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Long-Term Coffee Consumption and Risk of Cardiovascular Disease: A Systematic Review and a Dose-Response Meta-Analysis of Prospective Cohort Studies

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Abstract

Background—Considerable controversy exists regarding the association between coffee consumption and cardiovascular disease (CVD) risk. A meta-analysis was performed to assess the dose–response relationship of long-term coffee consumption with CVD risk.
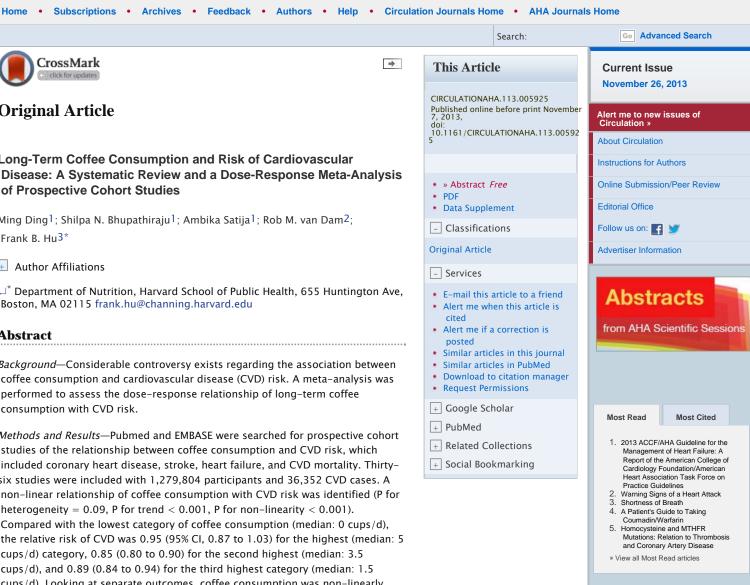
Methods and Results—Pubmed and EMBASE were searched for prospective cohort studies of the relationship between coffee consumption and CVD risk, which included coronary heart disease, stroke, heart failure, and CVD mortality. Thirty-six studies were included with 1,279,804 participants and 36,352 CVD cases. A non-linear relationship of coffee consumption with CVD risk was identified (P for heterogeneity = 0.09, P for trend < 0.001, P for non-linearity < 0.001). Compared with the lowest category of coffee consumption (median: 0 cups/d), the relative risk of CVD was 0.95 (95% CI, 0.87 to 1.03) for the highest (median: 5 cups/d) category, 0.85 (0.80 to 0.90) for the second highest (median: 3.5 cups/d), and 0.89 (0.84 to 0.94) for the third highest category (median: 1.5 cups/d). Looking at separate outcomes, coffee consumption was non-linearly associated with both CHD (P for heterogeneity = 0.001, P for trend < 0.001, P for non-linearity < 0.001) and stroke risks (P for heterogeneity = 0.07, P for trend < 0.001, P for non-linearity< 0.001) (P for trend differences > 0.05).

Conclusions—A non-linear association between coffee consumption with CVD risk was observed in this meta-analysis. Moderate coffee consumption was inversely significantly associated with CVD risk, with the lowest CVD risk at 3 to 5 cups/d, and heavy coffee consumption was not associated with elevated CVD risk.

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