

Vitamin D Deficiency and Metabolic Syndrome: This is the Current Data Situation

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Vitamin D deficiency is common, and approximately half of the population in Germany has a serum 25-hydroxyvitamin D (25(OH)D) concentration below the level recommended by the German Nutrition Society (DGE), which is at least 50 nmol/L (20 ng/mL).^{1,2}

Vitamin D deficiency is particularly prevalent in individuals with metabolic syndrome. This is partly due to the fact that body mass index (BMI) is significantly and inversely correlated with 25(OH)D levels.^{3,4}

Low serum 25(OH)D concentrations in patients with metabolic syndrome are also associated with increased mortality risk. In recent years, randomized placebo-controlled trials have demonstrated a protective effect of vitamin D, especially regarding the prevention of type 2 diabetes.^{5,6,7}

Based on these positive findings, the Endocrine Society issued an international guideline in 2024 recommending general vitamin D supplementation for individuals with prediabetes.⁶

Although dosage recommendations for vitamin D supplementation remain heterogeneous in the scientific literature and are not precisely specified in the Endocrine Society's guideline, a daily oral intake of 800 to 2000 international units (IU) (20 to 50 µg) is considered both effective and very safe for the prevention and treatment of vitamin D deficiency.^{8,9}

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