

Abstract

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Effects of Folic Acid Supplementation on Serum Folate and Plasma Homocysteine Concentrations in Older Adults: A Dose-Response Trial.

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OBJECTIVE: The authors' objective in this study was to estimate the changes in serum folate and homocysteine concentration that resulted from 6 weeks of supplementation with folic acid.

METHODS: A randomized, double-blind, placebo-controlled, dose-response trial with a parallel-group design was conducted. A total of 133 participants aged 60-90 years (70% female, 19% nonwhite) were assigned to receive 0, 100, 400, 1,000, or 2,000 µg/day of folic acid for 6 weeks. Data were collected in the United States between June and September 1996.

RESULTS: At baseline, median serum folate and plasma homocysteine concentrations were 5.7 ng/mL (interquartile range (25th-75th percentiles), 4.1-7.8) and 8.3 µmol/L (interquartile range, 7.1-10.0), respectively. As the folic acid dose increased, serum folate levels increased (P-trend < 0.001). There was no dose-response relation with homocysteine level among all participants. In analyses restricted to persons with the lowest serum folate concentration (<4.5 ng/mL) at baseline, there was a trend (P = 0.06) toward decreased homocysteine levels with increasing folic acid dose.

CONCLUSIONS: In healthy, older adults with adequate folate status, folic acid supplementation is not beneficial for homocysteine reduction. However, for older adults with low serum folate levels, supplementation will improve folate status and may be beneficial for lowering homocysteine concentrations.

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