

ORIGINAL RESEARCH COMMUNICATION

Trends in blood folate and vitamin B-12 concentrations in the United States, 1988–2004^{1,2,3}

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Background: Monitoring the folate status of US population groups over time has been a public health priority for the past 2 decades, and the focus has been enhanced since the implementation of a folic acid fortification program in the mid-1990s.

Objective: We aimed to determine how population concentrations of serum and red blood cell (RBC) folate and serum vitamin B-12 have changed over the past 2 decades.

Design: Measurement of blood indicators of folate and vitamin B-12 status was conducted in ≈23 000 participants in the prefortification third National Health and Nutrition Examination Survey (NHANES III; 1988–1994) and in ≈8000 participants in 3 postfortification NHANES periods (together covering 1999–2004).

Results: Serum and RBC folate concentrations increased substantially (by 119–161% and 44–64%, respectively) in each age group in the first postfortification survey period and then declined slightly (by 5–13% and 6–9%, respectively) in most age groups between the first and third postfortification survey periods. Serum vitamin B-12 concentrations did not change appreciably. Prevalence estimates of low serum and RBC folate concentrations declined in women of childbearing age from before to after fortification (from 21% to <1% and from 38% to 5%, respectively) but remained unchanged thereafter. Prevalence estimates of high serum folate concentrations increased in children and older persons from before to after fortification (from 5% to 42% and from 7% to 38%, respectively) but decreased later after fortification.

Conclusions: The decrease in folate concentrations observed longer after fortification is small compared with the increase soon after the introduction of fortification. The decrease is not at the low end of concentrations and therefore does not raise concerns about inadequate status.

Key Words: Nutrition survey • age • sex • race • ethnic groups • National Health and Nutrition Examination Survey • NHANES • fortification • neural tube defects

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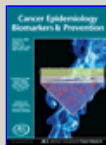
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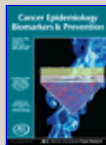
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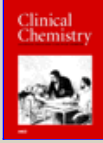
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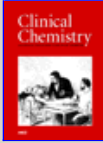
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