Vitamin D intake may be associated with lower stress fracture risk in girls

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Vitamin D may be associated with a lower risk of developing stress fractures in preadolescent and adolescent girls, especially among those very active in high-impact activities, according to a report published Online First by *Archives of Pediatrics & Adolescent Medicine*.

Stress fractures, a relatively common sports-related injury, occur when stresses on a bone exceed its capacity to withstand and heal from those forces. But while consumption of calcium and calcium-rich dairy products is routinely encouraged for optimal bone health, researchers note in their study background that the evidence for this recommendation has been challenged.

Kendrin R. Sonneville, Sc.D., R.D., of Children's Hospital Boston, and colleagues conducted a study to identify whether calcium, vitamin D and/or the intake of dairy were prospectively associated with stress fracture risk among girls. The study included 6,712 preadolescent and adolescent girls (age 9 to 15 at baseline) in the Growing Up Today Study.

During seven years of follow-up, 3.9 percent of the girls developed a stress fracture. Dairy and calcium intakes were unrelated to risk of developing a stress fracture. However, vitamin D intake was associated with a lower risk of developing a stress fracture, particularly among those girls who participate in at least one hour a day of high-impact activity.

"In contrast, there was no evidence that calcium and dairy intakes were protective against developing a stress fracture or that soda intake was predictive of an increased risk of stress fracture or confounded the association between dairy, calcium or vitamin D intakes and fracture risk," the authors comment.

The authors also note that in a stratified analysis that high calcium intake was associated with a greater risk of developing a stress fracture, although they suggest that "unexpected finding" warrants more study.

The authors conclude their findings support the Institute of Medicine's recent increase in the recommended dietary allowance for vitamin D for adolescents from 400 IU/d to 600 IU/d.

"Further studies are needed to ascertain whether vitamin D intake from supplements confers a similarly protective effect as vitamin D consumed through dietary intake," they comment.

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