

## The relationships between serum paraoxonase-1 activity and fatty acid composition of high density lipoprotein.

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**Background and Aims:** There is a strong inverse relationship between plasma high density lipoprotein (HDL) level and the risk of developing coronary artery disease (CAD). HDL associated enzyme, paraoxonase-1 (PON1), has an important role in antiatherogenic effects of HDL and its protective role against CAD. There is a close, physiological association between PON1 and HDL in plasma. The structure and metabolism of HDL are partially influenced by its fatty acids composition. The aim of this study is to investigate the possible relationship between serum PON1 activity and HDL fatty acid composition.

**Methods:** One hundred and forty healthy subjects were contributed to this study. HDL was separated by sequential ultracentrifugation and its fatty acid composition was determined by gas chromatography. Paraoxonase activity was measured spectrophotometrically using paraoxon as substrate.

**Results:** Results show that PON1 activity is inversely correlated with the percentile of HDL saturated fatty acids such as myristic acid, palmitic acid and stearic acid and directly correlated with unsaturated fatty acids especially mono unsaturated fatty acids such as palmitoleic acid and oleic acid.

**Conclusions:** In conclusion, considering the relationship between serum PON1 activity and HDL fatty acid composition, it may be a helpful therapeutic target for treatment of CAD or reducing the risk of CAD in subjects with lower PON1 activity to use suitable USFA in dietary intake.

**Keywords:** HDL fatty acid composition; Gas chromatography; PON1 activity