



Does folic acid supplementation have long-term benefit to offspring?

Yes. The risk of severe language delay at 3 years of age was reduced among children whose mothers take a folic acid supplement during pregnancy, according to this Norwegian cohort study.

Roth C, Magnus P, Schjølberg S, et al. Folic acid supplements in pregnancy and severe language delay in children. *JAMA*. 2011;306(14):1566-1573.

► EXPERT COMMENTARY

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Prenatal folic acid supplementation to prevent open neural tube defects is accepted as standard obstetric practice. The possibility that relative folic acid deficiency in pregnancy could cause long-term childhood neurologic dysfunction (including severe language delay) without detectable anatomic abnormality is explored in this prospective pregnancy cohort study.

Details of the study

The Norwegian Mother and Child Cohort Study (MoBa) collected pregnancy and infant outcome data, including self-reported information on questionnaires, from 1999 to 2010. A total of 38,954 children were included in the study. The incidence of severe language delay—defined as use of only one word or unintelligible utterances—at 3 years of age was compared between pregnancies that involved folic acid supplementation (from 4 weeks before to 8 weeks after conception) and those that did not.

The incidence of severe language delay among children whose mothers took folic acid during pregnancy (n = 26,232) was 0.4%. Among children whose mothers did not take folic acid (n = 11,532), the incidence was 0.9%;

this difference was found to be significant.

Care was taken to verify the accuracy of collected data and to assess the potential effects of confounding variables. When results were adjusted for maternal variables such as education, the initiation of folic acid after conception no longer had a protective effect, but initiation at 4 weeks prior to conception continued to provide benefit.

US mandate for folic acid enrichment reduced open neural tube defects

In 1996, the US Food and Drug Administration (FDA) mandated that folic acid be added to all cereals, flours, breads, and pastas.¹ This action seems to have reduced the incidence of open neural tube defects in the United States.² The MoBa study was carried out in Norway, which has declined to mandate folic acid enrichment of the food supply. Although

FAST TRACK

The incidence of severe language delay was 0.9% among children whose mothers did not take folic acid during pregnancy, compared with 0.4% among children whose mothers did take the nutrient

WHAT THIS EVIDENCE MEANS FOR PRACTICE

Severe language delay is a rare but severe childhood condition; folic acid may protect against such delay. In the United States, the FDA mandate that food be fortified with folic acid may provide some protection, but we lack direct evidence of its precise effects. Consequently, ideal preparation for pregnancy includes the use of folic acid (preferably, 1 mg/day), starting by 4 weeks prior to conception, in all countries.

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the FDA mandate for folic acid fortification of food appears to have reduced the rate of open neural tube defects, the effect of folic acid supplementation on language development has not yet been explored.

Certain findings of the MoBa study suggest areas for future study or intervention. For example, paternal education of less than 12 years was associated with decreased maternal folic acid supplementation. Also, the incidence of severe language delay was more than three times greater in male children than in

females. The study seemed to demonstrate improvement in groups at risk (e.g., male fetuses) with preconception and early pregnancy folic acid supplementation. 

References

1. Food and Drug Administration. Food standards: Amendment of standards of identity for enriched grain products to require addition of folic acid; final rule (21 CFR Parts 136, 137, and 139). Federal Register. 1996;61:8781-8797.
2. Honein MA, Paulozzi LJ, Mathews TJ, Erickson JD, Wong LC. Impact of folic acid fortification of the US food supply on the occurrence of neural tube defects. JAMA. 2001;285(23):2981-2986.



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