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## Nutrition

Volume 32, Issue 9, September 2016, Pages 913-920

Meta-analysis

# Vitamin D and atopic dermatitis: A systematic review and meta-analysis

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<https://doi.org/10.1016/j.nut.2016.01.023>

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## Highlights

- We have evaluated current evidence for the effectiveness of vitamin D for atopic dermatitis.
- The meta-analysis of these data indicate that vitamin D supplementation may help ameliorate the severity of AD and can be considered as a safe and tolerable therapy.
- Vitamin D has a potentially significant role for improving the symptoms of AD. However, larger-scale studies over a longer duration of treatment are needed to confirm this conclusion.
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Future studies for assessing adequate amounts of vitamin D intake for the treatment and prevention of AD are also warranted.

## Abstract

### Objectives

Despite the evidence supporting the use of vitamin D supplements for managing atopic dermatitis (AD), no meta-analysis providing definite conclusions in this field has been reported. The purpose of the present study was to conduct a systematic review and meta-analysis of all controlled studies of vitamin D for treating AD to elucidate the efficacy of vitamin D for alleviating the symptoms of AD.

### Methods

Literature searches were conducted using Ovid-MEDLINE, EMBASE, Web of Science, Cochrane Library, and Korean and Chinese databases. Search terms used were “vitamin D”, “atopic dermatitis”, “randomized”, “controlled trial”, and “clinical trial”. Random effects models were used to calculate the mean difference, with 95% confidence intervals to analyze the effects of vitamin D supplementation for severity of AD.

### Results

Initial searches yielded 266 citations. Of these original results, nine met specific selection criteria. Four of the randomized controlled trials compared the efficacy of vitamin D with a placebo on severity of AD and were included in the meta-analysis. The vitamin D supplementation interventions showed a higher mean difference in severity of AD symptoms (mean difference =  $-5.81$ , 95% CI:  $-9.03$  to  $-2.59$ ,  $P = 0.0004$ ,  $I^2 = 50\%$ ).

### Conclusions

Vitamin D has a potentially significant role for improving the symptoms of AD. The results from this study suggest that vitamin D supplementation may help ameliorate the severity of AD, and can be considered as a safe and tolerable therapy. However, larger-scale studies over a longer duration of treatment are needed to confirm this conclusion.

## Keywords

Vitamin D; Atopic dermatitis; Systematic review; Meta-analysis; SCORAD index

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G.K. and J.H.B. contributed equally to this study, and the final manuscript has been read and approved by all authors. The English in this document has been checked by at least two professional editors, both native speakers of English. For a certificate, please see: <http://www.textcheck.com/certificate/ggedxw>.

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