

# Abstract

Atherosclerosis. 2009 Jul;205(1):255-60.

## 25-Hydroxyvitamin D deficiency is independently associated with cardiovascular disease in the Third National Health and Nutrition Examination Survey.

Kendrick J, Targher G, Smits G, Chonchol M.

Division of Renal Diseases and Hypertension, University of Colorado Health Sciences Center, Denver, USA.

**OBJECTIVE:** Serum 25-hydroxyvitamin D [25(OH)D] levels are inversely associated with important cardiovascular disease (CVD) risk factors. However, the association between 25(OH)D levels and prevalent CVD has not been extensively examined in the general population.

**METHODS:** We performed a cross-sectional analysis of data from the Third National Health and Nutrition Examination Survey (1988-1994) and examined the association between serum 25(OH)D levels and prevalence of CVD in a representative population-based sample of 16,603 men and women aged 18 years or older. Prevalence of CVD was defined as a composite measure inclusive of self-reported angina, myocardial infarction or stroke.

**RESULTS:** In the whole population, there were 1308 (8%) subjects with self-reported CVD. Participants with CVD had a greater frequency of 25(OH)D deficiency [defined as serum 25(OH)D levels <20 ng/mL] than those without (29.3% vs. 21.4%;  $p < 0.0001$ ). After adjustment for age, gender, race/ethnicity, season of measurement, physical activity, body mass index, smoking status, hypertension, diabetes, elevated low-density lipoprotein cholesterol, hypertriglyceridemia, low high-density lipoprotein cholesterol, chronic kidney disease and vitamin D use, participants with 25(OH)D deficiency had an increased risk of prevalent CVD (odds ratio 1.20 [95% confidence interval (CI) 1.01-1.36;  $p = 0.03$ ]).

**CONCLUSIONS:** These results indicate a strong and independent relationship of 25(OH)D deficiency with prevalent CVD in a large sample representative of the US adult population.

PMID: 19091317

