

Vitamin D supplementation may delay precocious puberty in girls

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Vitamin D supplementation may help delay early onset of puberty in girls, a new clinical study finds. The results were presented Monday at The Endocrine Society's 95th Annual Meeting in San Francisco.

Among girls, puberty generally begins between the ages of 10 and 14. Boys undergo these changes later, usually between 12 to 16 years of age. Precocious puberty is diagnosed in girls when [sexual development](#) begins before the age of 8; in boys, it is diagnosed when these changes occur before age 9.

Recently, medical research has linked vitamin D deficiency to a number of diseases, including cancer, obesity and autoimmune disease. Low vitamin D levels have been found in girls with precocious puberty, as well, although the exact relationship between vitamin D deficiency and early development remains unclear.

To determine how low vitamin D deficiency is related to precocious puberty, investigators in the current study compared [blood levels](#) of the vitamin between girls with early and normal development.

They found that girls with precocious puberty were significantly more likely than those with age-appropriate development to have a severe [vitamin D deficiency](#). Among the precocious puberty group, 44 percent had a severe deficiency in vitamin D, compared to 21 percent of the group with age-appropriate physical development.

Additionally, investigators examined the activity of neurons responsible for stimulating the release of a hormone that triggers the [ovulation](#) process. Specifically, investigators used the neuron-stimulating compound called N-methyl-D-aspartate, or NMDA, to activate the neurons responsible for releasing gonadotropin-releasing hormone, or GnRH. They found that vitamin D was associated with a suppression of the NMDA-mediated neuronal activities on GnRH [neurons](#).

"If we understand more about the action mechanism of vitamin D on GnRH neuronal activities, we can find a clue to control of precocious puberty using vitamin D or related molecules," said study lead author Min Sun Kim, MD, PhD, assistant professor at Chonbuk National University Medical School in Jeonju, South Korea. "Our results suggest that vitamin D may inhibit early pubertal onset and/or the rapid progression of puberty, at least in part, through the suppression of NMDA-mediated GnRH neuronal excitation in humans."

Study participants included 110 girls between the ages of 7 to 10 years. Seventy-five girls exhibited normal patterns of development, while 35 were classified as having precocious puberty. Investigators used the Tanner scale, which assesses human physical development, to differentiate normal versus precocious pubertal development.

According to Kim, more research, including studies in animal models, is necessary to confirm this project's findings.

Provided by The Endocrine Society

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