

# The Impact of Vitamin D Supplementation on Attention-Deficit Hyperactivity Disorder in Children.

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Abstract

## BACKGROUND:

The role of nutrients and dietary factors in attention-deficit hyperactivity disorder (ADHD) remains unclear.

## OBJECTIVES:

The primary objective was to evaluate the serum vitamin D level in children with a diagnosis of ADHD. The secondary objective was to detect the effect of vitamin D supplementation on cognitive function in those with vitamin D deficiency.

## METHODS:

A total of 50 children with ADHD and 40 healthy controls were included in the study. We measured the serum level of vitamin D. Patients with vitamin D deficiency were subdivided into 2 groups: one with vitamin D supplementation and the other without vitamin D supplementation. Further assessment and follow-up of children with ADHD was done. The Wisconsin Card Sorting Test, Conners' Parent Rating Scale, and Wechsler Intelligence Scale for Children were performed at baseline and follow-up in all cohorts with an ADHD diagnosis.

## RESULTS:

The diagnosis of vitamin D deficiency was significantly greater in children with ADHD compared with the control group ( $P < 0.05$ ). Children with ADHD had significantly ( $P = 0.0009$ ) lower values of serum vitamin D ( $17.23 \pm 8.98$ ) than the control group ( $31.47 \pm 14.42$ ). The group receiving vitamin D supplementation demonstrated improvement in cognitive function in the conceptual level, inattention, opposition, hyperactivity, and impulsivity domains.

## CONCLUSION:

Vitamin D supplementation in children with ADHD may improve cognitive function.