

# Fewer indications of ADHD in children whose mothers took vitamin D during pregnancy

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Children of mothers who took vitamin D during pregnancy with resultant high levels of the vitamin in the umbilical blood have fewer symptoms of ADHD at the age of two and a half years.

These were the findings in a new study from the Odense Child Cohort just published in *The Australia & New Zealand Journal of Psychiatry*.

"For every 10 nmol/L increase in the [vitamin D](#) concentration in umbilical blood, the risk of a being among the 10 percent highest score on the ADHD symptom scale fell by 11 percent," explains one of the study's authors, Professor Niels Bilenberg.

1,233 children from Odense Municipality were monitored in the study. Vitamin D was measured in umbilical blood, and mothers completed the Child Behavior Checklist (CBCL) when their child was two and a half years old. The CBCL questionnaire can be used to identify early symptoms of ADHD, even though an ADHD diagnosis cannot be made at that age.

"The trend was clear—those mothers who had taken vitamin D and had a vitamin D level over 25 nmol/L in their umbilical blood had children with lower ADHD scores," says Bilenberg. "This was after we had corrected for other factors that could explain the link, such as the mother's age, smoking, alcohol, obesity, education, number of children, psychiatric disease in the parents, child's sex, age and seasonal

variation."

The link between vitamin D and early ADHD symptoms has not been described before, and has therefore attracted attention.

"We were very surprised that the link was so clear," say two of the study's other authors, medical students Jens Bull Aaby and Mats Mossin. "There was no previous awareness that this link could be identified at such an early age. It's impossible to say which children will develop ADHD later on, but it will be interesting to further follow up those children who were at the highest end versus the normal range of the ADHD scale."

The study offers no explanation as to how vitamin D can protect against ADHD, but other studies have shown that vitamin D plays an important role in the early development of the brain.

"We had an idea about it," says Aaby, "but we cannot say with certainty that vitamin D protects against early symptoms of ADHD. Our study only indicates that there is a link that we cannot explain in any other way."

Odense Børnekoorte is a joint study between Odense University Hospital, the Psychiatric Service of the Region of Southern Denmark, Odense Municipality, and the University of Southern Denmark. In the study, 2,500 [mothers](#) and their children are being monitored from early [pregnancy](#) to the child's 18th birthday. The [children](#) are now three to five years old and a number of follow-up studies are planned.

**More information:** M. H. Mossin et al, Inverse associations between cord vitamin D and attention deficit hyperactivity disorder symptoms: A child cohort study, *Australian & New Zealand Journal of Psychiatry* (2016). [DOI: 10.1177/0004867416670013](https://doi.org/10.1177/0004867416670013)

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