

Cruciferous Vegetables and Breast Health

October 2009 - Written for The Daily Planet, Telluride, CO

By Lynn Mayer, MA, CNC

Evidence suggests that life-long exposure to estrogen plays an important role in breast cancer risk. It is the reason that Hormone Replacement Therapy (HRT) has been questioned as to its efficacy. Do the risks of taking exogenous estrogen outweigh the potential benefits?

It is not only hormone replacement, however, that is of concern. We are swimming in a sea of estrogen in our environment. Commercial livestock is often pumped with estrogen to promote their holding onto water mass, adding more weight for profit at their sale. We consume the added estrogen through the meat that we eat. Many pesticides and plastics contain synthetic xenoestrogens that are not easily broken down in the body. The residues can accumulate and the body will store it in the body's fat cells, including breast fat.

Epidemiological observation notes that the risk of breast cancer is lowered by consumption of whole cruciferous vegetables. This has led to further study. As was discovered, the active phytochemicals in these vegetables, indole-3-carbinol (I3C) and diindolylmethane (DIM) were found to stimulate the detoxification pathways in the liver, allowing estrogen metabolites to exit the body through the eliminative organs.

From that research, many women and health care practitioners have been using I3C or DIM as one way to enhance liver function and reduce the risk of breast cancer.

Recent study and meta-analyses, however, have shown that the beneficial physiological effect of whole fruit and vegetables cannot be attributed to only one component in the food. That includes the cruciferous vegetables. Single compound extracts may lose effectiveness through the lack of potential benefits from the entire range of natural compounds found in the whole vegetable. In addition, relatively large doses of the I3C may fail to undergo complete conversion to the active metabolite, especially in those with low stomach acid output.

What has been shown to do a better job of estrogen elimination is the whole vegetable. A research article published in the Mar/Apr 2009 peer reviewed Journal of Alternative Therapies in Health and Medicine has demonstrated the ability of the cruciferous vegetables to reduce the effects of estrogen in the body.

Urinary samples were used in that it has been found that urinary concentrations of estrogen metabolites are related to risk of breast cancer. The risk of cancers in estrogen-sensitive tissues increase in proportion to the measurement of the ratio of two estrogen metabolites in the urine: 2-hydroxyestrogens (considered to be "good" because they are associated with reduced cancer growth or having anticancer effects) to 16-a-hydroxyestrogen (considered a "bad" estrogen in that can encourage tumor development and can cause DNA damage). It is referred to as the 2/16 ratio. The findings are that cancer risk increases in proportion to the 2/16 ratio depressed below 2.0.

Although adding cruciferous vegetables to the diet can improve abnormally low 2/16 status, some people cannot make the dietary adjustments. The study was then to take a look at the efficacy of using desiccated whole cruciferous vegetables. Could a powder consisting of dried Brussels sprouts and kale elicit a positive effect by raising the 2/16 ratio? To that end, the women in the study group were given 3.6 grams of supplemental powdered organic Brussels sprouts and kale on a daily basis for 90 days.

Positive shifts in estrogen metabolism were demonstrated in 11 out of the 13 participants. The average improvement of the ratio was 168% improvement. The 3 participants with the lowest 2/16

ratio had an average improvement of 500%. The risk of estrogen related cancer was reduced significantly.

To translate 3.6 of powdered Brussels sprouts and kale into food amounts it would be equal to 36 grams of the whole vegetables. One cup of raw kale has .47 grams, a fair amount of kale would be needed. That being said, adding the cruciferous vegetables, which includes not only kale and Brussels sprouts, but cabbage, cauliflower, broccoli, collard greens and bok choy to your family's diet on an ongoing basis is a good habit to incorporate.

October is breast cancer awareness month. Along with your breast exam you may wish to ask your doctor about checking your 2/16 ratios. If in need, I have urine test kits as well as dried cruciferous products available at my office.

Lynn Mayer is a Certified Nutrition Consultant and Health Coach here in Telluride, Colorado. Lynn is available for consultation in person, by phone 970 369-4790 or through her website www.thejoyofhealth.com.