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## **Dietary Lipids and their Effects in Hyperlipidaemic and Healthy Persons**

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Dietary modification constitutes the basis of all lipid-lowering therapy.

The principal objective of this investigation was to determine how dietary fats with different nutrient compositions affected serum lipid concentrations in hyperlipidaemic and healthy subjects. Further aims were to evaluate a lipid-lowering intervention programme during an extended period of time and to investigate food and nutrient intake in a healthy Swedish reference population, with special attention to the dietary fat intake.

In two clinical trials the effects of strictly controlled lipid-lowering diets based on ordinary food items were compared. The diets, containing monounsaturated fatty acids (derived mainly from olive or rapeseed oil) or polyunsaturated fatty acids (derived mainly from corn oil) had similar pronounced effects on serum lipoprotein concentrations in hyperlipidaemic patients. In healthy subjects, the effects on the serum lipid levels were studied when habitually consumed edible fats were replaced by fats rich in monounsaturated (rapeseed oil) or polyunsaturated fatty acids (sunflower oil). A 4% decrease in total cholesterol ( $p < 0.001$ ) and a 5%-7% decrease in LDL cholesterol ( $p < 0.01$ ) were obtained. The results further indicate that humans have some capacity to elongate and desaturate  $\omega$ -linolenic acid (from rapeseed oil) to eicosapentaenoic acid in vivo.

By using a simplified dietary treatment programme it was possible to change dietary habits and improve the lipid profile of hyperlipidaemic men during a period of one year. The LDL/HDL cholesterol ratio had decreased by 12% ( $p < 0.05$ ) after one year. When the food and nutrient intake was determined by a simplified 7-day food record, the intake of total fat, including saturated fat, was higher than recommended in a reference population. High fat consumers, smokers and men reported a less healthy food pattern than low fat consumers, non-smokers and women.

**Key words:** Dietary intervention programme, food and nutrient intake, hyperlipidaemia, lipid-lowering diet, monounsaturated fatty acids, polyunsaturated fatty acids.

Avhandlingen är baserad på nedanstående delarbeten:

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