

BAME babies at highest risk of Vitamin D deficiency

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Vitamin D deficiency was present in 35% of the cohort.
Credit: University of Birmingham

A third of all babies and half of Black, Asian and Minority Ethnic (BAME) babies are vitamin D deficient, a large study of 3000 newborn's in the West Midlands has shown, highlighting potential shortfalls in the current UK antenatal supplementation program.

Vitamin D, sometimes referred to as the 'sunshine vitamin' helps the body absorb calcium and phosphate from our diet making it vital for healthy bones, teeth and muscles. As well as causing bone softness and weakness, vitamin D deficiency in [newborn infants](#) can lead to serious life-threatening complications such as seizures, serious heart conditions and, rarely, death in the first months of life. With very few dietary sources of vitamin D, supplementation programs are in place to ensure adequate vitamin D consumption in high risk groups which include pregnant women and children.

This latest study, led by experts at the University of Birmingham and Birmingham Women's and Children's NHS Foundation Trust, analyzed vitamin

D levels on 3000 dry blood samples, collected via a heel prick in the first week of life as part of the national Newborn Blood Spot screening program. Samples were strategically collected at the end of summer and winter to capture the peak and trough in vitamin D levels. Vitamin D levels were analyzed alongside ethnicity, gestational age, maternal age and also deprivation indices. Proportion of babies with deficient, insufficient and sufficient levels of vitamin D based on season of birth and ethnicity were evaluated.

The majority of newborn's tested were white British (59.1%) and born at term. Vitamin D deficiency was present in 35% of the cohort. The results also demonstrate significant seasonal differences with 52.6% of winter-born babies being vitamin D deficient compared with 18.4% of summer-born babies. Nearly a quarter of babies tested (24%) were from areas with high levels of social deprivation.

Perhaps most significant is the prevalence of vitamin D deficiency between ethnic groups. Compared to white British babies, concentrations of the vitamin were much lower in babies of Black, Asian and mixed races as well as non-British white babies. Overall, across both seasons nearly half of the babies from Asian and black ethnic backgrounds were found to be deficient in vitamin D (47.7% and 47.4%, respectively) compared with 30.3% of white British babies. Across the entire multi-ethnic cohort, nearly 70% of the babies had a low vitamin D status, meaning that two thirds of the babies tested were either deficient or had insufficient levels.

Lead author Dr. Suma Uday from the University of Birmingham and Birmingham Women's and Children's hospital said: "Vitamin D deficiency is common in all [babies](#) born in the UK, especially in winter months. The high proportion of dark-skinned infants with low vitamin D status, demonstrates potential failings of the UK's antenatal

supplementation program in protecting these ethnic groups, who are well recognized to be at a high risk of vitamin D deficiency. We need to work on improving the disconnect between provision and uptake of vitamins in high risk-groups like expectant mothers from BAME backgrounds."

Senior author Professor Wolfgang Högler from the University of Birmingham's Institute of Metabolism and Systems Research said: "Our findings suggest that vitamin D supplementation programs could be much improved if they were delivered and monitored like immunization programs. Much easier and more effective would be food fortification with [vitamin D](#)—an approach that we have seen to be successful in other high latitude countries, such as Finland"

More information: Suma Uday et al, Failure of national antenatal vitamin D supplementation programme puts dark skinned infants at highest risk: A newborn bloodspot screening study, *Clinical Nutrition* (2020). [DOI: 10.1016/j.clnu.2020.12.008](https://doi.org/10.1016/j.clnu.2020.12.008)

Provided by University of Birmingham

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