

# Homocysteine and cardiovascular risk

Effect of lifestyle in relation to MTHFR(C677T) genotype

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## ABSTRACT

The aim of the PhD study was to examine the effects of various lifestyle factors and lifestyle changes on total homocysteine (tHcy) in relation to MTHFR(C677T) genotype.

The study was performed at Copenhagen County Research Centre for Prevention and Health, Copenhagen, Denmark.

The study population comprised an age- and sex-stratified random sample (subsample of the Inter99 study) of 6508 men and women aged 30-60 years invited to a health examination during 1999-2001. Participants assessed to be at an increased cardiovascular risk were invited to a re-examination after one year. A total of 2788 participants at baseline and 915 participants at follow-up were eligible for statistical analyses (multiple regressions).

The results showed that less healthy dietary habits, smoking, and coffee consumption were associated with elevated tHcy. Wine consumption was related to tHcy in a J-shaped fashion. Beer consumption was negatively associated with tHcy. No associations were observed between tHcy and physical activity and tea consumption.

A tendency toward stronger effects in TT individuals compared with CC and CT individuals was observed. However, only the gene-lifestyle interaction between smoking and MTHFR genotype remained statistically significant after multiple adjustments.

None of the studied lifestyle changes was significantly associated with tHcy. However, changes in tHcy were related to changes in several lifestyle related biological markers.