



communicating Food for Health

Do Vitamin D Supplements Improve Bone Health?

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For many years, Americans — especially postmenopausal women — have been told to take vitamin D and calcium supplements to protect their bones from thinning (osteopenia and osteoporosis) and to reduce their risk of fractures. More recently, some researchers have suggested that extra vitamin D may also strengthen muscles and reduce the risk of falls that lead to bone fractures. Experts have debated what the optimal level of 25-hydroxyvitamin D (25[OH]D) in the blood is for improving both bone and musculoskeletal health. To help clarify the possible benefits of supplemental vitamin D, Dr. Karen Hansen and colleagues compared the effects of giving three groups of postmenopausal women either a (1) placebo, (2) low-dose vitamin D3 (a.k.a. cholecalciferol), or (3) high-dose Vitamin D3 for one year. The subjects were older women who initially had

low vitamin D status as determined by a low 25(OH)D blood test. This randomized, double-blind, placebo-controlled clinical trial involved 230 postmenopausal women who were 75 years or younger with baseline 25(OH)D levels of between 14 and 27 ng/mL. The researchers looked for changes in total fractional calcium absorption, bone mineral density (BMD), leg muscle strength, and muscle mass. One group received a daily supplement of 800 IU vitamin D3 and twice monthly yellow placebo (n=75), and daily white placebo and twice monthly 50,000 IU vitamin D3 (n=79). The high-dose vitamin D regimen achieved and maintained 25(OH)D levels ≥ 30 ng/mL. After one year, changes in total fractional calcium absorption were measured using 2 stable isotopes, and BMD and muscle mass were measured using dual energy x-ray absorptiometry. They used the “Timed Up and Go” test to measure muscle strength and

(continued on next page)

September '15

Professional Member Edition

Research

Bone Health and Vitamin D:
What the Science Says

Practitioner Ideas

Help Your Clients Shop
Healthfully and Effectively

Client and Consumer Education

Handouts: Recipes and Cooking Tips

1. Seafood Chowder
2. Chicken with Rice

This Month's Handouts

1. Brain-Healthy Foods
2. Sugary Drinks and Diabetes
3. Shopping Beyond the Perimeter
4. Diabetes and Weight Loss

Online: Clipart, Calendar, Recipes, PDF Handouts, Articles, This Month, Newsletter Archive

The researchers concluded that high-dose Vitamin D₃ therapy did modestly increase calcium absorption, but the effect was small and it did not translate into measurable beneficial effects on BMD, muscle function, muscle mass, or falls or fractures after one year.

function, and also used a Health Assessment Questionnaire and physical activity questionnaire.

The results of Dr. Hansen's study showed that after baseline absorption was controlled for, calcium absorption increased 1% (or 10 mg/d) in the high-dose arm but decreased 2% in the low-dose arm (P = .005 vs high-dose arm) and 1.3% in the placebo arm (P = .03 vs high-dose arm). However, they found no significant changes between the groups in spine, mean total-hip, mean femoral neck, or total-body BMD, trabecular bone score, muscle mass, and Timed Up and Go or five sit-to-stand test scores. They also found nothing between group differences for the numbers of falls, number of fallers, physical activity, or functional status. The researchers concluded that high-dose Vitamin D₃ therapy did modestly increase calcium absorption, but the effect was small and it did not translate into measurable beneficial effects on BMD, muscle function, muscle mass, or falls or fractures

after one year. This data provides very little support for the views of some experts who recommend maintaining serum 25(OH)D levels of 30 ng/mL or higher in postmenopausal women. Instead, they found that both the low- and high-dose Vitamin D₃ supplements failed to provide any measurable health benefit compared to a placebo (such as improved bone health or improved muscle strength or function) in this group of postmenopausal women whose initial 25(OH)D levels were less than 30 ng/mL. This suggests that most older women with 25(OH)D levels in the 20s or higher are unlikely to benefit from taking either an RDA dose or a much higher dose of supplemental vitamin D (1).

Dr. Rita Redberg, a professor of medicine with the University of California, San Francisco's Philip R. Lee Institute for Health Policy Studies and editor of JAMA Internal Medicine, went a step further. She said "I think this is the final, and negative, word on vitamin D supple-

mentation. There are a lot of women getting vitamin D blood tests and taking vitamin D supplements of various doses. This study suggests that those practices should stop. In other words, if you are going to start vitamin D to improve bone health, and if you are currently taking it for that reason, you can stop. I know of no other benefits for vitamin D supplementation."

Bottom Line: While some researchers continue to suggest that many Americans have insufficient vitamin D status and are recommending blood levels of 25(OH)D of 30ng/ml to assure stronger bones and muscles, the data from this recent study suggests that blood levels above 15ng/ml (and certainly above 20ng/ml) indicate vitamin D nutrition is adequate at least for maintaining bone and muscle health in post-menopausal women.

To see the references that accompany this article, please visit <https://foodand-health.com/vitamin-d-bone-health/>.

Healthful Shopping Activity Ideas:

Are your clients confident in the grocery store? Having healthful food around the house makes it much easier to choose nutritious foods, so managing a shopping trip well is key to good health. Here are some fun ideas to help your clients get shopping savvy!

Activity #1: Great to Evaluate

Before your participants arrive, arrange a few healthful and unhealthy foods in discreet areas of the room. Make sure each food has nutrition information attached to it.

When your participants arrive, divide them into groups. Explain that you have hidden a set of foods around the room and need them to evaluate those foods using the Nutrition Facts Panel.

Each group must find the foods and write down key information about each one. You can decide whether to offer them things to look for before they begin searching (saturated fat, calories per serving, etc) or whether you want to evaluate what they determine to be “key” information on their own.

Let the groups search and take notes, and once everyone is wrapping up their projects, reconvene the class.

What did everyone find? Have each group present information about one of the foods they chose. Is it healthful? Calorie-dense? Nutrient-dense? What did they notice about that food?

Offer time for discussion between each presentation, and continue reviewing until you’ve covered all the foods that you hid. How can your clients apply what they’ve learned to their next shopping trip?

Activity #2: Sliding Scale

September is Whole Grain Month, so what better time is there to explore whole grains?

Lay out a series of different grain foods, some healthful, some not. A combination of bread, whole grain pasta, regular pasta, white rice, brown rice, muffins, crackers, and cookies is a great place to start.

As a class, discuss the health impact of each food and have volunteers rearrange those objects in order of healthfulness. For example, the grain spectrum might run (in order of highest to lowest grades): brown rice, whole grain pasta, 100% whole wheat bread, regular pasta, white rice, wheat crackers, white bread, blueberry muffin, and chocolate chip cookies. Why would this order be effective? Discuss everyone’s thoughts as a class.

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