D-Essence
Medical Insights on Vitamin D

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Vitamin D is well known for its central role in calcium and phosphorus homeostasis and bone metabolism. Many observational studies suggest various extra-skeletal effects of Vitamin D, particularly linking its deficiency to cardiovascular and cardiometabolic disease risk factors, inflammatory pathways, as well as impaired muscle action and strength. Fermenta, a leading manufacturer of Vitamin D, presents this D-Essence Newsletter to highlight the latest research on the Role of Vitamin D in general health and wellness.

Vitamin D supplementation might improve deficiency-related symptoms

The influence of Vitamin D supplementation (50,000 IU/week) on symptoms and clinical outcomes (fatigue, muscle pain and discomfort) in adults with insufficient (30–50 nmol/L) or deficient (<30 nmol/L) baseline Vitamin D levels was investigated in an interventional study. Among 204 participants, 65.1% had Vitamin D deficiency at baseline. After 2 months of Vitamin D supplementation, the symptoms were significantly improved in patients who achieved Vitamin D sufficiency (>50 nmol/L). After adjusting for confounders, baseline Vitamin D deficiency was one of the significant predictors of symptom improvement post-supplementation.

Altaweer Ovid al. J Health Popul Nutr. 2025 May 29;44(1):176

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Vitamin D supplementation probably optimizes muscle function in athletes

The impact of Vitamin D supplementation on muscle function and exercise performance of high school athletes was assessed in a study. Among 21 athletes, only 28.6% had Vitamin D sufficiency (>30 ng/mL) with a mean level of 35.8 ng/mL. After daily 1,000 IU Vitamin D supplementation for 6 months, serum Vitamin D level increased significantly by 40%, 30% and 45% in total, male and female athletes, respectively. Furthermore, Vitamin D supplementation significantly improved anaerobic capacity (estimated by Wingate Anaerobic Power Test), peak power and maximal cycling in all athletes.

Nakajima H et al. J Med Invest. 2025;72(1.2):167-171

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Vitamin D level may correlate with cardiometabolic parameters in obese adults

A cross-sectional study explored the interrelation between Vitamin D status and cardiometabolic markers in extremely obese (BMI >35 kg/m^2) individuals. Among 293 subjects included, 81% had Vitamin D deficiency (< 20 ng/mL) with a mean BMI of 42 kg/m^2. The Spearman correlation analysis revealed that total serum Vitamin D level was negatively associated with BMI (P < 0.0001) and parathyroid hormone (P < 0.0001). Additionally, on regression analysis, higher Vitamin D level was associated with higher HDLc and apolipoprotein A-1 levels, which remained significant after adjusting for confounding variables.

Zhou Y et al. Int J Endocrinol. 2025 Jun 30;2025:7945302

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