

MEETING ABSTRACT

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# Food allergy and anaphylaxis – 2052. Vitamin D insufficiency is associated with challenge-proven food allergy in infants

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## Background

Epidemiological evidence has shown pediatric food allergy is more prevalent in regions further from the Equator, suggesting vitamin D insufficiency may play a role in this disease. We investigated the role of vitamin D status in infantile food allergy.

## Methods

A population sample of 5,276 one-year-old infants underwent skin prick testing to peanut, egg, sesame and cow's milk/shellfish. All of those with a detectable wheal, and a random sample of skin prick test negative participants, attended a hospital-based food challenge clinic. Blood samples were available for 577 infants (344 with challenge-proven food allergy; 74 sensitized but tolerant to food challenge; 159 negative both on skin prick and food challenge). Serum 25(OH) D levels were measured using liquid chromatography tandem mass spectrometry. Associations between serum 25(OH) D and food allergy were examined using multiple logistic regression, adjusting for potential risk and confounding factors.

## Results

Infants of Australian-born parents, but not of parents born overseas, with vitamin D insufficiency (<50 nM/L) were more likely to be peanut (aOR 12.22, 95% CI 2.55, 58.61,  $p=0.002$ ) and/or egg (aOR 7.26, 95% CI 2.52, 20.91,  $p<0.001$ ) allergic than those with adequate vitamin D levels. Those with vitamin D insufficiency were more likely to have multiple ( $\geq 2$ ) than single food

allergies (aOR 16.29, 95%CI 4.07, 65.27 vs aOR 2.72, 95%CI 0.45, 16.23 respectively) independent of eczema status.

## Conclusions

These results provide the first direct evidence that vitamin D sufficiency may be an important protective factor for food allergy in the first year of life.

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