

Two New Studies Back Vitamin D for Cancer Prevention

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Researchers Report Levels Needed To Cut Breast, Colon Cancer Risk

Two new vitamin D studies using a sophisticated form of analysis called meta-analysis, in which data from multiple reports is combined, have revealed new prescriptions for possibly preventing up to half of the cases of breast cancer and two-thirds of the cases of colorectal cancer in the United States. The work was conducted by a core team of cancer prevention specialists at the Moores Cancer Center at University of California, San Diego (UCSD), and colleagues from both coasts.

The breast cancer study, published online in the current issue of the *Journal of Steroid Biochemistry and Molecular Biology*, pooled dose-response data from two earlier studies - the Harvard Nurses Health Study and the St. George's Hospital Study - and found that individuals with the highest blood levels of 25-hydroxyvitamin D, or 25(OH)D, had the lowest risk of breast cancer.

The researchers divided the 1,760 records of individuals in the two studies into five equal groups, from the lowest blood levels of 25(OH)D (less than 13 nanograms per milliliter, or 13 ng/ml) to the highest (approximately 52 ng/ml). The data also included whether or not the individual had developed cancer.

"The data were very clear, showing that individuals in the group with the lowest blood levels had the highest rates of breast cancer, and the breast cancer rates dropped as the blood levels of 25-hydroxyvitamin D increased," said study co-author Cedric Garland, Dr.P.H. "The serum level associated with a 50 percent reduction in risk could be maintained by taking 2,000 international units of vitamin D₃ daily plus, when the weather permits, spending 10 to 15 minutes a day in the sun."

The colorectal cancer study, published online February 6 in the *American Journal of Preventive Medicine*, is a meta-analysis of five studies that explored the association of blood levels of 25(OH)D with risk of colon cancer. All of the studies involved blood collected and tested for 25(OH)D levels from healthy volunteer donors who were then followed for up to 25 years for development of colorectal cancer.

As with the breast cancer study, the dose-response data on a total of 1,448 individuals were put into order by serum 25(OH)D level and then divided into five equal groups, from the lowest blood levels to the highest.

"Through this meta-analysis we found that raising the serum level of 25-hydroxyvitamin D to 34 ng/ml would reduce the incidence rates of colorectal cancer by half," said co-author Edward D. Gorham, Ph.D. "We project a two-thirds reduction in incidence with serum levels of 46ng/ml, which corresponds to a daily intake of 2,000 IU of vitamin D₃. This would be best achieved with a combination of diet, supplements and 10 to 15 minutes per day in the sun."

Vitamin D₃ is available through diet, supplements and exposure of the skin to sunlight, or ultraviolet B (UVB). In the paper, the researchers underscored the importance of limiting sun exposure such that the skin does not change color (tan) or burn. For a typical fair-skinned Caucasian individual, adequate vitamin D could be photosynthesized safely by spending 10 to 15 minutes in the noontime sun on a clear day with 50 percent of skin area exposed to the sun. Darker skinned individuals may require more time in the sun, such as 25 minutes. For people with photosensitivity disorders, or anyone with a personal or family history of nonmelanoma skin cancer, any amount of extra sun exposure would be inadvisable.

The meta-analysis on colorectal cancer includes data from the Women's Health Initiative, which had shown in 2006 that a low dose of vitamin D did not protect against colorectal cancer within seven years of follow-up. However, the researchers wrote, the meta-analysis indicates that a higher dose may reduce its incidence.

"Meta-analysis is an important tool for revealing trends that may not be apparent in a single study," said co-author Sharif B. Mohr, M.P.H. "Pooling of independent but similar studies increases precision, and therefore the confidence level of the findings."

The authors recommend further research to study individuals for the effect of vitamin D from sunlight, diet and supplements on the risk of cancer.

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