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Vitamin D Deficiency Called Major Health Risk

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Many Americans, particularly African Americans, may be suffering from unrecognized deficiencies of a key nutrient -- vitamin D -- that increase the risk of bone problems and perhaps a host of other diseases, a growing number of scientists say.

Pediatricians scattered around the country have been surprised to see children suffering from rickets, a bone disorder caused by vitamin D deficiency that had been largely relegated to a bygone era. A few doctors have come across adults who were disabled by severe muscle weakness and pain, sometimes for years, until they were treated for undiagnosed vitamin D deficiency. And recent studies suggest low vitamin D may be putting the elderly at higher risk for the bone-thinning disease osteoporosis and life-threatening falls and fractures.

But beyond bone and muscle problems, some evidence suggests a dearth of vitamin D may be associated with an array of more serious illnesses, including many forms of cancer, high blood pressure, depression, and immune-system disorders such as multiple sclerosis, rheumatoid arthritis and diabetes.

In response, many scientists have begun pushing to sharply boost the official recommendations for how much vitamin D everyone should get daily, either by taking supplements, by eating more food that contains the nutrient or from the sun -- a major source of vitamin D.

Suggestions that people get more sun exposure, however, have sparked an unusually intense, and sometimes bitter, debate. Skin cancer experts are alarmed that people will disregard warnings about unprotected sun exposure, making them more vulnerable to what is the most common malignancy.

The debate is complicated by the many uncertainties about vitamin D. Because the nutrient's apparently widespread functions in the body are just now being recognized, little research has been done to try to answer some of the most basic questions, such as how much is needed for optimal health.

"It's a nutrient that's been around for a long time, but it's relatively recently that there's been a lot of evidence emerging that indicates there's more to vitamin D than we thought," said Daniel Raiten of the National Institute of Child Health and Human Development, who organized a

recent conference at the National Institutes of Health to identify the most urgent priorities for more research.

Skin produces vitamin D when hit by ultraviolet light in sunlight. The amount depends on where people live, skin pigment, age and other factors. African Americans and other dark-skinned people, and anyone living in northern latitudes, make far less than some other groups.

With people spending more time indoors, covering up and slathering on sunblock when they are outside, and smog obscuring the sun on many days, the amount of vitamin D people create naturally is probably very low, many scientists say.

"Imagine you're a space alien looking down on Earth. You have these humans who evolved in the Horn of Africa, as nudists living around the equator. They would have been getting lots of vitamin D through their skin. Then they suddenly . . . move north and put on lots of clothes and block out most of their capacity to make vitamin D," said Reinhold Vieth, a University of Toronto vitamin D researcher. "For me it's a no-brainer. We're not getting enough."

Milk and a few other foods are fortified with vitamin D, and it occurs naturally in a few others, such as fatty fish, but most people get very little through their diets.

"All along the northern United States, where we have long winters, a lot of snow, not much sunshine all winter, there is endemic vitamin D deficiency," said Paresh Dandona of the State University of New York at Buffalo, who treated six patients disabled by misdiagnosed vitamin D deficiencies.

A number of studies have found what could be disturbingly low levels of vitamin D in many populations, including children, the elderly and women. One federal study of women nationwide found that perhaps nearly half of African American women of childbearing age may be vitamin D deficient.

It remains unclear whether vitamin D deficiencies are becoming more common because people are shunning the sun and making other lifestyle changes or whether it is a long-standing problem that is only now being recognized.

The first clue came from rickets. Milk was fortified with vitamin D in the 1930s to eliminate the disorder, which can cause bowlegs and other bone malformations. But during the 1990s, doctors in several cities reported unusual numbers of cases, primarily in babies being breast-fed and mostly among African American children. Formula is fortified with vitamin D, but breast milk contains little, especially among women with dark skin.

In response, the American Academy of Pediatrics last spring instructed pediatricians to prescribe that all children, especially breast-fed babies, take vitamin D supplements through adolescence.

While it is clear that low vitamin D levels can lead to rickets in children, muscle problems in older people and probably brittle bones in the elderly, the link to other serious illnesses remains far more tentative. But many specialists say the case has steadily been getting stronger.

Vitamin D appears to interact with virtually every tissue in the body. Moreover, the incidence of certain diseases seems to vary depending on sun exposure and vitamin D levels.

For example, many cancers, most notably breast, colon and prostate cancer, seem to increase the farther you get from the equator, where exposure to ultraviolet light from the sun is greatest.

"The highest rate of prostate cancer is among African Americans, followed by countries in northern Europe. How are blacks like Scandinavians? They don't look alike, but in some important ways they have to be alike," said Gary G. Schwartz, a cancer researcher at Wake Forest University School of Medicine. "One way that they are alike is both groups have very low levels of vitamin D."

While there could be many other explanations, the idea that vitamin D may help prevent malignancies has been buttressed by animal and laboratory studies indicating it can act as a brake on cell growth, preventing the uncontrolled cell division that is cancer.

Similarly, vitamin D appears to damp down the immune system, and researchers have also found associations among sun exposure, vitamin D levels and the incidence of "autoimmune diseases" such as multiple sclerosis, lupus and diabetes, in which the immune system attacks the body.

Some studies suggest vitamin D can reduce blood pressure, which would cut the risk for heart disease and strokes -- the nation's leading causes of death. Others suggest that low vitamin D levels may contribute to depression and other psychiatric conditions.

"It's a major health problem," said Michael F. Holick, a Boston University scientist who is the most prominent proponent of the role of vitamin D in health. "Everybody has always associated vitamin D deficiency with rickets in children, and after childhood you don't have to worry. There's nothing further from the truth."

Holick and others argue that instead of the 200 to 600 international units a day that current recommendations suggest, most people should be getting at least 1,000 units a day. In a controversial new book, "The UV Advantage," Holick recommends exposing the hands, face, arms and legs to the sun for five to 15 minutes a day a few days a week, which he says would be enough to generate that amount without increasing the risk for skin cancer. Many people are not getting even that amount of sun exposure on a regular basis, Holick and others say.

"There's no question that chronic, excessive exposure to sunlight and sunburning incidents markedly increases your risk for skin cancer. But there's little evidence out there that if you practice safe sun exposure, it would increase your risk for skin cancer or wrinkling," Holick said.

But dermatologists and skin cancer experts argue that those recommendations are irresponsible and have little firm scientific support.

"Dr. Holick says vitamin D is a cure-all magic pill. If everyone took vitamin D, there would be no more cancer. But there's no evidence that is true," said James Spencer, vice chairman of dermatology at Mount Sinai School of Medicine in New York.

"Ultraviolet light contained in sunlight causes skin cancer and wrinkles. That's beyond dispute," Spencer said. "We already have an epidemic of skin cancer in this country."

Barbara Gilchrest, who chairs the dermatology department at the Boston University School of Medicine, said she asked Holick to resign his position in her department in February because of his views and because he receives some funding from the tanning-parlor industry. "He has, in my opinion, an enormous conflict of interest that he refuses to acknowledge," Gilchrest said.

Holick, who kept his other academic positions at the university, acknowledges he receives funding from the tanning industry, but he says it is a small portion of his budget and comes with no strings attached. "The dermatologists get a lot of money from the sunscreen industry and no one ever questions them about that," he said.

Many experts who believe vitamin D deficiencies play an important role in a range of diseases say people can get enough safely by taking vitamin D supplements, sidestepping the contentious sunlight debate.

"There's a lot of emotion in this fight, which is unfortunate," said Hector F. DeLuca, who studies vitamin D at the University of Wisconsin at Madison. "This is a very important issue. We really need to address two important questions: Are we getting enough vitamin D? I believe we are not. The other one is: What's the best way to get it? That's a matter of debate."

Others, meanwhile, say much more research is needed to figure out how much vitamin D people need and the best way to get it.

"We're a long way from making any definitive statement that Group X has a serious problem," NIH's Raiten said. "The evidence seems to imply that we need to look at it carefully, but I don't think we're in a position of being able to make any specific recommendations."