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HERBCLIP

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RE: **Phytochemicals in Herbs Reduce Disease Risks**

Craig, W.J. Phytochemicals: Guardians of our health. *Journal of the American Dietetic Association.*, 1997, Vol. 97 (suppl 2), pp. S199-S204.

Consuming a diet rich in plant foods provides an array of nonnutritive substances called phytochemicals that possess health-protective benefits. Research has shown that people who eat lots of fruits and vegetables have about one-half the risk of cancer and a lower death rate than those who don't. In fact, of 156 dietary studies recently reviewed, 82% found that fruit and vegetable consumption provided significant protection against many kinds of cancers, especially those that involve epithelial cells, such as cancer of the lung, cervix, esophagus, stomach, colon and pancreas. However, a recent survey revealed the average American eats only about 1 1/2 servings of vegetables per day and less than 1 serving of fruit per day.

The National Cancer Institute has identified garlic, soybeans, cabbage, ginger, licorice and the umbelliferous vegetables (including carrots, celery, cilantro, parsley and parsnips) as having the highest anticancer activity. Foods with a modest level of cancer-protective activity include onions, flax, citrus, turmeric, cruciferous vegetables (broccoli, Brussels sprouts, cabbage and cauliflower, solanaceous vegetables (tomatoes and peppers), brown rice and whole wheat. Other foods and herbs found to possess a measure of anticancer activity included oats and barley, mints, rosemary, thyme, oregano, sage, basil, cucumber, cantaloupe and berries. Most of the phytochemicals found in these foods are heat-stable and little is lost in cooking water.

Soy

Soybeans contain fairly high levels of several compounds with demonstrated anticancer activity, including phytates, protease inhibitors, phytosterols, saponins and isoflavonoids. Consumption of soybeans is suggested as a contributing factor to the low incidence of breast and prostate cancer in Japanese women and men, respectively. Moreover, Chinese who regularly consume soybeans and/or tofu have only one half the incidence of cancers of

the stomach, colon, rectum, breast and lung as those Chinese who rarely consume soy or soy products.

Several human studies done over the past 20 years have demonstrated the ability of soy to lower cholesterol levels. In fact, a recent meta-analysis of 38 controlled clinical trials found that an average intake of 47 grams of soy protein per day, resulted in an average 13% drop in LDL's (low-density lipoproteins) and a 10% drop in triglyceride levels. As little as 1 to 2 ounces of isolated soy protein incorporated into commonly eaten bakery items can effectively lower cholesterol, as can replacing milk with a soy beverage over a 4- week period. The exact mechanism of how soy lowers cholesterol has not been determined.

Citrus

Citrus fruits are a rich source of phytochemicals. In fact, more than 170 phytochemicals are present in a single orange. The more than 60 flavonoids in citrus possess a wide range of properties, including antiinflammatory and antitumor activity, inhibition of blood clots and strong antioxidant activity. There are also about 40 limonoids in citrus—with limonin and nomilin being the principle ones—that possess the ability to inhibit tumor formation. There are also about 20 individual carotenoids in an orange, many of which have significant antioxidant activity.

Whole Grains

The phytochemicals found in fruits and vegetables are similar to those in whole grains, and include plant sterols, phytases, phytoestrogens, tocotrienols, lignans, ellagic acid and saponins, all of which reduce the risk of cardiovascular disease and cancer. These phytochemicals are concentrated in the bran and germ, so health benefits are maximized only when whole grain products are eaten. Refining wheat, for example, causes about a 200- to 300-fold loss in phytochemical content.

Flax

The use of flax seed can lower blood levels of both total and LDL cholesterol. Flax seed oil is one of the richest known sources of n-3 fat, since linolenic acid comprises 55% of the oil it contains. This provides flax with its antiinflammatory effect (and, hence, the possible usefulness for the treatment of lupus, arthritis, and different allergies) and the ability to boost the immune system.

Flavonoids

The more than 800 flavonoids in plants possess properties that help reduce the risk of disease. Quercetin is the major flavonol in the western diet. Rich sources are red and yellow onions, kale, broccoli, red grapes, cherries, French beans, apples and cereals. Quercetin possesses both anticarcinogenic activity and the ability to inhibit LDL oxidation.

Red wine and grape juice contain significant levels of phenolic flavonoids that can act as antioxidants, protect against LDL oxidation and inhibit platelet aggregation, thereby providing protection against heart disease.

Pigments

There are almost 2,000 known plant pigments in our food, including more than 450 carotenoids and 150 anthocyanins. Anthocyanins are the water-soluble, reddish pigments found in many fruits, such as strawberries, cherries, cranberries, raspberries, blueberries, grapes and black currants. They have the ability to inhibit cholesterol synthesis, thus providing protection against heart disease. Carotenoids are the pigments found in yellow-orange, red and green vegetables and yellow-orange fruits. The consumption of foods naturally rich in beta carotene, lycopene, lutein or other carotenoids has been consistently associated with a lower risk of cancer or heart disease.

Flavoring Herbs

Rosemary, sage, oregano, thyme and other flavoring herbs that belong to the *Labiatae* (Mint) family are known to possess strong antioxidative activity. Substances such as phthalides in celery seed, the sulfides in garlic and onions, the dithiolthiones and isothiocyanates in broccoli and other cruciferous vegetables, the bitter liminoids in citrus and the curcumins in ginger and turmeric are considered inhibitors of cancer. Garlic, onions and other members of the *Allium* family are rich in sulfides that are known to decrease the tendency of blood clots to form, significantly lower total and LDL cholesterol and decrease the risk of cancer at many sites.

The author of this review concluded that with such a wide variety of protective phytochemicals in fruits, vegetables, whole grains, nuts, legumes and herbal seasonings, the regular consumption of these foods is essential to ensure a healthy population. —*Densie Webb, PhD*

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