

# Children born to mothers with low vitamin D levels may develop autism-like behaviors

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Low levels of vitamin D during pregnancy and breast feeding may be related to an unusual pattern of brain development that can lead to differences in social behaviour of children in later life, according to a study published in the *Journal of Endocrinology*. Rats with vitamin D deficiency during pregnancy and lactation produced offspring that displayed altered social behaviours in adulthood. Differences in social behaviours are a hallmark of numerous human conditions, including autism spectrum disorder (ASD), and these findings provide further evidence of the importance of maternal vitamin D levels during pregnancy for brain development of offspring.

ASD is a lifelong condition that ranges in severity and impacts on how individuals interact and communicate with the world. Human studies have found that lower levels of maternal Vitamin D during pregnancy are associated with an increased risk of ASD in children. However, the biological mechanisms underpinning this relationship remain unclear.

To examine how maternal vitamin D levels may

influence brain development, Dr Caitlin Wyrwoll and colleagues at the University of Western Australia, assessed alterations in markers of brain function and [social behaviours](#) of adult rats, born to mothers that were vitamin D deficient during pregnancy and lactation. They found that rats with vitamin D-deficient mothers displayed abnormal social behaviours, altered brain chemistry and impaired learning and memory.

Dr Caitlin Wyrwoll states, "Our work reinforces that vitamin D levels in early life influence brain development and can impact on how the brain functions in later life."

Dr Wyrwoll comments, "We know that early life environment can be a powerful determinant of health outcomes in offspring and, although this is a rat study, these data indicate that [vitamin D](#) levels during pregnancy are important for [brain development](#), and may point to a contributing factor in the development of neurodevelopmental conditions, such as ASD. However, further work is needed to establish whether these associations also apply to humans."

The study "Vitamin D is crucial for maternal care and offspring social behavior in rats" will be published in the *Journal of Endocrinology* on Wednesday 21 March 2018.

Provided by Society for Endocrinology

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