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ABSTRACT

Phytosterols – From Bench to Bed

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It is well established that a daily consumption of 2-2,5 g of phytosterols (plant sterols and stanols) lower the atherogenic low density lipoproteins (LDL) up to 8-9 %. These effects have been found in many patient groups like people with (mildly) elevated cholesterol concentrations, diabetic patients, and people treated with statins. Further, effects do not depend on the composition of the background diet, while plant sterols and stanols are effective in a wide variety of products. Although it has been suggested that effects of phytosterols on LDL level off at intake >3 g per day, it was recently shown that consumption of plant stanols (provided as fatty acid esters) up to 9 g a day reduced serum LDL-cholesterol concentrations in a dose-dependent, linear way up to 17 %.

So far, much attention has been paid to effects of phytosterols on fasting concentrations of LDL cholesterol. The etiology of cardiovascular disease is however multifactorial. Recently, we have also shown that in type 2 diabetic subjects atherogenic serum lipids were consistently lowered during the postprandial phase after consumption of plant stanols. Further, there are several lines of evidence that phytosterols also lower fasting serum triacylglycerol concentrations. This effect originates most likely from a reduced VLDL-1 production.

Whether the improvement in the serum lipoprotein profile after consumption of phytosterols lowers the progression of atherosclerosis has formerly not been proven for humans. Animal studies, however, are convincing and have shown decreased plaque formation after consumption of phytosterols. For humans, there are indications that biomarkers for atherosclerasis are favorable changed. Thus, these dietary components might be useful for mildly and hypercholesterolemic subjects as an addition to the diet or to cholesterol-lowering medication.

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