

Can Vitamin D supplementation improve asthma control?

Clinical Question

Is vitamin D effective and safe when used to reduce the risk of severe asthma exacerbation and to improve asthma control?

Bottom Line

This systematic review does not find evidence to support a role for vitamin D supplementation to reduce risk of asthma exacerbations or improve asthma control. The null findings of this review are based on the largest pool of evidence analysed to date, and are consistent for primary and secondary outcomes.

Nonetheless, participants with severe asthma and those with baseline 25-hydroxyvitamin D (25(OH)D) concentrations < 25 nmol/L were poorly represented, and a protective effect of the intervention cannot be excluded in these groups.

Caveat

This review followed rigorous prespecified selection criteria, restricted to double-blind, placebo-controlled trials. This review incorporated evidence across a wide range of patient populations in terms of age, country, baseline vitamin D status, and vitamin D dosing regimens. The evidence produced by this review was graded as high for the primary outcome and high to moderate for the majority of secondary outcomes.

Context

Low blood levels of vitamin D have been linked to an increased risk of severe asthma attacks, defined as those requiring oral (systemic) steroid medications. Vitamin D metabolites can produce antimicrobial activity and exert anti-inflammatory activity. This might decrease the risk of asthma exacerbations, which are often precipitated by respiratory infection.

Cochrane Systematic Review

Williamson A, Martineau AR, Sheikh A, Jolliffe D, Griffiths CJ. Vitamin D for the management of asthma. Cochrane Database of Systematic Reviews 2023, Issue 2. Art. No.: CD011511. DOI: 10.1002/14651858.CD011511.pub3. This review contains 20 trials with a total of 2225 participants.

Pearls No. 717, February 2023, written by Assoc Professor Vanessa MB Jordan.

Systematic review link:

<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011511.pub3/full>