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## PERSONAL HEALTH

### A Second Opinion on Sunshine: It Can Be Good Medicine After All

By JANE E. BRODY

Can sunshine, now shunned by so many who fear skin cancer and wrinkles, save many more lives than it harms? Most definitely, says a leading expert in the field, Dr. Michael F. Holick, a professor of medicine, dermatology, physiology and biophysics at the Boston University School of Medicine.

Dr. Holick, who discovered the active form of vitamin D, has pulled together an impressive body of evidence in support of his advice that no one should be, as he puts it, a "sunphobe" or, for that matter, a sun worshiper.

He has concluded that relatively brief but unfettered exposure to sunshine or its equivalent several times a week can help to ward off a host of debilitating and sometimes deadly diseases, including osteoporosis, hypertension, diabetes, multiple sclerosis, rheumatoid arthritis, depression and cancers of the colon, prostate and breast.

In other words, Dr. Holick says, sunshine is good medicine.

But like all medicines, the right dosage is critical to reaping the rewards that sunlight has to offer without suffering unwanted consequences.

Dr. Holick elaborates on these research-based ideas in a small but important book, "The UV Advantage," written with Mark Jenkins, a health writer. Though originally scheduled for publication next month, the book fell victim to a publishing world shake-up and will not come out until the fall or winter.

But given the arrival of the sunshine season, people should have the opportunity to benefit from the doctor's insights without further delay.

#### A Ubiquitous Hormone

Dr. Holick's argument that controlled exposure to sunshine can have powerful health benefits stems from decades of research into the many roles played by vitamin D in the body. The main source of this essential nutrient is neither food nor dietary supplement. It is sunshine.

Vitamin D is made in the skin when it is exposed to the ultraviolet B (UVB) rays in sunshine, as well as those from tanning machines. But the amount of vitamin D formed in a given period of sun exposure depends on the color of that skin — that is, how rich the skin is in melanin, which blocks UV rays.

The darker a person's skin, the longer he or she has to be in sun to form a significant amount of vitamin D.

A national study showed that 42 percent of African-American women ages 15 to 49 were deficient in vitamin D by the end of winter. A very dark-skinned person may need to spend up to 50 times as much time in the sun to make the same amount of vitamin D as someone of Scandinavian descent. For the average African-American, 5 to 10 times as much time in the sun will be needed.

Another critical factor is where a person lives in relation to the Equator. The farther away, the less intense one's exposure to UVB rays. This is undoubtedly why people in northern latitudes evolved with light skin, to enhance their ability to absorb UVB rays, and those near the Equator evolved with very dark skin, to limit that absorption to a physiologically desirable amount.

For vitamin D to perform its myriad biochemical roles

in body cells, it must first be converted into an activated form, vitamin D hormone. For years it was thought that this process took place only in the kidneys, which then sent tiny amounts of the hormone to the circulatory system for delivery to other tissues.

But studies by Dr. Holick and others have shown that the cells in many different organs do not have to rely on the meager supply of vitamin D hormone from the kidneys. Rather, cells in other tissues, including the prostate, breast, colon and immune system, are also able to convert vitamin D into the active hormone.

#### Many Health Effects

Everyone should know that vitamin D is critical to the formation and maintenance of normal bones. Even if people consume enough calcium, they cannot build and maintain bone mass if they are deficient in vitamin D. One symptom of vitamin D deficiency is pain and weakness in the muscles and bones. Based on that symptom, Dr. Holick has suggested that some disorders diagnosed as fibromyalgia may in fact be vitamin D deficiency.

Dr. Holick noted a recent resurgence of rickets in the United States, the combined result of exclusive breastfeeding (breast milk has almost no vitamin D) and keeping babies out of the sun or slathered with sunscreen.

A sunscreen with an S.P.F. of 8 blocks 95 percent of the skin's ability to make vitamin D, and an S.P.F. of 15 blocks it by 99 percent.

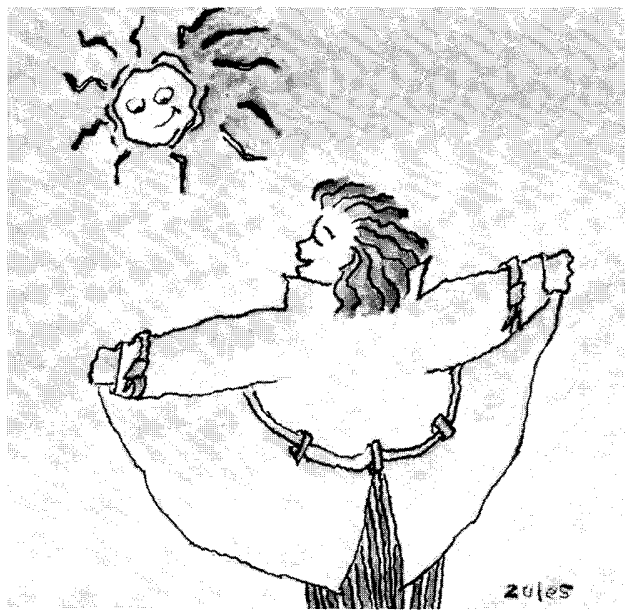
In the prostate, the vitamin D hormone has been shown to act as a powerful inhibitor of abnormal cell growth, and cells in the colon and breast have similar mechanisms for using this hormone.

A Scandinavian study linked low levels of vitamin D in the blood to a risk of developing prostate cancer that is about 50 percent higher than it is for those with normal and high levels. And in eight years of research conducted in an aging study in Baltimore, experts found that those with low levels of circulating vitamin D had a 50 percent greater risk of developing colon cancer than those with normal to high levels.

Dr. William Grant of the National Aeronautics and Space Administration reported that people who worked outdoors or lived in sunny climates had lower death rates from cancers of the breast, colon, prostate, ovary, bladder, uterus, esophagus, rectum and stomach.

Dr. Grant calculated that 85,000 fewer cases of cancer and 30,000 fewer cancer deaths would occur each year if everyone got as much sun as people living in the Southwest.

The same applies to autoimmune diseases like multiple sclerosis, rheumatoid arthritis and Type 1 diabetes, which is usually diagnosed in children and young adults.



Toni Zules

Dr. Holick, meanwhile, has found that exposing people with high blood pressure to UVB rays in a tanning salon lowers their blood pressure readings about as much as a drug will. He also found that increasing vitamin D improved the heart's pumping ability and reduced cardiac strain.

#### Safe in the Sun

How much vitamin D is enough? Although the official recommended amount ranges from 200 international units for infants to 600 for the elderly, Dr. Holick and other experts say 1,000 units a day are needed, an amount few people consume through foods or supplements. Sunshine must fill in the gap.

"Between 90 percent and 95 percent of most people's vitamin D comes from casual exposure to sunlight," Dr. Holick said. He does not advocate tanning. Rather, he proposes exposing unprotected skin to sunlight for a matter of minutes, with the recommended time determined by a person's skin type, the time of year, the time of day and the latitude.

He suggests figuring out how long it takes for one's skin to turn pink in the sun (not burned, just pink) and then exposing a quarter of one's body (e.g., hands, arms and face or, if not the face, then the arms and legs) to the sun for one quarter of that time. After that, if a person plans to remain outdoors, the advice is to cover up or apply sunscreen that blocks both UVA and UVB rays.

For example, a person with Skin Type 2 (characteristic of most Caucasians) that burns easily and hardly tans who lives in the northern half of the country might expose a quarter of the body surface to the sun for 5 to 10 minutes a day between 11 a.m. and 3 p.m. during the next five months to build up enough vitamin D to last through the winter.