



## HOLTORF MEDICAL GROUP, INC.

CENTER FOR HORMONE IMBALANCE, HYPOTHYROIDISM AND FATIGUE

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## Indole-3-Carbinol and Breast Cancer Prevention

Recent scientific advances into how estrogen is metabolized in the body are shedding new light on the risk of breast and other cancers. Estrogen is shown to be metabolized into two major pathways. One pathway leads to an end product of 16-alpha-hydroxyestrone (16-OH-estrone) and the other pathway leads to the formation of an end product of 2-hydroxyestrone (2-OH-estrone). Different women will metabolize estrogen via these different pathways to varying degrees. This is important because it is found that the 16-OH-estrone metabolite is carcinogenic, a strong promoter of breast and cervical cancer, while the 2-OH-estrone metabolite is cancer protective. This 16-OH-estrone/2-OH estrone ratio can now be measured with a simple urine test.

There is a genetic predisposition to favor one pathway over another, with women whose family histories of breast cancer favoring the 16-OH-estrone pathway. In addition, however, there are many other lifestyle, environmental and dietary variables that influence this ratio. It has been found that a natural substance called Indole-3-carbinol (I3C) can significantly promote the estrogen to be metabolized via the favorable 2-OH-estrone pathway and away from the 16-OH-estrone pathway. This substance is found in cruciferous vegetables such as cabbage, cauliflower, broccoli and brussels sprouts, which were known to be cancer protective at high doses. Thus, we now have the mechanism of this action. While it might make sense that eating these foods would be a good health insurance policy, it is hardly practical to eat a head of cabbage and several pounds of cauliflower each day. Indole-3-carbinol, the active ingredient in these vegetables, is now available in capsule form and is available at our center.

Recent studies have shown that Indole-3-carbinol significantly prevents breast, cervical and endometrial cancer in women and prevents prostate cancer in men. A 1997 study noted that I3C not only stopped 54-61% of human cancer cells from growing, but actually provoked the cells to self destruct. Since this study, this powerful anti-breast cancer action has repeatedly been demonstrated in numerous studies. A study in 2000 showed that I3C caused complete regression of cervical cancer (CIN II-III) in 50% of these patients with this cancer.

We believe that I3C is one of the most effective ways to reduce the risk of breast and other cancers. In addition, the I3C works synergistically with artemisinin (see artemisinin handout) and quercetin (combination contained in Cellular Health) for maximal cancer protection. We believe that just about every woman should have her 2-OH-estrone/16-OH-estrone ratio checked and consider taking Cellular Health.