



## Abstract

# Vitamin E and Cardiovascular Disease Risk Factors in Adults: Results from the Health Survey of São Paulo with Focus on Nutrition (ISA-Nutrition) <sup>†</sup>

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**Abstract:** Background and Objectives: Dietary vitamin E intake has high rates of inadequacies in Latin America, which may be potentially associated with increased cardiovascular risk. The objective of this study was to compare vitamin E intake and plasma vitamin E concentrations among cardiovascular disease risk factor (CVDR) groups from adults living in the urban area of São Paulo, Brazil. Methods: Data from 198 individuals aged 18 to 59 years were obtained from the 2015 Health Survey of São Paulo, a population-based cross-sectional study. Dietary intake was measured using two 24 h dietary recalls, and the usual dietary intake of vitamin E was calculated using the Multiple Source Method. Blood samples were analyzed to obtain plasma vitamin E concentration, serum lipid profile, insulin, and fasting glucose. Blood pressure, weight, and height were collected, and body mass index was calculated. CVDR was categorized as having three or more conditions: obesity, elevated systolic or diastolic blood pressure, dyslipidemia, and high fasting plasma glucose or insulin resistance. Student's *t*-test assessed comparisons between vitamin E values in groups of cardiovascular risk factors. Results: The mean intake of vitamin E was 6.43 mg/d, which was equivalent to 53.65% of the EAR reference values. Ninety eight percent of the sample had dietary inadequacy of vitamin E. Mean plasma  $\alpha$ -tocopherol was 19.98  $\mu$ mol/L. The majority of the sample was female (57.6%), and 29.1% had three or more CVDR. Plasma values of  $\alpha$ -tocopherol differed between individuals with three or more CVDR (mean: 21.86; SD: 9.16  $\mu$ mol/L) compared to those with less than three CVDR (mean: 29.24; SD: 7.30  $\mu$ mol/L), observing  $t(196) = -1.87, p = 0.003$ . There were no statistical differences in vitamin E intake between CVDR groups. Discussion: Our findings showed the severe inadequacy of vitamin E intake in the adult population of São Paulo. Moreover, individuals with higher numbers of CVDR had lower plasma values of vitamin E, which may indicate a necessity to increase vitamin E intake in individuals at higher risk. These results are particularly worrying, given the preventive function vitamin E intake may provide for individuals at higher cardiovascular risk.

**Keywords:** vitamin E; cardiovascular risk factors



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