

# Lower autism risk with folic acid supplements in pregnancy

February 12 2013

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Women who took folic acid supplements in early pregnancy almost halved the risk of having a child with autism. Beginning to take folic acid supplements later in pregnancy did not reduce the risk. This is shown in new findings from the ABC Study and Norwegian Mother and Child Cohort Study published in the *Journal of The American Medical Association (JAMA)*.

Women who took folic acid supplements from four weeks before conception to eight weeks into pregnancy had a 40 per cent lower risk of [giving birth](#) to children with childhood autism (classic autism). Use of folic acid supplements midway through pregnancy (week 22) had no effect.

The findings only apply to a lower risk of childhood autism, the most severe form of autism. The results show no reduction in the risk of atypical or unspecific autism. The study also investigated the prevalence of Asperger syndrome, but the number of examined children was too low to give a reliable result.

## **Food and other supplements did not reduce risk**

The researchers found no connection between childhood autism and intake of other supplements during pregnancy. They also found no correlation with maternal intake of [folate](#) through food.

"It appears that the reduced risk of childhood autism only reflects folic

acid supplements, not food or other supplements, and that the crucial time interval is from four weeks before conception to eight weeks into pregnancy," says Dr Pål Surén, primary author of the paper and researcher at the Norwegian Institute of Public Health.

### **Clear results that pave the way for further research**

The results show an association between the use of folic acid supplements in the mother during pregnancy and a reduced risk of childhood autism.

"The study does not prove that folic acid supplements can prevent childhood autism. However, the findings are so apparent that they constitute a good argument to further examine possible causal mechanisms. It should also be ascertained whether folic acid is associated with a reduced risk of other brain disorders in children," says Surén.

### **Emphasises the importance of folic acid supplements**

The results support the Norwegian Directorate of Health's recommendations for folic acid supplements during pregnancy and emphasise the importance of starting early—preferably before conception.

### **Method**

The ABC Study included participants in the Norwegian Mother and Child Cohort Study (MoBa) who were born in 2002-2008, and included a total of 85,176 children. The mothers had given detailed information about their diet and the use of supplements in [early pregnancy](#). Children with autism diagnoses in MoBa were identified through questionnaires, referrals from parents and health personnel and through links to the

Norwegian Patient Register. When the analyses were done, 270 children with autism diagnoses were identified in the study population. Of these children, 114 children had autism, 56 had Asperger syndrome and 100 had atypical or unspecified autism.

The use of folic acid supplements in early pregnancy increased sharply from 2002 to 2008 among women who participated in the Norwegian Mother and Child Cohort Study. 43 per cent of mothers took folic acid supplements in 2002, while the percentage had risen to 85 per cent in 2008. However, many women began later than is desirable; only half of women who took folic acid supplements had begun before conception.

### **About the study**

The ABC study is conducted by the Norwegian Institute of Public Health in collaboration with Columbia University in New York and the National Institute of Neurological Disorders and Stroke (NINDS) in Bethesda, USA. The study received funding from NINDS. In addition, funds for research analysis were provided by the Norwegian Research Council. MoBa is managed by the NIPH.

### **Intake of folic acid protects the developing brain and spinal cord**

The Norwegian Directorate of Health recommends that women who are planning to become pregnant should take folic acid supplements from one month before conception and during the first three months of pregnancy. The recommendation is based on research showing that the use of folic acid supplements in early pregnancy protects the foetus from spina bifida and other neural tube defects.

In recent years, researchers have begun to investigate whether folic acid supplements may also have other beneficial effects on the development of the brain and spinal cord in the foetus. A study from the Norwegian

Mother and Child Cohort Study showed that mothers who took [folic acid supplements](#) early in [pregnancy](#) halved the risk of having children with severe language delay at three years-old. A study of autism spectrum disorders from California found a lower risk of autism among [children](#) of expectant mothers who had taken multivitamin supplements containing folic acid.

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**More information:** *JAMA* 2013, 309 (6): 570-577.

Provided by Norwegian Institute of Public Health

Citation: Lower autism risk with folic acid supplements in pregnancy (2013, February 12) retrieved 28 March 2023 from <https://medicalxpress.com/news/2013-02-autism-folic-acid-supplements-pregnancy.html>

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