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Choline intakes, dietary choline sources, and serum choline concentrations in early and late pregnancy

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Choline is an essential nutrient required for the synthesis of the neurotransmitter acetylcholine and the methyl group donor, betaine, and is a component of phospholipids.⁽¹⁾ During pregnancy, choline requirements are increased as the foetus requires large amounts of choline for brain development.⁽²⁾ In some observational studies, a lack of choline during pregnancy has been associated with poorer cognitive outcomes.⁽³⁾ Despite the postulated importance of choline, little is known about choline intake and choline status of Australian pregnant women. Here we report dietary intakes of choline in early and late pregnancy, compare choline intakes to recommended intakes, determine the primary food sources of choline, and report serum choline concentrations. Participants, 103 pregnant women from South Australia, enrolled in a folic acid supplementation trial,⁽⁴⁾ were asked to complete an online semi-quantitative food frequency questionnaire (FFQ) in early (12–16 weeks) and late pregnancy (34–36 weeks). Women provided a blood sample in late pregnancy (36 weeks). Choline intakes and sources were similar in early and late pregnancy. Median choline intake in early pregnancy was 362 mg/d. Less than 40% of women achieved the Australian National Health and Medical Research Council Adequate Intake (AI) for choline intake in pregnancy (> 440 mg/d).⁽⁵⁾ Even fewer women, 25%, met the newer European Food Safety Authority AI (> 480 mg/d).⁽⁶⁾ Eggs, red meat, nuts and legumes, and dairy accounted for 50% of choline intake, with eggs being the most significant contributor at 17%. Mean \pm SD serum choline was 15 ± 4 μ mol/L. All serum choline concentrations were within the reference range of 10–20 μ mol/L. In conclusion, we have shown that most pregnant women do not meet the AI for choline during pregnancy. Choline intake in pregnancy may need to be increased; however, we need more data on the clinical consequences of inadequate choline intake during pregnancy. Sponsored by Australian Eggs.

References

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