



Recent evidence suggests that Vitamin D might be involved in cognitive function and mood regulation apart from its well-known role in bone and mineral metabolism. Decline in Vitamin D levels can affect many brain functions and neuronal development which may result in various psychological impairments like depression, dementia, etc. Fermenta, a leading manufacturer of Vitamin D, presents this D-Essence Newsletter to highlight the latest research on the Role of Vitamin D in Mental Wellness.

### Vitamin D supplementation possibly offers favorable results in ADHD

The impact of Vitamin D supplementation on the brain mapping and behavioral performance of 35 ADHD children was evaluated in a study. After 2 months, Vitamin D supplementation was associated with a 27.7 ng/ml greater improvement in Vitamin D levels compared to placebo from baseline ( $P = 0.001$ ). Improvement in cognitive processing and function (identified by brain waves improvement) was positively associated with an improvement in ADHD symptoms (assessed by Connors scores). Vitamin D supplementation substantially improved cognitive function and processing in both eye open and closed conditions Vs. placebo.

Mehroozini H et al. Nutr Neurosci.  
2024 Jun;27(6):566-576

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### Maintaining adequate Vitamin D levels might improve mental health in CKD

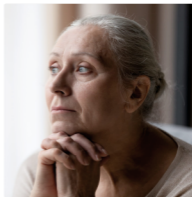


A cohort study analyzed the relationship between Vitamin D deficiency ( $<20$  ng/mL) and the risk of major depression in 17,955 chronic kidney disease (CKD) patients. At 1-year, patients with Vitamin D deficiency had a 92% greater risk of developing major depression compared to control ( $\geq 30$  ng/mL) and this correlation persisted throughout the 3-year follow-up. This relationship between Vitamin D deficiency and depression risk was consistent across CKD stages. The relative risk of major depression (Vs. control) was higher among male patients with Vitamin D deficiency (1.2.2-fold) compared to female (1.76%).

Chen W et al. Front Nutr. 2025  
Jan 27;12:1540633

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### Vitamin D deficiency potentially elevates the risk of dementia



The association of Vitamin D levels with cognitive impairment and dementia was assessed in a systematic review and meta-analysis of prospective studies. Among 23 included studies, Vitamin D was non-linearly correlated with dementia and Alzheimer's disease (AD) risk. Vitamin D deficiency demonstrated a 1.4-fold, 1.5-fold and 34% higher risk of dementia, AD and cognitive impairment compared to control. Additionally,  $\sim 77.5$  to  $100$  nmol/L of Vitamin D was optimal for lowering dementia risk and the AD risk decreased with  $> 40$  nmol/L of Vitamin D level.

Zhang X et al. J Alzheimers Dis.  
2024;98(2):373-385

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