

## Moores UCSD Cancer Center Study: Global View Shows Link Between Endometrial Cancer & Vitamin D Status

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Using newly available data on worldwide cancer incidence, researchers at the Moores Cancer Center at University of California, San Diego (UCSD) have shown a clear association between deficiency in exposure to sunlight, specifically ultraviolet B (UVB), and endometrial cancer.

UVB exposure triggers photosynthesis of vitamin D<sub>3</sub> in the body. This form of vitamin D is also available through diet and supplements. Previous studies from this research team have shown associations between higher levels of vitamin D<sub>3</sub> and lower risk of cancers of the breast, colon, kidney and ovary.

Approximately 200,000 cases and 50,000 deaths from endometrial cancer occur annually worldwide, including 41,000 new cases and 7,400 deaths in the United States.

The study will be published November 16, 2007, in the journal *Preventive Medicine*.

“This is the first study, to our knowledge, to show that higher serum levels of vitamin D are associated with reduced risk of endometrial cancer,” said Cedric F. Garland, Dr. P.H., professor of Family and Preventive Medicine in the UCSD School of Medicine, and member of the Moores UCSD Cancer Center. “Previous epidemiological studies have focused on estrogen levels – either natural or through hormone replacement therapy – which play the major role in development of the disease, and on fat intake, which plays a smaller role. Since most women cannot control their natural levels of estrogen, and very low levels of fat intake are not acceptable to most American women, this article provides evidence that vitamin D adequacy should be considered as part of a comprehensive program for prevention of this cancer.”

This paper used worldwide data only recently available through a new tool called GLOBOCAN, developed by the World Health Organization’s International Agency for Research on Cancer. GLOBOCAN is a database of cancer incidence, mortality and prevalence for 175 countries.

The researchers created a graph with a vertical axis for endometrial cancer incidence rates, and a horizontal axis for latitude. The latitudes range from -50 for the southern hemisphere, to zero for

the equator, to +70 for the northern hemisphere. They then plotted incidence rates for 175 countries according to latitude. The resulting chart was a parabolic curve that looks like a smile.

“In general, endometrial cancer incidence was highest at the highest latitudes in both hemispheres,” said Garland. “Even after controlling for known variables such as cloud cover, meat intake, weight, skin pigmentation and others, the association remained strong.”

In the paper, the authors caution that this was a study of aggregates, or countries, rather than individuals; findings that apply to aggregates may not apply to individuals. They recommend further research to study individuals for the effect of vitamin D from sunlight, diet and supplements on the risk of endometrial cancer.

This is the third environmental paper from this research team to show a strong association between vitamin D and cancer using global incidence data (GLOBOCAN). The first paper, which illuminated a similar pattern for kidney cancer, was published Sept. 15, 2006, in the *International Journal of Cancer*. The second, on ovarian cancer, was published Oct. 31, 2006, in the *American Journal of Preventive Medicine*.

Authors on the study are Cedric F. Garland, Dr. P.H., Frank C. Garland, Ph.D., Edward D. Gorham, Ph.D., Sharif B. Mohr, MPH, and William B. Grant, Ph.D. Authors’ institutional affiliations are UCSD Department of Family and Preventive Medicine and Moores UCSD Cancer Center (Garland, Garland, Gorham and Mohr); the Behavioral Sciences and Epidemiology Program, Naval Health Research Center (F. Garland and Gorham); and the Sunlight, Nutrition and Health Research Center, San Francisco (Grant).

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