

Low vitamin D levels are related to decreased response to osteoporosis medicine

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Women with low bone density are seven times more likely to benefit from a bisphosphonate drug when their vitamin D blood levels are above recent recommendations from the Institute of Medicine (IOM) as adequate for bone health. These new study results will be presented Saturday at The Endocrine Society's 93rd Annual Meeting in Boston.

"Maintaining adequate vitamin D levels above those recently recommended by the IOM is important for optimizing a standard therapy for osteoporosis: [bisphosphonates](#)," said coauthor Richard Bockman, MD, PhD, chief of the endocrine service at Hospital for Special Surgery and professor of medicine at Weill Cornell Medical College, both in New York City.

Last November the Institute of Medicine (IOM) issued its recommendations on vitamin D intake, reporting that most adults up to age 70 need no more than 600 International Units, or IU, a day to maintain [bone health](#). According to the IOM, this intake, along with adequate calcium, is enough to achieve the minimum adequate vitamin D blood level, measured as serum 25-hydroxyvitamin D, which is 20 nanograms per milliliter (ng/mL).

However, in Bockman's study of 160 [postmenopausal women](#) with osteoporosis, an average 25-hydroxyvitamin D level of 20 to 30 ng/mL was associated with a high likelihood of not responding to at least 18 months of bisphosphonate treatment. Patients took alendronate, risedronate, ibandronate or zoledronate. The rate of women who were

"nonresponders" at this serum vitamin D level was 77.8 percent, compared with 42.3 percent when serum vitamin D was in the range of 30 to 40 ng/mL. Only 24.6 percent were "nonresponders" for a level above 40 ng/mL, the authors reported.

Patients with a hydroxyvitamin D level of 33 ng/mL and above had a sevenfold greater likelihood of having a favorable response to bisphosphonate therapy than below that level, they found.

"This value of at least 33 ng/mL is higher than the level considered as "adequate" by the Institute of Medicine report for the general population and most likely requires a vitamin D intake higher than 600 IU for this therapeutic outcome," Bockman said. "In the future, I think we're going to see vitamin D recommendations based on specific conditions."

The researchers categorized patients as nonresponders if they had a new fracture while receiving a bisphosphonate or if their [low bone density](#) worsened by more than 3 percent as shown on dual-energy x-ray absorptiometry (DEXA) [bone density](#) scans obtained 18 to 60 months apart. Also counted as a nonresponder was any woman with a persistently low DEXA T-score worse than -3 (3 standard deviations below normal).

A typical nonresponse rate to bisphosphonate treatment, according to Bockman, is about 30 percent in an osteoporosis specialty clinic, such as the one from which participants in this study were recruited. Doctors do not generally measure a patient's serum [vitamin D](#) level before beginning bisphosphonate treatment, he said.

Provided by The Endocrine Society

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