

Vitamin D in pregnancy may prevent childhood asthma

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Credit: King's College London

A new study published today in the *Journal of Allergy and Clinical Immunology* has found that taking Vitamin D supplements in pregnancy can positively modify the immune system of the newborn baby, which could help to protect against asthma and respiratory infections, a known risk factor for developing asthma in childhood.

The team of researchers from King's College London looked at the effect that taking a supplement of 4,400 IU [vitamin](#) D3 per day during the second and third trimesters of pregnancy versus the recommended daily intake (RDI) of 400 IU/day, had on the immune system of the newborn.

Participants were randomised at 10 to 18 weeks of pregnancy to high or low doses of vitamin D supplements. The team then took umbilical cord

bloods from 51 pregnant women to test the responsiveness of the newborn's innate immune system, which form the body's first line of defence to infection, and T lymphocyte responses, which provide longer-lasting protection.

They found that blood samples from [babies](#) born to mothers supplemented with higher vitamin D3 responded to mimics of pathogen stimulation by greater innate cytokine responses and greater IL-17A production in response to T lymphocyte stimulation. Both types of response are predicted to improve neonatal defence to infection. Given the evidence for strong immune responses in [early life](#) being associated with decreased development of [asthma](#), the team believe the effect will likely lead to improved respiratory health in childhood.

'The majority of all asthma cases are diagnosed in early childhood implying that the origin of the disease stems in foetal and early life,' said lead researcher, Professor Catherine Hawrylowicz from King's College London.

'Studies to date that have investigated links between vitamin D and immunity in the baby have been observational. For the first time, we have shown that higher Vitamin D levels in pregnancy can effectively alter the immune [response](#) of the [newborn baby](#), which could help to protect the child from developing asthma. Future studies should look at the long-term impact on the immunity of the infant.'

Dr Samantha Walker, Director of Research and Policy at Asthma UK, said 'Vitamin D is a promising area of research for asthma, however this study is just the first step of many needed to explore this topic. Although this study shows that vitamin D supplementation in [pregnancy](#) may improve immune responses, much more research is needed to prove whether this does in fact lead to reduced asthma rates later in life.

'Asthma affects 1 in 11 people in the UK, yet years of underfunding in research mean that we still do not understand what causes asthma, or have the ability to predict which babies will go on to develop asthma. This is urgently needed if we are to develop strategies to treat, and ultimately prevent asthma in children.'

More information: Vitamin D supplementation during pregnancy: Effect on the neonatal immune system in a randomized controlled trial. *Journal of Allergy and Clinical Immunology* (2017). DOI: [dx.doi.org/10.1016/j.jaci.2017.02.039](https://doi.org/10.1016/j.jaci.2017.02.039)

Provided by King's College London

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