

Preterm infants may need 800 IU of vitamin D3 per day

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Preterm infants may need to be given 800 international units (IU) of vitamin D a day to ensure they develop strong bones, according to a study to be presented Sunday, May 5, at the Pediatric Academic Societies (PAS) annual meeting in Washington, DC.

[Preemies](#) are known to be at risk for [vitamin D](#) insufficiency. If levels of vitamin D are too low, infants and children can get rickets, which leads to softening and weakening of the bones.

Recommendations from medical organizations on how much vitamin D should be given to preemies range from 400 IU to 1000 IU per day. This lack of [consensus](#) prompted researchers from All India Institute of Medical Sciences, New Delhi, to conduct the largest study to date on vitamin D supplementation in [preterm infants](#).

Subjects included 96 infants born between 28 and 34 weeks' gestation who were receiving milk feeding. [Blood samples](#) were taken from the infants to determine their serum vitamin D levels. The infants then were randomly assigned to receive either 800 IU or 400 IU of oral [vitamin D3](#). Neither the parents nor the primary investigator was aware of which dose the infants were receiving.

Researchers compared whether the prevalence of vitamin D insufficiency (VDI) at 40 weeks and at 3 months corrected age differed between the groups. They also looked at whether infants with higher vitamin D levels also had stronger bones at 3 months corrected age and

whether supplementation led to vitamin D levels that were too high.

Results showed that VDI was common in both groups before they received [supplements](#) (79 percent of the 800 IU group and 83 percent of the 400 IU group).

After supplementation, the prevalence of VDI at 40 weeks was 43 percent lower in the 800 IU group than the 400 IU group (38 percent vs. 67 percent). In addition, VDI was significantly lower in the 800 IU group when the infants were 3 months old (12 percent vs. 35 percent).

Four infants needed to be supplemented with 800 IU daily to reduce one case of vitamin D insufficiency, said lead author Chandra Kumar Natarajan, DM.

"The study results show conclusively that in preterm infants with high rates of vitamin D insufficiency at baseline, supplementation with 800 IU of vitamin D3 per day compared to 400 IU per day reduces vitamin D insufficiency at term equivalent age and at 3 months," Dr. Natarajan said. "There also is a trend toward a decrease in the prevalence of vitamin D insufficiency even in the 400 IU group at 3 months. Therefore, 400 IU per day may be sufficient after 3 months."

Despite significant improvement in [serum](#) vitamin D levels in the 800 IU group, higher levels did not result in better bone mineralization at 3 months of age as measured by dual energy X-ray absorptiometry (DEXA). In addition, weight, length and head circumference did not differ significantly between the groups.

Dr. Natarajan also noted that one infant in the 800 IU group had vitamin D levels that were higher than recommended levels at 3 months of age despite the levels at term age being normal. Excess vitamin D for at least one month can cause decreased muscle tone, decreased appetite,

irritability and constipation, among other problems. The infant did not experience any major effects.

"The incidence of vitamin D excess in the 800 IU group may indicate the need for monitoring vitamin D levels in [infants](#) on [vitamin D](#) supplementation, but we need larger studies to answer this," he said.

"Similarly, larger studies with longer duration of follow-up may be needed to find out any meaningful difference in clinical outcomes such as [bone](#) mineralization."

More information: To view the abstract, "Daily Vitamin D Supplementation with 800 IU vs. 400 IU in Preterm Infants: A Randomized Trial," go to www.abstracts2view.com/pas/view...hp?nu=PAS13L1_2183.8

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