

ORIGINAL RESEARCH COMMUNICATION

# Bioavailability of food folates is 80% of that of folic acid<sup>1, 2, 3</sup>

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**Background:** The bioavailability of natural food folates is lower than that of synthetic folic acid, but no agreement exists as to the extent of the difference.

**Objective:** In a 4-wk dietary intervention study, we determined the aggregate bioavailability of food folates from fruit, vegetables, and liver relative to that of folic acid.

**Design:** Seventy-two healthy adults were randomly divided into 4 treatment groups. Group A ( $n = 29$ ) received a high-folate diet with 369  $\mu\text{g}$  food folate/d and a placebo capsule; groups B, C, and D ( $n = 14$  or 15) received a low-folate diet with 73  $\mu\text{g}$  food folate/d and folic acid capsules. These capsules contained 92  $\mu\text{g}$  folic acid/d for group B, 191  $\mu\text{g}$  for group C, and 289  $\mu\text{g}$  for group D. In addition, all 72 subjects daily ingested a capsule with 58  $\mu\text{g}$  [ $^{13}\text{C}_{11}$ ]-labeled folic acid. We measured the percentage of [ $^{13}\text{C}_{11}$ ]-labeled folate in plasma folate at the end of the intervention and ascertained the changes in serum folate concentrations over the 4 wk of the intervention.

**Results:** Bioavailability of food folate relative to that of folic acid was 78% (95% CI: 48%, 108%) according to [ $^{13}\text{C}_{11}$ ]-labeled folate and 85% (52%, 118%) according to changes in serum folate concentrations.

**Conclusions:** The aggregate bioavailability of folates from fruit, vegetables, and liver is  $\approx$ 80% of that of folic acid. The consumption of a diet rich in food folate can improve the folate status of a population more efficiently than is generally assumed.

**Key Words:** Food folate • bioavailability • folic acid • stable isotopes

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