Cancer Fighters in Your Spice Rack

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Fruits and vegetables high in antioxidants and other cancer-fighting compounds have long been thought to curb one's cancer risk. It now appears that another group of foods--including turmeric (one of the major spices in curry powder), red grapes, rosemary, and green tea--has joined the ranks of these potent anticancer nutrients. Interestingly, these foods have properties resembling those of the COX-2 inhibitors--popular new arthritis drugs, such as Celebrex, that have been dubbed "superaspirins."

COX-2 inhibitor drugs, so-called because they block an enzyme called cyclooxygenase-2 (COX-2), are used to treat the pain and inflammation of arthritis. There is now compelling evidence that they may also protect against cancer. Mitch Gaynor, M.D., director of medical oncology at the Strang Cancer Prevention Center in New York, notes that suppressing COX-2 may be beneficial because, "the COX-2 enzyme helps make carcinogens much more active once they get into your body. The enzyme also allows cancerous cells to grow new blood vessels."

A recent study pinpointed the importance of COX-2 in colon cancer (*Journal of the American Medical Association,* 10/6/99). Colon tumors with the highest COX-2 levels were larger, more advanced, and more likely to have spread to the lymph nodes. By contrast, the enzyme was undetectable in colon tissue from cancer-free patients. High COX-2 levels appear to be fairly ubiquitous in tumors. Dr. Gaynor observes, "We found elevated COX-2 levels in just about every solid tumor we looked at, from lung cancer to breast, prostate, bladder, and colon cancer. We've also demonstrated that when you inhibit COX-2, the cancer cells stop growing." The COX-2 inhibitor Celebrex has been shown to strongly inhibit the development of colon cancer in animal studies. Several clinical trials are now under way to determine whether this and other COX-2 inhibitors have the same effects in people.

Beyond antioxidants
The good news is that a drug-free alternative to the synthetic COX-2 inhibitors may be as close as your spice shelf. It appears that certain foods are natural inhibitors of the COX-2 enzyme. By incorporating these foods in your diet, you can obtain some of the potential cancer-preventing benefits of the COX-2 inhibitors naturally.

Turmeric (curcumin) Dr. Gaynor observes, "Countries like India and Pakistan, where the people eat a lot of curry, have a lower incidence of various types of cancer." Curcumin, the ingredient that gives turmeric its yellow color and one of the best studied of the natural COX-2 inhibitors, has been shown to inhibit the development of cancer in animals. Dr. Chintalapally V. Rao, a scientist with the American Health Foundation in Valhalla, New York, has conducted extensive animal studies with curcumin and notes that while the new drugs "undermine the activity of the COX-2 enzyme, curcumin completely blocks formation of the enzyme itself."

The intriguing evidence of curcumin’s anticancer effects in animal studies has

prompted a clinical trial of the compound. Dr. Steven Schiff at Rockefeller University in New York is assessing whether curcumin supplements (250 mg twice a day) can inhibit the development of colon cancer in people and plans to publish his findings later this year.

Red grapes Another potent COX-2 inhibitor known as resveratrol is produced in the skin of red grapes, where it protects against oxidation and fungal infections. Resveratrol is found in grape juice and red wine; red Bordeaux and French Cabernets contain a particularly high concentration of the compound. Resveratrol appears to help protect against cancer in at least three ways: It has anti-inflammatory effects, it's a powerful antioxidant, and it may prevent cancer cells from progressing to the next stage. Supplements provide about 600 mcg of resveratrol, the amount found in a glass of red wine.

Rosemary This common spice, another strong COX-2 inhibitor, also increases the activity of detoxification enzymes. An extract of rosemary, termed carnosol, has inhibited the development of both breast and skin tumors in animals. Rosemary can be used as a seasoning. It can also be consumed as a tea: Use 1 tsp. dried leaves per cup of hot water; steep for 15 minutes.

Green Tea Green tea has also been shown to inhibit the COX-2 enzyme, and it has strong antioxidant effects as well. Several population studies have indicated that green tea possesses powerful anticancer effects. A clinical trial evaluating green tea in cancer patients is currently under way at M. D. Anderson Cancer Center in Houston. Experts advise drinking four cups of green tea daily. Alternatively, take two 250 mg green tea pills a day. Select pills standardized to contain at least 50 percent polyphenols, the active ingredients in green tea.

Bee Propolis Finally, bee propolis, a sticky resin collected by bees from pines and other trees, is "one of the most potent COX-2 inhibitors," according to Dr. Gaynor. Dr. Rao has found bee propolis very effective for cancer prevention in animals, noting, "You can use it in lower doses than curcumin because it is highly absorbable." It is typically sold as 500 mg capsules.

Suggested dose: Optimal doses of COX-2 foods or supplements for cancer prevention (or arthritis pain and inflammation relief) are unknown. In the meantime, it seems reasonable to consume COX-2 foods as part of a healthy cancer-fighting diet, along with plenty of fruits and vegetables. So spread a little curry-rosemary dip on your cracker, sip some green tea, and pour yourself a glass of Cabernet.