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## CMSC-ACTRIMS: Content of OTC Vitamin D Low, Unpredictable

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### MedPage Today Action Points

- Explain to interested patients that in one small but carefully done study, the actual dose of OTC vitamin D was below the listed dose in all brands tested.
- Note that this study was published as an abstract and presented at a conference. These data and conclusions should be considered to be preliminary until published in a peer-reviewed journal.

### Review

SAN ANTONIO -- Multiple sclerosis (MS) patients taking over-the-counter vitamin D aren't getting what they're paying for, or what their neurologists recommend, according to a study presented here.

The mean vitamin D content from 10 OTC brands was only 33% of what the label claimed, with the actual content ranging from less than 1% to 82% of the advertised level. The study was presented at the meeting of the Joint Consortium of Multiple Sclerosis Centers and America's Committee on Treatment and Research in Multiple Sclerosis.

Vitamin D supplements are increasingly being recommended to MS patients, both for osteoporosis, which is common in the disease, and for presumed immunomodulatory actions as well, according to senior author Peter Calabresi, MD, of the Department of Neurology at Johns Hopkins University in Baltimore. "As the role of vitamin D in immune regulation in MS gains increasing focus, oral supplementation is growing," he said.

The level of recommended supplementation depends on the patient's individual deficiency, although 4000 IU daily is a common dose.

However, given the wide variety of vitamin D<sub>3</sub> (cholecalciferol) supplements available and "limited regulation within the nutritional supplement industry, the true vitamin D<sub>3</sub> content of over-the-counter supplements is a concern," Calabresi said.

To test levels in commonly purchased supplements, his group collected 10 bottles of OTC supplements from local and on-line retail pharmacies. Vitamin D<sub>3</sub> was extracted by standard techniques and samples were analyzed by liquid chromatography and mass spectrometry.

The labeled doses ranged from 400 IU to 10,000 IU, but the mean actual dose was only 33.5% of the labeled dose, with a range from 0.24% to 81.7%.

Lower-dose products tended to be closer to their labeled dose than higher-dose products, with the three 400-IU products averaging 51.5%, the two 1000-IU products averaging 34%, and the three 10,000-IU products averaging 29.9%.

On the other hand, the single worst sample -- the one with only 0.24% of what it claimed -- was a 400-IU sample.

Neither national in-store retail brands nor online brands were more true to their labels.

The discrepancy between the advertised and actual vitamin D content "may contribute to the difficulty for some patients to reach adequate serum vitamin D levels despite supplementation," Calabresi said.

"This reflects the need for increased regulation of the vitamin industry." Because their lab is not certified to do drug testing, Calabresi declined to name the products tested in this study. Patients taking vitamin D supplements should have serum measurements made after starting therapy to determine whether they are reaching target levels, he said.

The authors reported no disclosures.

**Primary source:** Consortium of Multiple Sclerosis Centers

**Source reference:**

Eckstein C, et al "Vitamin D<sub>3</sub> content in commercially available oral supplements"

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