

Children with poor vitamin B12 status early in life struggle more with tasks, recognition and interpreting feelings

March 27 2017



One of the 320 study participants. A five year old child in Nepal, solving cognitive tests. Credit: Uni Research

Small children with low levels of vitamin B12 had more difficulties solving cognitive tests, such as the ability to do puzzles, recognize letters and interpret other children's feelings.

Poor B12 status as a baby was associated with a decrease in test scores at 5 years of age, reports researcher Ingrid Kvestad at Uni Research in Bergen, Norway and colleagues in a new study.

Kvestad is first author on the work, published in the *American Journal of Clinical Nutrition*.

"Our results clearly demonstrate associations between early [vitamin B12](#) status and various measures on development and cognitive functioning, as for example the ability to interpret complex geometrical figures, and the ability to recognize other children's emotions," says Kvestad.

Accordingly, the study suggests that vitamin B12 deficiency impair, or possibly delays, brain development in small children.

"The number of children in low-income countries that do not develop according to their potential is large. Our results indicate that correcting children's vitamin B12 status early may be one measure to secure a healthy development for these vulnerable children. We are currently in the process of confirming our results in [randomized controlled trials](#)," says Kvestad



Most of the Nepalese children participating in the study had vitamin B12 levels which were suboptimal, below the recommendations for best possible growth and development, says Ingrid Kvestad. Credit: Uni Research

Kvestad's colleague Mari Hysing at Uni Research is among the study co-authors.

The other study contributors have their affiliation at Innlandet Hospital Trust, the Tribhuvan University Teaching Hospital in Nepal, Center for Intervention Studies in Maternal and Child Health (CISMAC) at the University of Bergen, Oslo and Akershus University College, Haukeland University Hospital, Harvard T.H. Chan School of Public Health and Johns Hopkins Bloomberg School of Public Health.

In low income countries, and in particular in South Asia where many eat limited amounts of meat and other animal products, poor vitamin B12 status is prevalent. Previous findings indicate that vitamin B12 is important for the developing brain.

The researchers collected blood from 500 infants in Bhaktapur, Nepal, and measured their B12 status.

Approximately 5 years later they contacted 320 of these children and conducted various developmental and [cognitive tests](#).

"Most of the Nepalese children participating in the study did not have severely low levels of vitamin B12, but their levels were suboptimal, below the recommendations for best possible growth and development," says Kvestad.

"It's like a hidden deficiency of the vitamin in these [children](#)'s bodies, making their cells work rigorously to signalize imminent danger. Our study is one contribution in the big puzzle to understand the implications low B12 levels might have on [small children](#)'s cognitive development."

More information: Vitamin B12 status in infancy is positively associated with development and cognitive functioning five years later in Nepalese children. *American Journal of Clinical Nutrition*. Published online March 22, 2017, [DOI: 10.3945/ajcn.116.144931](https://doi.org/10.3945/ajcn.116.144931)

Provided by Uni Research

Citation: Children with poor vitamin B12 status early in life struggle more with tasks, recognition and interpreting feelings (2017, March 27) retrieved 18 April 2024 from <https://medicalxpress.com/news/2017-03-children-poor-vitamin-b12-status.html>

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