

Crucifers and Cancer

By John Foster, MD

We are living in the age of estrogen. The food supply is laden with traces of herbicides, pesticides and petrochemical residues from plastics, all of which have estrogen-like, endocrine disrupting effects in animals and humans. These xenobiotics, or foreign biological substances, have been linked to abnormalities and cancers of human tissues that are hormone sensitive, including fibrocystic breast disease, breast cancer, cervical cancer and dysplasia, endometrial cancer, endometriosis and ovarian disease as well as prostatic hypertrophy and cancer.

How can we protect ourselves from these influences? Eating a whole food diet of organic or biodynamic foods, free of pesticides, is an important first step. Healthy water is the next. Municipal water supplies may be sources of many chemical and water in plastic bottles can contain residues of polycarbonate plastics called phthalates, which are endocrine disrupters. It is important to drink only pure mineral water or water that has been treated by a reverse osmosis (RO) system.

Our Bodies regulate and eliminate estrogens by the action of detoxifying enzymes in the liver. There are two pathways of estrogen oxidation and conversion, one of which converts it to a beneficial and non-toxic form 2-OH estrogen and another which converts it to the 16-OH estrogen form. The 16-OH form is carcinogenic and causes diseases of tissues that are responsive to hormones, including disorders and cancers of breast, uterus, cervix and prostate, and probably lung and colon. Xenoestrogens push the system toward the 16-OH pathway both directly and indirectly.

Cruciferous vegetables such as broccoli, cauliflower, kohlrabi, bok choy, Brussels sprouts and cabbage contain a substance called indole-3-carbinol (I3C) which is activated and liberated when the vegetables are crushed in a wet environment, that is, when they are chewed, chopped, or pounded. In the presence of stomach acid, I3C combines with itself to form DIM (di-indolyl methane). DIM induces certain P-450 enzymes in the liver to block the production of the toxic 16-OH estrogens and enhance the production of the beneficial 2-OH forms.

Studies have demonstrated that DIM reduces the incidence of fibrocystic breast disease, cervical dysplasia, endometriosis and prostate enlargement. In fact, the 2-OH form is not only benign but also enhances the process of apoptosis, the spontaneous death of damaged and cancerous cells. DIM also acts as an active surveillance for cancer cells. This is very exciting and while there is much to learn and more to say, I can state with assurance that this phytonutrient may be one of the most important protective substances of this new century

It is very important to eat cruciferous vegetables every day for protection against diseases that may be induced by exposure to environmental estrogens. As raw cruciferous vegetables contain goitrogens, it is best to eat them fermented, because fermentation neutralized these thyroid-depressing substances. (cooking also neutralized the goitrogens, but also deactivated I3C.) In fact, low rates of breast cancer in Polish women have been attributed to their daily consumption of sauerkraut. (*Science News* 23/00)

The Amount of vegetables needed to support adequate DIM for full protection or as part of the program of cancer treatment is at least two pounds daily. Of course, it is not always practical or possible to eat such large amounts of pickled vegetables. Fortunately, DIM is available as a supplement. I recommend it to almost any patient over 40 and anyone with a family history of breast cancer or uterine problems as well as cancer of the lung, colon, or prostate. I also add DIM to any hormone replacement therapy program for an added safety factor to prevent the above diseases. I have also used DIM successfully to treat PMS.

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