

New study finds current dosing recommendations may not help patients achieve optimal vitamin D levels

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Low levels of vitamin D have been shown to be associated with a higher risk of having a cardiac event, like a heart attack or stroke. For this reason, treatment by vitamin D pills or injections are being investigated as a possible preventative method in these patients. Credit: Intermountain Health

Low levels of vitamin D have been shown to be associated with a higher risk of having a cardiac event, like a heart attack or stroke. For this reason, treatment by vitamin D pills or injections are being investigated as a possible preventative method in these patients.

However, two new studies from Intermountain Health in Salt Lake City have found that current dosing recommendations are not helping patients achieve optimal vitamin D levels, suggesting that trials looking into the effectiveness of vitamin D [treatment](#) to prevent cardiac events were not using appropriately sufficient doses, leading to inaccurate results.

In their studies, Intermountain researchers found that achieving those levels often takes giving patients much more than the daily United States Recommended Dietary Allowance of 600 to 800 International Units (IU). In some cases, patients needed more than 10,000 IU.

"We've seen a series of studies that report an association between low vitamin D and poor [heart](#) outcomes, but also a few randomized [clinical trials](#) that do not report the same association," said lead author, Heidi May, Ph.D., an epidemiologist at Intermountain Health.

"Our findings here show that just giving patients some vitamin D does not help them achieve optimal levels. If researchers are going to further look at vitamin D dosing as a possible way to improve heart health, patients need to be given the right doses to reach those ideal levels."

"These findings show that without taking a tailored approach to evaluating and dosing with vitamin D, patients most likely will not see any results," added Viet T. Le, DMSc, PA-C, researcher and physician associate at the Intermountain Health. "We need to be far more intentional in how we're treating patients with vitamin D beyond just telling them to take a vitamin pill."

The findings were presented in two abstract studies at the [American Heart Association's Scientific Sessions 2023 in Philadelphia](#) on November 12 and 13.

Patients in these studies were enrolled in Target-D, a [randomized clinical trial](#) evaluating whether achieving an ideal vitamin D level through personalized management of vitamin D supplementation will result in the reduction of cardiovascular-related outcomes.

In the first analysis of the Target-D study, 632 patients were stratified into two groups, either receiving a general recommendation to discuss their vitamin D treatment with their clinician; or a targeted vitamin D treatment. The goal was to raise their 25-hydroxyvitamin D (25[OH] vit D) levels to more than 40 nanograms per ml (ng/mL), which is considered the optimal level in this study.

For patients in the targeted treatment, their supplementation was based on a dosing algorithm. They returned at three-month intervals for assessment and dosing adjustment, until levels were over 40 ng/mL. If they were above that level, they received no additional treatment and returned annually for reassessment.

Of the 316 treatment participants, nearly 90% required some level of vitamin D dosing. Of those, 86.5% required more than 2,000 international units (IU) daily and 14.6% required more than 10,000 IU daily. Less than 65% achieved over 40 ng/mL at three months. Another 25% of patients required six months or more of dosing titration.

"Other contemporary vitamin D studies may have underdosed study participants, which means their results may not be showing the true value of raising someone's vitamin D levels," said Dr. May.

In the second analysis of the Target-D study, the baseline characteristics

of study participants are reviewed. All study participants had to have a cardiovascular event within 30 days of study enrollment. The trial will continue until 104 patients have another heart event, or if they die due to [heart disease](#).

Researchers found that baseline vitamin D levels were a median of 25 ng/mL, less than 20 ng/mL is considered deficient, and between 20 to 30 ng/mL is insufficient. Among those randomized to the treatment arm with a vitamin D level under 40, 58.5% of patients had a starting Vitamin D dose of 5,000 IU—again, well over the 600 to 800 IU US Recommended Dietary Allowance.

"If vitamin D can help prevent heart attacks, we want to know it, but our findings are showing that you can't just tell someone to take a single low supplement dose, then set it and forget it," said Le. "We need to be more intentional in these trials in order to determine if there is a link between [vitamin D](#) supplementation and improved heart health, as well as how to dose it to help our [patients](#) if it does."

Provided by Intermountain Healthcare

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