D-Essence
Medical Insights on Vitamin D

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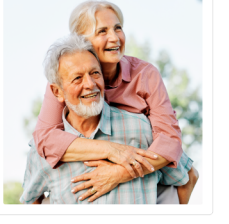
Vitamin D plays a crucial role in cardiovascular health by regulating blood pressure, reducing inflammation and supporting endothelial function, in addition to its classical application. Vitamin D deficiency is associated with multiple cardiovascular risk factors, a heightened risk of heart disease and disruptions in several systems that regulate heart health. Fermenta, a leading manufacturer of Vitamin D, presents this D-Essence Newsletter to highlight the latest research on the Role of Vitamin D in Cardiovascular Health.

Vitamin D supplementation might suppress renin in chronic heart failure

A randomized double-blind trial evaluated the impact of Vitamin D supplementation (Vs. placebo) on the renin-angiotensin-aldosterone system in chronic heart failure patients with reduced ejection fraction. Overall, comparable patients had hypovitaminosis D (<30 ng/mL: 90% and 85%) and hyper-reninemia (80% and 75%) at baseline in the Vitamin D (n=40) and placebo group (n=40), respectively. After 1 month of Vitamin D supplementation, there was a 26.9 ng/ml greater increase in Vitamin D levels from baseline compared to placebo. Additionally, Vitamin D supplementation lowered the renin concentration by -40.5 pg/ml from baseline Vs. +5.7 pg/ml increase in the placebo group.



Mghraoth F et al. Glob Cardiol Sci Pract. 2025 Feb 28;2025(1):e202507

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Vitamin D may alleviate hypertriglyceridemia in overweight/obese women

A meta-analysis and systematic review of 13 eligible publications examined the impact of Vitamin D supplementation on lipid profile in women who are overweight/obese. Vitamin D supplementation was associated with a reduction of 6.13 mg/dL and 4.45 mg/dL in triglyceride (TG) and total cholesterol level, respectively, as calculated by weighted mean difference. Additionally, Vitamin D supplementation also significantly increased the HDL-C levels by 1.54 mg/dL. The greater reduction in TG levels was observed in studies that had a mean baseline TG concentration of ≥150 mg/dL (-23.58 mg/dL) and when Vitamin D was administered for ≤26 weeks (-11.44 mg/dL).

Hu L et al. Nutr Rev. 2025 Sep 1;83(9):1657-1668

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Higher serum Vitamin D levels potentially mitigate CV outcomes

The association between serum Vitamin D levels and its CV outcomes was analyzed in a systematic review and meta-analysis study. Among 22 included articles, low serum Vitamin D level (<75 nmol/L) was associated with a 38% and 64% increased risk of CV events and all-cause mortality, respectively. The dose-response analysis revealed that each 10-unit increase in Vitamin D concentration was associated with an 8.2% risk reduction of CVD. Additionally, there was also a significant inverse correlation between Vitamin D levels and mortality risk ($p < 0.001$ for non-linearity).

Madadi R et al. J Saudi Heart Assoc. 2025 Jun 1;37(2):14

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