

Effects of Rapeseed and Olive Oil Substitution on Serum Lipids

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Monoenoic fatty acids in the diet have received special attention ever since it was found that olive oil rich in oleic acid has a lowering effect on serum total and LDL cholesterol levels similar to that of polyenoic fatty acids. Replacement of saturated fats with vegetable oils is recommended, in particular. Rapeseed oil is another abundant source of oleic acid, as it also contains relatively high amounts of both linoleic and α -linolenic acids. In addition, the abundance of saturated fatty acids is the lowest among the most common vegetable oils.

The effect of partial rapeseed and olive oil substitution on serum lipids was studied in healthy men and women aged between 24 and 65 years. Two rapeseed oil groups were formed according to the fat used earlier. Subjects in group A (N=20) were butter users and those in group B margarine users (N=25). In order to compare the effects of rapeseed and olive oils an olive oil group C (N=25) was formed. Group C had a dietary background similar to group B. The total cholesterol levels were 6.3 (A), 6.1 (B) and 6.2 mmol/l (C), respectively. The fat on bread was replaced for 6 weeks with emulsified rapeseed or olive oils comprising *ca.* 20% of the total fat intake.

In group A, LDL cholesterol level decreased by an average of 10% (0.44 mmol/l). The corresponding decrease in group B was 5.3% (0.22 mmol/l). The proportion of HDL cholesterol in relation to total cholesterol increased by 4.3% in group A and by 8.4% in group B. In group B, the absolute HDL values rose significantly after 3 weeks of substitution. The effects in the rapeseed (B) and olive oil groups (C) were rather similar except for the changes that occurred in the HDL cholesterol levels. Significant differences were also found between the changes in the LDL level (group A) and in the proportion of HDL cholesterol (group B) when compared with those of the controls (N=16). The changes in serum lipid values were clearly more pronounced in subjects having total cholesterol levels higher than 6 mmol/l.

The results show that even minor rapeseed oil substitution has a favourable impact on the serum lipid profile. The decrease in the LDL cholesterol values without reducing the absolute HDL levels is most important. At population level such effects are expected to lower the incidence of coronary heart disease.