

What doctors want patients to know about vitamins and supplements

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Sara Berg, MS

News Editor

While vitamins and nutritional or dietary supplements might be beneficial to your health, they can also cause health risks. Notably, the U.S. Food and Drug Administration (FDA) does not have the authority to review dietary supplement products for safety and effectiveness before they are marketed. And with the FDA estimating that there are more than 100,000 different supplements on the market, it can be confusing to understand what is safe and what is not.

The AMA's What Doctors Want Patients to Know™ series gives physicians a platform to share what they want patients to understand about today's health care headlines.

Three physicians took time to discuss what doctors want patients to know about vitamins and nutritional supplements. They are:

- Pieter Cohen, MD, an internist in Somerville, Massachusetts.
- Steven R. Cummings, MD, an internist and epidemiologist who is a senior scientist at Sutter Health and executive director of Sutter's Sequoia Center for the Science of Aging and Sutter's San Francisco Coordinating Center, which focuses on healthy aging.
- Fatima Cody Stanford, MD, MPH, MPA, an obesity medicine physician-scientist in Boston.

[Sutter Health](#) is part of the [AMA Health System Member Program](#), which provides enterprise solutions to equip leadership, physicians and care teams with resources to help drive the future of medicine.

Vitamins are a type of supplement

“Supplements are a broad term, and vitamins are one kind of supplement,” said Dr. Cummings, noting that “supplements are pretty much anything you take that’s in addition to a normal diet—you take it as a pill, you can take it as a liquid.”

“Vitamins are substances that your body doesn’t produce,” he said. “Therefore, you need to take it from another source, generally from foods.”

Vitamins and supplements are different

“With regards to vitamins, most of us are able to get our required nutrients via our diet,” said Dr. Stanford. “If we have a well-balanced diet consisting of lean proteins, whole grains, fruits and vegetables, then we should find that we don’t necessarily need vitamins or have supplements on board.”

“Then for supplements, that’s a whole different category where people begin to delve into a lot of things that they think they need because of some new story that came out,” she added.

Some common foods, such as flour, cereal, milk and bread already have additions of vitamins, including B-vitamins, folate and vitamin D.

Supplements are regulated as food

“The FDA is responsible for regulating dietary supplements,” Dr. Cohen said during a video interview with the AMA about [dietary supplements and regulations](#). And while “we might think of them—because they’re health products—as being a subcategory of medication ... the FDA regulates them as a subcategory of food.

“This has huge consequences for the whole category of dietary supplements—from vitamins, minerals, probiotics and all sorts of new ingredients,” he added. “What it means is that the manufacturer can introduce anything into the market that they believe is safe.”

“The FDA doesn't regulate efficacy or safety of vitamins or supplements before they go on the market. What they do regulate are claims made about the vitamins that are not supported by any evidence,” Dr. Cummings said. “So, if I had a new vitamin and I wanted to claim that it reduced the risk of colon cancer, the FDA will come down hard on you because you can't make those kinds of disease-specific or condition-specific claims.

“What they require in their labels, for example, are just the amount of magnesium, iron, fat, calories or other things that are just in that pill. So, the regulation is very loose,” he added.

Multivitamins are commonly used

“At least 60% of adults at all ages take some kind of supplement,” said Dr. Cummings. “Most of those are vitamins.”

The most-used form of supplement are “multivitamins, which contains all kinds of things,” he said, noting “if you're taking a multivitamin, you probably don't know exactly what you are taking. You should look at the label and see what it contains.”

“Second most common one is vitamin D. And then others that are commonly used include folate and B vitamins, like vitamin B12,” Dr. Cummings said. “There's a new interest in so-called science-based supplements. Antioxidants are probably the most common type that people go in for, which include some types of vitamins like vitamin E and vitamin C, but other things that are put in the mix.”

Certain conditions require supplements

“There are certain medical conditions and disorders where supplementation is required,” Dr. Stanford explained. “For example, in any patient that's undergone metabolic and bariatric surgery, there's a list of lifelong vitamins and supplements which we will recommend because we've altered the absorption of vitamins and minerals in their gut.”

“It's not just metabolic and bariatric surgery,” she said. “If you've had alterations in any of those portions of the gut from the esophagus down to the intestines, then obviously

supplementation may need to happen to take care of a deficiency that someone might have.”

Vitamins are best used for deficiencies

“A few vitamins treat known diagnoses or deficiency syndromes that are now very rare, such as rickets or scurvy. This is based on good evidence from observations and experiments over centuries,” Dr. Cummings said. “For example, in the 16th century, scurvy due to a lack of vitamin C causes spontaneous bleeding and was common in sailors on long voyages. The cause was not known but the British Navy found that eating limes and slices of oranges treated and prevented it. So, that’s a deficiency syndrome.”

But there are other things such as “osteomalacia that is a very severe shortage of vitamin D that needs vitamin D treatment,” he said. With osteomalacia, your bones soften due to incomplete mineralization that is most commonly caused by a vitamin D deficiency that prevents the body from absorbing calcium. These conditions have been prevented by supplementing foods with vitamins B, C and D, and folate.

“If you’ve got a malabsorption or you’re taking a drug that is known to decrease your vitamin D level pretty severely, you need the supplement to prevent the osteomalacia,” Dr. Cummings said. “Other diseases include iron deficiency, which needs iron. Then pernicious anemia—shortage of vitamin B12—needs B12 supplements.”

Additionally, there is “folate because—although it’s not treating a deficiency syndrome—folate supplements during pregnancy are important ways of preventing neural tube defect, a spinal problem,” he said.

There’s a rise in new ingredients

“The problem that we’ve had recently, in recent years especially, is that there’s been an explosion of new ingredients,” said Dr. Cohen. “So, it’s not only that we’re worried about the ingredients that are legal and permitted in supplements or historically used in supplements for many years,” but that “there are many of these ingredients—these are individual compounds found in botanicals or other substances—that can pose health risks.”

“Nowadays we’re seeing so many new innovations or brand-new ingredients being introduced to supplements,” he said. “Again, because the FDA isn’t vetting these products before they show up on store shelves or on the internet, what happens is that they can pose unpredictable risks.”

“Natural” doesn’t mean good for you

“If you look at the supplement industry, it’s a multibillion-dollar industry where people are making a ton of money off of a lot of things that have limited research and data,” said Dr. Stanford. “I’m all for using whatever works—whether it’s natural or not—but unfortunately, the data is usually very scarce for most supplements, including those that are natural.”

“People want to put an equals sign with natural because it came from the earth, but so does cocaine and heroin,” she said, adding that “there’s a lot of stuff that comes from here, so I try to let people know that natural doesn’t equal good and there’s no regulation on that.”

That is why “I would highly encourage people to talk with their doctors about supplements,” because “use of improper supplements can lead to several issues,” Dr. Stanford emphasized.

“In particular, ask your doctor about evidence from good research about the efficacy and safety of supplements you may be considering,” said Dr. Cummings. “And if your doctor doesn’t have evidence, make sure you do your own research to find it.”

High doses of vitamin D can be harmful

“Vitamin D is natural. You get vitamin D from the sun and from foods,” said Dr. Cummings, noting “it’s natural, but it does have harms.”

“The very [large trials that have been done about vitamin D](#) have shown, for example, that the commonly used dose of 2,000 IU [international units] per day had no benefits for

prevention of bone loss, fractures, falls, cancer or heart disease,” he said. “Other randomized trials showed that high doses, over 4,000 IU per day, causes bone loss and increases the risk of falls.”

“All these things that you thought were benefits of vitamin D, at higher doses go the opposite way,” Dr. Cummings said. “That information about high doses of vitamin D should be on a label or people should know about it, but it’s not out there.”

“You can get high dose vitamin D in stores. Who would want to just get regular vitamin D when you can get extra potency or super D that’s on the shelf with it?” he said. “Those tend to have 5,000 to 10,000 IUs per day and that’s bad for you. You shouldn’t be doing it.”

Vitamins can be very expensive

“If I see someone taking a lot of vitamins in practice, I get concerned about their ability to afford their medicines,” Dr. Cummings said, “because some of these supplements are very expensive.”

For example, while “\$20 a month is cheap, there are supplements out there that cost \$100 a month. And super supplements, the ultimate vitamin, can cost \$120 a month,” he said. “Then you’re getting into territories where it can be interfering with what else you want or need to do for medical expensive.”

Social media can stretch the truth

“Another big problem nowadays with the internet and with social media is that even the very lax rules around promoting a supplement are being really pushed to the limit,” said Dr. Cohen. For example, “a supplement is not supposed to be able to advertise as if it will help treat an illness or a disease.

“Unfortunately, because of the way social media is, it’s very easy to link testimonials or little posts or tweets with things that will suggest to consumers—and also microtarget consumers—who have diabetes ... that this supplement might be useful to maintain healthy sugar levels,” he added. “Basically, the social media environment really permits the

companies and manufacturers and others to promote these products as if they're treatments for disease. And that is particularly an insidious problem for patients."

Be transparent with your doctor

"There's a lot of negative things that we've seen in terms of negative reactions that patients have had to supplements," said Dr. Stanford. "It's not that I'm saying we never use a supplement, but just be very transparent with your primary care physician about them."

"Vitamin D in particular. Your doctor should know how much you're taking because more than 4,000 IUs a day can be toxic," Dr. Cummings said.

There are direct, immediate effects

"It's really important to just keep in mind that most of our patients are taking supplements," said Dr. Cohen. "Whether or not they have told us about it or not, more than 50% of the U.S. adults are taking supplements."

"One perception that I had, because I also didn't learn about supplements when I was in medical school, was that these must be expensive placebos," he said. And "that if a patient's taking it, fine, I don't need to worry about it because it's not going to affect their health, it's not going to affect their medications."

"What we've come to realize is that because the supplements are so often formulated much closer to drugs, that it's incredibly important for us to pay attention to what our patients are taking and to recognize that they might be causing direct, immediate effects," Dr. Cohen added.

Look for the term "randomized"

"Randomized is important when you're looking for evidence," said Dr. Cummings. "In all the studies you see about vitamins or other supplements, you'll see things touting that this has reduced something or prolonged life. Well, that's almost always in rats or mice."

“For many years, there were observational studies showing that women who were taking hormone therapy lived longer than those who weren’t taking it. And that made it really popular because that was a study,” he said. “But when you did randomized trials—which means those who were healthy were just as likely to end up with placebo as in the drug—there was no difference.

“In other studies, people who are taking supplements tend to be healthier people,” Dr. Cummings added. “So, since supplement users tend to be healthier and lower risk of a lot of things, almost every study done in that way will show that those taking the supplements do better. Don’t believe it.”

“Look for randomized trials. Randomization is your defense against being fooled by a study,” he said.

Tailor to your own body

“The key thing with all of the vitamins and supplements is you have to tailor these things to your own body,” said Dr. Stanford. For example, “if you’re a woman who is planning to become pregnant, folic acid is extremely important.”

“We’re often having to tailor particularly vitamins and even maybe supplements to accommodate where you are” in terms of life stages or chronic conditions, she explained. “You can’t look at someone else and be like: Oh, that person who is like me is taking this or that, so that’s what I need to do. It really needs to be tailored to fit what each person needs.”

That is why it is important to “know that there is good evidence that the supplements are safe and effective for the purposes of taking them,” said Dr. Cummings.

At the end of the day, though, it is important to speak with your doctor about evidence that the vitamins and supplements are effective and safe before taking any. Your doctor could tailor vitamins and supplements to your individual needs. And if you don’t require vitamins or supplements, your doctor will let you know.