

## Effects of Physical Activity on the Association of CETP Gene with HDL Cholesterol Levels in Korean Population

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**Abstract :** High-density lipoprotein (HDL) cholesterol levels are associated with decreased risk of coronary artery disease. Several genome-wide association studies (GWAS) for HDL cholesterol levels have implicated cholesterol ester transfer protein (CETP) as possibly causal. We tested for the association between single nucleotide polymorphisms (SNPs) in CETP gene and HDL cholesterol levels in Korean population. Subjects were selected from the Korean Metabolic Syndrome Research Initiative study in the Bundang-Gu area. A total of 2,304 individuals from Bundang-Gu were recruited in 2008. Other subjects were selected from the Severance Hospital (N=4,294). SNP rs6499861 in the CETP gene was associated with mean HDL cholesterol levels (effect per allele -2.044 mg/dL,  $p=7.23 \times 10^{-7}$ ). Subjects with the CG/GG genotype had a 1.46 -fold (range 1.24-1.72-fold) higher risk of having abnormal HDL cholesterol levels (<40 mg/dL) than subjects with the CC genotype. When analyzed by gender, the association of CETP was stronger in women than in men. When analyzed by physical activity behavior, the association with CETP was much stronger in male subjects with low physical activity (OR=1.54, 95% CI: 1.23-1.92, P=0.0001) than in male subjects with high physical activity. This study clearly demonstrates that genetic variants in CETP influence HDL cholesterol levels in Korean adults.

**Keywords :** CETP, HDL cholesterol, physical activity, polymorphisms

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