

# Vitamin D deficiency during pregnancy connected to elevated risk of ADHD

February 10 2020

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According to a study conducted in Finland, the risk of ADHD was 34 percent higher in children whose mother had a vitamin D deficiency during pregnancy than in those children whose mother's vitamin D level

was sufficient during the first and second trimesters. The result was adjusted for maternal age, socioeconomic status and psychiatric history. The study was done in collaboration between researchers from the University of Turku, Finland, and Columbia University, New York.

"Alongside genotype, prenatal factors such as [vitamin D](#) deficiency during pregnancy, can influence the development of ADHD," says MD Minna Sucksdorff from the University of Turku, Finland.

The study is the first population-level research to demonstrate an association between low maternal vitamin D levels in early to mid-pregnancy and an elevated risk for diagnosed attention-deficit/hyperactivity disorder ADHD in the offspring.

The study included 1,067 children born between 1998 and 1999 diagnosed with ADHD in Finland and the same number of matched controls. The data was collected before the current national recommendation in Finland for the intake of vitamin D during pregnancy, which is 10 micrograms per day throughout the year.

## **Vitamin D deficiency still a problem**

The primary investigator, Professor Andre Sourander says that, despite the recommendations, vitamin D deficiency is still a global problem. In Finland, for example, mothers' vitamin D intake among several immigrant groups is not at a sufficient level.

"This research offers strong evidence that a low level of vitamin D during pregnancy is related to attention deficiency in offspring. As ADHD is one of the most common chronic diseases in children, the research results have a great significance for [public health](#)," says Professor Sourander.

The study is part of a larger research project that aims to discover the connections between the mother's health during pregnancy and ADHD in offspring. The goal is to produce information for developing preventative treatments and measures for identifying children with ADHD risk.

The study was done in collaboration between researchers from the University of Turku, Finland, and Columbia University, New York and it was funded by the National Institute of Mental Health NIMH (USA) and the Academy of Finland, and it is part of the INVEST flagship programme of the University of Turku.

In the study, the researchers used the exceptionally comprehensive Finnish Maternity Cohort (FMC) consisting of approximately 2 million serum specimens collected during the first and early second trimester of [pregnancy](#).

**More information:** Minna Sucksdorff et al, Maternal Vitamin D Levels and the Risk of Offspring Attention-Deficit/Hyperactivity Disorder, *Journal of the American Academy of Child & Adolescent Psychiatry* (2019). [DOI: 10.1016/j.jaac.2019.11.021](https://doi.org/10.1016/j.jaac.2019.11.021)

Provided by University of Turku

Citation: Vitamin D deficiency during pregnancy connected to elevated risk of ADHD (2020, February 10) retrieved 2 May 2024 from <https://medicalxpress.com/news/2020-02-vitamin-d-deficiency-pregnancy-elevated.html>

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