Treatment of Breast Cancer with Herbal Medicine and Nutrition

Chanchal Cabrera MSc, MNIMH, AHG
March 2003

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BREAST CANCER – AN OVERVIEW

Morbidity and mortality
Breast cancer is the most common form of cancer among women in Europe, North and South America and Australasia; approximately 1 in 10 women in Western countries will develop breast cancer during their lifetime (Pisani et al 1999). The incidence of breast cancer is increasing on average by about 1% per year in industrialized countries and at a greater rate in developing countries (Murphy 1998). Breast cancer is the second leading cause of cancer deaths (after lung cancer) among American women (Parker et al 1996) and 180,000 new cases of breast cancer were diagnosed in the USA in 2001 (McVie 2001). The 5-year survival of all patients with breast cancer is 85%.

Clinical features of breast cancer

Local effects
- Breast lump
- Skin thickening or redness
- Peau d’orange or dimpling
- Nipple inversion or crusting
- Unilateral nipple discharge

Lymph nodes
- Axillary and supraclavicular lymphadenopathy

Distant effects
- Pleural or pericardial effusion
- Bone metastases causing tenderness, pain or fracture
- Abdominal metastases causing hepatomegaly, ascites and other masses
- CNS metastases causing brain lesions, carcinomatous meningitis or cord compression

Systemic features
- Fatigue
- Weight loss
- Bone pain
- Headache
- Paraesthesia

Diagnostic features
A history and physical examination will alert the practitioner to unusual breast lumps and to familial or lifestyle risk factors. An abnormal lump may be evaluated by ultrasound to rule out benign fibrocystic breast disease or other non-malignant tumors or cysts. Thermographic imaging is a more sensitive procedure although not readily available or affordable yet. A diagnostic (as opposed to screening) mammogram is approximately 90% accurate.
Final diagnosis is made by biopsy – either by needle aspirate, core needle or excisional type. If a lump is non-palpable the biopsy may require stereostatic guidance under mammography or under MRI. Any biopsy technique is invasive and involves piercing of the tumor capsule. There is some concern that this may facilitate spread of cancerous cells although there is no clear evidence of this to date. Because of this, if a lumpectomy is anticipated anyway, some doctors are recommending an excisional biopsy so that surgery is required only one. Healing from breast surgery is improved and secondary spread of cancer is inhibited if surgery is performed during the luteal phase of the menstrual cycle. For women that are post-menopausal then surgery should be conducted in the waning moon phase (ie after full moon). Because this is at least somewhat of an elective surgery, pre and post surgical care can be implemented to minimize tissue trauma, promote healing and prevent infection and scarring.

**Pathology indicators to review**

**Blood tests**
- Complete blood count
- Blood chemistry including alkaline phosphatase, magnesium, copper, zinc and ceruloplasmin
- Cancer markers – CEA, CA 125, CA 27-29, CA 19-9
- Melatonin
- Insulin-like growth factor 1
- Sex hormone binding globulin (if hormone receptivity is high)
- Estrogen, progesterone and DHEA (if hormone receptivity is high)
- Thyroid panel (TSH, T3, free T3, T4, free T4, reverse T3, TPO)

**Tissue tests**
- Histology, stage and grade
- Estrogen and progesterone receptivity
- Her2/neu
- Proliferative markers – KI67, mitotic index, S phase

**Scans etc**
- Lymph node involvement (sentinel node evaluation is preferable to wide spread lymph node dissection)
- CT scan of chest, abdomen
- MRI of brain
- Bone scan

**Etiology of breast cancer**
Although the specific etiology of breast cancer remains unknown, a number of factors are recognized which increase a woman's risk of developing the disease. Genetic predisposition, or family history of breast cancer, is known to be responsible for 5% of all cases (Easton 1993). The breast cancer gene BRCA1 confers a 59% risk of developing breast cancer by the age of 50 as compared to only 2% risk in the non-gene carrying population (Ford et al 1993). Two more gene susceptibility profiles have been established more recently (NIH August 14 2000). Up to

**Dietary considerations**

It is suggested that dietary modification, specifically the introduction of soy products, curcumin (from Turmeric), cruciferous vegetables and low fat, could be beneficial in reducing the risk of developing cancer and possibly the effects of environmental pollutants (Jaga & Duvvi 2001). The incidence of several cancers, including breast and prostate, is notably higher in Western populations compared with countries such as Japan and China. Epidemiological and migrant studies have suggested that multiple factors including lifestyle, diet and fat or fiber intake may play a role in the etiology of these diseases. One notable dietary difference is the relatively high consumption of soy-based products amongst Asian populations with low breast cancer rates. As such, soy has attracted much attention as a potential chemo protective factor (Bingham et al 1998; Cassidy & Faughnan, 2000).

Hormone related cancers such as breast cancer have been reported to vary by as much as 5- to 20-fold between populations. Studies of migrant populations indicate the highest rates of cancer are typically seen in populations following Western diets that are higher in fat and lower in fiber. Lower rates occur in populations consuming a traditional Eastern (e.g. Chinese or Japanese) diet relatively low in fat and relatively high in fiber and soy (Tham et al 1998). It is difficult, however, to isolate the effects of diet from those of environment. Ziegler et al (1993) reported that Asian-American women born in the West had a 60% higher risk of developing breast cancer than those born in the East (e.g. China and Japan). Among those born in the West, the risk of breast cancer was 50% higher in those whose grandparents had been born in the West. Among those born in the East, risk was determined by whether, prior to migration, their community had been rural or urban. Migrants from urban communities had a 30% higher risk of developing breast cancer than those from rural communities. However, the research fails to make clear the extent to which these changes are induced by diet changes concurrent with increasing urbanization and westernization, or are environmentally induced.

**Phyto-estrogens**

Phyto-estrogens may confer protective effects against estrogen-induced tumorigenesis. They are found in significant amounts in foods such as soy, clover and alfalfa sprouts and green tea. They include the isoflavones daidzein and genistein and the lignans enterodiol and enterolactone. The isoflavones occur mainly as glycosides and are absorbed as aglycones, which are more readily absorbed than the parent glycosides due to their higher hydrophobicity and lower molecular weight. Glycosides of isoflavones have not been identified in plasma. This indicates that the
functional health of the gut is significant in determining the bioavailability and utility of ingested phyto-estrogens.

People whose gut micro flora preferentially convert the less potent daidzein to the more potent equol, or the less potent enterodiol to the more potent enterolactone will have a higher overall estrogen exposure than others with different gut micro flora (COT 2002). A study by Ingram et al (1997) in Australian women (n= 144) showed that high excretion of both equol (OR= 0.27; 95% CI= 0.10-0.69) and enterolactone (OR= 0.36; 95% CI = 0.15–0.86) were associated with a lowering of breast-cancer risk. This effect was particularly strong for equol, which was associated with a 4-fold reduction in risk. Enterolactone was associated with a 3-fold reduction in risk. These studies suggest a breast cancer protective role for soy.

In favor of soy
Lee et al (1991) reported an inverse association between soy protein intake, the ratio of soy to total protein and total soy products and the incidence of breast cancer in pre- but not postmenopausal Singapore-Chinese women (n= 200).

A prospective cohort study by Hirayama (1986) demonstrated a significant inverse association between the intake of fermented soybean paste (miso) soup and risk of breast cancer in Japanese women (n= 14,2857).

Increased mammographic density has been associated with a 4 to 6-fold increased risk of breast cancer (Atkinson et al 1999). A randomized, placebo controlled study investigating the effect of an isoflavone supplement (40 mg isoflavones/day) has suggested a significant (p< 0.05) reduction in breast tissue density in women aged 56-65 compared to age matched controls (Atkinson & Bingham 2002). Similar results were obtained from a cross-sectional study in Singapore (Jakes et al 2002) and the highest intakes were associated with low-risk mammographic parenchymal patterns. This suggests that use of isoflavones may inhibit breast cancer development or progression.

Animal studies indicate that early life exposure to genistein, the major isoflavones in soy, confers a protective effect against chemically induced breast tumors, and human studies with whole soy foods have confirmed this (Wagner 2002). Women who were high soy consumers during adolescence demonstrate a 23% risk reduction compared to matched controls and consuming soy in adult life as well increases the risk reduction to 47%. Eating little soy in adolescence but more in adult life does not confer any advantage (Wagner 2002). This is clinically significant because it promotes the use of soy as an early preventative but it challenges the usefulness of soy products to treat breast cancer in women who have not grown up eating such foods.

Against soy
Case-control and cohort studies conducted in China and Japan have evaluated the association between soy intake and incidence of breast cancer. No relationship between the soy intake and risk of breast cancer was established in two case-control studies (Hirose et al 1995; Yuan et al 1995). A large prospective study of 34,759 women in Japan found no significant association
between breast cancer risk and consumption of soy foods (Key et al., 1999). A study by McMichael-Phillips et al. (1998) investigated the effect of dietary soy consumption on the proliferation rate of histologically normal breast epithelium in premenopausal women. The proliferation rate of breast epithelium in the soy-treated group was found to be significantly increased which suggests short-term dietary soy supplementation may induce proliferation in breast tissue of premenopausal women.

**Fermentation**

Studies have suggested that isoflavones are more bioavailable in food if present as aglycones (as in fermented soy products like tempeh) than when present as glycosides (as in unfermented soy products like soy milk and tofu). Hutchins et al. (1995) reported that the recovery of urinary daidzein and genistein was higher when subjects consumed a diet consisting of tempeh (fermented soy) compared to a similar diet containing conjugated isoflavones in the form of unfermented soy pieces. In addition, Slavin et al. (1998) reported that while fermentation decreased the isoflavone content of soy overall, the increased recovery of urinary isoflavones that was observed suggested fermentation (conversion to aglycones) increased the bioavailability of isoflavones.

**Bacterial action**

Some bacteria present in the large intestine possess β-glucuronidase and arylsulfatase activity, which can liberate phyto-estrogen aglycones from conjugates excreted in the bile and render them available for reabsorption (Heneghen, 1988, Xu et al. 1995). Glucosidases associated with the gut micro flora (including Lactobacilli, Bifidobacteria and Bacteroides) also play a role in glycoside hydrolysis (Xu et al. 1995; Barnes et al. 1996). A study has also suggested that isoflavone glycosides can be converted to aglycones by enzymes in saliva (Allred et al. 2001). Optimal health thus requires the correct balance of micro flora in digestive tract to ensure appropriate conversion, absorption and elimination of dietary phyto-estrogens. The so-called ‘ProBiotics’ (acidophilus spp. and other beneficial bacteria) as well as fructo-oligosaccharides can be used clinically to promote optimal micro flora balance.

**Anti-microbials**

Due to the great significance of gut micro flora on the metabolism of phyto-estrogens, it is important to note that in a study by Kilkkinen et al. (2002), the use of oral anti-microbials was found to decrease serum enterolactone concentrations in Finnish adults (n=2753). Serum enterolactone levels were found to be lower in subjects that had used anti-microbials up to 12-16 months before sampling than in non-users (mean 16 versus 19 nmol/L). Enterolactone concentrations were also reduced with increasing number of anti-microbial treatments, although concentrations recovered with length of time from the last administration. This may have significant clinical impact on patients receiving antibiotic therapy concurrent with chemotherapy. The efficacy of phyto-estrogens as therapeutic agents may be diminished by concurrent use of antibiotics.
**Dietary fiber**
Dietary fiber affects the absorption, reabsorption and excretion of estrogens and phyto-estrogens by influencing the $\beta$-glycosidase and $\beta$-glucuronidase activities of the intestinal micro flora. The bulking effect of dietary fiber, which results in the dilution of gut micro flora activity, and the hydrophobic bonding, particularly of non-conjugated compounds, are thought to contribute to a reduction in absorption and reabsorption of isoflavones (Tew et al., 1996; Tham et al., 1998). Vegetarians generally have higher faecal weights than omnivores, and a lower faecal bacterial $\beta$-glucuronidase activity (Adlercreutz et al., 1987). The implication is that high dietary fiber could result in the partial disruption of enterohepatic circulation of phyto-estrogens and endogenous estrogens, thus reducing, the bioavailability of these compounds (COT 2002).

**Conjugation and metabolism**
Once absorbed, aglycones isoflavones and lignans are efficiently reconjugated, either with glucuronic acid or, to a lesser extent, sulfate. Conjugation takes place either in the liver with hepatic UDP-glucuronosyl transferase or sulfotransferase enzymes (Knight & Eden, 1996; Bingham et al., 1998; Setchell, 1998), or within the intestinal epithelium using the same enzymes (Sfakianos et al., 1997). As a consequence, isoflavones and lignans are present in the circulation in predominantly conjugated forms. There is evidence that the liver and enterocytes of the human small intestine also contain $\beta$-glycosidase capable of efficiently hydrolyzing some, but not all, naturally occurring flavone and isoflavone glucosides (Day et al., 1998).

After absorption into the hepatic portal circulation, biotransformation of phyto-estrogens in the liver, involving phase I and II metabolism, may be subject to the influence of genetic polymorphisms and influenced by environmental factors, including exposure to drugs and dietary components (Pelkonen et al., 1998). These factors will all contribute to variability between individuals and the non-genetic factors will also contribute to variability within an individual. It is also important to recognize that, because phyto-estrogens may inhibit or induce xenobiotic metabolizing systems, they have the potential to alter the metabolism of other compounds including drugs. This is clinically significant because it pertains to the use of herbs and supplements to affect liver function.

Other factors which may also influence enteric micro flora and hence availability and utilization of phyto-estrogens include intestinal transit time, hygiene, bowel disease, stress, gastric pH, mucin secretion, and bile secretion. Saturated animal fats in the diet encourage the predominance of enteric bacteria that produce $\beta$-glucuronidase, which raises the overall estrogen exposure (Goldin and Gorbach, 1976).

**To use or not to use soy?**
Research into the health benefits of soy foods and soy extracts and isolates is contradictory and confusing. Early consumption of soy foods may confer reduced susceptibility to breast cancer. Soy isoflavones (genistein and daidzein) are markedly anti-tumorigenic. Soy foods reduce breast density (and hence cancer risk). Soy could stimulate the growth of estrogen dependent breast tumors. The value of soy supplementation post-adolescence is of dubious value. Controversy
exists as to the clinical significance of all these findings and there is as yet no consensus of scientific opinion.

These issues are clinically significant because many alternative practitioners prescribe soy products for prevention and treatment of breast cancer and it could be useless, or even counter-productive.

There is no easy answer to this apparent conundrum. No doubt as more and more research is conducted the details will be revealed. In the meantime, I do prescribe soy foods to my patients but with certain limitations. Most important is that they only eat fermented soy (tempeh, miso, natto) not tofu, textured vegetable protein (TVP) and soymilk. In most cases I also prescribe a fermented soy powder (by Jarrow) rich in the therapeutically active isoflavones. Fermentation neutralizes the anti-trypsin, anti-chymotrypsin and anti-alpha amylase inhibitor substances found abundantly in soy beans. These enzymes normally inhibit digestion and promote allergic reactions. Soaking, sprouting and fermenting the beans reduces these negative nutrients, promotes digestibility and enhances availability of iso-flavone compounds (Fallon and Enig).

CURRENT MEDICAL RESEARCH
Breast cancer research has developed at a rapid pace over the last decades. Age, race, tumor size, histological tumor type, axillary nodal status, standardized pathological grade, hormone-receptor status and HER2/neu status are accepted as established prognostic and/or predictive factors for selection of systemic adjuvant treatment of breast cancer. The role of other promising new factors, such as p53 or KI67 mutations, endothelial and vascular endothelial growth factors, plasminogen activator system, histological evidence of vascular invasion, and quantitative parameters of angiogenesis are currently or will soon be determined in prospective studies. The recent early closure of the NIH trial on hormone replacement therapy highlighted the lack of true understanding of the processes and parameters of the hormones and the cycles they govern. The wealth of research on plant constituents remains largely laboratory centered and has yet to be fully integrated into clinical practice. Treatment options to date have raised almost as many questions as they have provided answers and research continues into the mechanisms for cell function modulation through botanical and pharmaceutical means.

Breast cancer and CAM
Complementary and alternative medicine (CAM) includes a broad range of healing philosophies, approaches, and therapies that are used to prevent illness, reduce stress, prevent or reduce side effects and symptoms, or control or cure disease. Some commonly used methods include mind/body control interventions such as visualization or relaxation; manual healing, including acupuncture and massage; homeopathy; vitamins or herbal products and acupuncture.

CAM is becoming increasingly popular in many medical situations, particularly among patients with cancer. Eisenberg et al (2000) report that the use of complementary and alternative therapies among the general public increased from 34 percent in 1990 to 42 percent in 1997. Richardson et al (2000) found that 83 percent of 453 cancer patients had used at least one CAM therapy as part of their cancer treatment. This included special diets, psychotherapy, spiritual
practices, and vitamin supplements. When psychotherapy and spiritual practices were excluded, 69 percent of patients had used at least one CAM therapy in their cancer treatment. Patients undergoing multiple medical therapies, such as radiation, chemotherapy and surgery, were twice as likely to use CAM modalities for cancer treatment or symptom management as those treated by surgery alone (Wagner 2002), possibly indicative of increased side effects from these conventional interventions.

88 percent of NCI-designated cancer centers have CAM staff members and 65 percent of patient education programs include CAM modules in their programs (NCI 1999). The NCI is currently sponsoring several human clinical trials that study CAM treatments for cancer. Current trials include enzyme therapy with nutritional support for the treatment of inoperable pancreatic cancer, shark cartilage therapy for the treatment of non-small cell lung cancer, and studies of the effects of diet on prostate and breast cancers. Some of these trials compare alternative therapies with conventional treatments, while others study the effects of complementary approaches used in addition to conventional treatments.

Tagliaferri et al (2001) state that in contrast to standard chemotherapeutic and hormonal regimens used for the adjuvant treatment of early-stage breast cancer, controlled clinical trials have generated little data on the relationship between CAM and the outcomes of recurrence or survival, or even overall quality of life and safety. They state that the primary basis of CAM rests on empirical evidence and case studies, as well as theoretic physiologic effects. In some cases, laboratory or clinical data lend support to these modalities. The paucity of evidence in the clinical setting limits firm conclusions about the effectiveness or safety of most CAM approaches in breast cancer. A growing institutional base has begun to facilitate improved research on CAM for cancer, yet many gaps remain. Clinical trials of a few CAM treatments are now in progress, but the results will not be available for several years.

Adler (1999) argues strenuously for the validity of qualitative research methodologies in CAM. He states that quantitatively based studies of CAM use have been hindered by the lack of an adequate lexicon, inaccurate characterizations of the people who use CAM, and underestimates of the prevalence of usage. He claims that qualitative research methods are uniquely appropriate for obtaining accurate information about health practices. The increasing frequency of health-related QoL assessments in clinical trials has been suggested as evidence of the emerging of a patient-centered philosophy in clinical medicine, which, in time, will modify the disease-oriented paradigm under which medical professionals have functioned for the past century (Osoba 1999). It is this very paradigm that CAM practitioners seek to apply through their practice methods and their insistence on the value of empirical or evidence-based medicine.

In the light of such ambiguity about the purported benefits of CAM in breast cancer, it seems surprising that ever more people are seeking these therapies. Clearly there is some benefit to patients that has yet to be identified, otherwise they would not seek out and support the services of CAM practitioners. An argument can be made that when people are sick they will try anything, but this is not sufficient to explain the cultural and societal phenomenon that is CAM today.
Estimates of how many women diagnosed with breast cancer use CAM vary wildly. Shen et al (2002) suggest 73% overall use with meditation / relaxation and herbal medicine being the most popular. Morris et al (2000) suggest 75% overall use with nutrition (63%), massage (53%) and herbs (44%) being the most popular choices. In contrast Rees et al (2000) find only 22.4% overall use with almost one third (31.5%) of these having done so since diagnosis. Crocetti et al (1998) are even less encouraging with a reported 16.5% overall use of CAM, chiefly homeopathy, manual healing methods, herbalism and acupuncture. These variations may represent research design flaws that failed to compare like with like, but they also point to the inherent inconsistencies and irregularities that will always be found when conducting qualitative research in an unregulated field.

Vandecreek et al (1999) report that of 17 different CAM modalities used, the most popular CAM choices among women in the mid-west were prayer (76%), exercise (38%) and spiritual healing (29%). Lee et al (2000) studied the use of CAM modalities among different ethnic groups and found that Blacks most often used spiritual healing (35%), Chinese most often used herbal medicine (22%) and Latino women most often used dietary therapies (30%) and spiritual healing (26%). Among Whites, 35% had used dietary therapy and 21% had used hands on manipulative techniques such as massage. These differences suggest regional cultural and societal differences.

In a survey of 1356 licensed naturopathic physicians, CAM therapies frequently prescribed to treat cancer included dietary counseling (94%), botanical medicines (88%), antioxidants (84%), and supplemental nutrition (84%). The most common specific treatments were vitamin C (39%), coenzyme Q-10 (34%), and the Hoxsey formula (29%) (Standish et al 2002).

Rees et al (2000) and Moschen et al (2001) found that the women using complementary medicine after diagnosis were slightly younger, and better educated than patients using conventional medicines only. Boon et al (2000) reported that support group attendance was the single most significant factor associated with CAM use among breast cancer survivors. Moschen et al (2001) determined that users of CAM developed a more active style of coping than non-users and were more likely to express religious thoughts. Most women cited a wish to boost immune function as the primary reason why they sought out CAM therapies (Shen et al 2002, Boon et al 2000, Morris et al 2000). From two thirds (Crocetti et al 1998) to 90% (Lee et al 2000) of CAM users would recommend them to others indicating a significant degree of satisfaction. Adler and Fosket (1999) report that 6 months after their initial contact 65% of participants in a study were using at least one CAM method and 54% had discussed this with the primary care physician, in contrast to 94% discussion of conventional medicine with the CAM provider. Family and friends generally supported the decision to use CAM; however, the participants described health care practitioners' reactions as mixed. Adler and Fosket (1999) cite the reasons for not disclosing CAM use as anticipation of the physician's disinterest, negative response, or unwillingness or inability to contribute useful information; the perception that the CAM therapies used were irrelevant to the biomedical treatment course; and the patients' views regarding the appropriate coordination of disparate healing strategies. They conclude that discussions of patients' CAM use are more poorly integrated into the medical encounter than discussions of biomedical treatment are with alternative practitioners. Boon et al (1999) reported that barriers to using CAM included cost, access, and time.
**Breast Cancer and Herbal Medicine**

Based on documented criteria, and on the generations of use of herbs and plants for healing, it is reasonable to assert that there may be many opportunities for herbal medicine as preventative and therapeutic interventions for patients with cancer. An extensive body of literature exists documenting the *in vitro* and *in vivo* effects of isolated chemical constituents and single botanical entities. In 2000 the value of the European market for isoflavones alone was estimated at $106 million, and dietary supplements containing isoflavones currently hold 9% of the market share (COT 2002).

Little research is being done, however, in clinical herbal medicine and the practice of phytotherapy, and even less in herbal medicine and cancer. Extrapolation from *in vitro* research and from animal studies is often unreliable. Scientific studies into breast cancer and phytoestrogens are legion (COT 2002) but there is little research or useful data in the area of clinical practices and medical outcomes. Many CAM practitioners, mindful of their dubious legal position in the USA, don’t treat cancer at all, and others that do tend to fulfill a supportive, adjunctive role rather than becoming the primary care practitioner. As a consequence their medical records are inaccessible or inadequate. In reviewing the efficacy of herbal medicine in treating breast cancer there is a dearth of reliable, reproducible evidence.
RESULTS OF A CLINICAL AUDIT
As part of the research for my Master’s dissertation, I conducted a one year long retrospective clinical audit in the Centre for Natural healing, Ashland Oregon that reviewed 23 breast cancer patient files covering the years 1999 – 2002 inclusive. The following herbs, foods and nutritional supplements were found to be most frequently prescribed and represent a core materia medica drawn from clinical practice.

**HERBS PRESCRIBED MOST FREQUENTLY** (in descending order)

<table>
<thead>
<tr>
<th>Herb Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>Trifolium pratense (Red clover flowering tops)</td>
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<tr>
<td>Glycyrrhiza glabra (Licorice root and rhizome)</td>
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<td>Taraxacum officinalis (Dandelion root)</td>
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<td>Schizandra chinensis (Schizandra seed)</td>
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<td>Zingiber officinalis (Ginger root and rhizome)</td>
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<td>Withania somnifera (Ashwagandha root)</td>
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<td>Citrus aurantium (Sweet orange peel)</td>
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<td>Camellia sinensis (Green tealeaves)</td>
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<td>Salvia miltorrhiza (Dan shen root)</td>
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<tr>
<td>Uncaria tomentosa (Cat’s claw stem bark)</td>
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<td>Urtica dioica (Nettle leaves)</td>
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<td>Salvia officinalis (Sage leaves)</td>
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<td>Trigonella foenum-graecum (Fenugreek seed)</td>
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<td>Hypericum perforatum (St. John’s wort aerial parts)</td>
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<td>Silybum marianum (Milk thistle seed)</td>
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<tr>
<td>Ulmus rubra (Slippery elm bark)</td>
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<td>Pantocrene (deer antler velvet)</td>
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FOODS PRESCRIBED MOST FREQUENTLY (in descending order)

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<td>Lemon</td>
<td>Papaya</td>
</tr>
<tr>
<td>Sweet Potato</td>
<td>Soy Milk</td>
</tr>
<tr>
<td>Asparagus</td>
<td>Sprouts</td>
</tr>
<tr>
<td>Avocados</td>
<td>Tangerines</td>
</tr>
<tr>
<td>Chicory</td>
<td>Walnuts</td>
</tr>
<tr>
<td>Mangos</td>
<td></td>
</tr>
<tr>
<td>Mung Beans</td>
<td></td>
</tr>
</tbody>
</table>
### SUPPLEMENTS PRESCRIBED MOST FREQUENTLY (in alphabetic order)

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Keto (DHEA precursor)</td>
<td>Ocean herbs (seaweeds)</td>
</tr>
<tr>
<td>Alkylglycerols (from shark oil)</td>
<td>Poke Root Oil (topical rub)</td>
</tr>
<tr>
<td>Aller Response (supplements and herbs)</td>
<td>Propolis</td>
</tr>
<tr>
<td>Aqueous liver extract</td>
<td>Quercitin</td>
</tr>
<tr>
<td>Boswellya Plus</td>
<td>Reishi</td>
</tr>
<tr>
<td>Breast Basics (multi vitamin &amp; herbs)</td>
<td>Resveratrol</td>
</tr>
<tr>
<td>Bromelain</td>
<td>Selenium</td>
</tr>
<tr>
<td>Bupleurum Entangled Qi (TCM herbs)</td>
<td>Selensaff (selenium &amp; saffron)</td>
</tr>
<tr>
<td>Calcium and magnesium</td>
<td>Serraflazyme (serrapitidase)</td>
</tr>
<tr>
<td>Calcium D glucarate</td>
<td>Sialex (sialic acid)</td>
</tr>
<tr>
<td>Carnivora (Dionaea muscipula)</td>
<td>Spectra 303 thyroid support</td>
</tr>
<tr>
<td>Chrysin</td>
<td>Spironulina</td>
</tr>
<tr>
<td>Clear Energy (alpha keto glutarate &amp; creatine)</td>
<td>Squalene</td>
</tr>
<tr>
<td>Clinical Nutrients antioxidants</td>
<td>SuperTonic (herbal multi)</td>
</tr>
<tr>
<td>Coenzyme B complex</td>
<td>Taurine</td>
</tr>
<tr>
<td>Coenzyme Q 10</td>
<td>Triphala</td>
</tr>
<tr>
<td>Conjugated linoleic acid</td>
<td>Turmeric</td>
</tr>
<tr>
<td>Cyto-redoxin antioxidant</td>
<td>Tyrosine</td>
</tr>
<tr>
<td>Di-indolylmethane</td>
<td>Varicosin (Aesculus, Ruscus etc)</td>
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<tr>
<td>Every Woman (multi vitamin / mineral / herbs)</td>
<td>Vitamin D</td>
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<tr>
<td>Fish liver oil</td>
<td>Zinc</td>
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<tr>
<td>Gamma oryzanol</td>
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<tr>
<td>Glucosamine sulphate</td>
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<tr>
<td>Glutamine</td>
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<tr>
<td>Glutathione</td>
<td></td>
</tr>
<tr>
<td>Glycine</td>
<td></td>
</tr>
<tr>
<td>Glycyrrhiza and Curcuma</td>
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<tr>
<td>Grapeseed extract</td>
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<tr>
<td>Green tea phytosome</td>
<td></td>
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<tr>
<td>Hydroxyfrolate (B12 and folic acid)</td>
<td></td>
</tr>
<tr>
<td>ImmPower (AHCC)</td>
<td></td>
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<tr>
<td>Immune builder (mushrooms)</td>
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<tr>
<td>Inositol hexaphosphate</td>
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</tr>
<tr>
<td>Licorice plus</td>
<td></td>
</tr>
<tr>
<td>Limonene, curcumin &amp; lycopene</td>
<td></td>
</tr>
<tr>
<td>Lipoic acid</td>
<td></td>
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<tr>
<td>Magnesium Potassium taurate</td>
<td></td>
</tr>
<tr>
<td>Magnesium taurate</td>
<td></td>
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<tr>
<td>Maitake D fraction</td>
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<tr>
<td>Melatonin</td>
<td></td>
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<tr>
<td>MSM</td>
<td></td>
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<tr>
<td>Multi vitamin / mineral</td>
<td></td>
</tr>
<tr>
<td>Mycelized vitamin A</td>
<td></td>
</tr>
<tr>
<td>Niacinamide</td>
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</tr>
</tbody>
</table>
CASE STUDY #1
Ms. H.

Aged 28 and in her last trimester of her first pregnancy when she felt a suspicious lump which was found to be ductal carcinoma in situ grade II / III with spread beyond the tumor capsule into surrounding tissue. There was intra-mammary lymphatic invasion with micro-metastases in one of two sentinel lymph nodes biopsied. A CT scan and a PET scan were negative. The tumor tested positive for estrogen and progesterone receptors, 3+ for Her2/neu and low positive for KI67. Genetic screening was negative for BRCA 1 and 2.

The baby was induced (a healthy girl) and the mother was told she would be undergoing a mastectomy and chemotherapy (doxorubicin and cyclophosphamide with taxotere). She was advised not to breast feed due to the expected drugs. She was not told that the low KI 67 indicated a likely poor response to chemotherapy nor was she offered Herceptin.

Ms H’s medical history revealed general good health. She had experienced eczema on face and hands intermittently for years, suspected that she had a low thyroid function because of chronic low body temperature and she had chronic symptoms of hiatal hernia and GERD for which she used Gavescon almost nightly. Her diet was the standard American diet with lots of fast foods, processed and packaged foods and little fresh fruit or vegetables. Immediately after the diagnosis she had become vegan but was not balancing the diet well and continued to eat junk.

She was very committed to not doing allopathic interventions until she understood her choices and options better. She had a professional background in research and wanted to feel in control of her situation. I advised her that she should wait three months and really focus on using herbs, supplements and diet to build up and nourish and strengthen the body before commencing allopathic treatment. In some women with latent breast cancer, pregnancy can trigger the growth and it is possible that development will slow or cease after delivery. I suggested that if the tumour continued to grow or blood markers became raised then she could start on Herceptin and hold the Adriamycin and Cytoxan for later if needed. Due to the low KI67 marker she would likely not respond well to chemo such as AC, and with the 3+ Her2/neu score she was a poor candidate for Tamoxifen despite being estrogen positive. I advised that if hormonal manipulation was required beyond the scope of the herbs then aromatase inhibitors such as Femara would be best.

I advised her to change her diet quite a bit. The blood work showed low protein so I suggested fish and organic / free range chicken and eggs to promote the immune function and energy. The blood work also showed low blood sugar indicating a need to eat little and often and to manage her carbohydrate intake and glycemic balance.

She and her husband later wrote me with their justification for declining all chemotherapy and radiation options. They had calculated that her chances of a recurrence were 30% with no further treatment, or 20% with chemotherapy. In addition, not all cancer responds to chemo despite its extreme toxicity. Thus for every 10 women, who received chemo and had cancer like hers, 7 would have
remained healthy without it, 2 would have had a recurrence anyway and 1 would be spared a recurrence because of the chemo. Such was their reasoning and this patient has still to date done no allopathic interventions except for detailed pathology work-ups.

Blood work taken after our first consultation revealed an interesting picture.

**Normal blood work**
CBC, blood chemistry panel, progesterone, estradiol, prolactin, DHEA, SHBG, Melatonin, IGF1, ceruloplasmin, thyroboebulin antibodies, free T3, T3 uptake, T4 and free T4.

**Elevated**
Highly sensitive TSH, thyroglobulin and the thyro-peroxidase (TPO) antibodies were elevated indicting an early stage auto-immune inflammatory response in the thyroid gland.

**Deficient**
Glucose and protein were low, indicating poor nutrition and reactive blood sugar instability.

Glucose and protein levels in the blood normalized within a month of commencing a whole foods, organic diet and have remained normal on subsequent tests. After a few weeks she reported almost complete cessation of the symptoms of hiatal hernia and GERD.

**Follow-up visits**
Thyroglobulin fell from 251 ng/mL in October 2002 to 124 ng/mL in February 2003. TPO antibodies persisted in being elevated. I later recommended that she eliminate all soy foods (a known anti-thyroid agent) from her diet for three months and then re-test the whole thyroid panel.

**Cancer markers over time**

<table>
<thead>
<tr>
<th></th>
<th>10 / 02</th>
<th>11 / 02</th>
<th>12 / 02</th>
<th>02 / 03</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 27-29 (&lt;38.6 U/mol)</td>
<td>14.6</td>
<td>14</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>CA 15-3 (&lt;22 U/mol)</td>
<td>13</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>CEA (&lt; 5ng/mol)</td>
<td>1.7</td>
<td>1.9</td>
<td>2.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>
**Tea formula**

- Gotu kola
- Nettle
- Lemon grass
- Ginger
- Oats
- Red root
- Orange peel
- Cat’s claw

Take 1 oz of each and mix well together. Pour 3 cups of boiling water over 6 teaspoons of the mix in a teapot and steep overnight. Strain off in the morning and drink hot or cold through the day.

**Tincture formula**

- Withania somnifera (Ashwagandha) 15
- Rhodiola rosea (Arctic rose) 10
- Cordyceps sinensis 10
- Glycyrrhiza glabra (Licorice) 10
- Viola odorata (Sweet violet) 10
- Curcuma longa (Turmeric) 10
- Trifolium pratense (Red clover) 10
- Schizandra chinensis (seed) 10
- Vitex agnus-castus (Chaste berry) 10
- Salvia officinalis (Sage) 10
- Chelidonium majalis (Celandine) 10
- Phytolacca decandra (Pokeroot) 5
- Basil essential oil 1 drop
- Bergamot essential oil 1 drop

120 mL total (105 mL / week).

Take 1 1/2 teaspoons (7.5 mL) twice daily in hot water, ideally 10 minutes before a meal.

**Poke Oil Plus**

Herbal rub to reduce congestion in tissues and promote healing.

**Supplements – total daily doses – to be divided through the day**

In a smoothie

- Beta plex 5 drops (mixed carotenoids by Scientific Botanicals)
- Selenium 10 drops (42 mg per drop by Scientific Botanicals)
- Zinc Plus 8 drops (5 mg per drop by Scientific Botanicals)
- Hydroxyfolate 4 drops (folic acid and B12 by Scientific Botanicals)
- Modified citrus pectin 1 Tbsp
- PaleoMeal 1 Tbsp (protein and whey fractions by Designs for Health Institute)
Before meals (15 minutes)
Quercitin 2 g
Serraflazyme (serrapeptidase) 3 tablets (proteolytic enzymes by Cardiovascular Research)
Immune Builder 6 caps (medicinal mushrooms by JHS)
Bromelain 200 mg

With meals
Lipoic acid 900 mg
Vitamin E succinate 400 iu
Evening primrose oil 1350 mg
Vitamin D 1000 iu
Coenzyme Q10 200 mcg
Zyflamend 2 caps (anti-oxidant formula by New Chapter)
Cyto-redoxin 2 caps (anti-oxidant formula by Tyler)
Deep Immune Defence AM 1 tsp (herbal formula by Natura)
Harmonizer 4 caps (women’s balancer by
Cellapro 6 caps (limonene, lycopene and green tea by Metagenics)

Before bed
Night Rest 2 caps (melatonin and herbs by Source Naturals)
Indolplex (DIM) 500 mg
Calcium D glucarate 500 mg
Coral powder 1/2 tsp in water
Super milk thistle 3 caps (liver tonic by Phytopharmica)
NAC 1 g
Deep Immune Defense PM 1 tsp (herbal formula by Natura)

Follow-up visits
Ms. H had a clear MRI in December 2002 and I adjusted the herbal formula:

Withania somnifera (Ashwagandha) 15
Rhodiola rosea (Arctic rose) 10
Cordyceps sinensis 10
Glycyrrhiza glabra (Licorice) 10
Viola odorata (Sweet violet) 10
Trifolium pratense (Red clover) 10
Schizandra chinensis (seed) 10
Chelidonium majalis (Celandine) 10
Tabebuia impetiginosa (Taheebo) 10
Verbena officinalis (Blue vervain) 10
Camellia sinensis (Green tea) 5
Vitex agnus-castus (Chaste berry) 5
Phytolacca dec. (Pokerooot) 5

120 mL total (105 mL / week).
Take 1 teaspoon (5 mL) twice daily in hot water, ideally 10 minutes before a meal.
CASE HISTORY # 2
Ms. L

53 years old at the time of first presentation in the clinic in June 2002 with a recent diagnosis of lobular carcinoma in situ. Her mammograms revealed diffuse scattered micro-calcifications. Her history was remarkable for a familial propensity to form deposits of calcium in the soft tissues. In her case she had them in the jaw and floor of the mouth. The pathology report revealed fibrocystic changes including fibrosis, apocrine metaplasia and ductal hyperplasia. Additionally she had suffered from severe headaches since early childhood. They are usually a classic unilateral migraine headache with photophobia and nausea. They typically occurred pre-menstrually and were accompanied by marked pre-menstrual syndrome. She also complained of long standing inter-menstrual spotting (metrorrhagia). She was prone to constipation, moving the bowels usually 4 times weekly and occasionally using natural laxatives. She had suffered many years of chronic neck and shoulder stiffness and pain.

This patient had the diagnosis by stereotactic guide needle biopsy and declined all further treatment. She has taken no chemotherapy or radiation to date. Due to the small sample size she has been unable to obtain information regarding hormone receptivity or Her2/neu status.

I counseled her regarding the dietary treatment of migraines and avoiding specific food triggers and I encouraged her to do regular exercise.

Later blood work revealed normal ceruloplasmin, zinc, estrone, estradiol, and progesterone. Testosterone, CBC, TSH, free T4, T4, T3 uptake, insulin, glucose, blood chemistry panel. There was a high normal copper level for which she was prescribed molybdenum as a specific oral chelation therapy.

**Tea formula**

<table>
<thead>
<tr>
<th>Gotu kola</th>
<th>St. John’s Wort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nettle</td>
<td>Oats</td>
</tr>
<tr>
<td>Peppermint</td>
<td>Chamomile</td>
</tr>
<tr>
<td>Ginger</td>
<td>Orange peel</td>
</tr>
<tr>
<td>Marshmallow</td>
<td>Cardamom</td>
</tr>
</tbody>
</table>

Take 1 oz of each and mix well together. Pour 3 cups of boiling water over 6 teaspoons of the mix in a teapot and steep overnight. Strain off in the morning and drink hot or cold through the day.
**Tincture formula**

<table>
<thead>
<tr>
<th>Plant</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycyrrhiza glabra (Licorice)</td>
<td>15 mL</td>
</tr>
<tr>
<td>Trifolium pratense (Red clover)</td>
<td>15</td>
</tr>
<tr>
<td>Silybum marianum</td>
<td>10</td>
</tr>
<tr>
<td>Cordyceps chinensis</td>
<td>10</td>
</tr>
<tr>
<td>Rosmarinus off. (Rosemary)</td>
<td>10</td>
</tr>
<tr>
<td>Ganoderma lucidum (Reishi)</td>
<td>10</td>
</tr>
<tr>
<td>Eleutherococcus (Siberian ginseng)</td>
<td>10</td>
</tr>
<tr>
<td>Uncaria tomentosa (Cats claw)</td>
<td>10</td>
</tr>
<tr>
<td>Calendula officinalis (Marigold)</td>
<td>10</td>
</tr>
<tr>
<td>Withania somnifera (Ashwagandha)</td>
<td>5</td>
</tr>
<tr>
<td>Rumex crispus (Yellow dock)</td>
<td>5</td>
</tr>
<tr>
<td>Phytolacca dec. (Pokeweed)</td>
<td>5</td>
</tr>
<tr>
<td>Thuja occidentalis (Arbor vitae)</td>
<td>5</td>
</tr>
<tr>
<td>Rose geranium essential oil</td>
<td>1 drop</td>
</tr>
<tr>
<td>Lavender essential oil</td>
<td>1 drop</td>
</tr>
</tbody>
</table>

120 mL per week. X 4 weeks (16 oz total)

Take 1 1/2 teaspoons (7.5 mL) twice daily in hot water, ideally 10 minutes before a meal.

**Supplements (daily doses to be divided through the day)**

**In the smoothie:**
- Beta plex 3 drops (mixed carotenoids by Scientific Botanicals)
- Hydroxyfolate 4 drops (folic acid and B12 by Scientific Botanicals)
- Fermented Soy essence 1 Tbsp (protein and isoflavones powder by Jarrow)
- Glutamine 1 Tbsp
- Modified citrus pectin 1 Tbsp
- Flax seed 1 Tbsp soaked overnight or fresh ground.

**Before meals**
- Sodium Selenite 1000 mcg
- Quercitin 2 g
- Cellapro 4 caps (limonene, lycopene and green tea by Metagenics)

**With meals**
- Vitamin E succinate 400 iu
- Vitamin D 1000 iu
- Zinc chelate 30 mg
- Resveratrol 75 mg
- Co Q 10 200 mg
- Lipoic acid 300 mg
- Turmeric 1500 mg
- Vitamin C 1 g
- Molybdenum 4 caps (molybdenum picolinate by Thorne)
- Glucosamine sulphate 1500 mg
- Petadolex 2 caps (anti-migraine Butterbur extract by
- MSM 3 g
After three months on the protocol she was feeling markedly improved. Her periods were much easier and the inter-menstrual bleeding had completely stopped. Her energy was good and she was exercising more and eating better. She had been unable to drink the tea – it made her gag. Her migraines were still present but reduced in severity.

Eight months after commencing treatment she was experiencing no more migraines. She had been given a complete exam by her physician who could feel no breast lump at all. A regular exercise program had all but eliminated the neck and shoulder stiffness and she lost almost 10 lbs. At this time she sold her home, and she and her husband set off in a camper van to drive all over the US for a year before retiring to Hawaii.

**DISCUSSION**

The herbs and supplements were chosen based on individual needs and evaluation, but the general intent was to promote immune function, to activate and enhance lymphatic and hepatic detoxification pathways, to enhance overall resistance to stress, to balance blood sugar, to reduce oxidative damage, to inhibit angiogenesis and to interrupt abnormal cell replication.

Just as there is controversy around the use of soy and isoflavones in breast cancer, so there is controversy around the use of phyto-estrogen containing herbs, and for much the same reasons. I do use herbs rich in phyto-estrogens such as Trifolium pratense and Glycyrrhiza glabra in pre-menopausal women with estrogen sensitive breast cancers; in the understanding that the slight receptor stimulation from the herb is preferable to the stronger stimulation from the endogenous estrogen. In post-menopausal women I am less likely to use these herbs because in the absence of estrogen from the ovaries the influence of the herb may be more marked and hence undesirable. The use of *chrysin* (an extract from Chrysanthemum and Passionflower) may act as an aromatase inhibitor in peripheral tissues and reduce the levels of circulating endogenous adrenal-derived estrogen.

One of these patients had ductal carcinoma in situ with extra capsular invasions (DCIS grade II / III) and the other had lobular carcinoma in situ with no apparent spread (LCIS). Neither of them underwent chemotherapy or radiation. They are both now getting clean bills of health from their oncologists. Other similarities are that they followed the prescribed protocols diligently and for many months, and both had loving and supportive husbands and family all around them.

There is some suggestion now that LCIS may not technically be an actual cancer but rather is atypical cells that are predictors for cancer in much the same way as an abnormal Pap smear can be a predictor of cervical cancer. In a similar way, LCIS may progress to actual cancer, or if left alone may spontaneously resolve, just as a large number of class I Pap smears are clear 3 months later. However, this does not preclude the validity of holistic interventions. They are important to support the body’s immune capabilities and enhance the adaptive capacity of the individual. They can aid bone marrow function, natural killer cell activity, inflammation, mood, pain, tissue healing, lymphatic drainage, liver function, DNA replication and cell reproduction.
It is early days yet with both of these patients, but we are hopeful that an on-going maintenance program of key herbs and nutritional supplements, coupled with optimal diet and regular exercise can help to keep them both cancer free forever. I have recommended that they obtain blood work every three months for two years and have some sort of scan (CT, MRI) annually. I have advised them not to have mammograms. If they want any breast lumps examined they should request an ultrasound or thermogram. I continue to talk with them every two to three months just to review their situation.
PART III
(clinical handout given to patients to follow at home)

HOLISTIC APPROACH TO THE TREATMENT OF CANCER

The actual cause is, in most cases, unknown, but environmental pollution, poor nutritional status and various psychogenic factors may all be contributory. Certain types of cancer are familial, and it has been suggested that all sufferers have a genetic predisposition. The development of cancer can be likened to the growth of a mushroom, where the actual plant is underground and invisible, and the part that we see is only the fruiting body. Picking this visible part in no way inhibits the growth of the plant, which will, however, only flourish when the terrain is exactly correct. Similarly, in most types of cancer the tumor will only grow if the internal (bodily) terrain is suitable, and cutting out the tumor is not a cure but a symptomatic treatment. It has been estimated that, by the laws of chance, all people actually produce about 10,000 potentially mutagenic cells every day. Those are normally identified as defective by the immune system and removed. In carcinogenesis, however, some of these "rogue" cells escape detection and go on to form tumors. A strong healthy body in a good nutritional state will be more able to identify mutagenic cells when they arise and to deal with them than can a body whose immune system is weakened by poor diet and other physiological stresses. In the development of cancer it is usually not the availability of pathogens that is significant, but the condition of the body. If a body is sub-standard to its optimum level of functioning then nature tends to remove that body through disease and death. This is also true of the mental attitude; if a person has a positive mental outlook they are less likely to get cancer and more likely to overcome it. Despite the billions of dollars spent on research attempting to find 'the' cure for cancer, it remains the second leading cause of death in children and adults in North America. Although the incidence or the mortality rate of certain cancers have been improved over the years, this is almost exclusively due to better and earlier diagnostic techniques and rarely is it due to successful treatment protocols.

DIET AND THE TREATMENT OF CANCER

The nutritional/dietary management of cancer is of supreme importance and great emphasis should be given to it. The general aims are 1) to cleanse the body of any toxins it is harboring that can 'feed' the cancer and 2) to create an environment in the body that is hostile to the tumor development, whilst at the same time enhancing the overall health and well-being of the patient. Basically what is recommended is a return to the most natural diet possible. Our primitive ancestors had a diet of almost exclusively raw fruits and vegetables with some fish and occasional eggs and meat when they could catch or scavenge it. They ate no grains and no dairy products. All their foods were gathered from the wild and were totally unadulterated. The agricultural revolution was only 10,000 years ago and the few thousand years that have passed between then and now are but the blink of an eye in evolutionary terms and our 20th century bodies have not yet adapted to the situation in which we live. Today all the water we drink and all the air we breathe has been contaminated by agricultural and industrial practices; all the foods we eat have been genetically engineered or sprayed with up to 1000 different chemicals (fertilizers, pesticides, fungicides, preservatives, colorants etc. etc). When you add this to the fact that most of us in the western world today eat a lot of meat, eat nearly all our vegetables cooked and eat upwards of 100 lbs. of sugar per person per year, it is not really surprising that we get ill. The dietary recommendations outlined below are specific to the cancer sufferer, but their general thesis will be familiar to anyone who takes even half an interest in what they eat. Even the most orthodox nutritionists today are recognizing that ideally we should greatly reduce our intake of meat, sugar and dairy foods and boost our intake of fresh fruit and vegetables.
FOODS THAT ARE O.K. TO EAT
Organic, free-range birds e.g. chicken and turkey, organic, grass fed beef, buffalo venison 1 - 2 times a week. North sea or cold-water fish such as salmon, sardines, herring, halibut and mackerel. Other fish are acceptable but not as beneficial as the oily ones. Avoid farmed fish altogether.

Small amounts of organically grown grains especially brown rice, buckwheat, millet, quinoa, barley, amaranth, spelt and oats. The whole grain is best, soaked for 4 hours then slow cooked. For flour products it is best to grind your own flours from the whole grain to prevent rancidity. Grains should be stored in a refrigerator for maximum freshness.

Lentils, peas, beans, nuts and seeds, free-range eggs, organic yogurt. Eat soybeans and soy products regularly, preferably the fermented products like miso, natto and tempeh. Avoid or minimize processed soy products (tofu, soymilk, fake meats and fake cheeses). To improve digestibility soak beans overnight in water, rinse well, cook slowly (a crock pot is ideal) with a piece of kombu seaweed and rinse again well after cooking, then add to recipe.

Cold-pressed vegetable oils especially olive, sesame and the balanced blends of omega 3 and 6 such as ‘Udo’s Choice’ by Flora or ‘Essential Balance’ by Omega. The best oil for cooking is olive oil as it oxidizes the least when heated. Some butter is OK so long as it is organic and from grass fed cows. It contains conjugated linoleic acid, which is anabolic and helps to manage cachexia or wasting. Coconut is great. 2 Tbsp flaxseeds either freshly ground daily or soaked overnight in water. Add to cereals or smoothies or use in baking. Do not buy pre-ground flax meal, as it will be rancid.

All organically grown fruit and vegetables except as noted below. Emphasize orange, red and purple fruits, citrus fruits, berries, garlic leeks and onions. Broccoli, cauliflower, brussel sprouts, cabbage, kale and other members of the Cruciferae family should be eaten cooked to neutralize the anti-thyroid effect.

Seaweeds and Miso (fermented soy bean paste). These supply certain vitamins and minerals that most people normally obtain from meat, especially vitamin B12. Avoid the Japanese seaweeds as they may be contaminated with mercury. Choose Maine coast or Pacific Northwest sources.

Shiitake, Oyster, Crimini and Portobello mushrooms. These are best lightly cooked.

Save the washed rind of organic citrus, chop it up into small pieces and dry it. Add to teas for extra anti-oxidant effect.

Green tea, herbal teas, pure water and fresh squeezed juices are the best things to drink. Carrot/beet/kale/apple juice 1-3 glasses per day

Wheat grass, Chlorella, Barley grass or Blue Green algae. These provide amino acids, vitamins and minerals as well being very high in chlorophyll, which is a natural cleanser, anti-oxidant and blood builder.

A little organic yogurt, cultured cheeses and butter is acceptable. Goats or sheeps milk products are also acceptable in small amounts.
Avocado and cilantro increase glutathione, the major liver anti-oxidant.

Figs and almonds contain benzaldehydes that convert to cyanide. Cancer cells cannot excrete this and it acts as a natural chemotherapy agent.

Globe artichokes and sunchoke (Jerusalem artichokes) are particularly helpful as is Burdock root and Daikon.

**FOODS TO AVOID**

All preserved and processed meats – sausages, salamis, corned beef, meat loaf, hamburgers

All refined grains – all flour products (even brown) are best avoided; eat the whole grain soaked, rinsed and slow cooked

Commercial white button mushrooms.

All commercial cows milk products (milk, butter, hard and soft cheese, cream, etc.).

Sugar in all forms, especially all refined and processed sugars.

Peanuts and peanut butter because they contain lectins that cause blood clotting.

Tea, coffee, soft drinks, alcohol etc. Drink spring water, fruit juice or herb tea.

**SPECIAL NOTES**

All food should be organically grown wherever possible. It should also be eaten as fresh as possible so that you derive the maximum benefit from it. Avoid canned foods and foods packaged in plastic. Do not store your food in plastic containers and do not use cling wrap. Don’t use the microwave, and if you must use it don’t put plastic in it.
HERBS AND SUPPLEMENTS THAT CAN BE HELPFUL IN TREATING BREAST CANCER

**Adaptogen and anti-oxidant, tonic herbs**
- Bupleurum chinensis
- Camellia sinensis
- Cordyceps sinensis
- Curcuma longo
- Eleutherococcus senticosus
- Ganoderma lucidum
- Glycyrrhiza glabra
- Hydrocotyl asiatica
- Nigella sativa
- Panax ginseng
- Panax quinquefolium
- Poria cocos
- Rehmannia glutinosa
- Rhodiola rosea
- Rosmarinus officinalis
- Schizandra chinensis (seed)
- Scutelleria baicalensis
- Uncaria tomentosa
- Verbena officinalis
- Vitis vinifera
- Withania somnifera

**Anti-tumorigenic herbs**
- Calendula officinalis
- Camellia sinensis
- Chelidonium majalis
- Cordyceps sinensis
- Curcuma longo
- Eleutherococcus senticosus
- Ganoderma lucidum
- Glycyrrhiza glabra
- Juglans nigra
- Rosmarinus officinalis
- Schizandra chinensis (seed)
- Thuja occidentalis
- Viola odorata
- Vitis vinifera

**Immune tonics**
- Ceonothus americanum
- Cordyceps sinensis
- Coriolus versicolor
- Eleutherococcus senticosus
- Galium aparine
- Ganoderma lucidum
- Glycyrrhiza glabra
- Griffonia frondosa
- Lentinus edodes
- Phytolacca spp.

**Connective tissue astringents**
- Hydrocotyl asiatica
- Aesculus hippocastanum
- Ruscus aescultus
- Vaccinium spp.
- Rhodiola rosea

**Alteratives**
- Arctium lappa
- Baptisia tinctoria
- Corydalis ambigua
- Crocus sativa
- Iris versicolor
- Phytolacca spp.
- Podophyllum peltatum
- Rumex crispus
- Scrophularia nodosa
- Tabebuia avellanedae
- Thuja occidentalis
- Trifolium pratense
- Uncaria tomentosa
- Urtica dioica root & seed
- Zanthoxylum americanum
Core daily supplement recommendations

- B12: 400 mcg
- B-6: 100 mg
- Bromelain: 2400 GDU
- Carotene Complex: 50,000 IU
- CO Q 10: 100 mg
- EPA/DHA n-3 from fish: 400 mg
- Folic acid: 400 mcg
- Fresh ground / soaked flax seeds: 2 Tbsp.
- GLA: 800 mg
- Glutamine: 1 g
- Limonene: 300 mg
- Lipoic acid: 600 mg
- Medium Chain Triglycerides: 1 Tbsp
- MSM: 2 g
- Phosphatidyl choline: 1 – 2 g
- Quercitin: 2 g
- Selenium: 300 mcg
- Squalene: 600 mg
- Vitamin C: 1 g
- Vitamin D: 800 IU
- Vitamin E succinate: 400 IU
- Zinc: 20 mg

Additional items for maximum coverage

- Inositol hexaphosphate (IP6)
- Active Hexose Correlated Complex (AHCC) from medicinal mushrooms
- Maitake D fraction and 1, 3- beta glucans
- Whey protein
- Fermented Soy essence: 1 Tbsp (protein and isoflavones powder by Jarrow)
- Modified citrus pectin: 1 Tbsp
- Molybdenum: 4 caps
- MSM: 1 – 3 g

Liver detox supplements to take before bed

- Calcium D Glucarate: 1 g.
- Chrysine: 50 mg.
- Di-indolylmethane: 600 mg.
- Folic acid: 400 IU
- Glycine: 200 mg.
- Magnesium: 500 mg
- Melatonin: 0.5 mg.
- NAC: 600 mg
- Resveratrol: 200 mg.
- Selenium: 300 mcg.
- Taurine: 500 mg.
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