 0.062) than did men with low plant sterol density (quintile 1). The corresponding figures for women were 0.20 mmol/L (3.5%) lower total serum cholesterol (P for trend < 0.001) and 0.13 mmol/L (3.2%) lower LDL cholesterol (P for trend = 0.001).

CONCLUSIONS: The present study is the second epidemiologic study to show a significant inverse relation between naturally occurring dietary plant sterols and serum cholesterol. To the extent that the associations found truly mirror plant sterol intake and not merely a diet high in vegetable fat and fiber, it highlights the importance of considering the plant sterol content of foods both in primary prevention of cardiovascular disease and in the dietary advice incorporated into nutritional treatment of patients with hyperlipidemia.