

# Abstract

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## Decreased high-density lipoprotein (HDL) particle size, prebeta-, and large HDL subspecies concentration in Finnish low-HDL families: relationship with intima-media thickness.

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**OBJECTIVE:** High-density lipoprotein (HDL) cholesterol correlates inversely with the risk of coronary heart disease (CHD). The precise antiatherogenic mechanisms of HDL subspecies are not thoroughly elucidated. We studied the relationship between carotid **intima-media thickness (IMT)** and HDL subspecies distribution in Finnish families with low HDL cholesterol and premature CHD.

**METHODS AND RESULTS:** Altogether, 148 members of Finnish low-HDL families and 133 healthy control subjects participated in our study. HDL particle size was significantly smaller in affected family members (HDL < or =10th Finnish age-sex specific percentile) compared with unaffected family members and control subjects (9.1+/-0.04 nm versus 9.5+/-0.05 nm, P<0.0001, versus 9.8+/-0.03 nm, P<0.0001 [mean+/-SE]). Large HDL2b particles as well as prebeta-HDL concentration were significantly decreased among the affected family members. Mean IMT was significantly higher in the affected family members than in the control subjects (0.85+/-0.01 mm versus 0.79+/-0.01 mm; P<0.0001). Age, HDL2b, systolic blood pressure, and prebeta-HDL were significant independent determinants of mean IMT.

**CONCLUSIONS:** The decreased levels of HDL2b and prebeta-HDL reflect the potentially efflux-deficient HDL subspecies profile in the affected low-HDL family members. **Decreased HDL particle size caused by the decrease of plasma concentration of HDL2b and decreased prebeta-HDL levels correlate with increased IMT.**

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