

## Influence of soy and milk phospholipids on risk factors for cardiovascular disease in men

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**Background:** Phospholipids (PL) of the milk fat globule contain more saturated fatty acids than plant PL and also show a different pattern of PL species. PL affect lipid metabolism and have antiatherosclerotic effects in animal models and in humans. Choline as part of phosphatidylcholine and sphingomyelin may influence homocysteine metabolism. The metabolic effects of dietary PL are probably determined by both the species and the fatty acid pattern. This study examined the effect of milk- as compared to soy-PL on risk factors for cardiovascular disease (CVD) and various parameters of hepatic metabolism, inflammation and oxidative stress.

**Methods:** A 7-week parallel, double-blind intervention study was carried out in overweight and obese older men (BMI  $31 \pm 6$  kg/m<sup>2</sup>,  $63 \pm 7$  years). Participants consumed daily 250 ml milk (1.5 % fat) supplemented with 3 g milk-PL (n = 28) or 2.8 g soy-PL (n = 29). At the start and end of the intervention period fasting blood was collected and anthropometric data were obtained. Furthermore the MTHFR C677T genotype was determined.

**Results:** Plasma parameters of lipid metabolism (total-, HDL-, LDL-cholesterol, Apo A1, Apo B, triglycerides), carbohydrate metabolism (insulin, glucose, HOMA), markers of inflammation (ICAM, IL6, CRP), homocysteine, hepatic enzymes GOT and GPT and glutathione concentration in erythrocytes, were not affected by any intervention. However, milk-PL as compared to soy-PL consumption decreased the activity of the hepatic enzyme GGT. At outset of study subjects with a mutation in MTHFR 677 (CT and TT) showed a 11 % higher plasma homocysteine concentration than those with the wild type CC. However, the MTHFR genotype did not modulate the effect of the PL-intervention on plasma homocysteine.

**Conclusion:** Milk- or soy-PL consumption had no protective effect against CVD risk factors in the frame of this intervention study.

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