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Comparative Study

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Serum estrogen, but not testosterone, levels differ between black and white men in a nationally representative sample of Americans

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PMID: 17456570 DO: [10.1210/jc.2007-0028](#)

Abstract

Context: Higher testosterone in black compared with white men has been postulated to explain their higher prostate cancer incidence. Previous studies comparing hormone levels by race might have been limited by size, restricted age variation, or lack of representation of the general population.

Objective: Our objective was to compare serum testosterone, estradiol, and SHBG concentrations among non-Hispanic black, non-Hispanic white, and Mexican-American men.

Participants, design, and setting: A total of 1413 men aged 20+ yr and who attended the morning examination session of the Third National Health and Nutrition Examination Survey (NHANES III) in 1988-1991 were included in this cross-sectional study.

Measurement: Serum hormone concentrations were measured by electrochemiluminescence immunoassays.

Results: After applying sampling weights and adjusting for age, percent body fat, alcohol, smoking, and activity, testosterone concentrations were not different between non-Hispanic blacks (n = 363; geometric mean, 5.29 ng/ml) and non-Hispanic whites (n = 674; 5.11 ng/ml; P > 0.05) but were higher in Mexican-Americans (n = 376; 5.48 ng/ml; P < 0.05). Non-Hispanic blacks (40.80 pg/ml) had a higher estradiol concentration than non-Hispanic whites (35.46 pg/ml; P < 0.01) and Mexican-Americans (34.11 pg/ml; P < 0.01). Non-Hispanic blacks (36.49 nmol/liter) had a higher SHBG concentration than non-Hispanic whites (34.91 nmol/liter; P < 0.05) and Mexican-Americans (35.04 nmol/liter; P < 0.05).

Conclusions: Contrary to the postulated racial difference, testosterone concentrations did not differ notably between black and white men. However, blacks had higher estradiol levels. Mexican-Americans had higher testosterone than whites but similar estradiol and SHBG concentrations. Given these findings, it may be equally if not more important to investigate estradiol as testosterone in relation to diseases with racial disparity.

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