

# Sunlight and Breast Cancer: Danger in Darkness?

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Women who live in northern cities where towering buildings block what feeble winter sun there is may have a higher risk of breast cancer than women in southern regions where sunlight abounds, a new study suggests.

Researchers theorize that the women in these darker cities are not exposed to enough sunlight to allow their bodies to synthesize vitamin D, a compound thought to help prevent some types of cancer.

The study compared breast cancer death rates with the amount of solar radiation calculated to be striking the ground at 87 regions around the United States.

Plotting the two sets of statistics on a graph, Dr. Frank C. Garland, his brother, Dr. Cedric F. Garland, and colleagues at the University of California in San Diego discovered that as a general rule the cities with the lowest light levels also had the highest breast cancer death rates. Careful Evaluation Proposed

Other researchers warn that the results, although provocative, are very preliminary and should not be viewed as a license to return to the compulsive tanning practices of yesteryear.

"The hypothesis needs to be very carefully evaluated," said Dr. Devra Lee Davis, an epidemiologist and scholar in residence at the National Academy of Sciences in Washington. "A number of confounding factors, like socioeconomic status, access to health care, oral contraceptive use, even the rate of hysterectomies, have to be ruled out."

The new research found that, in a city like New York, where pedestrians can walk for dozens of blocks on a clear day without once glimpsing the sun, the annual rate of death from breast cancer is about 33 out of every 100,000 women. That number is significantly higher than the national mortality rate for the disease of 27.3 for every 100,000 women.

But in a sun-swept city like San Antonio, where the amount of solar radiation reaching the ground is one-third greater than it is New York, the rate of death from breast cancer is only 22 women in 100,000.

Joining New York on the end of the scale where breast cancer deaths are high and the sunlight dimmer are cities like Chicago, Boston, Cleveland and Columbus, Ohio. On the opposite side of the chart, where cities are bright and breast cancer rates unusually low, are Honolulu, Miami, Tampa and Lexington, Ky.

Dr. Frank Garland said the correlation between sunlight and breast cancer was extraordinarily consistent from one area to another.

"If you give me your city, and I looked up the relative amount of solar radiation striking the ground, I'd say I could estimate the breast cancer mortality rate almost three-quarters of the time," he said.

The results of the Garland study appear in the latest issue of the journal Preventive Medicine. The Garland brothers also did a study demonstrating a similar statistical link between sunlight and the incidence of breast cancer in the Soviet Union. That report is in the most recent issue of the International Journal of Epidemiology.

Other scientists concur that the statistical link between less sunlight and vitamin D and more breast cancer is intriguing, but that much research remains to be done before the theory is proved.

The new studies are epidemiological comparisons based on an analysis of cancer rates in the general population and do not attempt to consider the causes of malignancy in individual patients. Scientists said that the next step is to analyze individual women with breast cancer and compare their sunlight exposure with that of women who do not have the disease.

"The idea is not far out or implausible," said Dr. David Schottenfeld, chairman of the department of epidemiology at the University of Michigan in Ann Arbor. "I look on this study as generating a provocative hypothesis that now has to be tested systematically."

The Garland brothers were led to consider the influence of sunlight on breast cancer by their previous research, which showed a strong link between low sunlight levels and a relatively high incidence of colon cancer.

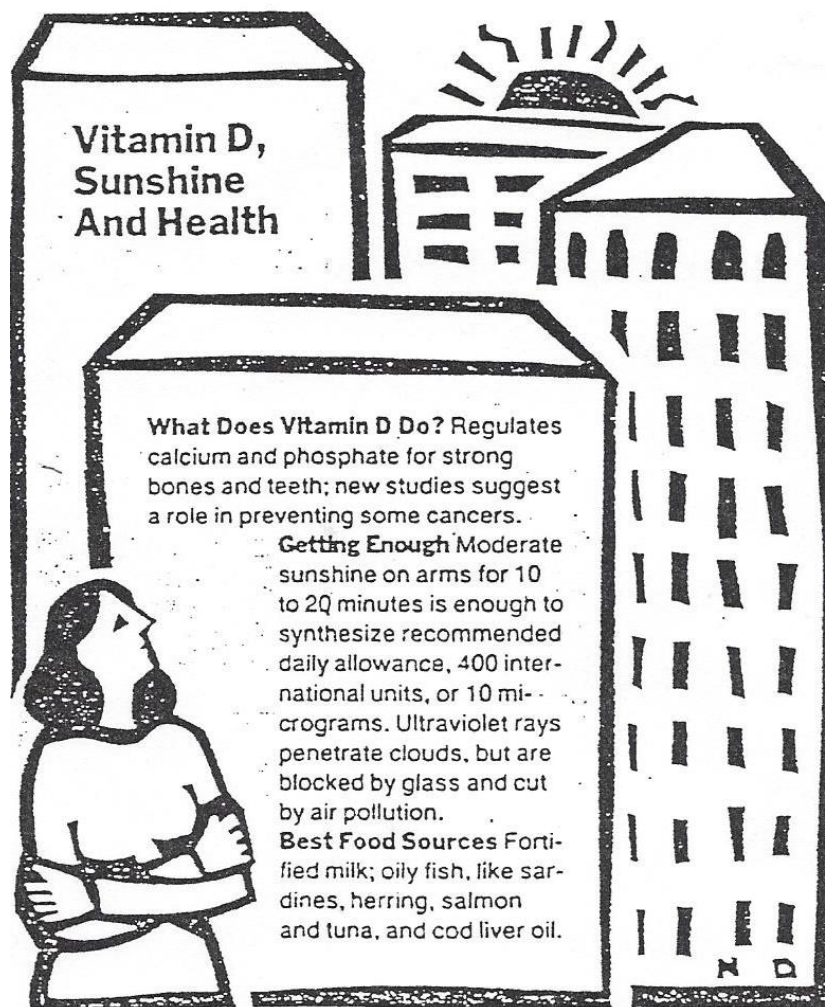
The researchers have found that the rates for breast and colon cancer display a similar pattern of distribution in the United States and other nations, and they believe that the underlying cause of that geographic distribution for both cancers is sun.

The skin uses ultraviolet B radiation from sunlight to manufacture vitamin D, said Dr. Frank Garland. And in many regions of the world a person is not likely to get the minimum 10 minutes of direct exposure to solar radiation necessary to synthesize the molecule.

"In Boston, you cannot make any vitamin D from November through March, even if you were standing naked in the middle of the city," Dr. Garland said.

People can also obtain vitamin D from food, he said, but since most adults do not drink enough vitamin-D fortified milk or eat enough foods rich in the nutrient to meet the suggested daily dose of vitamin D, the amount of sun people receive can make a big difference in their vitamin D levels. Slowing Cancer Cell Growth

The vitamin has long been known to be necessary for proper bone development and to prevent crippling disorders like rickets.



When vitamin D is applied to cancer cells growing at a swift rate in laboratory dishes, the rate of cell division slows sharply. In animal experiments, rats fed with a vitamin-D enriched diet had one-half the incidence of colon tumors compared with rats not receiving extra doses of the vitamin.

So persuasive are the lab results, said Dr. Garland, that clinical trials of drugs based on the vitamin D molecule are now under way for colon cancer patients.

But all researchers express fears that, with dissemination of the new research, people may attempt to prevent breast or colon cancer by sunbathing, only to find themselves contracting melanoma, a potentially lethal skin tumor.

Dr. Garland suggests that better ways to get vitamin D are to drink fortified skim milk, to eat sardines and other oily fish that are rich in the nutrient, or to take a few spoonfuls a day of that classic childhood scourge, cod liver oil. **Vitamin D, Sunshine And Health What Does Vitamin D Do?** Regulates calcium and phosphate for strong bones and teeth; new studies suggest a role in preventing some cancers. Getting Enough Moderate sunshine on arms for 10 to 20 minutes is enough to synthesize recommended daily allowance, 400 international units, or 10 micrograms. Ultraviolet rays penetrate clouds, but are blocked by glass and cut by air pollution. **Best Food Sources** Fortified milk; oily fish, like sardines, herring, salmon and tuna, and cod liver oil.