

Cancer and Nutrition

What to Eat and What to Avoid

By Donald Abrams, MD

According to a survey conducted by the American Institute for Cancer Research, 94 percent of Americans recognize tobacco as a cause of avoidable cancers, 87 percent recognize ionizing and UV light, but only 51 percent appreciate the contribution of diet and nutrition.

In fact, it is estimated that 30 percent of avoidable cancers may be attributed to what we eat and what we don't eat, a proportion equivalent to those caused by tobacco use.

Data continues to mount that cancer patients consuming the Standard American Diet —abbreviated SAD for a reason!— have worse outcomes than those who select a more prudent menu.

The American Institute for Cancer Research/World Cancer Research Fund's "Food, Nutrition, Physical Activity, and Cancer Prevention: A Global Perspective" lists nine recommendations for cancer risk reduction, with the tenth being: "After treatment, cancer survivors should follow the recommendations for cancer prevention."

Foods to Increase or Incorporate Into the Diet

Fruits and vegetables are important components of the cancer-fighting diet. It is ideal to consume five to nine servings of fruits and vegetables per day, yet recent data from the Centers for Disease Control suggests that only 14 percent of adults in the U.S. are consuming even the minimum five servings a day. Fruits and vegetables are rich in fiber and vitamins and are our most potent source of antioxidants. In addition, they contain a number of phytonutrients that are being found to promote anticancer activity.

Broccoli in particular has been shown in numerous scientific studies to reduce the risk of many malignant cancers.

Cruciferous vegetables —broccoli, cauliflower, brussel sprouts, cabbage, kale, collard greens, and radishes to name a few— are particularly potent cancer fighters. Not only are they high in vitamin C and soluble fiber, but they also contain phytonutrients such as sulforaphane, indole-3-carbinol, and diindolylmethane, which have impressive anticancer properties. Broccoli in particular has been shown in numerous scientific studies to reduce the risk of many malignant cancers.



FARMERS' MARKETS are a good source of locally grown vegetables. The Ibarra family truck their organic produce to some 70 markets in the San Francisco Bay Area.

Some studies suggest that raw broccoli may be more potent than cooked, but blanching, steaming, or stir-frying cruciferous vegetables does not decrease their potency significantly. In addition to cruciferous vegetables, I advise patients that adding orange-yellow vegetables to the shopping list offers a good source of beta-carotene as well as color and variety to the diet.



For leafy greens, I favor those that are also cruciferous so we get a two-for-one, both the glucosinolates as well as the folate in the leafy green foliage.

Heavily pigmented fruit —the berries, red grapes, and pomegranates— are important and powerful antioxidants. Patients who are receiving active radiation treatment may be advised to avoid antioxidant supplements as they could interfere with radiation. Whole food sources of antioxidants, like berries, however, are likely not concentrated enough to affect radiation or chemotherapy drugs that work via oxidative damage to tumor DNA. Therefore, I recommend that my patients eat an antioxidant-rich diet, even during active treatment; but I often advise that they delay antioxidant supplementation, especially if our goal is cure.

A plant grown outdoors organically is a much richer medicine than conventionally grown produce.

Regarding produce, and all food for that matter, I encourage my patients to eat organic as much as possible. This is only partly to avoid the pesticides, herbicides, and fertilizers that have no right to be in our bodies, but because an organically grown plant needs to fight to protect itself from other plants, birds, insects, and the sun. And the only way a plant can protect itself is by making chemicals called phytoalexins, which, fortunately for us, are often the phytonutrients that benefit us. So a plant grown outdoors organically is a much richer medicine than conventionally grown produce.

I do appreciate that it may not be realistic or affordable for some to consume organic produce. We live in a country where for the price of the organic apple that I end my lunch with daily, someone can purchase a double cheeseburger, fries, and a sugary

soft drink. If one can't buy organic all the way, www.organic.org is a good resource for avoiding the most toxic conventional products.

Garlic is a powerhouse in the cancer-fighting kitchen.

When it comes to adding both flavor and nutrients to a dish, garlic and onion are great ways to enhance a meal. Garlic is a powerhouse in the cancer-fighting kitchen. It is also antifungal, anti-inflammatory and helps to lower blood pressure and cholesterol.



Ginger and turmeric are great options too. Ginger not only helps to relieve nausea but research has shown that it has anticancer effects. Turmeric, a spice that is widely used in India, providing the yellow pigment of curry, also has been demonstrated in vitro to inhibit cancer at many stages of the cell cycle. Adding black pepper to turmeric increases absorption of the active ingredients a thousandfold.

Shiitake mushrooms are enjoyed in Asia for their immune-enhancing, antitumor and

antiviral, and general antibiotic properties. They are rich in amino acids and fiber and are a good source of vitamins, particularly B12 and ergosterol, which is converted by sunlight into vitamin D. Shiitakes also contain an antitumor polysaccharide known as lentinan, which triggers lymphokines, interferon, and interleukin. This cascade augments natural killer-cell function. Shiitake, maitake, and enoki mushrooms and their constituents are often used concurrently with chemotherapy and radiation in Japan as adjuvant therapies. All edible mushrooms must be cooked.

White button mushrooms (Agaricus species), commonly sliced raw and tossed into salads, actually contain a carcinogen, agaritine, that is mostly inactivated with cooking. There is some suggestion that



the Agaricus species (white buttons, cremini, and portobello mushrooms) may have an aromatase-inhibitor-like effect. (Aromatase inhibitors stop tumor growth by blocking estrogen production.)

Things to Avoid or Limit

It is as important to know what to include in a well-balanced diet as it is to know what to avoid or limit. The first of the AICR guidelines to address food says simply to avoid sugary drinks. I went to the microphone at the 2007 meeting to ask if all sugary drinks are the same. One could drink a cola beverage, a fruit punch (which is likely glucose and high fructose corn syrup) or one could squeeze three oranges every morning.

The response from the podium was a surprising, "energetically, they are all the same." That is to say, when we eat an orange, the fiber slows the absorption of the sugar into the bloodstream. But when we juice the orange, and separate the sugar from the fiber, we get the same spike as we do with any other sugary beverage. So I now only juice twice a week!

I also recommend limiting the consumption of energy-dense foods, specifically processed foods that contain

continued on next page



GINGER is the rhizome of *Zingiber officinale*. Native to South Asia, it lends its name to a family of plants that includes turmeric and cardamom.



TURMERIC is a perennial ginger native to the wet tropics of Southeast Asia. The rhizomes —boiled, dried, and finely ground— provide the key spice in curry.

Cancer and Nutrition from previous page

large amounts of added sugar or its act-alikes, ones that are high in fat but without a lot of fiber. I feel that sugar listed in the “Nutrition Facts” box is okay since that’s the sugar that fuels our brain, but I advise avoiding foods that include sugar, fructose, syrups, crystals, dextrin, maltodextrin, ad infinitum, in the ingredients list.

It is also important to limit consuming red meats and to avoid processed meats entirely. Research has shown that there is a direct correlation between consuming increasing amounts of red meat and colon cancer. Beef has also been associated with pancreatic cancer. In their natural environment cows eat grass. Most cows today are primarily corn-fed. The result is that a cow that predominantly eats corn will in turn produce fat that is high in omega-6 fatty acids, those that promote inflammation and platelet aggregation.

In place of beef, I encourage patients to eat deep cold-water fish like salmon, albacore tuna, black cod, herring, mackerel, and sardines, which are rich in omega-3 fatty acids, anti-inflammatory, and may also be a bit antidepressant. If poultry and eggs are part of the diet, they should also be organic to minimize the imbalance of omega-6 to omega-3 in conventional products.

Alcohol consumption, if not completely eliminated, should be limited to one drink a day for women and two for men. Women at high risk for breast cancer should limit themselves to one alcoholic beverage a week. An ideal drink of choice would be a glass of red wine, as it contains resveratrol, which is considered to be an antiaging and

life-extending phytonutrient that is less available in white wine or other alcoholic beverages.

Would that we had learned more about nutrition during our training!

Green Tea, a Superfood

The drink I recommended the most to my patients is green tea. It contains polyphenols, particularly ECGC, which is a potent antioxidant and has cancer risk-reducing properties similar to what is found in cruciferous vegetables. Green tea is revered as a powerful medicine, particularly in Asia, more than any other beverage. It has been shown to prevent heart disease and strokes, reduce cancer risk, regulate blood sugar, lower blood pressure, boost immunity, increase bone density, help prevent arthritis, facilitate weight loss, prevent ulcers, slow aging, increase fertility, and fight colds and flu. I typically recommend that my patients drink four large teacups (about 1 liter) of green tea daily.

Achieving a well-rounded, balanced diet is palatable and beneficial to our health and well-being. Would that we had learned more about nutrition during our training! In these days of health care reform and focus



GREEN TEA LEAVES



on wellness, please share this information with all of your patients so that we are not only creating awareness about beneficial ways to reduce cancer risk through diet and nutrition but we are also promoting a healthier lifestyle and a healthier society.

Suggested Resources

Abrams DI and Weil A. (eds) Integrative Oncology. Oxford University Press, New York, 2009.

American Institute for Cancer Research/World Cancer Research Fund. Food, Nutrition, Physical Activity and Cancer Prevention: A Global Perspective. 2007.

Beliveau R, Gringas D. Foods to Fight Cancer. DK, 2007.

Gonzalez CA, Riboli E. Diet and cancer prevention: Contributions from the European Prospective Investigation into

Cancer and Nutrition (EPIC) study. Eur J Cancer. 2010; 46:2555-62.

Katz R. The Cancer-Fighting Kitchen. Celestial Arts, 2009.

Kushi LH, Byers T, Doyle C et al. American Cancer Society Guidelines on Nutrition and Physical Activity for cancer prevention: Reducing the risk of cancer with healthy food choices and physical activity. CA Cancer J Clin. 2006; 56:254-81.

Servan-Schreiber D. Anticancer: A New Way of Life. Viking, 2009.

Donald Abrams, MD, is an integrative oncologist at the UCSF Osher Center for Integrative Medicine. He is also chief of hematology and oncology at San Francisco General Hospital. This article was written for San Francisco Medicine, the journal of the SF Medical Society, and is reprinted with permission.