UCSD Researchers State Vitamin D Needed to Cut Cancer Risk

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Taking 1,000 international units (IU) of vitamin D_3 daily appears to lower an individual's risk of developing certain cancers – including colon, breast, and ovarian cancer – by up to 50 percent, according to cancer prevention specialists at the Moores Cancer Center at the University of California, San Diego (UCSD) Medical Center. The researchers call for prompt public health action to increase intake of vitamin D_3 as an inexpensive tool for prevention of diseases that claim millions of lives each year.

Previous studies by these researchers, including a paper in the October 2005 *Journal of Steroid Biochemistry and Molecular Biology*, showed the link between vitamin D deficiency and higher rates of colon cancer. The new paper, to be published on-line December 27, 2005 and printed in the February 2006 issue of *The American Journal of Public Health,* associates the same risks to breast and ovarian cancers, and underscores the researchers' call to action.

"For example, breast cancer will strike one in eight American women in their lifetime. Early detection using mammography reduces mortality rates by approximately 20 percent. But use of vitamin D might prevent this cancer in the first place," said co-author Cedric F. Garland, a professor with UCSD's Moores Cancer Center and the Department of Family and Preventive Medicine at the UCSD School of Medicine.

In the paper, the authors conclude: "The high prevalence of vitamin D deficiency, combined with the discovery of increased risks of certain types of cancer in those who are deficient, suggest that vitamin D deficiency may account for several thousand premature deaths from colon, breast, ovarian and other cancers annually."

The study also found that residents of the northeastern United States, and individuals with higher skin pigmentation were at an increased risk of vitamin D deficiency. This is because solar UVB is needed for the human body to make vitamin D. The increased skin pigmentation of African-Americans reduces their ability to synthesize vitamin D.

"African-American women who develop breast cancer are more likely to die from the disease than White women of the same age," said Garland. "Survival rates are worse among African-

Americans for colon, prostate and ovarian cancers as well." Even after adjustments that removed the effect of socioeconomic status and access to care, blacks were shown to have substantially poorer survival rates, a difference that the authors link with the decreased ability of blacks to make Vitamin D.

The findings are based upon an extensive systematic review of scientific papers on the relationship of blood serum levels or oral intake of vitamin D with risk of certain types of cancers published worldwide between January 1966 and December 2004. Sixty-three observational studies of vitamin D status in relation to cancer risk, including 30 of colon cancer, 13 of breast cancer, 26 of prostate cancer and seven of ovarian cancer, were assessed.

This complex analysis of virtually every observational study written on the subject, called a systematic review, paints a clearer picture than any single study and is recognized by scientists as an important tool for establishing a consensus of findings.

"A preponderance of evidence, from the best observational studies the medical world has to offer, gathered over 25 years, has led to the conclusion that public health action is needed," Garland said. "Primary prevention of these cancers has largely been neglected, but we now have proof that the incidence of colon, breast, and ovarian cancer can be reduced dramatically by increasing the public's intake of vitamin D."

Since the safety of daily intake of vitamin D_3 in the recommended range has been thoroughly assessed and confirmed by the National Academy of Sciences, and the benefits found so far in observational studies are considerable, expanded use of vitamin D as a public health measure should not be delayed, according to the authors.

They recommend intake of 1,000 IU/day of vitamin D, half the safe upper intake established by the National Academy of Sciences. Garland said that while this study looked at all forms of vitamin D – intake through diet or supplements, and photosynthesis through modest sun exposure – as a practical matter, the majority of people will most easily achieve the target levels by eating foods containing vitamin D and taking supplements, which the authors estimated would cost about five cents per day.

"Many people are deficient in vitamin D. A glass of milk, for example, has only 100 IU. Other foods, such as orange juice, yogurt and cheese, are now beginning to be fortified, but you have to work fairly hard to reach 1,000 IU a day," he explained. "Sun exposure has its own concerns and limitations. We recommend no more than 15 minutes of exposure daily over 40 percent of the body, other than the face, which should be protected from the sun. Dark-skinned people, however, may need more exposure to produce adequate amounts of vitamin D, and some fair-skinned people shouldn't try to get any vitamin D from the sun. The easiest and most reliable way of getting the appropriate amount is from food and a daily supplement."

Co-authors on the study are Cedric F. Garland, Edward D. Gorham, Sharif B. Mohr, and Frank C. Garland, affiliated with the Moores Cancer Center and the Department of Family and Preventive Medicine at UCSD School of Medicine ;; Martin Lipkin, Strang Cancer Prevention Center, New York; Harold L. Newmark, Rutgers, The State University of New Jersey and The Cancer Institute of New Jersey; and Michael F. Holick, Department of Medicine, Boston University School of Medicine.

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