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Vitamin D, widely recognized for its key role in bone development and maintenance, also exerts significant immunomodulatory effects. Vitamin D deficiency has been correlated with increased severity of allergic symptoms, atopic conditions and inflammatory bowel disease, suggesting that adequate levels may be necessary for optimal symptom control, skin barrier integrity and immune function. Fermenta, a leading manufacturer of Vitamin D, presents this D-Essence Newsletter to highlight the latest research on the Role of Vitamin D in boosting immunity.

Vitamin D supplementation may serve as an adjuvant therapy in allergic rhinitis

The effect of Vitamin D supplementation on the nasal symptoms (assessed by Total Nasal Symptoms Score), IgE and eosinophil levels in patients with allergic rhinitis was inspected in a systematic review and meta-analysis. Among 16 articles included, Vitamin D supplementation lowered the nasal symptoms, IgE secretion and eosinophil count by a standard mean difference (SMD) of -2.24, -1.45 and -2.2, respectively, compared to the control group. Thus, Vitamin D supplementation lowers major inflammatory markers associated with allergic rhinitis.

Suryya R et al. Sultan Qaboos Univ Med J. 2025 May 2;25(1):867-875

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Vitamin D supplementation possibly mitigates atopic dermatitis severity



A systematic review and meta-analysis evaluated the efficacy of Vitamin D supplementation on disease improvement in children and adults with atopic dermatitis (AD). Among the 11 studies included, 27% studies suggested that Vitamin D supplementation significantly improved AD symptoms. Vitamin D supplementation also lowered AD severity with a standard mean difference (SMD) of -0.41 compared to the control group ($P < 0.01$). Additionally, Vitamin D dosage of >1000 IU/day offered significantly greater effect with an SMD of -0.35 ($P < 0.01$) vs. a non-significant effect with <1000 IU/day ($P = 0.24$).

Nelson AY et al. Nutrients. 2024 Nov 28;16(23):4128

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Vitamin D supplementation potentially improves clinical outcomes in IBD



The real-world impact of Vitamin D supplementation on emergency department (ED) visits, hospitalizations and corticosteroid use in patients with inflammatory bowel disease (IBD) was analyzed in a retrospective cohort study. A total of 5,021 IBD patients (58% Ulcerative colitis, 39% Crohn's disease and 3% Indeterminate colitis) were included, with a median Vitamin D level of 23 ng/mL and 41% received Vitamin D supplementation. There was a 34%, 53% and 25% greater relative risk reduction of ED visits, hospitalizations and corticosteroid prescription, respectively, with Vitamin D supplementation compared to without supplementation.

Srinicky JA et al. Clin Gastroenterol Hepatol. 2025 Jul 22;S1542-3555(25)00634-X

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