

Cho et al. Dietary choline and betaine assessed by food-frequency questionnaire in relation to plasma total homocysteine concentration in the Framingham Offspring Study. *AJCN* 2006; 83:905-11.

Background: Epidemiologic studies of choline and betaine intakes have been sparse because a food-composition database was not available until recently. The physiologic relevance of a variation in dietary choline and betaine in the general population and the validity of intake assessed by food-frequency questionnaire (FFQ) have not been evaluated.

Objective: This study was conducted to examine the physiologic relevance and validity of choline and betaine intakes measured by an FFQ.

Design: We examined the relations between choline and betaine intakes measured by FFQ and plasma total homocysteine (tHcy) concentrations in 1960 participants from the Framingham Offspring Study.

Results: Higher intakes of dietary choline and betaine were related to lower tHcy concentrations independent of other determinants, including folate and other B vitamins. For the lowest and highest quintiles of dietary choline plus betaine, the multivariate geometric means for tHcy were 10.9 and 9.9 $\mu\text{mol/L}$ (P for trend < 0.0001). The inverse association was manifested primarily in participants with low folate intakes (P for interaction < 0.0001). Among participants with folate intakes $\leq 250 \mu\text{g/d}$, the geometric mean tHcy concentrations in the lowest and highest quintiles of choline plus betaine intakes were 12.4 and 10.2 $\mu\text{mol/L}$ (P for trend < 0.0001). Except for choline from phosphatidylcholine, individual forms of choline were inversely associated with tHcy concentrations.

Conclusions: Our findings provide support for a physiologically important variation in choline and betaine intakes in the general population and for the validity of intake measured by FFQ