

## EFFECT OF PHENOL-RICH EXTRA VIRGIN OLIVE OIL ON LDL OXIDATION IN HEALTHY VOLUNTEERS

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Consumption of a Mediterranean diet is associated with a reduced incidence of coronary heart diseases. A high intake of olive oil has been implicated, but it is unclear whether olive oil offers specific benefits beyond a low content of saturated fat. Some types of extra virgin olive oil are rich in phenols which are partly lipid-soluble. These phenols might be taken up by LDL particles in plasma and protect them against oxidative modification. The aim of this study was to determine whether consumption of phenol-rich olive oil makes LDL resistant to oxidation in humans.

Forty-six healthy men and women consumed two diets supplying 69 gram per day of olive oil either rich in phenols or poor in phenols for three weeks each in a cross-over design with a two-week run-in period and a two-week wash-out period in between diets. The mean difference in phenol intake between the diets was 18 mg per day. Vitamin E intake was low during the whole study. Blood samples were taken twice at the end of each period.

The lag time of copper-induced formation of conjugated dienes in LDL and HDL were 1.5% lower and 0.7% higher after the high phenol diet. Plasma malondialdehydes were 0.2% higher, protein carbonyls were 0.5% lower, lipid hydroperoxides were 20.2% higher, and the ferric reducing ability of plasma (FRAP) was 0.6% higher after the high phenol diet. All 95% confidence intervals enclosed zero.

Thus consumption of 18 mg per day of phenols from olive oil for three weeks did not affect LDL oxidation or other markers for antioxidant capacity in fasting blood. Our study did not address postprandial effects; study of these requires more insight into the kinetics of phenol transport in man.