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Dietary and other lifestyle correlates of serum folate concentrations in a healthy adult population in Crete, Greece: a cross-sectional study

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Abstract

Background

Folate has emerged as a key nutrient for optimising health. Impaired folate status has been identified as a risk factor for cardiovascular disease, various types of cancers, and neurocognitive disorders. The study aimed at examining the distribution and determinants of serum folate concentrations in a healthy adult population in Crete, Greece.

Methods

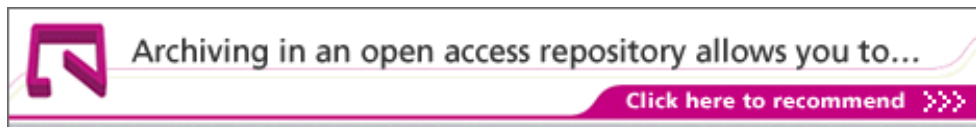
A cross-sectional sample of 486 healthy adults (250 men, 236 women) aged 39 ± 14 years, personnel of the Medical School and the University Hospital of Crete in Greece, was examined. Serum folate and vitamin B₁₂ concentrations were measured by microbiological assay, and total homocysteine was determined fluorometrically and by high-pressure liquid chromatography. Lifestyle questionnaires were completed, and nutrient intakes and food consumption were assessed by 24-h dietary recalls. Multivariate analyses were performed using SPSS v10.1.

Results

The geometric mean (95% confidence interval) concentrations of serum folate were 15.6 μmol/l (14.6–16.8) in men and 19.2 μmol/l (17.9–20.7) in women (p < 0.001). Inadequate folate levels (≤7 nmol/l) were present in 6.8% of men and 2.1% of women (p < 0.001). Approximately 76% of men and 87% of women did not meet the reference dietary intake for folate (400 μg/day). Serum folate was inversely related to total homocysteine levels (p < 0.001). Increased tobacco and coffee consumption were associated with lower folate concentrations (p < 0.05 for both) but these associations disappeared after controlling for nutrient intakes. In multivariate analysis, intakes of MUFA, fibre, calcium, magnesium, folate, and vitamins A, E, C, B₁, and B₆ were positively associated with serum folate. Consumption of potatoes, legumes, fruits, and vegetables were favourably related to the serum folate status.

Conclusion

Serum folate concentrations were associated with various demographic, lifestyle and dietary factors in healthy Cretan adults. Large-scale epidemiological studies should be conducted within the general Greek adult population to assess the prevalence of impaired folate status and further examine associations with dietary patterns and chronic disease risk. Considering the importance of folate in health maintenance, it is important to increase the public's awareness of modifiable lifestyle patterns and diet and tobacco use in particular, which may be associated with improved folate status.




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