

# Abstract

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## Clinical utility of different lipid measures for prediction of coronary heart disease in men and women.

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**CONTEXT:** Evidence is conflicting regarding the performance of apolipoproteins vs traditional lipids for predicting coronary heart disease (CHD) risk.

**OBJECTIVES:** To compare performance of different lipid measures for CHD prediction using discrimination and calibration characteristics and reclassification of risk categories; to assess incremental utility of apolipoproteins over traditional lipids for CHD prediction.

**DESIGN, SETTING, AND PARTICIPANTS:** Population-based, prospective cohort from Framingham, Massachusetts. We evaluated serum total cholesterol, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), non-HDL-C, apolipoprotein (apo) A-I and apo B, and 3 lipid ratios (total cholesterol:HDL-C, LDL-C:HDL-C, and apo B:apo A-I) in 3322 middle-aged white participants who attended the fourth offspring examination cycle (1987-1991) and were without cardiovascular disease. Fifty-three percent of the participants were women.

**MAIN OUTCOME MEASURE:** Incidence of first CHD event (recognized or unrecognized myocardial infarction, angina pectoris, coronary insufficiency, or coronary heart disease death).

**RESULTS:** After a median follow-up of 15.0 years, 291 participants, 198 of whom were men, developed CHD. In multivariate models adjusting for nonlipid risk factors, the apo B:apo A-I ratio predicted CHD (hazard ratio [HR] per SD increment, 1.39; 95% confidence interval [CI], 1.23-1.58 in men and HR, 1.40; 95% CI, 1.16-1.67 in women), but risk ratios were similar for total cholesterol:HDL-C (HR, 1.39; 95% CI, 1.22-1.58 in men and HR, 1.39; 95% CI, 1.17-1.66 in women) and for LDL-C:HDL-C (HR, 1.35; 95% CI, 1.18-1.54 in men and HR, 1.36; 95% CI 1.14-1.63 in women). In both sexes, models using the apo B:apo A-I ratio demonstrated performance characteristics comparable with but not better than that for other lipid ratios. The apo B:apo A-I ratio did not predict CHD risk in a model containing all components of the Framingham risk score including total cholesterol:HDL-C (P = .12 in men; P = .58 in women).

**CONCLUSIONS:** In this large, population-based cohort, the overall performance of apo B:apo A-I ratio for prediction of CHD was comparable with that of traditional lipid ratios but did not offer incremental utility over total cholesterol:HDL-C. These data do not support measurement of apo B or apo A-I in clinical practice when total cholesterol and HDL-C measurements are available.

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