

Abstract

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Effect of zinc supplementation on vitamin status of middle-aged and older European adults: the ZENITH study.

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OBJECTIVE: To assess the effects of zinc supplementation on vitamin status in middle-aged and older volunteers.

SUBJECTS/METHODS: Three hundred and eighty-seven healthy middle-aged (55-70 years) and older (70-85 years) men and women, randomly allocated to three groups to receive 15 or 30 mg Zn/day or placebo for 6 months. Dietary intake was assessed by means of a validated 4-day recall record. Fasting blood samples were simultaneously analysed for levels of plasma retinol and alpha-tocopherol by high-performance liquid chromatography. Erythrocyte folates were measured by a competitive immunoassay with direct chemiluminescence detection on an automatized immunoanalyser. Biochemical measurements were performed at baseline and after 3 and 6 months of zinc supplementation.

RESULTS: Plasma vitamin A levels were significantly increased proportionally with zinc dose and period of treatment, particularly at 6 months (for 15 mg Zn/day, $P < 0.05$; for 30 mg Zn/day, $P < 0.0001$); no significant changes were observed in the placebo group. There was no effect of zinc supplementation on vitamin E/cholesterol ratio and erythrocyte folates.

CONCLUSIONS: Our results show that a long-term zinc supplementation increases plasma vitamin A levels in middle-aged and older people of similar characteristics to those involved in this study. Moreover, supplementation influences serum zinc levels but does not affect erythrocyte zinc concentration and both plasma vitamin E and erythrocyte folate status.

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