

## Vitamin D and Autism

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### Abstract

Vitamin D has been considered recently as a research interest in the area of psychiatry. The brain contains vitamin D receptors, which may regulate mood and depressive disorders during the insufficiency of vitamin D. Animal studies have confirmed that severe vitamin D deficiency during pregnancy dysregulates many proteins that are highly critical for brain development and leads to rat pups with pathological changes such as increased brain size and enlarged ventricles, abnormalities similar to those present in children with ASD. Recent studies have demonstrated that vitamin D level in ASD children is significantly lower than in their counterparts. Recently, a meta-analysis of 24 case-control studies demonstrated that children and adolescents with ASD had significantly lower vitamin D concentrations than those of participants in the control group. Our research group Saad et al. (2015), performed a cohort study of vitamin D supplementation in children with ASD. Eighty-three ASD children completed a 3- month open-label trial with the daily oral administration of vitamin D3 at the dose of 300 IU/kg/day, not to exceed 5000 IU/day. Sixty-seven of the tested children had significantly recovered in core symptoms, such as behavior, stereotypy, eye contact, and attention span, at the end of the trial. All children with a final serum 25(OH)D levels below 30 ng/ml had no improvements in clinical symptoms, and 31 children of the 45 patients with final serum 25-OHD levels above 30 ng/ml had improved autism symptoms. Our findings indicated that vitamin D level in children and adolescents with autism is significantly lower than that in healthy controls, which has clinical implications. Considering the importance of vitamin D and the high prevalence of vitamin D deficiency, regular screening of vitamin D levels in autistic individuals and necessary interventions are recommended. Furthermore, pregnant and lactating women consume more vitamin D than usual and are generally deficient in vitamin D; maternal and neonatal vitamin D status may be associated with subsequent diagnosis of ASD. Vitamin D status should be included in routine screening during pregnancy and lactation in order to provide appropriate clinical intervention.