



FOODS THAT FIGHT CANCER

CAT VASKO

Dr. William Li, president and medical director of the Angiogenesis Foundation, wants to change the way we think about food. But first we have to change the way we think about cancer.

Although one in two American men and one in three American women will be diagnosed with cancer at some point in their lives, research suggests that far more of us may be walking around with cancer than we would like to believe. “In autopsy studies of people who died in car accidents, up to 40% of women between age 40 and 50 have microscopic cancers in the breast, and about 50% of men in their fifties and sixties have them in their prostate glands,” says Li. “By the time we reach our seventies, virtually 100% of us will have microscopic cancers in our thyroid glands. We probably form microscopic cancers in our bodies all the time. We just don’t know it.”

At issue is the size of the cancers in question. Most, Li explains, never become big enough to present a threat to the normal functioning of the organs where they take up residence; instead, they remain about the size of the tip of a ballpoint pen, unable to grow further without a blood supply. Because these cancers are too small to be detectable, this process repeats itself throughout our lives without our knowledge. Tiny cancers are born, grow to up to half a cubic millimeter in size, and then wait for an opportunity to expand. “We call these dormant cancers,” says Li. “They can sit there for years, or even decades, without ever becoming harmful.”

Hijacking the Body’s Controls

Twenty-five years ago, Li did his research training in the lab of Dr. Judah Folkman. If that name sounds familiar, there’s a good reason; Folkman was a pioneer in the field of cancer research, and his theory of the role of angiogenesis in tumor development forever changed cancer treatment.

Angiogenesis is a big word for a simple concept: it’s the process through which our bodies create new blood vessels. In normal, healthy individuals, new blood vessels grow only under specific circumstances: as part of the healing process for an injury, for instance, or during pregnancy. Our bodies contain a natural system of checks and balances to regulate the growth of blood vessels, known to scientists as angiogenesis

stimulators and inhibitors. “The stimulators act as natural fertilizers to get vessels to grow, and the inhibitors prune back extra vessels when they’re no longer needed,” Li explains.

Without blood vessels to supply them with the nutrients necessary for expansion, microscopic cancers have nothing to do and nowhere to go. But as cancer cells mutate, they can hijack the body’s system of checks and balances, using angiogenesis stimulators to create the blood supply they need. A microscopic tumor, given a steady influx of blood, can grow to up to 16,000 times its original size in as little as two weeks. And, of course, what goes in must come out; the blood feeding the tumor is circulated back through the body, now bearing cancer cells that can take up residence in distant organs, leading to metastasis. “This is the turnkey step that converts a harmless cancer into a deadly one,” says Li.

Folkman’s theory was that a growing tumor could be “starved to death,” so to speak, by cutting off its blood supply. Forty years ago, he presented his thesis in the *New England Journal of Medicine* and was met with skepticism, ridicule and dismissal. Today there are 12 antiangiogenic drugs on the market for cancer treatment, with 26 more in the final stages of human testing and another 100-plus behind them in human trials. Every major pharmaceutical company has an angiogenesis program, and the first FDA-approved antiangiogenic cancer drug, Avastin, is practically a household name.

The Preventive Approach

Li knows the power of antiangiogenic cancer therapy. But he also knows that the sooner a cancer is treated, the more likely a patient is to survive the disease. So why wait until the tumor has a blood supply to call its own? Why not prevent the tumor from ever getting past the microscopic phase? While we have no way to consistently and accurately detect microscopic cancers, we can boost our bodies’ natural ability to produce angiogenesis inhibitors. And we don’t need expensive pharmaceuticals or cutting-edge technology to do it.

Instead, we need red grapes. If you’re not crazy about red grapes, red wine will do the trick. Not a big drinker? Green tea works. If you like curry, you’ll be glad to hear that turmeric can help; if you’re a baker, ready that cinnamon shaker. Strawberries, blackberries, raspberries and blueberries; oranges, grapefruit and lemons; apples and pineapples; soy beans, kale and bok choy; garlic, tomatoes and olive oil—all these common foods are also weapons against the development of cancer. (Oh, and don’t forget dark chocolate. I know I won’t.)

“One of the limitations of antiangiogenic therapy today is that we’re primarily treating very advanced disease,” Li says. “So we started a research program looking at natural sources of angiogenesis inhibitors, and what we discovered is that Mother Nature has laced many foods and beverages with naturally occurring inhibitors.”

Research indicates that 75%-80% of cancers are caused in part by environmental factors, and about 30% of those are related to what you eat. News articles tell us that diets rich in red meat can result in an increased risk of prostate cancer, and for some time it was believed that consumption of soy increased women's breast cancer risk (that notion has since been debunked). But Li doesn't want to focus on what should be removed from our diets; instead, he wants to look at what we can add. "What are the naturally occurring sources we can add to our diets to boost our bodies' defenses?" he says. "We're giving patients a new tool to make the world a healthier—and tastier—place."

And it's not just food and drink. We can also "mine our medicine cabinets," as Li puts it, in search of common medications that inhibit angiogenesis, such as aspirin. If you think we're already aware of everything our boring old over-the-counter drugs can do, think again: in a recently published 30-year study of almost 5,000 women, aspirin was shown to reduce the risk of breast cancer recurrence by a whopping 71%. As *US News and World Report's* Dr. Bernadine Healy drily quipped, "Were these aspirin tablets a hot new biotech drug, we would be popping champagne right now."

Big Ideas, Baby Steps

The question Li and his colleagues are asking is a provocative one: is it possible that the tools for cancer prevention are already all around us, in our gardens, our grocery stores, our farmers' markets, our medicine cabinets? The concept of dietary cancer prevention exists in something of a vacuum: the food industry isn't involved with cancer research, and pharmaceutical companies aren't involved with food products. Li hopes to change all that, pairing his Angiogenesis Foundation with the Mario Batali Foundation and other partners to develop healthy—and delicious—foods for cancer prevention.

Once a food has been established as antiangiogenic, the next step is determining which strain or varietal of that food is the most potent. Li offers up the example of green tea, on which the Angiogenesis Foundation has done some research. Out of four different commercially available green teas, Li and colleagues determined that Chinese jasmine and Japanese sencha were the most potent, and a blend of the two was even more potent than either alone. "What we need to do now is systematically test and compare potencies between different products," Li says. "If you're selecting strawberries or wine, you want to know the most potent types."

Of course I do. But in the meantime, I'll derive plenty of solace from the fact that those berries and that delicious beverage are promoting my overall health in ways I never imagined possible. As Li puts it, "Drugs are prescribed by doctors, but what happens in between the times you see your doctor? There has been a huge gap in the research when it comes to arming patients with their own tools. We want to shift the paradigm away from relying only on the doctor by putting information in the hands of the patient, and a major part of that shift is changing how we think about food."

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