



FEATURE STORY

Supplements During Cancer: Help or Hype?

BY LAURA BEIL

Think twice before taking nutritional supplements.

Alyssa Phillips keeps a plastic bin labeled “Hope” stashed in her pantry. Inside are her daily supplements: vitamins D3 and K2, astragalus root and more than two dozen bottles of other supplements. She takes them four times every day in divided doses. Wherever she goes, the box goes with her. It even accompanied her to the bone marrow transplant unit.

Three years ago, at the age of 31, Phillips received a diagnosis of a rare form of cervical cancer that had already metastasized to her liver. “Ironically, I had just finished with my best time ever in a half-marathon just six weeks before,” says Phillips, who lives in Atlanta. “I literally had never felt better.”

Her doctors gave her a slim chance of surviving, saying her best option was a radical hysterectomy, followed by chemotherapy so powerful it would annihilate her bone marrow—which is why, after undergoing the hysterectomy and some initial rounds of regular chemotherapy, she checked into the bone marrow transplant unit at Northside Hospital in November 2008 for two consecutive rounds of high-dose chemotherapy, each followed by a bone marrow transplant [stem cell rescue].

Phillips, a physician’s assistant with an undergraduate degree in nutrition, has had an interest in supplements that long preceded her illness. But when she found herself facing cancer, she started buying them as if her life depended on it. Because to her, it did. When the time came to rescue her bone marrow, she had already discussed her supplement cocktail with her doctors. They advised against taking anything during treatment because doing so carried so many uncertainties about interactions. She chose to anyway, tossing a jacket over her Hope Box in her bedside cart so the nurses wouldn’t spy it, and taking the pills in secret. “It was my choice,” she says. “I did my research, and I felt comfortable there was no risk. I believed strongly that the supplements I was taking were a ‘difference-maker’ for me.”



As a physician’s assistant with a degree in nutrition, Alyssa Phillips had an interest in supplements that preceded her cancer diagnosis.

Photo by Marie Thomas.

Phillips, like untold numbers of cancer patients, wanted some control and to feel like she was doing something to help her body face treatment and recovery. But whether her regimen helped is unknown—and it may have hurt.

“What I hear from patients is, ‘I want to do everything. I want to do everything to help myself live,’” says Laura Michaud, PharmD, of the M.D. Anderson Cancer Center in Houston.

Something from Nothing?

While about half of adult Americans currently take some type of supplement, use is even higher for people who have experienced cancer, with estimates as high as 81 percent. “People come in sometimes with suitcases full of bottles,” says Michaud.

As with Phillips, supplements can give cancer survivors hope and a feeling of control of an otherwise uncontrollable situation. Patients also receive a lot of pressure from their support circle to take something.

“Well-meaning friends, family members and colleagues will often say, ‘I read this on the Internet,’ or, ‘I knew this person, who knew this person, and this cured them,’” Michaud continues. “There are a lot of people out there trying to sell things, and it’s all over the Internet. Sometimes it’s very hard for a patient to say no.”

But should you? No one can really say for sure, says Brian Lawenda, MD, clinical director of 21st Century Oncology in Las Vegas. Lawenda is a Harvard-trained radiation oncologist and trained medical acupuncturist who uses evidence-based complementary therapies with his patients.

He says studies have not found consistent evidence of either benefit or harm—results are all over the map, depending on the supplement, the population studied and the dose. These studies are typically small and therefore not very informative.

“Most of the science that’s out there is not robust,” he says. “A lot of it is not conclusive.”

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—Laura Michaud, PharmD

Most important, Lawenda and others say, patients should discuss their supplement use with a doctor or other healthcare provider—something many patients are reluctant to do, either for fear of being told no, or because they feel their doctors don’t have the time, or they simply feel the matter is unimportant.

The official view from the American Cancer Society and other organizations is that a multivitamin is probably OK, but that high doses of any particular supplement or mineral should be avoided. One reason for caution is that some supplements have the potential to interfere with cancer treatment. Supplements are not benign—they affect the body in different ways. They can alter the immune system, change hormone balance or affect the way blood coagulates.

The Concern with Antioxidants

Of most concern to oncologists is antioxidants, which counteract the effects of the body's oxidation process. Oxidation is a natural part of metabolism that results in the production of powerful molecules called free radicals, which are highly reactive and have the power to damage cells. Many forms of chemotherapy use oxidation as a mechanism of action, with the hope that malignant cells will bear most of the damage. The problem with antioxidants is that they might neutralize the very molecules that are killing the cancer.

“Many of our chemotherapies kill cancer cells through oxidative mechanisms,” Michaud says, adding that the data aren't clear about whether supplements might interfere with cancer treatment. A [review](#) of the known data published in 2007 in the journal *Cancer Treatment Reviews* did not find that people taking antioxidants fared worse during chemotherapy, and there was even some suggestion they experienced fewer toxicities.

“There is a theoretical mechanism by which we think antioxidants would interfere, but the oxidative mechanism in the body is very complex,” she says.

Lawenda generally discourages taking antioxidants during radiation treatment. In a 2008 [article](#) in the *Journal of the National Cancer Institute*, he pointed out that too much is still unknown:

“The uncertainty about what doses and which compounds are clearly safe demands that high doses of any antioxidant should be avoided during radiation therapy unless clear evidence is available that the benefits outweigh the potential risk.”

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A Pound of Prevention, An Ounce of Cure

Beyond treatment, cancer survivors are not only taking supplements to boost their odds of beating the first malignancy, but also to prevent a second one. So far, though, that's also an open question. The history of the study of supplements in cancer prevention has often followed a familiar pattern: Preliminary studies using animal data raise tantalizing hopes, followed by large clinical trials with disappointing results.

One of the first studies to suggest that high supplement doses could be harmful

came in 1996, when researchers halted a [cancer prevention study](#) in male smokers after data suggested that taking beta-carotene raised the risk of lung cancer by 28 percent. (A [follow-up study](#), published in the *Journal of the National Cancer Institute*, suggested that a higher risk might persist even years later.) More recent studies on supplements have also suggested concern.

Researchers often favor the position that supplements may be neither good nor bad by themselves, and that it likely depends on how much you take and when.

“It’s usually a function of dose,” says Michael Wargovich, PhD, director of cancer chemoprevention at the Hollings Cancer Center at the Medical University of South Carolina in Charleston. “People jump overboard and think more is better.”

It’s possible that supplements have an unknown window of effectiveness. For example, studies of folate and folic acid, both B vitamins, have found benefit in the prevention of colon cancer, but harm once cancerous lesions have formed. One reason under investigation is that the supplement may help prevent cells from forming tumors, but once tumors start to appear, the extra dose may help fuel cancer growth. Other concerns are less serious, but real. Studies of people taking large doses of vitamin C, for example, have suggested a higher risk of developing kidney stones.

More often, studies of supplements have been unimpressive either way. For example, one of the largest studies to examine supplements and prostate cancer prevention randomly assigned more than 35,000 men to take [vitamin E and selenium](#) or a placebo, either alone or in combination. Five years later, there was no difference in the incidence of cancer. (The study was stopped in 2008 because of the hint of a slightly higher, but not statistically significant, risk of prostate cancer among men taking vitamin E.) Last year, researchers from the Dana-Farber Cancer Institute described a study of more than 1,000 men and women with advanced colon cancer, studying whether taking multivitamins affected rates of recurrence and survival. There was no effect.

To date, few large studies of supplement use among cancer survivors have been done. Researchers from Harvard Medical School, [writing](#) in the *Journal of Clinical Oncology* last year, noted that evidence to discourage or recommend supplement use among cancer survivors “is essentially nonexistent.” This is partly because large supplement studies are difficult to do and expensive to conduct—and they lack the financial backing of pharmaceutical companies.

View Chart: Potential Drug - Supplement Interactions

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Vitamin D: A Ray of Hope?

If there is any bright spot, it may be vitamin D. This vitamin, made naturally in the body when sunlight hits the skin and synthesized in plants, fish and dairy products, promotes calcium absorption and has many other effects on the body. Studies from several lines of evidence suggest support for vitamin D. For example, people in northern latitudes (who experience less sunlight exposure)

have higher fatality rates for several types of malignancies, such as breast cancer. Likewise, some studies suggest that patients with lower levels of vitamin D at diagnosis have an increased likelihood of recurrence.

“Vitamin D is one of the few [vitamins] with some evidence that it may have benefit, but we do not know the full story yet,” says Simon Yeung, PharmD, of Memorial Sloan-Kettering Cancer Center in New York. So far, studies have not shown that vitamin D actually causes cancer risk to go down—it might be associated with better outcomes for other reasons.

Anna Renault of Baltimore knows all of this about vitamins. An eight-time survivor of four different cancers (skin, colon, breast and uterine), at age 61, she takes vitamins C and E simply because they improve her well-being and the quality of her nails. “I am committed to taking vitamins,” she says. “I’m also committed to watching my diet.”

Renault’s philosophy is something cancer survivors should keep in mind: while vitamins from supplements have yet to impress the scientific community, vitamin-rich food has. A healthy diet has far more scientific backing than anything out of a pill bottle. You may not need to take vitamins, but you will always need to eat them.