Vitamin Deliberations

Doctors agree that vitamin D plays a crucial role in many body functions and protects us from a wide range of diseases. They also agree that African Americans are prone to deficiencies. What they disagree on is how to ensure we get enough of this vital nutrient.

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Although vitamin D is called a vitamin, it is scientifically classified as a hormone because it's made by the body. (Vitamins, needed to sustain life, are substances found in the foods we eat.)

Vitamin D is synthesized when sunlight penetrates the skin and transforms a prohormone present there called 7-dehydrocholesterol into vitamin D-3, a.k.a. cholecalciferol, which then enters the bloodstream.

Once vitamin D-3 arrives at the liver, the body transforms it into 25-hydroxyvitamin D or calcidiol. This is an essential form of vitamin D that the body circulates to maintain life. It is also what doctors measure when they test people for vitamin D deficiency.

As it continues its journey through the body, vitamin D's next stop is the kidneys. There, it undergoes another transformation. It becomes 1,25-dihydroxyvitamin D or calcitriol. From there, it circulates in the blood, where it maintains the calcium levels needed for the body's cells to properly function during essential biochemical interactions.

But just what are the health benefits of vitamin D? Well, research shows that vitamin D helps to protect the body from a wide range of diseases, including stroke, cardiovascular disease, osteoporosis, some autoimmune diseases, depression and schizophrenia.

And researchers are also learning more about vitamin D's additional health benefits, says Keith-Thomas Ayoob, RD, EdD, a registered dietician and an associate clinical professor of pediatrics at the Albert Einstein College of Medicine in the Bronx, New York.

"The more we learn, the more we like it," Ayoob says. "It used to be considered just something that you got from the sun to help you use calcium.... It's well known for keeping the bones strong, but the emerging science suggests that vitamin D also helps to protect against diabetes, hypertension, heart disease, even certain cancers. [And] we do know that it supports a healthy immune system to ward off infections and things [of that sort].

“There’s even some preliminary evidence that suggests it may help longevity,” Ayoob adds. “But the surprising thing to me is that despite all these benefits, people of all ages and backgrounds fall very short on meeting their vitamin D needs.”

Ayoob’s observation is supported by Michael F. Holick, MD, PhD, a professor of medicine, physiology and biophysics at Boston University’s School of Medicine. He says more than 50 percent of the world’s population is vitamin D deficient.

In the United States, Ayoob says, more than 50 percent of both teenage boys and girls don’t get enough vitamin D.

“It’s more the case now than it was 20 to 30 years ago because milk consumption is down,” Ayoob explains. “We need to get that back up because as milk consumption goes down, diabetes and osteoporosis go up.”

Both diabetes and osteoporosis are diseases that respond well to treatments that include foods high in vitamin D.

“Vitamin D helps lower your risk for diabetes and helps with weight management, a huge benefit,” Ayoob explains. “Milk is a good source of vitamin D. Dairy and calcium in general seem to work better than [taking] supplements, and that’s the thing that studies have shown that I really like.”

Holick, however, believes that people can’t get optimal amounts of vitamin D from food alone. He recommends also getting the nutrient from “sensible sun exposure.”

Holick defines that as soaking up no more than 5 to 10 minutes of the golden rays each day, several times a week, on limited areas of the body, such as the arms and legs. This should be accompanied by applying good sun protection to the face and other body parts in general, he stresses.

But in a video discussion with Holick about the risks and benefits of boosting the body’s vitamin D levels via sun exposure, Barbara Gilchrest, MD, a dermatologist at Boston University’s School of Medicine, expressed concern about this advice.

In general, young people tend to translate “sensible sun exposure” into spending long days frolicking on the beach without sun protection, Gilchrest says.

In addition, Gilchrest disagrees with Holick’s assessment that vitamin D deficiency is as widespread as he indicates.

Despite the controversy, and whatever the accurate figure is for the number of vitamin D deficient people in the United States and worldwide, health experts confirm there are certain population groups more at risk for vitamin D deficiency.

Who are they, and why are they at risk?

The National Institutes of Health's Office of Dietary Supplements does spell out specific groups (listed below) at higher risk of vitamin D deficiency. The reasons why it is difficult for these people to get enough vitamin D from natural food sources alone are complex and varied, according to the NIH. But it does recommend these folks use dietary supplements in order to get sufficient amounts of the nutrient.

Breastfed babies. Human milk does not provide enough vitamin D, according to the American Academy of Pediatrics. Research findings about nutritional rickets (a disease characterized by soft bones and skeletal deformities caused by the improper mineralization of bone tissue) show that a majority of cases occurred among young, breastfed African Americans. In addition, because doctors advise parents to keep infants out of direct sunlight and to cover their skin with protective clothing and sunscreen, kids don't get enough vitamin D from the sun.

Elderly adults. People age 50 and older are at increased risk of developing vitamin D insufficiency because their skin can't efficiently synthesize vitamin D and their kidneys can't effectively transform vitamin D into its active hormone form.

People with limited sun exposure. Individuals who live in locations receiving little sunlight and people who wear skin-covering clothing or work in occupations that prevent sun exposure are unlikely to get enough vitamin D from sunlight.

African Americans and other people of color. Dark-skinned people have more melanin in their skin. The pigment interferes with the skin's ability to produce vitamin D from exposure to sunlight.

People who have difficulty absorbing dietary fat. This condition is also called fat malabsorption. Doctors link it to a number of illnesses, including some forms of liver disease, cystic fibrosis and Crohn's disease.

Obese people or those who have undergone gastric bypass surgery. These individuals have low levels of vitamin D that further decrease if they pack on more weight. In addition, larger quantities of fat affect the way the body releases vitamin D. Gastric bypass patients may become vitamin D deficient because a part of the upper small intestine that absorbs the nutrient is inaccessible after the surgery.

HIV-positive people. Although people living with the virus aren't more likely than the general population to experience vitamin D deficiency, the condition is common among those who are HIV positive, according to study results reported last month at the 17th Conference on Retroviruses and Opportunistic Infections (CROI). The previously mentioned reasons for vitamin D deficiency may pertain to HIV-positive people, but so does exposure to efavirenz (an antiretroviral drug found in the HIV meds Sustiva and Atripla), which is associated with insufficient levels of the nutrient in the body.

Although people with vitamin D insufficiency can benefit from a better diet and supplementation, large amounts of the vitamin may register unpleasant side effects.

“If you are getting more than 2,000 international units [IUs] of vitamin D, you might want to watch out,” Ayoob warns. “If you’re taking in that much, you’re probably going to experience some real taste changes, such as a metallic taste in your mouth, which doesn’t happen when you get vitamin D in the diet. And anything over that [amount], you better be under a doctor’s supervision.”

But people who are lactose intolerant—when the body cannot properly digest lactose, a milk sugar—may be wary of getting vitamin D from dairy foods. Ayoob has a recommendation for them, too.

Ayoob suggests introducing dairy into the diet in small amounts over a period of time. “If you want to tolerate dairy products, you could change [the digestive landscape of] your gut and you could do it very easily,” he says.

“The trick is to start with just one or two ounces of milk after a meal,” Ayoob explains. “Over a six- to eight-week period, what you’ve done is begin to change your gut microflora [bacteria].”

What happens, Ayoob says, is that with enough time and persistence, your gut begins to generate good bacteria that produce the enzymes needed to help you tolerate dairy.

In addition, you can also take lactase enzyme pills. “They work well,” he says. “After a while, many people find they don’t need them anymore.”

Besides milk, other foods rich in vitamin D include salmon and sardines. “But you’d have to eat them every day,” Ayoob says.

Unlike some other doctors, Ayoob prefers people regularly get the majority of their vitamin D from healthy food sources and use supplements only on occasion.

“With supplements, there is a little more guesswork,” he says. “With food there is no guesswork, and there is no chance of overdosing.”

So if you are an older than 50, previously breastfed black baby, are lactose intolerant or obese, had gastric bypass surgery or tested positive for HIV, you may want to consider Ayoob’s advice because you’re probably vitamin D deficient.

And everybody might want to take advantage of daylight-saving time and sneak in a few minutes of sunshine.
