

# Cancer – Diet, Nutrition and Botanical support

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All ideas, and suggestions contained in this handout are not intended as a substitute for consulting a physician. All matters regarding your health require medical supervision. The information in this paper is for educational purposes only. Consult with your physician first. The compiler of this information shall not be liable or responsible for any loss, injury or damage allegedly arising from any information or suggestion in this paper.

## Notes from Donald Yance's Book –

This paper is dedicated to the work of Donald Yance – The vast majority of the information in it comes directly from his book Herbal Medicine Healing and Cancer and notes from his lectures. This current revision is based on a 2 day seminar he gave in June of 2007 at the Medicines from the Earth Symposium in Black Mountain, North Carolina. I transcribed the tapes and added any pertinent information from the official proceedings I felt would be helpful. I highly recommend that you purchase his book – *see my references for how to purchase it*. The reason I put this information together is that I feel the cancer patient and caretakers are often not aware of the many complimentary things you can do nutritionally to support your health when you have cancer – although this is a bit technical and detailed it is a consolidation of much more lengthy information and is designed to help you understand the many things you can do to support your wellness. You can contact his clinic for a 1 on 1 consultation for \$170.00 an hour. The 1<sup>st</sup> consult is \$340.00 at Wellspring Center – Ashland Oregon at 541-488-3130. Chanchal Cabrera works directly with Donald Yance and can be reached at 250-218-4372 for telephone consulting. Their goal is to help the conventional therapy work as well as possible while supporting the systems of your body and minimizing side effects of cancer treatment and work on preventing the recurrence of cancer. I also want to thank Chanchal Cabrera for the outstanding information in her paper on chemotherapy drugs and more clarification of technical information and Dr. Michael Murray ND for the information in his excellent book. Information on Chaga is from David Winston and Herbal teas from Michael Tierra Lac.

## **Donald Yance's top choices for everyone**

**Vitamin D3 – 2,000 to 4,000 iu's daily** – This may end up being the single most important supplement to take for all cancers outside of **Resveratrol**.

- 1- Use an herbal adaptagenic formula to help balance the endocrine system. Donald Yance has developed several adaptagenic formulas Vital Adapt and Power Adapt also see the section in this paper on herbal adaptagens. The importance of using adaptogens as immuno-enhancing agents cannot be overstated. It is one of the targeted objectives in non-toxic herbal treatment in oncology. It is by no means the only herbal therapy, but it is critical to long-term success. 1 eyedropper 4X a day.
- 2 -Turmeric 95% 2 – 4 grams a day & Bromelain 2400 GDU 500 mg caps – 1500 to 2000 mg a day – Every aspect of cancer is benefited with these – take on an empty stomach. When turmeric is combined with black pepper or bioperene its absorption rate is doubled. (*Cancer cells produce excessive amounts of Fibrin, which is used by cancer cells as a form of camouflage that protects them from the immune system. Bromelain taken with turmeric unmask the cancer cell's fibrin coating, allowing attack from the immune system.*)
- 3 – Quercetin 500mg 3X a day general dose. Cancer adjuvant dose 500 – 1000mg 3x a day Bromelain helps quercetin absorb better & Green Tea 200 – 500mg a day Cancer adjuvant dose 400 – 800mg/day 3x a day 30:1 (95% phenols – 50% EGCG) are also on the top of the list – take all of them 30 min before meals.
- 4 – Resveratrol (Knotweed 20% resveratrol 30 – 50mg a day / Cancer adjuvant dose 300-500mg a day and Alpha Lipoic Acid are also very important (*Jarrow Formulas makes a formula called Resveratrol Synergy and a sustained release Alpha Lipoic Acid 300mg that are very good*). I am currently evaluating a product called Longevinex an oxygen protected form of Resveratrol which is claimed by the manufacture to be totally stable and fully absorbable.
- 5 – Use a FuZeng herbal formula such as the Reishi Mushroom Supreme formula from Planetary Formulas 9 to 12 tablets a day – especially if you are using Chemo Therapy and or Radiation Therapy - even if you aren't this formula offers very sub. *Immune Care 1 & 2 are also excellent FuZeng formulas made by Natura*. Corolius “Turkey Tail” offers substantial support to the immune system is another one of Yance's top choices.
- 6 – Fish Oil Supplement and a source of GLA giving you a daily dose of 700-1000mg of EPA, 400-800mg of DHA and GLA = to 500mg a day from Borage or Primrose or Black Currant oils. *Natura Beyond Essential Fats is the formula made by Donny Yance is the best combination formula.*
- 7 – Use a good broad spectrum full potency multiple vitamin copper and iron free. I am currently recommending Rainbow Lights – iron and copper free Complete Nutritional System.

***Please note: Donald Yance has developed some very specialized products to support and individual with cancer they are part of his line of products called Natura and we carry most of them in the store.***

- 1- Botanical Treasures – is a combination product with many of the botanicals he suggests combined together – it is available in powder or capsule form to be taken with smoothies or swallowed by capsule.
- 2- Immune Care 1 & 2 are for supporting the immune system with #2 having more direct support for liver function.
- 3- Beyond Whey and Beyond Essential Fats are 2 products where he has combined the highest quality Whey protein with synergistic nutritional support for maintaining muscle function and immunity. Beyond Essential Fats is the finest blend of fish oil, with Siberian pine seed oil for its GLA content plus Sea Buckthorn Oil to give the body the ultimate in essential fatty acids.
- 4- His adaptagen formulas Vital Adapt and Power Adapt make an important foundation for the endocrine system and stress protection and support and help for fatigue.
- 5- He has created a pain formula from Corydalis in a 400:1 strength level – used to diminish pain levels and other formulas such as Botanibol and anabolic product to increase muscle synthesis and Night Gain and Amino Max.
- 6- He also has a product called Night Gain used to enhance weight gain – if weight loss is happening and a product called Amino Max a free form amino acid product that is easily absorbed.

*Ask for the information sheets available at Brighter Day or contact his website. Natura Products.*

**Cancer is an opportunistic organism – capitalizing on stress.**

**Donald Yance has found when these factors are out of balance in the body it creates an environment for Cancer**  
Hyper Insulin, Hypo Thyroid, High Cortisol Levels and Exhaustion – Neuro endocrine exhaustion

**The main strategies of natural medicines are to:**

- 1) Highly nourish the body
- 2) Support the immune system
- 3) Promote programmed cell death (apoptosis)
- 4) Inhibit the spread of cancer
- 5) Inhibit the formation of new blood vessels which could possibly feed a tumor.
- 6) Reduce the likelihood of recurrence of future mutations

**Blood Chemistry –**

**Keep Albumin Levels High** – Albumen is the most abundant protein found in the bloodstream. High levels prevent mutation. Low levels are an early predictor of morbidity and mortality. Chlorella has the ability to increase albumin.

**Platelet** – In order for cancer to spread and grow blood platelets must aggregate and clump together. Tumor cells must stop in one location for 20 minutes to begin to colonize in another location, they can only do this in the fast moving circulatory system if there is a blood clot. Nearly all cancer patients exhibit a tendency towards thick blood. If an individual's platelet count starts rising above the normal range, it is likely that the cancer is spreading. Inhibiting platelet aggregation is critical – this is one reason Turmeric and Bromelain, lumbrokinase, nattokinase are emphasized - also vitamin E, fish oils, Resveratrol, ginger, garlic and magnesium. prevent platelet aggregation. In inhibiting coagulation this suppresses cancer. Patients with prostate cancer, as well as many other cancers including lung and breast, have a seven-fold increased risk for blood clots in the legs or lungs. Recent evidence suggests that platelet activation may link these processes as platelets can release angiogenic factors such as VEGF. Embolic strokes are the most common cause of stroke in patients with cancer, due partially to hypercoagulability; whereas atherosclerosis accounted for only 22% of stroke in this population. D-Dimer levels assess both coagulation and fibrinolytic(thrombophilic) activity, and fibrin formation and removal is continuous during the development of malignancy. Plasma D-dimer is indicative of ongoing fibrinolysis. The D-dimer test will tell you if you may have a clot somewhere in your body, or if you are at risk of forming a clot. 0-1 is good and denotes that no clot is indicated. The higher above 1 you get, the greater the likelihood of a clot. The range Donald Yance likes to see is below .40. Fibrinogen is another very relative test to access the likelihood of cancer developing or progressing. It also is a good predictor of thrombosis risk and blood clots. Fibrinogen levels are best kept below 350. HEMEX Laboratories ([www.Hemex.com](http://www.Hemex.com)) offers a boutique menu of coagulation panels.

**Cholesterol** – Low cholesterol can indicate a suppressed immune system.

**Uric Acid** – Too Low can indicate overactive states in the lungs and liver. Too high indicates poor binding functions and may require folic acid and one or more of the following to lower uric acid levels - bromelain, quercetin, celery seed, black cherry juice

Check for **C reactive protein** it should be under .8, IL-6 can be monitored as well

**Copper Levels** – serum plasm in blood work should be between 20 & 25 that's the optimum range.

Fibrogynidin – Fibrogen levels should be under 350 if its over this – there is a potential risk of aggregation and forming blood clots keep it below 350. High fibrogen creates a healthy environment for tumor growth. (see info further down on nattokinase) – for detailed information on blood test go to the end of this paper for Chanchal Cabrera’s list.

**Cancer information** – see reference at the bottom of this section: *This section is technical but gives you a better understanding of the mechanisms by which cancers grow and thrive and what substances can help inhibit each of these cancer growth factors.*

Oncogenes and tumor-suppressor genes are 2 families of genes that are critical to cancer development. Damaged or misplaced genes, called proto-oncogenes are genes with oncogenic potential. Proto-oncogenes, their intensity or amplification can be inhibited by Vitamin D. Cancer cells are dependent on the influences of these genes and on other regulators, such as hormones, growth factors, and cytokines. Cancer manipulates the body – it manipulates cytokines, it activates IL-6, Tumor necrosis factor alpha, IL-8 and Il-1 – all are inflammatory and show to be active in many forms of cancer.

1. The most common genetic mutation that occurs in human cancers is in the tumor-suppressor gene p.53. p53 prevents replication of damaged DNA in normal cells and promotes suicide or apoptosis of cells with abnormal DNA. 70% of colon, 50% of Breast & Ovarian, and 50% of Lung cancers, all small-cell lung cancers and most prostate cancers are a result of a defect in p53. A lack of p53 regulation promotes the spontaneous emergence of mutant cells, a cellular distortion that is an invitation to cancer. – QUERCETIN inhibits p53 mutation RESVERATROL induces p53 Resveratrol and Curcumin. OPC’s from Grape Seed extract, Gingerol, Vitamin E, and Vitamin E with N-acetylcysteine. Diet is also an important contributor to p53 stability. Specific components of the diet were also found to be most strongly associated with p53 mutations, including a diet with a high glycemic load as well as foods high in red meat, fast food, and trans-fatty acids. The following are also important in preventing the mutation of p53 -IP6, Ellagic acid, Folic acid, Vitamin E and I3C(Indole-3-Carbinol) The following natural compounds initiate apoptosis via p53 stimulation – Melatonin, Curcumin, Resveratrol, & Ginsenosides. Cancer cells often underexpress p21 and p27 genes and activating these genes is a therapeutic goal. Getting p21 induced stops cell proliferation and permits DNA repair. Loss of p27 activity is associated with a poor prognosis in cancer. These substances induce the natural activity of p21 or p27 activity – Vitamin A, Flavanoids including apigenin, genistein, green tea, Silymarin, Vitamin D3 and Vitamin E. Ras is an oncogene, capable of inducing mutagenic changes in cells. Ras proteins are often over expressed in cancer cells these also inhibit p.53 – Quercetin, Vit A, Vit E succinate and Vit D3 inhibit Ras gene expression.
2. Bcl-2 is a normal human protein. Bcl-2 and its family members play a pivotal role in the normal process of cell death known as apoptosis. High levels of Bcl-2 are associated with most types of human cancer. Bcl2 (the anti apoptotic gene) is active and mutated in more than 50% of all cancers especially B-cell lymphomas, CLL Lymphomas. Prostate, Breast and Melanomas all over express Bcl2. Elevated insulin can trigger Bcl2 (Adaptagens balance Insulin). Bcl2 expression is inhibited by anti-inflammatory agents. Hibiscus protocatechuic acid (PCA), a phenolic compound isolated from the dried flower of **Hibiscus sabdariffa L.** demonstrated antioxidant and antitumor promotion effects in part through Bcl-2 inhibition mechanism. Other reducers of Bcl-2 include Beta-sitosterol, EPA from fish oil, DIM an indole 3 carbinol, Theophylline found in **Green Tea, Bacalin found in Chinese Scullcap and Curcumin.** Viscum Album (mistletoe extract), Forskolin (Colleus forskolii), 6-Gingerol from Ginger, Grape Seed Extract. Resveratrol, Quercetin, Echinocystic acid (EA) found in Panax Ginseng, Feverfew, Lapacho, Eurycoma longifolia extract, Andrographis, Celendine, Yarrow.
3. GAP Junctions: These are portals between cells that allow direct exchange of molecules and ions. Many tumorigenic agents disrupt normal gap junction activity. These compounds promote normal gap junction activity. Apigenin, Vit A,C,D,E, Green Tea, Genistein, CAPE from Propolis, Resveratrol, Selenium, Beta Carotene, Lycopene and Glutathione. Beta Carotene and Lycopene may inhibit gap junction at high dose but improved gap junction activity at lower doses (but still higher than are usually given to patients).

#### **Growth Factor Modulation Pathways involved in Angiogenesis:**

**Angiogenesis:** Refers to the growth of new blood vessels and occurs wherever the body grows new tissue such as healing wounds, repairing and then rebuilding the endometrial lining, ovulation and pregnancy. The growth of solid tumors is dependent upon the rate of angiogenesis. Because angiogenesis is required for wound healing and other metabolic functions, the goal of anti-angiogenic therapy is selective inhibition of angiogenesis in cancer tissue but not in healthy cells. Normal healthy capillary cells reproduce every 7 years. In tumors this may accelerate to every 7 – 10 days. This capillary cell reproduction rate is a target for therapy.

1. Vascular Endothelial Growth Factor (VEGF) – The production of VEGF is considered essential for most cancer cell migration and for angiogenesis. VEGF increases with tumor stage and grade. It along with c-met influence tumor progression mainly through their effect on microvessel density (MVD). A high VEGF expression level is associated with a worse outcome in a wide array of malignancies. Stress stimulates this and is the most angiogenic agent there is. It seems that elevated levels of nitric oxide correlate with tumor growth. Nitric oxide appears to be critical for vascular endothelial growth factor (VEGF). Curcumin reduced

- the amount of nitric oxide generated. Several herbs and herbal compounds have been found to inhibit VEGF – Curcumin 95% extract, Magnolia seed cones 90% honokiol, Green Tea Extract, 50% EGCG, Grape Seed Extract, Dong quai –hydroxyderricin, Pacific yew – taxol and other related taxans. Chinese baical skullcap – 95% baicalin, Japanese Knotweed – 20% Resveratrol, Chinese Wormwood –artemesia annua –95% artemisinin, Milk Thistle – 80% silymarin. Also Genistein, EPA, Selenium, Luteolin, Apigenin, Propolis (CAPE), PSK(Coriolus), Ginkgo, Phenolic-rich herbs – Elderberry, and Bilberry. The chemo drug Avastin works on VEGF – if your tumor markers are expressing a high VEGF ask your oncologist about Avastin even if it isn't regularly prescribed for your type of cancer. VEGF levels can be checked by blood work.
2. Epidermal Growth Factor (EGF) – EGF is often over-expressed in many cancers. Quercetin & Vitamin D both reduce EGF. Glycyrrhizic acid, present in Licorice inhibits lipoxygenase, cyclooxygenase, and protein kinase C, and down regulates EGF. The chemotherapy drug Irissa is an Epidermal growth factor blocker if it is combined with Her2Nu it works better or a Veg F Blocker combined with Irissa (these drugs don't work as well by themselves).
  3. EGFR and HER2 – In prostate cancer an increased expression of these 2 factors may signify the progression to androgen independence in ¼ of prostate cancer cases – late. This may represent one of a number of independent routes to hormone escape in prostate cancer.
  4. Her-2- neu – many cancers over-express Her II neu; the drug Herceptin effectively targets the Her-2-neu receptor, decreasing cancer cell multiplication –Herceptin can help renal cell cancers, prostate cancer and ovarian cancer. IGF –1(Insulin Growth Factor) is involved in herceptin resistance. Vitamin D(high doses) Quercetin and Emodin, a natural constituent of aloe vera leaves, green tea and buckthorn bark, inhibits Her-2-neu. High insulin causes cancer mutation that leads to herceptin resistance. In prostate cancer Her-2-neu expression appears to increase with progression to androgen independence.
  5. Insulin-Like Growth Factors (IGFs) – Increased insulin levels increase NF kappa B causing cellular mutation, genetic damage & increased COX-2 – Limonene, Lycopene, Terpenes and other agents modulate IGF levels. Improving insulin sensitivity is critical to normalizing IGF-1 & II – Fenugreek, Vanadium, Lipoic Acid improve insulin sensitivity. Insulin disruption is a major contributing factor in Endometrial, Ovarian, Breast, Prostate, Colon and Pancreatic Cancers.
  6. Basic Fibroblast Growth Factor (bFGF) – This is an angiogenic factor, is thought to play an important role in the induction of microvasculature in stimulating capillary growth. Increased bFGF is associated with a more aggressive tumor phenotype. It's presence of which is positively correlated with reduced survival in many cancers including breast, kidney and uterus. Curcumin demonstrated significant inhibition of bFGF.
  7. Transforming growth factor (TGF)–beta is a molecule with a critical role in the normal and neoplastic development of certain cancers. In prostate cancer TGF-beta-1 strongly predicts cancer progression in patients who under radical prostatectomy. This factor should be included in preoperative nomograms for prediction of progression. Curcumin blocks this activation at multiple sites. Genistein & Curcumin and Wobenzyme (pancreatic enzyme formula lowers its activity) block TGF-beta. Green Tea polyphenol, EGCG
  8. Platelet-Derived Growth Factor – several natural compounds including coumarin-rich (Red Clover) herbs decrease platelet aggregation which inhibits cancer growth.
  9. Prostaglandin E2 inhibitors – reduce pro-inflammatory eicosanoids (AA Arachadonic acid – found in red meat, full fat dairy products and corn oil) synthesized from omega-6 fatty acids (corn oil for example). When AA is formed or ingested it undergoes metabolism by the cyclo-oxygenase (COX) and lipo-oxygenase (LOX) enzymes. We can naturally shift the eicosanoid pathways away from AA production by dietary maneuvers that avoid excessive carbohydrate intake and the resulting insulin stimulation. There is now evidence of the role these eicosanoids play in cancer cachexia and wasting. Modulation of various eicosanoids should be a major target of intervention in any comprehensive treatment/prevention protocol. Omega-3 fatty acid(Fish Oils), GLA(a highly beneficial Omega 6 fatty acid found in Primrose Oil, Borage Oil and Black Currant Oil) and nutrients like B-6, Magnesium, and Zinc are essential for normal PG regulation. Leukotrienes may be even more important than PGE2 in stimulating cancer cell proliferation. The leukotriene 5-HETE can protect cancer cells against apoptosis. Bowswellic acids, CAPE and propolis, Curcumin, EPA/DHA, Flavonoids such as quercetin and green tea, genestien, Garlic, Melatonin, Parthenolide, Resveratrol, Vit E. Note: Evidence is presented that suggests the inhibition of lipoxygenase (LOX) and its by products-LTB4, 5-HETE, and 12-HETE represents an overlooked but crucial component in complementary cancer therapies. Based on research, natural agents capable of modulating both LOX and COX may advance the efficacy of cancer therapy. Selected nutritional and botanical agents (notably, omega-3 fatty acids, boswellia, Chinese skullcap, curcumin, and quercetin) favorably influence eicosanoid production.
  10. Activator Protein 1 (AP-1) and Nuclear Factor kappa B (NF-kB) – These are transcription factors controlling a wide array of cellular activities, especially immune function. Natural compounds that inhibit NF-kB through an anti-oxidant effect are: Melatonin, Vit E succinate, Alpha Lipoic Acid, Vit C and NAC (N-acetyl cysteine). NF-kB inhibited by non-antioxidant means are: Vit D, Apigenin, **Curcumin**, CAPE (Propolis), **EGCG(Green Tea)**, Emodin (Aloe), Genistein (Fermented Soy), Luteolin, **Parthenolide(Feverfew)**, Proanthocyanidins, Quercetin, **Resveratrol**. Natural Compounds that inhibit AP-1 by non-antioxidant means: Curcumin, EgCG, Genistein, Quercetin, Selenium. In prostate cancer the presence of NF-kB DNA binding

has been identified in all prostate cancer cell lines – resveratrol, parthenolide (feverfew), curcumin, Green Tea EGCG inhibited this factor.

11. NrF2 – Curcuma, D3
12. Human Ki-67 protein is strictly associated with cell proliferation. This makes this an excellent marker for determining the so-called growth of a given cell population. The fraction of Ki-67 positive tumor cells (the Ki-67 labeling index) is often correlated with the clinical course of the disease. The best studied examples in this context are carcinomas of the prostate and the breast. Ki-67 expression is a strong predictor of distant metastasis and mortality.

#### Other Cancer Factors:

1. Kinases can lead to cancer through various pathways including overproduction – caused by mutations in the control regions of genes. Compared to normal cell, tumor cells often overproduce kinases, encouraging the cell to divide. The most common kinases in cancer are: Protein Tyrosine Kinase (PTK) and Protein Kinase C (PKC) – Natural compounds that inhibit and regulate kinases include Propolis, Curcumin, Emodin from Aloe, Flavanoids, Hypericin (St. John’s Wort), Parthenolide from Feverfew, EPA & DHA (Fish Oils), Vitamin E (dry form – succinate), Tocotrienols, Isoflavones (Genistein, Daidzein) found abundantly in fermented soy and red clover, Lycopene, Green Tea and the botanical Rhabidosia. Propolis is a (PTK) down regulator. Glevac – a drug approved for myelocytic leukemia is a PTK inhibitor. PKC (protein kinase C) activity is commonly increased in cancer cells and plays a role in angiogenesis and metastases – inhibition may support multi-drug resistance and reduce invasiveness of the cancer - again CAPE from Propolis, Curcumin, Aloe (Emodin), Flavanoids apigenin, luteolin, quercetin and green tea, Hypericin, Omega 3 fatty acids from fish (EPA/DHA), Selenium Vit E and IP6 inhibit PKC. Urokinase Plasminogen Activator (uPA) in prostate cancer – an increased expression of this marker may signal the presence of aggressive tumors – soy isoflavones and rosemary (rosmarinic acid), folic acid inhibit this specific factor.
2. Modulators of Inflammation: Proteolytic Enzymes – Bromelain, Serrafazyme
3. Fatty Acids – EPA/DHA, GLA, CLA, Sea Buckthorn (Omega 7 fatty acids)
4. COX-2 Inhibition / modulation – Resveratrol, Turmeric (Curcumin), Grape Skin, Green Tea, Chinese Scullcap, and Feverfew. In prostate cancers over expression of COX-2 is linked to higher-grade tumors. It plays a role in the malignant transformation in the prostate. *My opinion is that it affects many other cancers in the same way.*
5. LOX – 5/12/15 Inhibition / Modulation – Boswellia, Quercetin, Feverfew & Perilla seed, Chinese Scullcap, Turmeric and Green Tea, Resveratrol. *We want to down regulate Cox-2, Lox 5 & Lox 12- Curcuma, Resveratrol, Feverfew, Green Tea EGCC, Boswellin and Chinese Scullcap all do this also GLA and EPA regulate LOX pathways.* Baicalein, curcuminoids and boswellic acids are effective inhibitors of 12-LOX. Blocking 12-LOX can inhibit prostate cancer from spreading to the bone – remember that breast and prostate cancers share many similarities. Inhibition of LOX has been shown to effectively induce apoptosis. A link has been shown between the activity of the tumor suppressor gene p53, and 15 LOX. When p53 is mutated the 15-LO is increased causing tumor growth and preventing cell death. In prostate cancer LOX inhibition has potent antiproliferative effects against PC cells through differentiation.
6. Modulation of inflammatory cytokines – down-regulation of IL-6 & TNF- $\alpha$ , up regulation of IL-2 & IL-12  
IL-2 - Melatonin may inhibit proliferation of breast and other cancer lines by augmenting the anti-cancer effects of IL-2. IL-2 is not well tolerated at high doses so combining it with melatonin may be of benefit (up to 40mg / day of melatonin have been used experimentally). Combining melatonin with herbs such as Astragalus that raise IL-2 naturally may also be helpful.
7. Many cancers such as Multiple Myeloma and Prostate cancers over-express IL-6 – Use herbal adaptogens, melatonin, Epimedium (Horny Goat Weed) reduces IL-6 & TNF  $\alpha$  (tumor necrosis factor  $\alpha$ ) Celestin – a fatty acid mixture lowers IL-6. Anyone in a wasting state has high levels of inflammatory cytokines – TNF  $\alpha$  & IL-6 & IL-8. IL-6 levels are often related to abdominal obesity.
8. HMG CoA (3-Hydroxy-3-Methylglutaryl Coenzyme A Reductase) modulation suppresses tumor growth. Natural compounds that show potent HMG CoA reductase inhibition are Red Yeast, Limonene and Lycopene. Garlic, EPA/DHA, gerinol inhibit HMGR
9. Connective Tissue and the Extracellular Matrix: These make up a great proportion of all connective tissue in the body. The ECM is the first barrier to tumor invasion and its property governs the function and proliferation of all cells within it. Hyaluronic acid (HA) is an important component of the ECM in relation to cancer inhibition. Apigenin, a flavone found in Chamomile, Passion Flower, and Propolis inhibits the enzyme hyaluronidase, which in turn inhibits the breakdown of hyaluronic acid. Over-expression of hyaluronidase enables cancer to cut through the ECM and invade surrounding tissue. Echinacea helps prevent the breakdown of connective tissue by the hyaluronidase enzyme. When large amounts of hyaluronic acid are produced, it can block the signals of ras, a cancer-causing gene. Flavanoids, Vitamin C, Grape Seed Extract, Bilberry, Gotu Cola, Horse Chestnut extracts, Lysine, Proline and Hyaluronic Acid directly strengthen this connective tissue and extracellular matrix, MSM and Bio-Sil Silica support connective tissue also.
10. Metalloproteinase Inhibition & Urokinase-type Plasminogen Activator (uPA). According to the results of a prospective 14-center trial, women with node-negative breast cancer who have low levels of uPA and

- plasminogen activator inhibitor type 1 do not need chemotherapy after surgery if their serum levels of insulin are low. IP6 significantly inhibited the secretion of Matrix Metalloproteinase. MMP2 & MMP9 are very active in cancers with metastatic potential. Resveratrol and Curcumin helps these. Soluble Fibrin Monomers were improved by Nattokinase, Horse chestnut and Butcher's Broom.
11. Cell Adhesion Molecules (CAM) Cancer cells communicate with each other and proliferate because of certain cell surface receptor molecules called cell adhesion molecules (CAM). In order for tumor invasion to take place, there must be a breakdown in the extracellular matrix. CAM's are complex protein-carbohydrate molecules that occur on the plasma membrane of all cell surfaces. They control both intracellular and extracellular (cell to cell) communication; they act as the eyes, ears, and nose of each cell. CAM's regulate –
    - a) E-Cadherin – Cadherins are calcium ion-dependent molecules that mediate cell-to-cell binding. Cadherins inhibit both invasion and metastasis, and reduce the expression of tumor cells. E-Cadherin functions as a potential tumor suppressor gene. E-cadherin is closely related to invasion and metastasis of ductal breast cancer. Suggesting that it is an important tumor marker in predicting lymphatic metastasis of invasive ductal breast cancer. Loss of E-cadherin expression appears to be a major determinative step in the metastatic progression. In patients with prostate cancer, it is now well documented that decreased expression of E-cadherin is associated with a poor prognosis. Restoration of E-cadherin may in fact reduce the invasive behavior. Tangeretin a flavanoid found in tangerines strengthens E-Cadherin. 8- Prenylaringenin a phytoestrogen in hops and beer, upregulates the function of E-cadherin. Curcumin exhibits antimetastatic properties by enhancing E-Cadherin. Omega 3 and GLA both increase the expression of it.
  12. NM23 gene is a metastasis suppressor gene. When nm23 is lost, the cell loses its ability to stay in one place and starts moving throughout the body. Damaged nm23 genes are frequently found in a variety of tumors including breast, colon, pancreatic and prostate cancers (along with CD44). Surgery negatively effects the NM23 gene. Curcumin and Lycopene help with the regulation of nm23.
    - 12b. Other factors working to regulate: Melatonin, Vitamin A support. b) Selectins – Cell Surface Lectins – Modified Citrus Pectin c) Integrins: IP6, a natural compound and a potent anti-cancer agent, inhibited cancer cell adhesion to the ECM proteins, thereby leading to inhibition of cell migration and invasion. IP6 decreases cell adhesion by suppressing the integrin receptors and their subsequent signaling pathway. d) Immunoglobulin Super-family Cell Adhesion Molecules (ISCAMs) cancer is often excessively active with cell division and inflammation – these factors are inhibited by lipoic acid, NAC (N-acetylcysteine and melatonin. Meadowsweet and herb high in Salicin contains a number of other important compounds that are inhibitory to cancer such as Quercetin, Rutin and Kaempferol.
  13. tNOX – is a protein that is uniquely associated with all forms of cancer and is absent from normal cells and tissues. Its activity is correlated with cancer growth. When blocked, cancer cells fail to enlarge after division and eventually die. Among the most potent and effective inhibitors of tNOX are EGCG and the vanilloid capsiain. Catechin-vanilloid combinations are 10 to 100x more effective than either catechin alone.
  14. Copper Antagonists as Angiogenesis Inhibitors: The role of copper in cancer promotion through inflammation and angiogenesis is now well known. Chelators of copper include cilantro, various phenols, zinc, lipoic acid, NAC and molybdenum.
  15. Endogenous Estrogens as carcinogens through metabolic activation of oxidative pathways – DIM, Indole-3-carbinol (I3C), Sulphoraphane – An undesirable factor in cancer development is the conversion of estrone to a carcinogenic material called 16-alpha hydroxy-estrone that damages DNA and inhibits apoptosis. The ratio of 2-hydroxyestrone to 16-hydroxyestrone indicates a woman's risk for developing breast and ovarian cancer. Levels of 2-hydroxyestrone are typically higher in women who do not get cancer. When breast cancer cells are treated with Indole 3 Carbinols-I3C (in vitro) 90% of cells undergo growth inhibition, whether estrogen positive or negative. I3C appears an effective chemopreventive/therapeutic agent against many types of malignancies. Glucosinolates (appearing in cruciferous vegetables) can inhibit, retard, or even reverse experimental multistage carcinogenesis. Sulforaphane (found in the Broccoli – Cabbage family of vegetables) is a strong arm against cancer, promoting apoptosis, inducing Phase II detoxification enzymes, increasing p53 and participating in the regulatory mechanisms of the cell's growth cycle.
  16. Calcium D Glucarate & beta-glucuronidase inhibition. Calcium-D-glucarate has been shown to inhibit beta-glucuronidase, an enzyme produced by colonic microflora and involved in Phase II liver detoxification.
  17. Aromatase Inhibition: a) Insulin resistance and Leptin resistance both stimulate aromatase activity – natural agents that regulate aromatase activity – Chrysin, green tea, mushroom. Water extracts of mushrooms have more aromatase inhibition activity than extracts of a selection of other fruits and vegetables. Large stuffing mushrooms had the highest potency, followed by shitake mushrooms and regular mushrooms. Aromatase inhibition is also found in protobello, Italian brown, and several other types of mushrooms. Drugs that target aromatase enzyme – Aromasin, Fumara, Arimedex – when taking these drugs it is very important to do extra liver support – they inhibit phase I detoxification enzymes by the liver.
  18. Methylation (is a detoxification pathway by the liver): B-6, B-12, SAME, choline and especially folic acid – hypomethylation has 2 negative effects: 1) poor gene transcription, 2) poor liver detoxification. Good Methylation helps with Estrogen excretion.

19. Mutation – the most powerful antimutagenic foods are burdock, garlic, ginger, turmeric and citrus peel. In order to promote cancer growth, oncogenes, mutated suppressor genes (like p53) and carcinogens must all be present.
20. Oncoviruses – cells can be infected by viral genes.
21. p21 – has been identified as a key factor for the regulation of cell growth by modulating the threshold of apoptosis in prostate cancer. There is an association between p21 expression and the progression of prostate cancer to androgen independence. D3 may help p21. p27 – Silymarin and one of its constituents, silibinin, exerted strong efficacy against prostate cancer in part by increasing p27 expression.
22. PTEN (phosphatase and tensin homologue) is an important tumor suppressor protein gene that suppresses cancer. Lost expression of PTEN is associated with several important cancer-related events including. Loss of PTEN activates Epidermal growth Factor Receptors. Loss of PTEN activates COX-2 and many other factors including PI3K signaling pathway, it has potent tumor suppressing abilities, including inhibition of the PI3K/Akt signaling pathway. Loss of PTEN causes activation of AKT, which is associated with increased proliferation, resistance to death, and increased angiogenesis in tumors and more – activators of PTEN and inhibitors of PTEN mutation include Quercetin, Resveratrol, Luteolin and Phytoestrogens.

#### **Polymorphisms of the P450 Super Gene Family**

1. CYP17 gene –
2. CYP1B1 – mutations in CYP1B1 have already been implicated in smoking-related head and neck squamous cell, colorectal, breast, ovarian and now prostate cancer.
3. (SHBG) D356N & MnSOD – (*to understand the details of these genes – read Donald Yance's section from his Prostate Cancer manuscript 6/2007*)

All of this in-depth analytical research into the biological characteristics of the Cancer Energy is vitally important to both gain an understanding of the potential aggressive behavior. “the IQ of the Cancer” and it can also help us target certain abnormalities discovered in the pathology workup. This information can contribute to the development of innovative approaches for predicting the metastatic ability of individual tumors, and help the practitioner be aware of how aggressive the protocol needs to be, as well as what agents might be most useful.

*The section above was originally transcribed directly from Herbs, Phytonutrients, and Nutritional Agents for Integrative Oncology – Lecture Outline & Overview – Atlanta Botanical Gardens, Atlanta, GA April 24 – 25, 2004 By Donald R. Yance CN, MH, AHG. New notes added 3/23/05 from Chanchal Cabrera Preventing and Treating Cancer 2003. Newest overview and update is from 6/2/07 Prostate Cancer – A Revolutionary Wholistic Approach by Donald Yance.*

**Cancer Growth Rates:** Different cancers grow at different rates. The doubling rate of breast cancer is 40-100 days, lung cancer is 60-270 days, colorectal cancer is 630 days and prostate cancer is 740 days.

#### **Core Strategies in Treating Cancer – from Chanchal Cabrera**

- 1- Reduce genetic instability – Cancer cells produce free radicals and they thrive in the oxidative environment. The higher the level of oxidative stress the more rapid the rate of DNA mutation. Nutritionally support redox anti-oxidants and glutathione synthesis and methylation. Supporting nutrients MSM, NAC, S-AMe, B6, B-12, folic acid, vitamin C, quercetin, bioflavonoids, lipoic acid, CoQ10, selenium, zinc, vitamin E, tocotrienols, carotenoids.
- 2- Prevention of polyamine synthesis. They function as a point of convergence for multiple signal transduction pathways leading to cell proliferation. The following prevent polyamine synthesis – Apigenin, Vit A, caffeic acid phenethyl ester (CAPE) – Propolis is one of the richest sources, genistein, Green tea, limonene, quercetin, proanthocyanidins, S-AMe, selenium, silymarin, ursolic acid (a triterpene similar to boswellic acid), Vit. E
- 3- Reduce abnormal gene expression – Genes can code for tumor suppression or tumor stimulation. Genes that inhibit cancer progression are frequently under-expressed in cancer cells and genes that facilitate malignant tendencies (oncogenes) are over expressed. These genes may be over activated by iron and copper accumulation. Cancer can be inhibited by normalizing transcription factors. Nutrients that help – Vit E dry form succinate, quercetin, folic acid, S-AMe, melatonin, lipoic acid, vitamin C, and NAC.
- 4- Induce differentiation in cancer cells – Most cancer cells are less differentiated than normal cells, allowing them to proliferate rapidly. Nutrients to help – Vit A, boswellic acid, bromelain, pancreatic enzymes, CAPE (propolis), apigenin, arctigenin, daidzein, genistein, emodin, EPA and DHA, luteolin, monoterpenes including perillyl alcohol and limonene, quercetin, and resveratrol.
- 5- Inhibit progression through the cell cycle – growth factors stimulate the expression of the early oncogenes. Nutrients that help – Arctigenin (from Burdock), Vit A, Boswellic

- acid, Bromelain and Pancreatic Enzymes, CAPE, EPA, DHA, Vit D, Resveratrol, Emodin (from Aloe), Monoterpenes, Flavanoids including apigenin, luteolin, quercetin, genistein, daidzein.
- 6- Induce apoptosis – apigenin, Vit A, boswellic acid, CAPE, Curcumin, Green tea, EPA, garlic, genistein, hypericin (St. John's Wort), quercetin, luteolin, monoterpenes, Resveratrol, selenium, Vit C, Vit D, Vit E.
  - 7- Modulate Hormones such as estrogen, progestins, androgens, adrenal hormones, insulin, melatonin use isoflavones, lignans, coumestins, soy, flax, exercise and reduced sugar intake.
  - 8- Modulation of detoxification pathways – DIM, Calcium D-glucarate, bitters (herb combinations for digestion), liver supporting herbs, diaphoretics (herbs that help you sweat), diuretics (herbs that stimulate urinary function).
  - 9- Reduce abnormal signal transduction – Green tea, curcumin, apigenin, luteolin, genistein, hypericin, parthenolide (feverfew), quercetin, resveratrol, EPA & DHA, selenium and Vit. E
  - 10- Promote cell to cell communication by normalizing cell adhesion function – tangeritin, modified citrus pectin, NAG, Gotu kola. GAGs (glucose amino glycans), saponins.
  - 11- Decrease vascular permeability and inhibit angiogenesis by degrading fibrin, normalizing vascular permeability, regulating prostaglandin (PGE2) production, reducing COX-2, VEGF, bFGF, histamine, lactic acid, IGF-1, copper and iron – molybdenum, zinc, sulphur, lipoic acid, selenium, nattokinase, serraflyzyme, bromelain, vitamins D & E, Echinacea, Curcuma, Green Tea, anthocyanidins, Butcher's broom, Gotu kila, Horse chestnut.
  - 12- Inhibit the invasion and metastasis by inhibiting hyaluronidase, elastase and collagenase and strengthening connective tissue and by reducing platelet aggregation – Gotu cola, escin from Horse chestnut, ruscogenin from Butcher's broom, MSM, anthocyanidins, apigenin, luteolin, boswellic acid, proanthocyanidins, Resveratrol, vitamin C. Strengthening of the basement membrane also inhibits tumor invasion – Coriolus versicolor and other medicinal mushrooms.
  - 13- Reduce inflammation and normalize prostaglandin and leukotrienes activity – boswellic acid, CAPE – Bee propolic, curcumin, EPA & DHA, quercetin, garlic, melatonin, Resveratrol and vitamin E
  - 14- Support the immune system – Astragalus, Reishi, Eleuthrococcus senticosus, panax ginseng, cordyceps, shitake, maitake, AHCC, glutamine, NAC, selenium, vit C, Vit E, quercetin.
  - 15- Support the adrenal system – tyrosine. Pantothenic, alpha ketoglutarate, creatine phosphate, taurine, magnesium, potassium, carnitine, CoQ10, Reishi, Licorice, Eleuthro.
  - 16- Inhibit aromatase activity in hormone dependent breast cancer – chrysin, passionflower, chrysanthemum, nettle root, DIM, shitake, reishi.

Cancers that respond best to herbal treatments are early stage breast cancer, prostate cancer, cervical cancer, and low-grade lymphomas. In other cancers a combination of standard therapy and holistic may be the best approach. Tumors of the central nervous system are the most sensitive to glucose.

Do Systemic Treatment – If you are using chemotherapy and surgery, **use chemotherapy before surgery**. In cancer surgery NM 23 cells – non metastatic protein in the blood, NM 23 tries to keep the cancer cocooned. When a tumor is taken out the NM23 is taken out of the body and the controlling mechanism for tumor growth is gone. Chemo can shrink the tumor mass before surgery limiting the loss of NM23.

**Glutathione** – The protective anti-oxidant enzyme system - Dark Brown spots on the skin are a sign of low glutathione levels, which can lead to basal cell carcinoma. The following supplements protect against low glutathione – L-Glutamine, NAC – N-acetyl Cysteine, Glycine and Vitamin C. Beta Plex-a concentrated beta-carotene drops, lipoic acid, Vit E, small amounts of zinc, selenium, grape seed extract, turmeric and green tea. Read about Whey Protein on this info handout – it can increase glutathione in healthy cells but simultaneously deplete glutathione in cancer cells. Raw tomatoes, raw spinach, & raw garlic are excellent food sources of glutathione (cooking destroys glutathione).

Cisplatin – depletes glutathione – add it back and you can reduce the side effects of - depression, nausea, hair loss, shortness of breath and difficulty in concentrating. Jarrow - Reduced Glutathione, and or Thio-NAC taken with Vit C are good supplements to consider if you are using cisplatin, they are also good for raising glutathione levels in general.

Initiation of Cancer happens when healthy normal cells which normally have close communication with each other have a disruption of DNA which causes a faulty replication – the next generation of cells fails to communicate with their neighbors and their controlling mechanism is gone.

**Initiation of cancer can be inhibited by a diet rich in sulfur-rich foods** – Broccoli, cauliflower and cruciferous vegetables all foods rich in chlorophyll (dark green vegetables and micro algae - chlorella, spirulina) carotenes and

flavanoids, green tea, grapes, berries, plums, and tangerines. Spices and herbs such as garlic, turmeric, and ginger should be included in the diet.

**Promotion** – can be triggered by hormones (estrogens and xenoestrogens – environmental estrogens from pesticides, plastics, soft saran wrap, out gassing of carpeting, insulation, petroleum products) and arachidonic acid (meat, full fat dairy, corn oil and all processed foods). (Arachadonic acid can be lowered by Fish Oils, Flax Oil, GLA from Primrose, Borage and Black Currant Oils, Perilla Oil, Vit. E and Feverfew).

Cervical Dysplasia is an example of this stage – Use folic acid, vitamin E, and carotenes to inhibit the promotion of dysplasia to cervical cancer. This protocol can reverse dysplasia as well – also use sage, rosemary, turmeric, bromelain, quercetin and green tea.

**Progression** – Precancerous masses become cancerous and begin to divide rapidly. Use fish oils, flax oils and lignans, and tangerines to help prevent progression.

**Invasion and Metastasis** – Fibrin may assist tumor progression by providing a physical support, by shielding it from immune attack and by fibrin degradation products that are angiogenic. One of the mechanisms of a tumor is to form fibrin and to cause blood platelet aggregation (sticky blood). Fibrin and sticky platelets form a favorable environment for cancer. Orally administered fibrinolytic agents such as garlic, bromelain appear to inhibit metastases and the perfusion of anti-cancer agents into solid tumors without promoting angiogenesis. The movement of malignant cells from a primary tumor to a distant site where they form a colony that becomes a new tumor. Metastatic cells travel through blood and lymphatic vessels and the cells must penetrate the basement membrane of the blood vessel in order to invade underlying tissue. Up to 1 billion malignant cells daily can be released from a primary tumor and although a large percentage of them succeeds in crossing the basement membrane only a tiny fraction of them ever succeeds in forming a new tumor. This appears to be a key control point and possible target of therapeutic intervention. Use modified citrus pectin, gotu kola, grape seed extract, horsechestnut extract, fish oils, tangerines and resveratrol. To help control metastasis use tumor-cell adhesion inhibitors (modified citrus pectin), platelet aggregation reducers (turmeric and bromelain). Angiogenesis inhibitors (fermented soy protein). Read the work by Mathias Rath – cellular health series CANCER by Matthias Rath, M.D. His combination of L-lysine, Proline, Vit C (fat soluble) and Green Tea extracts – Epican Forte\*\*\* is his combination product designed to prevent cancer from metastasizing and spreading.

*Ask for a free copy of his book at Brighter Day: a side note Epican Forte does contain copper.*

**Migration** – Migrating cells in the blood stream evade attack by immune cells, Natural killer cells and macrophages attack the migrating cancer cells in the circulatory system. Agents that enhance immune function such as PSK from Coriolus versicolor mushroom can reduce metastasis by this mechanism. Fibrinolytic enzymes such as bromelain and papain, pancreatic enzymes and serrapeptase can reduce this aspect of metastasis.

**Blood vessel formation (angiogenesis)** - can be lessened by flavonoids, especially anthocyanins are found in cherries, grapes and plums, blueberries also soy products (fermented) which contain Genistien helps with controlling angiogenesis factors. Limit copper and eat foods that pull copper out of the body ie. Cilantro, zinc, alpha lipoic acid for example.

**Cell Adhesion Molecules (CAMs)** - 3 types Cadherins (tangerines help)

Cell-surface lectins (modified citrus pectin – MCP) prostate cancer responds to MCP

Proteoglycans and glycosaminoglycans PG's & GAG's – Glucosamine Sulphate, cartilage both bovine and shark and hyaluronic acid – which is a major help in protecting the glue that holds the cells together acting as a defense against cancers invasion. Read Mathias Rath's info (above)

### What influences metastasis ?

Tumor cells have a higher sodium-to-potassium ratio than do normal cells. Potassium deficiency is associated with low tissue oxidation. Because oxygen is vital for the treatment and prevention of cancer, increased amounts of potassium are associated with lower cancer risk. There is an influx across the cell membrane in cancer cells to expel potassium, and stimulate anaerobic glycolysis (the breakdown of sugars into energy), which increases the release of lactic acid. The lactic acid travels to the liver, the liver reconverts it to sugar and sugar feeds the cancer cells. This is a vicious cycle. **Lactic acid** causes a lot of pain, comparable when you do intensive sports – the lactic acid builds up in the muscles. Lactic acid production and its increasing cellular glucose consumption, stimulates tumors to metastasize.

**Sugar and Cancer** – Cancer is able through a process called anaerobic Glycolysis is able to convert everything that goes into the body into sugar. Cancer has an appetite 10 to 17X greater for sugar than healthy cells. Cancer cells have up to 24X more glucose receptor sites than healthy cells The main source of energy in a cancer cell is glucose. Yet glucose accomplishes another strategic maneuver that strongly favors the cancer: it immobilizes the internal defenses, the actions of the immune system. The main source of energy in a healthy cell is oxygen. The main by product of a healthy cell is carbon dioxide – the main by product of a cancer cell is lactic acid. These substances reduce lactic acid – L-Glutamine, Baking Soda, Magnesium, and adaptogenic herbs such as Rapumpticum. This bringing down lactic acid reduces cancer pain.

**A diet structured away from sugar deprives cancer of its energy and increases the reliability of the immune response.** Selecting food that is low on the glycemic index avoids gratifying the tumor's appetite. The glycemic index lists the relative speed at which different foods are digested and raise blood sugar levels. Each food is compared to the effect of the same amount of pure glucose on the body's blood sugar curve. Glucose itself has a glycemic index rating

of 100. Foods that are broken down and raise blood glucose levels quickly have higher ratings. The closer to 100 the more the food resembles glucose. The lower the rating, the more gradually that food affects blood sugar levels. (Go to Google search engine on the internet and type in Glycemic Index Foods Lists to get a list.) Note that the glycemic index should not be relied upon without factoring in the glycemic load, which is the glycemic index of a food times its carbohydrate content in grams. Carrots for instance have a high glycemic index, but a very low glycemic load. This means that carrots consumed in moderation usually do not present a problem. Exercise such as walking, swimming, bike riding, weight lifting, or running improve the stress response, as well as glucose and insulin utilization.

**The importance of Insulin Control** – Insulin and Glucose drives cancer ! The endogenous molecular biology of cancer cells is now understood to involve the secretion of insulin and insulin-like growth factors (IGF-1 & II). Breast cancer cells have an average of 7X more insulin receptors and 10X more IGF receptors than normal breast and other tissue cells within the host. Thus , these cancer cells can take up glucose 17X faster than normal cells, and, it must be presumed that, they can also utilize glucose 17X faster than normal cells. Insulin causes cancer promotion and spreading initiation. Insulin produces too much estrogen – moderate exercise reduces it. It controls leptin (an insulin related hormone). By improving diet and exercise you can control these 2 hormones. Check the blood work for insulin, fasting insulin and glucose. Make sure in your bloodwork your hemoglobin A1C – is lower than 6 and your Insulin is lower than 10. Insulin plays a role in Colon, Prostate, Pancreatic, Lung, Endometrial, Breast, Ovarian and Brain cancers. Insulin problems are very common in the US. Diet and exercise is critical to insulin control – this is primary. Alpha Lipoic Acid taken at a dose of 600 – 1,200 mg a day helps with insulin utilization. Use the Italian Product (Jarrow Formulas) it normalizes gene transcription – there is a new form called R-Lipoic Acid that is more efficient and may do the same job at lower dosage levels.

**Leptin** – an excess of fat mass. Leptin stimulates estrogen production through the increase of aromatase expression and high amounts of it caused by obesity increases the risk of breast cancer in women and prostate cancer in men. The inflammation marker IL-6 is secreted by adipose tissue – levels of this cytokine are naturally higher in overweight persons.

**Increasing the oxygen level in the blood**, can inhibit tumor-cell proliferation – tumor cells favor a low-oxygen environment Saffron extract can enhance oxygen uptake of the cell (this is the same spice used to color rice yellow especially in Spanish dishes).

**Raising the pH of the blood (alkalizing the blood)**. Cancer cells favor an acid pH. Cesium chloride raises pH of a tumor and has been used as an alternative cancer treatment. EVAMOR water pH of 9 – evamor.com is a good tasting drinking water that has an alkaline pH. Drinking this water can help raise your pH. Purchase nitrazine paper to check both your urinary and salivary pH – you can get it at most independent pharmacies or at Brighter Day (we sell them cheaper !). Ask for our handout on acid and alkaline forming foods and our sheet on how to change your salivary or urinary pH levels quickly with foods. Foods that tend to be highest in potassium and magnesium are generally the most alkaline forming. *Dr Jacob Titelbaum MD and Michael Murray ND have good information on how to alkalize the pH levels of the body on their websites: (or ask us for a handout we have put together from their websites)*

**Keep copper & iron levels low** – Tumors hold on to and accumulate copper – they also require more Iron as a stimulus to grow. Iron is part of the cancer cells need to replicate. Cancer cells need more energy if they are replicating fast. They have more transferring receptors (iron binding receptors). Yance likes to see ferritin levels in bloodwork to be 20-50 (low normal) even under 100 – if ferritin levels are over 100 its too high.

**Copper** is even more cancer promoting. There are 3 basic angiogenic factors that are copper dependent.

1- Basic Fibroblast growth factor 2 – Transferring growth factor – beta 3 – Vascular endothelium growth factor. 2 of the most difficult fast growing cancers – renal cell cancer and glioblastoma Yance has been able to stop the growth of and stabilize them by depleting copper. Alpha Lipoic Acid & NAC and all the phenolic plants chelate copper and heavy metals out of the body. (Rosemary and fresh olives are 2 examples of phenolic rich plants). Seaweed lowers copper. Chelate the copper out of the body (Bacopa) – measure ceruaplastin 18 – 24 is the range in blood work. Keep copper at 2 to 10% of the normal range to help stop tumor growth. Keep copper low enough to keep healthy cells going but don't stimulate cancer. Copper can stimulate the growth of some types of cancer. Zinc keeps copper in balance. Bacopa will help chelate out copper levels. We need copper for red blood cells and connective tissue but not too much. Vit C, Alpha lipoic acid, NAC (N-acetyl cysteine & Molybdenum all help to lower copper. Green Tea catechins, proanthocyanidins and Resveratrol supplementation and luteolin all help with copper removal also. Molybdenum acts by forming insoluble and unabsorbable complexes with copper in the intestines. Molybdenum brings up uric acid – if you have high uric acid be careful with molybdenum. Low uric acid is a sign of low molybdenum you need more. Uric acid is actually an antioxidant to the body, particularly the lungs and the liver. The herb cilantro lowers copper. Use this as a dressing for salads to pull down copper levels. Take 2 limes grate the lime use ½ cup of cilantro add 2 cloves garlic ½ cup of parsley 1 tbs of wine vinegar olive oil, cumin and cardamon.

Enhance your connective tissue – Echinacea prevents the breakdown of hylauronic acid which a cancer cell is trying to break down in order to spread – MSM, Gotu Kola, Horstail or Bio-Sil silica enhance the connective tissue matrix.

**Cancer loves inflammation** is the etiological event for most, if not all, human cancers and is activated by the prostaglandin series 2 pathway – COX-2. PGE2 (Prostaglandin E2) is immunosuppressive and normally aids cancer cells in evading immune surveillance, so reducing it aids immune function. All foods that inhibit COX-2 are important – such as Fish Oils, GLA, Rosemary, Turmeric, Holy Basil and **Resveratrol** is extremely important. As well as any

supplements that control COX-2. To assess for inflammation you can do a C reactive protein test. If C-reactive protein and the sedimentation rate is elevated this serves as a marker for inflammation in the body.

Read the section under Bromelain to understand how enzymes help in the fight against cancer.

**Endogenous Estrogens and Breast Cancer** – A common thread that links the risk of developing breast cancer is cumulative excessive exposure to estrogen. In particular catechol estrogens, are involved in the development of carcinogens. Catechols are signaling molecules that work through the estrogen receptor. Estrodial and estrone, as well as their 4-hydroxy catechols, are carcinogenic and ethinyl estrodial is a strong promoter of liver cancer. (read the section further down on reducing aromatase activity)

**Most of the women with Breast or other female cancers are hypothyroid** - 80% of the women Yance sees with Breast Cancer have low thyroid. There is a strong relationship between thyroid hormones estrogen and insulin. Low thyroid and prostate cancer are common also. Thyroid T3 is essential for good gene expression – it is the active form of thyroid hormone. T4 converts into T3. Hypothyroidism is an extremely common health problem in the US – one quick way to assess if you might be hypothyroid is to do a basal body temperature check – using a basal thermometer placed under the armpit before you get out of bed in the morning. Do this for 5 to 7 days to check your temperature – a normal person runs about 1 degree below normal upon awakening. If your body temperature runs below 97.6 every morning you can suspect you are hypothyroid (ask for our handout sheet on checking your thyroid with this method – if you are low- get more specific bloodwork done). Good levels of T3 Thyroid hormone is critical to gene expression. Centenarians universally have high levels of T3. Physicians look at TSH on bloodwork -Yance looks at T3 & T4. TPO – Thyroid Globulin RT3 (reverse T3) these are test markers he looks at. T3 – look for a level of 300-420 and a TSH of under 4.5

Epimedium (also known as Horney Goat Weed) is good for thyroid, Deer Antler is excellent.

Tyrosine and Iodine together are the precursors for the production of thyroid hormones – seaweed should be a condiment – eggs, apricots, coconut oil and cranberries are good for thyroid also. Rosemary helps T4 convert to T3. Other activators include Rhodiola, Guggul, Coleus Forskhollii, Vit A, zinc, magnesium and selenium (seleno proteins helps T4 convert to T3. Bladderwrack (Fucus) is the best kelp for enhancing thyroid function. Phytolacca is excellent for thyroid w/ nodules on the thyroid. Rub poke root oil on it.

**Post Menopausal women** do well with an aromatase inhibitor therapy. (Chrysin, Quercetin, Fish Oils ect.). A wholistic program with an aromatase inhibitor therapy – is good for breast cancer in women who are post menopausal. Why not tamoxifen ? – Because it increases the risk of secondary aggressive tumors.

Sunblocks – might promote skin cancer – its free radical damage that causes skin cancer – Breast, Prostate and Colon cancer are all reduced by the sun. Night shift workers have a higher risk of Breast and Prostate Cancer.

**Depression** – The amino acid N’acetyl tyrosine 500 – 750 mg taken first thing in the morning and also mid afternoon acts as an anti-depressant – adding P-5-P to it can make it work better (P-5-P is a coenzyme of vitamin B-6).

**Hyperthermia** can induce tumor-cell death because Cancer Cells are heat sensitive.. High fevers have been reported to cause tumor regression. High fever induces systemic acidosis, which can also cause tumor cell death. Epsom salt baths have many benefits – buy it at any drug store or supermarket. An Epsom salt bath along with a hot diaphoretic herbal tea drunk before and during the bath can help raise body temperature and creates an artificial fever.

**Because cancer seems able to hide itself from the immune system.** Donny uses diaphoretic herbs such as boneset, yarrow, and peppermint along with hot Epsom salt baths to activate a lymphatic-immune response. Diaphoretic Teas combining Boneset, Yarrow, Elder, Peppermint and Ginger (use a heaping tablespoon of the mixed herbs in 12 – 16 oz of water – to make an infusion pour boiling water over the herbs let sit 10 minutes, strain and drink hot while in the tub). Diaphoretics relax the vascular system, they move the lymphatic and increase the immune response.

**To take an Epsom salt bath** – Put 2 cups of Epsom salts into a tub of hot water (as hot as you are comfortable with usually about 102 degrees) add ¼ to a ½ a cup of baking soda soak for 20 to 40 minutes and drink the diaphoretic herb teas while in the tub – such as yarrow with peppermint or elder flowers with peppermint. You can put some grated ginger root into the tub to further stimulate the skin to open up and sweat. Put 5 to 10 drops of lavender oil in the tub also this will relax you so you sleep wonderfully afterwards. Do a bath 3 nights a week

**Tumors can cause cachexia** – the bodies muscle and fat break down and rapid weight loss occurs. Damage to a gene is caused by adducts (chemicals that attach to a gene and disturb its function.) it occurs in older people. In children – they are missing or have a defective gene.

**Cancer-related anorexia/cachexia (CAC) “wasting syndrome.”** is a syndrome of progressive bodyweight loss related to depletion of liver and skeletal muscle energy stores. Clinically, patients have anorexia, tissue wasting, loss of bodyweight, and decrease in muscle mass and adipose tissue. Typically it occurs in 80% of patients with advanced cancer, and has a negative impact on quality of life. It is the most significant independent negative predictor of treatment outcome and is the single most documented cause of death in patients with cancer. 40% of people with cancer die of cachexia. When people are in the cachexic state there is a lot of inflammation going on – Donny Yance uses proteins with anabolic plants, omega 3’s and avocados to reverse cachexia. He also uses a lot of coconut milk and young coconut by pouring the juice and scraping the inside out to go into a smoothie.

Cancer cells gobble up sugar 10-15X more than normal cells. Cancer cells steal glucose from the liver by converting lactic acid into glucose. Inhibiting cancer cell gluconeogenesis, without interfering with normal cell metabolism, may

be one important aspect of slowing or stopping tumor growth and inhibiting cachexia. Of the many different factors that contribute to the development of CAC, the role of pro-inflammatory cytokines appears key. CAC does not solely result from decreased food intake, although decreased food intake does contribute to its pathogenesis.

Cachectic cancer patients exhibit relative glucose intolerance and insulin resistance with an increased rate of glucose production and recycling via lactate, or lactic acid (this is one of the processes that begins to contribute to cancer pain too). These changes may become more pronounced with progression of the disease. It has been suggested that the increased glucose turnover observed in cancer has an energy cost of up to 260 kcal per day.

The balance of liver export proteins is altered in many cancer patients such that while albumin synthesis remains unchanged, fibrinogen synthesis rates are significantly increased. These changes occur on a background of a decrease in the circulating concentration of albumin and an increase in the concentration of fibrinogen. These changes reflect a reprioritization of liver protein synthesis often seen in trauma, inflammation, and infection.

During an inflammatory response, there are altered demands for amino acids. The cachectic cancer patient may have an insufficient nutritional intake to provide the required amino acids, and, consequently, there may be relatively increased breakdown of skeletal muscle to supply sufficient amino acids.

Tumor necrosis factor (TNF), interleukin (IL)-1 and interferon (IFN)- are the key pro-inflammatory cytokines implicated in the pathogenesis of CAC. The tumor and host's defense system release an array of pro-inflammatory cytokines and metabolic substances that cause a complex range of effects. These cytokines decrease food intake and bodyweight, reduce protein and lipid synthesis and increases lipolysis and skeletal muscle proteolysis. Some cytokines, especially TNF-, also induce reactive oxygen species. Reactive oxygen species are involved in tissue wasting associated with CAC.

Oxidative stress has been associated with the development of the acute respiratory distress syndrome (ARDS) and organ failure through direct tissue injury and activation of genes integral to the inflammatory response. Melatonin and omega-3 fatty acids have anticytokine activity and significantly reduce bodyweight loss. Omega-3 fatty acids inhibit production of IL-1, IL-6, TNF and IFN. Oral supplementation with 12 fish oil capsules daily (18% EPA and 12% DHA) in patients with pancreatic cancer resulted in significant bodyweight gain after 3 months.

Melatonin has also been suggested to influence TNF-alpha production, leading to a controlled but nonrandomized study of 20mg melatonin daily given in the evening. In patients with a variety of metastatic solid tumors, weight loss continued in both groups, but melatonin appeared to produce a significant slowing of this weight loss compared with controls. There was a progressive rise in serum TNF-alpha concentrations in control subjects, while concentrations fell in those receiving melatonin.

Preliminary evidence suggests that redox/antioxidants alpha lipoic acid and N-acetyl cysteine (NAC) given orally may prevent the onset of CAC.

Ibuprofen, a nonsteroidal anti-inflammatory drug has been shown to decrease C-reactive protein and produce bodyweight gain in patients with cancer.

Persons who have malabsorption or marked vomiting or weight loss should consume 30 – 35 calories for every 2 lbs of body weight a day.

#### **Immune support (Boik 2001) – This is a list of natural agents known to offer immune support**

Astragalus, Eleuthero – “Siberian Ginseng”, Gandoerma “Reishi Mushroom”, Panax Ginseng, Shitake Mushroom, L-Glutamine, Glutathione enhancing nutrients ie. NAC, Lipoic Acid. Selenium, Vit C, Vit E, Bromelain and Melatonin.

#### **Anxiety about antioxidants during chemotherapy and radiation?**

Numerous studies have demonstrated that certain vitamins, minerals, and phytochemicals, which have been branded with the name, “antioxidants” do not inhibit, but actually enhance, the cytotoxic effects of antineoplastic drugs on cancer cells. Use of appropriate antioxidants, herbs and nutritional supplements enhance the response and recovery rate of the individual undergoing therapeutic treatment, improve the quality of life during treatment and improve long-term results.

Unfortunately, there is currently a great deal of mis-information and confusion surrounding use of antioxidants concurrent with chemotherapy. Recently, a growing number of physicians recommend their cancer patients refrain from taking all antioxidants on the mistaken premise that antioxidant supplementation could interfere with cytotoxic (cancer-killing) effects of chemotherapy and radiation. In fact, practitioners who have researched and have extensive clinical experience in this field are familiar with studies that support the proper use of antioxidants for those with cancer undergoing chemotherapeutic and/or radiation treatment and have successfully applied the principles of these studies in their practice.

Despite what you may be hearing in the medical media, many studies show that nutritional factors may hold the key to enhancing the anticancer effects of chemotherapy and to reducing or preventing both the short- and long-term side effects induced by chemotherapy. Donald Yance has compiled around 500 studies confirming the beneficial effects of redox cycling agents/antioxidants with chemotherapy.

When many supplements referred to as antioxidants are taken together at higher doses they can act as selective inhibitors of cancer growth. Dietary supplements, with or without antioxidant properties, may positively influence both the effects of cancer chemotherapy and factors that impact the progression of cancer such as angiogenesis, metastasis and immune competence. For example, some antioxidants have been found to inhibit topoisomerase II or protein

tyrosine kinases; inhibit NF kappaB, IL-6, TNF-a all of which contribute to cancer formation and progression. Considerable evidence shows that excessive oxidative stress interferes with the cytotoxic effects of chemotherapeutic agents on cancer cells. Cancer cells are found to produce a much greater amount of oxidative stress than normal cells. Cancer cells also thrive even under conditions of oxidant stress, which would impair normal cell function. Oxidative stress slows or arrests cells growth. Anticancer drugs are most effectively cytotoxic when tumor cells are proliferating rapidly. Chemotherapy is less effective in slower growing cancers. This is why slow-growing tumors, such as prostate and colon carcinoma, are relatively unresponsive to chemotherapy. Thus conditions of high oxidation can interfere with chemotherapeutic effectiveness. Cancer itself imparts oxidative stress on the host organism. The administration of chemotherapy to cancer patients results in much greater degree of oxidative stress than is induced by cancer itself. A delayed side-effect of chemotherapy is the development of secondary malignancies, most commonly acute leukemia, which usually occur with a latency period of about 4 to 5 years after treatment of the original cancer. Most studies have shown that secondary malignancies develop in 5 – 10% of individuals who receive chemotherapy. Secondary malignancies are often more refractory to treatment than the original cancer. Antioxidant supplements have been shown to prevent the mutagenic and carcinogenic effects of antineoplastic agents. Thus anti-oxidants simultaneously protect the cancer patient and enhance the effectiveness of cytotoxic therapy. *See the section at the end of this article on chemotherapy support and multi-drug resistance.*

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[Related Articles, Links](#)

## **Antioxidants and other nutrients do not interfere with chemotherapy or radiation therapy and can increase kill and increase survival, part 1.**

[Simone CB 2nd](#), [Simone NL](#), [Simone V](#), [Simone CB](#).

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**PURPOSE:** Some in the oncology community contend that patients undergoing chemotherapy and/or radiation therapy should not use food supplement antioxidants and other nutrients.

Oncologists at an influential oncology institution contended that antioxidants interfere with radiation and some chemotherapies because those modalities kill by generating free radicals that are neutralized by antioxidants, and that folic acid interferes with methotrexate. This is despite the common use of amifostine and dexrazoxane, 2 prescription antioxidants, during chemotherapy and/or radiation therapy. **DESIGN:** To assess all evidence concerning antioxidant and other nutrients used concomitantly with chemotherapy and/or radiation therapy, the MEDLINE and CANCERLIT databases were searched from 1965 to November 2003 using the words vitamins, antioxidants, chemotherapy, and radiation therapy. Bibliographies of articles were searched. All studies reporting concomitant nutrient use with chemotherapy and/or radiation therapy (280 peer-reviewed articles including 62 in vitro and 218 in vivo) were indiscriminately included.

**RESULTS:** Fifty human clinical randomized or observational trials have been conducted, involving 8,521 patients using beta-carotene; vitamins A, C, and E; selenium; cysteine; B vitamins; vitamin D3; vitamin K3; and glutathione as single agents or in combination.

**CONCLUSIONS:** Since the 1970s, 280 peer-reviewed in vitro and in vivo studies, including 50 human studies involving 8,521 patients, 5,081 of whom were given nutrients, have consistently shown that non-prescription antioxidants and other nutrients do not interfere with therapeutic modalities for cancer. Furthermore, they enhance the killing of therapeutic modalities for cancer, decrease their side effects, and protect normal tissue. In 15 human studies, 3,738 patients who took non-prescription antioxidants and other nutrients actually had increased survival.

One should always completely discuss with your doctor what supplements and herbs you are taking regardless of whether they understand or believe in their efficacy. At the same time it would be good to enlist expert professional guidance in their use.

**Types of cancer and substances to help** – many nutrients are beneficial to many forms of cancer the list below gives the names of botanicals and nutrients specifically mentioned to help specific types of cancer. Information about each substance is found further down in the handout: go through the handout to find more information on the specific botanical or nutrient used to support the body in hindering the specific cancer.

**All Cancers – Curcumin, Bromelain, Resveratrol, Quercetin, Alpha Lipoic Acid, Green Tea, EPA/DHA/GLA Vitamin D3 – 2,000-4,000iu's**

**Adrenal** – Cotton Root

**Bladder** – Vit. C, Kyolic Garlic, Maca, Reishi Mushroom, Feverfew (parthenolide)

**Bone** – Curcumin, Vit D

**Brain** – NADH, Goldenseal, Zedoria, Botswellin – use 3 to 4 grams daily of high quality daily & Rabdosia (glioblastoma), Lacto Brev, Medium Chain Tryglerides MCT's are critical, MCP (Modified Citrus Pectin), Bromelain (gliomas). Brain cancers – glioblastoma is particularly stimulated by copper do everything you can to deplete copper from the body – see the section on copper and cancer. Neuroblasoma (Yance found that curcumin & resveratrol completely eradicated that tumor cell line), Maitake Mushroom extract – 10-20% improvement. Avemar – a fermented wheat germ extract from Hungray blocks glucose from getting into cancer cells.

**Breast** – Red Clover, Turmeric, Calcium D-Glucarate, Grape Seed extract-Radiation Problems, Green Tea, Iodine – especially potassium iodide, Coriolus PSK mushroom, Maitake Mushroom – 60% of patients benefited with tumor regression. Reishi, I3C (Indole 3 Carbinols), DIM, Folic Acid, B6, B-12, Hibiscus, Bee Pollen, Burdock Seed, Condurango, Feverfew, Goldenseal, Pipsisewa, Rosemary, Sage, Black Cohosh Cotton Root, Violet, Wild Indigo, Rabidosia, Bladderwrack Andrographis, Bupleurum formula, Thuja, Poke root, Chinese Wormwood (Artemisia annua), Minor Bupleurum Formula. Fish Oils, Flax lignans, Vit D, Vit K, L-Arginine, Melatonin, IP6, Genistein, MCP(modified citrus pectin), CoQ10, Delta Tocotrienols, Flax Lignans. Quercetin and Chrysin – works better than tamoxefen, Delta- tocotrienol, Milk Thistle (silymarin), Limonene, Chinese Skullcap. Note: in Breast Cancers the liver detoxification system Cytochrome P450 is stressed (Phase 1 liver detoxification) – Turmeric and Milk Thistle help support this system. (note there is controversy about estrogen positive breast cancer and soybean and red clover phytoestrogens if you have been diagnosed with estrogen positive breast cancer you may want to avoid these. (*Cancer Centers of America Hospital – Tulsa OK*). Tocotrienols. In inflammatory breast cancer don't do surgery – it causes it to spread.

**Carcinomas** - Polyagra

**Cervical** – Folic Acid 20 to 40mg daily can reverse cervical cancer. Natural Beta Carotene in high doses, Chinese Skullcap, White Pond Lily, Zedora, Squalene, Carotenes, Celendine, Coriolus Versicolor(Turkey Tail), Ellagic Acid

**Colon Cancer** – Turmeric, Burdock Seed, Red Clover, Cloud Fungus, Coriolus Versicolor (Turkey Tail) Bupleurum Formula, Thuja, Poke, Shitake, Minor Bupleurum Formula, Vitamin E, Vit C, Vit D, Vit K, Selenium, Butyrate, Whey protein, Probiotics, Turmeric, Limonene, Bromelain, Fish Oils, Calcium D-Glucarate, Inulin, IP-6, Folic Acid, Quercetin, Panax Ginseng, Blueberries can inhibit the formation of colon cancer.

**Endometrial** - Iodine

**Esophageal** – Rabidosia, Violet, Molybednum, Atractylodes, Vit C, nasopharyngeal MCP, Coriolus Versicolor(Turkey Tail), Selenium

**Gastric Cancers** – Celandine

**Karpsi sarcoma** - Licorice

**Kidney** – Pipsisewa, Modified Citrus Pectin, Vit K, MCP(modified citrus pectin), Bromelain **Renal Cell Cancer** – Get copper out of the body – Donny Yance has been able to stop the growth of and stabilize renal cell cancer by depleting copper – read the section about copper and follow the protocol. Get copper levels checked in the blood – Copper serrulplasm should be 20 – 25 – zinc levels should be in the high / normal range. Try not to get surgery done with renal cell cancers.

**Larynx** – Vit C

**Leukemia** – Feverfew (acute myelogenous leukemia AML), Andrograph, Turmeric, Burdock Seed (myloid and lymphacytic), Isatis (chronic myelocytic leukemia), Colchicum, LaPatcho, Phyllanthus, Royal Jelly, Botswellin (HL-60 cells, CML – dose it every 6 hours to maximize effectiveness), Licorice, Bitter Melon, Cloud fungus or Coriolus PSK, Maitake Mushroom 10-20% improvement, butyrate, IP6, Lacto Brev, Resveratrol, MCP(modified citrus pectin), Coleus Forkolli (Chronic Lymphacytic), Propolis (Lymphacytic), Rabdosia. In myleucitic leukemia – the chemotherapy drug Gleevec(STI571) is effective –test for its need by doing either a C-Kit test or a PDGF (Platelet derived growth factor) test – if you are positive for either of these use Glevac. Potassium Iodide can be preventative for leukemia's. In B-lineage leukemias – Carnisol a phenolic compound found in Rosemary has been found to inhibit this. Leukemia's have a VEGF expression – check the section on VEGF and make sure you are also using the compounds that control it. A new compound is coming out made from a combination of spinach and watercress extracts – that may have a major impact on controlling leukemia – in the meanwhile include generous amounts of these vegetables in your diet. New information from Ronald Hoffman MD – 12/22/08 radio show – Grape Seed extract stimulates cellular suicide in Leukemia Cells.

**Liver** – Schizandra, Bupleurum, Burdock seed, Boldo, Celandine, Dandelion, Eclipta, Feverfew – parthenolide, Fringe Tree, Corydalis, Panax Ginseng (American), Minor Bupleurum Formula, GSH(Glutathione), Phyllanthus, Ligustrum, Turmeric, Lycii Berries (Michael Tierra), Shitake Mushroom, Maitake Mushroom – 60% of patients

benefited, Reishi, Chinese Skullcap, Calcium D-Glucarate, Rhodiola – a compound found in it gerinol is extremely toxic to liver tumors, Astaxanthin (animal studies have found it to significantly reduce the size of cancerous lesions on the liver). Tocotrienols. Vitamin K2, Look at Urea as a therapeutic tool.

**Lung** – Phase 1 cytochrome P450 detoxification of the liver is stressed (milk thistle and turmeric help) Vit A, Green Tea, Thuja, Cloud Fungus, Coriolus Versicolor (Turkey Tail), Maitake Mushroom – 60% of patients benefited, Ganoderma (Reishi Mushroom), Vit C, GSH (Glutathione), Quercetin, Carotenes, Ellagic Acid, Folic Acid, Selenium, IP6, MCP, Limonene, Bromelain, Calcium D-Glucarate, Spikenard. Non small cell lung cancer – Rabdosia. Tocotrienols, Astragalus in non-small cell lung cancers can extend the life span and quality of life.

**Lymphatic** – Figwort, Poke Root, Hoxey Formula

**Lymphoma** – Licorice, IP6, MCP, Fish Oils, Hibiscus, Green Tea (Theophylline), Chinese Scullcap, Curcumin, Beta Sistolsterol. B-cell & CLL Lymphomas Poke Root. Ask your oncologist about using Depacote 250-750 mg a day. B-cell lymphoma's need to supplement high amounts of Zinc and Molybdenum. (Bacopa will chelate out copper). Get a copper serrulaplasm level done in blood work 20 – 25 is the optimum range. Zinc needs to get to the high normal level. Lymphomas have VEGF – check the section in this document on this and add the proper substances that control it. Get a CRP – C-Reactive Protein check in bloodwork. This type of cancer is particularly sensitive to inflammation.

**Non Hogkins Lymphoma** – Andrographis

**Melanoma** – Red Clover, Chaga, Melazapam, Andrographis., P5P(B6), B-12, MCP, Boswellin, Hibiscus, Green Tea

**Mouth** – Vit C, Beta Carotene and Folic Acid (High Doses)

**Multiple Myeloma** – IL6 elevations are often associated with it. Wobenzyme (a pancreatic enzyme formula from Germany helped remission and increased life-span using 10 tablets 3x a day 1 hour before meals – a 30% prolongation of a persons lifespan). Celestin (a new anti-inflammatory fatty acid complex used primarily for arthritis pain inhibits IL-6). Make sure you get a C-Reactive protein check CRP in your blood work – this type of cancer is particularly sensitive to inflammation.

**Nasoparax** – Coriolus Versicolor (Turkey Tail)

**Ovarian** – Bladderwrack (iodine), Vit K, Selenium, Bromelain, Milk Thistle (Sily), Coriolus Versicolor (Turkey Tail), Chinese Skullcap, Quercetin, IP-6, Folic Acid, I3C, Iodine

**Pancreatic** – Limolene – 2-8grams a day, Lycopene, Vit C, Wobenzyme or Mega Zme or Natural Factors Mega Pancreatic Enzymes, Bromelain Celendine, Burdock Seed., Fish Oils (cachecia –weight loss). Supplement high Zinc levels and Molybdenum. The copper zinc ratio is very important in this cancer make sure copper serrulaplasm levels in the blood are between 20-25 – get zinc levels up to high normal.

**Prostate** – There is a strong relationship between insulin resistance and prostate cancer. 90% of prostate cancer patients need to chelate out excess copper – use zinc supplements to do so 50mg 2x a day Zinc (levels are always low in prostate cancer) (Bacopa will chelate out copper), Phase 1 cytochrome P450 detoxification of the liver is stressed (milk thistle and turmeric help), Aromataise inhibitors are important to block the beta estrogen receptors in the prostate – (Quercetin & Crysine), Flax Seed Lignans, Resveratrol, Panax Ginseng, Ashwaganda, Red Clover, Nettles, Green Tea, Hibiscus, Pipsissewa, Grape Seed Extract, Sage, Boswellia, Andrographis, Feverfew, Bitter Melon, Cotton Root, Cloud fungus, Lycopene, Vitamin E, Vit D3, IP6, Genestein, Melatonin, Quercetin, DIM, FoTi, Selenium, Lower Homocysteine – B-6, B-12, Folic Acid, MCP modified citrus pectin, Turmeric, Beta Sistolsterol, Milk Thistle (silymarin), Celendine, **Chinese Scullcap**, Calcium-D-Glucarate, Rhabdosia, Limolene, Celestin – a fatty acid mixture lowers IL-6 which is overexpressed in prostate cancer. Note: In prostate cancer biopsy a low P27 is a sign of a more aggressive prostate cancer – if not in prostate cancer there is no need for chemotherapy. Prostate cancer overall is one of the easiest cancers to treat with natural medicines.

**Renal Cell Cancer** – Get copper out of the body – Donny Yance has been able to stop the growth of and stabilize renal cell cancer by depleting copper – read the section about copper and follow the protocol.

**Rectal Cancer** – Thuja, Shitake, Coriolus Versicolor (Turkey Tail)

**Sarcomas** – Chinese Skullcap

**Skin** – The single most effective remedy was written about by Dr. Johnathan Wright MD – it is an extract taken from eggplant called BEC5 – it is available by calling the Tahoma Clinic Dispensary 888-893-6868 [www.tahomaclinic.com](http://www.tahomaclinic.com) or online from Antiaging Systems [www.antiagingsystems.com](http://www.antiagingsystems.com). – it works on basal cell and squamous cell carcinomas just about every time. 70,000 Australians have used this cream successfully. Blood root, Azalic Acid (Melazapam cream), Andrographis, Carotenes, Selenium, IP6, Turmeric – Donny Yance blends Melazapam cream with turmeric, essential oil of frankinsense and bloodroot extract for basal cell cancers and gets rid of it every single time, even fairly big basal cells – this is one of the easiest to deal with natural medicines.

**Spleen** – Lotus Seed, Ceonathis (Red Root), Hoxey Formula, Polyagra

**Squamous Cell Carcinoma** – Onions, Celendine, BEC5 is the most effective compound order it from the Tahoma clinic (see the skin cancer section above or [www.antiagingsystems.com](http://www.antiagingsystems.com))

**Stomach** – Turmeric, Chaga mushroom, Andrograph, Green tea, Celendine, Condurango, Cloud fungus PSK or Coriolus (Turkey Tail), Shitake, Maitake Mushroom 10-20% improvement, Vit C, Vit K, Carotenes, Bromelain, Selenium, Panax Ginseng

**Thyroid** – Kombu, Poke Root Oil rubbed on topically, Epimedium, especially use Coleus Forskolli in all thyroid cancers.

**Uterus** – White Pond Lily, Thuja

**Viral Cancer** – St John's Wort, Thuja, Aloe – check the list

**Best Herbs for Chemotherapy Support** – see additional information at the end of this paper.

Chorella\*\*\*\*, FuZeng\*\*\*\*, Red Root, Atracolydes, Juniper Berries (Gout from Chemo) Ligustrum, Milk Thistle (Cisplatin)\*\*\*\*, Rhdosia (cisplatin), Siberian Ginseng\*\*\*, Zedora and Turmeric\*\*\*\*, Astragalus\*\*\*\*, Schizandra\*\*, Maitake\*\*\*\*, Reishi\*\*\*\*, Turkey Tail\*\*\*\*, Selenium (Cisplatin), Alpha Lipoic Acid\*\*\*\*, L-Glutamine, Alkaglycerols\*\*\*, Whey protein\*\*\*\*,

### **The Nutritional Challenge**

Nutritional supplements and herbs are not magic bullets and will not undo the harm done by a poor diet.

The functional reserve of our organs is 4 to 10x that required to sustain life.

Cancer cells favor an anaerobic metabolism – cancer pathogens have a better chance to form in stagnation as opposed to an aerobic condition of oxygen exchange and movement – (ask for the handout on how cancer behaves – this gives a concise list of things you can do to inhibit cancers – put it on your refrigerator as a daily reminder).

A person on chemotherapy is in a difficult position because, with an accumulation of toxins, there is a need to detoxify. (*Detoxitech from Natural Factors is a powdered mix that helps the liver with detoxification simultaneously not stressing the body – it is nourishing and contains muscle sparing high quality protein – read their information sheet on it*). At the same time the body is in a deficient state and needs help to build healthy tissue and become stronger. When a person goes through a series of treatments, chemo, radiation, and surgery – the immune system becomes impaired, the body becomes malnourished, weight loss occurs and anorexia follows.

- 1) Tumors can increase the liver's production of glucose
- 2) Abnormalities in protein metabolism cause a decreased level of albumin in the blood. -This is why chlorella is so important (tumors fulfill their need for protein by breaking down muscle)
- 3) Abnormal fat metabolism – Correct the imbalance with omega 3 supplementation and good omega 6 (GLA) balance and eliminate partially hydrogenated fats and other bad fats from the diet.

#### **Look at the tongue**

- 1) A tongue that displays a white or yellow coating indicates poor digestion
- 2) A flabby tongue with bad breath signals a torpid liver
- 3) A clean moist tongue is a sign of good health.

**Good digestion is critical** – use digestive enzymes – plant based and pancreatic enzymes.

Plant based enzymes are very easy to use, are extremely gentle to the body and work in a variety of pH levels in the stomach and intestines. They can be opened and sprinkled on food directly or put into a protein smoothie or vegetable juice. You can take them on an empty stomach if you are having indigestion or take them in capsule form with foods. There are a number of good ones on the market. Enzymedica are the most potent brand. Natural Factors, Source Naturals and Absorb Aid are also very good. Natural Factors makes a super potent pancreatic enzyme product with serrapeptase enzymes (*ask for the information sheet written by Dr. Michael Murray ND*), also Wobenzyme an enzyme product from Germany is well known.

**Select foods of the highest quality – organically grown, and unprocessed.** Eat unprocessed, unrefined, whole foods. That means replacing refined protein, fats, and starches with whole, fresh, in-season food. Food should be the least genetically altered – wild food being the best choice and organically grown whenever possible. Eat plenty of whole fruits (not fruit juices), vegetables (plenty of raw and cooked vegetables), whole grains and legumes.

Refined carbohydrates are the absolutely worst for raising blood sugar levels and directly feeding the tumors. (Glucose feeds the one fermentation process of cancer cells and suppresses the immune system) Elevated glucose levels are seen 3-8X more often in people with active cancer.

Another sign of an active cancer is high lactic acid levels – the liver converts it back to glucose to feed the cancer. High lactic acid levels contribute to the pain caused by the cancer. (Alpha Lipoic acid, B-vitamins and DMG lower lactic acid levels)(*see information at the bottom of this handout on Lactic Acid reducing baths*)

Microwave ovens change the molecular structure of food, should also be avoided.

### **Nutritional Guidelines –**

A good balance between raw foods and cooked foods – sometimes raw foods are harder to digest for the cancer patient. A balance of 30% complex carbohydrates - 35% high quality proteins - 35% high quality fats (fresh nuts and seeds are a good source) with a high amount of anti-inflammatory omega 3 fatty acids as a significant proportion of fats can be a good balance and eating organically grown foods whenever possible. The colder the climate the more fat one should consume. Trans fatty acids (partially hydrogenated oils) compete with normal EFA's (essential fatty acids) at most structural sites - ie. cell membranes and negatively affect many enzymatic reactions within the cell. Series 1 and series 3 prostaglandins are the good ones suppressing the AA (arachadonic acid) cascade and inhibiting inflammation. Series 2 prostaglandins promotes tumor growth – overproduction of series 2 are found in every tumor and every cancer cell – series 2 is found in all partially hydrogenated oils and N6(Omega 6) fats such as corn oil, trans fatty acids and the fatty portion of red meat and some full fat cheeses.

**Of dairy products** – cultured dairy products are much easier to digest and offer many health benefits to the body – plain yogurt and kefir (*ask for a copy of the audio tape about kefir and its health benefits at Brighter Day*) are the

optimum choices. Cultured Cottage cheese is an outstanding source of high quality proteins. You can purchase cultured organic butter from Organic Valley. Look for unprocessed non-homogenized or raw milk if possible.

Researchers have consistently found that those people who eat the highest quantities of vegetables and fruits have the lowest rates of cancer. Low vegetable and fruit consumption was linked to 2x the rate of cancer. – **See my information sheet on Nutraceuticals for lists of the most cancer preventing foods.** Fermented soy products are particularly effective on Breast, Prostate and hormonally sensitive cancers. Diets rich in cruciferous vegetables and soy protein can offer protection against genetically predisposed and lifestyle-induced cancers.

There are basically 9 families of vegetables – make sure you eat from each family to receive the full spectrum of phytochemicals.

1 – Cabbage / mustard – cabbage, broccoli, Brussels sprouts, cauliflower, Chinese broccoli, kale, kohlrabi, mustard greens, radish, daikon, black radish, rutabaga, turnip, watercress. – This group is rich in calcium d-glucarate and sulphuraphane - DIM

2 – Lettuce / sunflower – all varieties of lettuce except iceberg (the least nutritious)

3 – Carrot / parsley – celery, fennel, parsnip

4 – Beet / spinach -

5 – Cucumber / squash – all squashes both winter and summer, pumpkin

6 – Mint / Basil

7 – Tomato / pepper – eggplant, potatoes (all)

8 – Bean / pea – all types of beans both fresh like green beans and dried like pinto, black, garbanzo, soy, lentil ect.

9 – Onion / garlic – leeks, chives, shallots, green onions and all others, elephant garlic, ramps.

10- Olives (both black and green) eat abundantly they are the richest source of hydroxy tyrisol – a good chelator of heavy metals – a good source of squalene.

Some other therapeutic foods to consider if you have the following issues:

If you are kidney deficient – eat black beans and kidney beans

Shrimp and Blackstrap molasses & Chorella – builds blood

Pears, Pomegranetes & Walnuts are good for the lungs

People who are cold and damp – need cardamon

If you have gallstones – Lemon Juice, pears, apples and bitter greens like dandelion, kale, collards, mustard and turnip greens.

**Eat fruits and vegetables according to season.**

**Eat at least 1 or 2 servings of carotene-rich vegetables a day.** Bright yellow orange or dark green vegetables. Season foods with paprika or cayenne. If taking a beta-carotene supplement (algae or palm carotenes) make sure they are full spectrum natural carotenes and take them with a meal with fats. Foods – Carrots and dark green leafy vegetables in their natural state are loaded with hundreds of different carotenoids and other phytonutrients that are protective against cell damage. Eat carrots, saffron, squash, turnips, pink grapefruit, and all deep orange or dark green leafy vegetables.

**Eat 1 serving of a cruciferous vegetable a day and eat them cooked.** (Cabbage, broccoli family)

(Broccoli sprouts contain 100x more sulfuraphane than broccoli itself-eat these raw) Broccoli supplies us with DIM(dithiolthiones that trigger the formation of glutathione S-transferase, which prevents carcinogens from damaging a cells DNA), brussels sprouts, cabbage, cauliflower, chinese cabbage, collards, horseradish, kale, kohlrabi, mustard greens, radish, rutabaga, turnip, watercress.

**Other Super Foods** - Red, white radish, black radish and beets support the liver and have anticancer properties. Celery detoxifies carcinogens. Shitake Mushrooms enhance the immune system. Asparagus has a cleansing effect on the kidneys and lymphatic system and has anti-cancer properties. Avocadoes are high in glutathione and essential fatty acids. Artichokes protect the liver. Watercress and parsley are high in chlorophyll. Watercress helps the liver's ability to detoxify. Parsley is incredibly rich in potassium. Potatoes contain alpha lipoic acid. Garlic, Onions, Leeks, Chives are loaded with sulphur compounds that stimulate immune system function and help the liver detoxify. Michael Tierra suggests chopping or pressing fresh garlic cloves into olive oil and spreading it on really good bread as a way of ingesting fresh raw garlic. In a study with rats given aged garlic extract (Kyolic) showed 66% less binding of a carcinogenic substance to a cell. When selenium was added to the garlic the inhibition of binding was 99%. Brazil nuts are the richest food source of selenium.

Nettles and watercress are the most nutrient rich foods – Arugula – all non-hybridized foods- shift people to wild foods. Olives are incredibly rich in anti-oxidants eat them all the time – the juice from fresh olives has been found to have possibly the highest anti-oxidant levels based on the ORAC method of assaying anti-oxidants in foods – of any food. (Natures Way markets an olive juice capsule). This is a classic example of a Redox-antioxidant (so is rosemary). Redox anti-oxidants recycle the anti-oxidant process in the body many times over and are the most potent and active anti-oxidants.

Certain foods can have an inhibiting effect on specific types of cancer – Ellagic Acid – found in pomegranates, raspberries and muscadine grapes inhibits Lung Cancer, Cervical Cancer, Esophageal Cancer, Skin, Colon & Prostate and Asparagus in Kidney Cancer. Hibiscus Flowers – the dried flowers make a wonderful and fruity tea, they have numerous anti-cancer compounds in them it makes a good combination with Green Tea.

**Eat a variety of in-season fruit** - preferably in the morning or between meals. Eat a small amount of the core. Buy grapes with seeds and eat the seeds. Figs are rich in benzaldehyde, which can arrest tumor progression and have a paralytic effect on tumor growth. Ellagic acid found in raspberries, pomegranates and nuts is particularly effective in the inhibition of lung cancer caused by tobacco. Whole citrus fruits help the liver with detoxification both Phase 1 and Phase 2 (Tangerines especially). Apples have over 100 phenolic compounds – they are loaded with pyruvic acid 1 apple = 500 mg of pyruvic acid – helpful for cellular energy, rich in quercetin. Quercetin is a powerful compound. Apples are a great weight loss food – rich in Calcium D' Glucarate – the richest source, increases glucuronidation a detoxifying process done by the liver – also the richest source of pectin.

**Eat Berries** – Flavonoids, from edible berries, flowers and leaves can suppress cancer growth or induction by impeding cell cycle progression, induce apoptosis, and inhibit angiogenesis. Buy organic frozen Strawberries or fresh ones, ( it is important to buy only organic strawberries because of their thin skin, they can contain high amounts of pesticides and other undesirable compounds). Blueberries, Blackberries, Raspberries ect. They inhibit genetic damage, stimulate DNA repair and induce apoptosis, they increase oxygen utilization, they increase vitality, they inhibit angiogenesis by inhibiting bFGF,VEGF,uPA,PKC,and COX-2.

**Whole grains** such as sprouted breads (Ezekiel Bread or Alvarado Breads) and fresh ground 100% whole grains are fine.

**Dietary protein** should be adequate, not excessive, to maintain nitrogen balance in a slightly positive state and to maintain lean body mass. Protein foods should be 35% of the diet – too low protein is immuno-suppressive, Fish, nuts, peas and beans and whole grains. Organic eggs because of their rich nutrient content and easy digestibility are one of the best protein foods for people with cancer. 1 or 2 – 3x a week. Slow cook them soft boiled or poached with a runny egg yolk. Eat cold water fish like salmon or rainbow trout 2 to 4X a week – avoid farm raised salmon it has been found to be full of pesticides and antibiotics (Eco Fish is an excellent brand). If a person is anemic organic red meat is acceptable. Eat the leanest cuts to minimize the arachadonic acid found in the fat of red meat. Turkey meat. Yogurt and Kefir are easily digested proteins with many co-factors that help immune functioning. Kefir is even better than yogurt in probiotics and digestibility. Cultured Cottage Cheese is an outstanding source of proteins, Fermented Soy such as tempeh and miso should be eaten 3 – 4 X a week. Whey protein makes an excellent shake and delivers between 17 – 24 grams of highest quality protein per serving. It also mixes easily and taste much better than soy protein powders. Of all **seaweeds** wakame has the strongest anti-tumor activity. Many people with ovarian or breast cancer are deficient in iodine and show signs of low thyroid function.

**Eat lots of different spices** (black pepper helps turmeric absorb better) they are full of anti-oxidants. Black cumin seeds are particularly potent. Many spices are directly anti tumor anti-carcinogenic almost all are high in anti-oxidants. Fruits of all types for the flavanoid content. Citrus fruits activate Phase 1 and Phase 2 detoxifying enzymes. Naringenin slows the growth of human breast cancer cells. Tangeretin found in tangerines, strengthen E – caderin inhibits cell adhesion a very important step in the metastatic process of cancer. Citrus peels contain D-limonene. Rhubarb contains anti-tumor activity. Use a diversity of 100% whole grains. Quinoa is particularly easy to digest; millet is the only alkaline grain.

**Natural agents that reduce Aromatase Activity** – Lignans and flavonoids are naturally-occurring diphenolic compounds found in high concentrations in whole grains, legumes, fruits and vegetables. The lignan agent enterolactone as well as the flavonoids chrysin, luteolin, and kaempferol: and the isoflavones biochanin A, genistein, and coumestrol, all decrease aromatase enzyme activity comparable to the drug aminoglutethimide. Chrysin has been found to be the most potent naturally occurring aromatase inhibitor. Chrysin is found in the flowers of chrysanthemum and passion flower as well as in carrots. Very preliminary research suggest that chrysin may emerge as a useful anxiolytic agent, that it might aid in the control of morphine withdrawal and that it might have some chemopreventive properties.

**Purchase or borrow a juicer from a friend** – juicing provides an easy and effective way to meet many needs of the cancer patient. It is a very efficient way to dramatically increase your intake of cancer-fighting phytochemicals. One of the most consistent experiences of cancer patients who start drinking fresh fruit juice and vegetable juice is a tremendous increase in energy levels. Juicing helps the body's digestive process and allows for quick absorption of high-quality nutrition. Michael Murray recommends that you drink 18 to 24 ounces of fresh fruit or vegetable juice daily, but don't drink your allotment of fresh juice all at once – break it up into 8 oz doses throughout the day. If using a lot of root vegetables in your juicer add a tablespoon of Udo's choice essential fats blend or a flax-borage blend in the juice – this can slow down the glycemic response of the carrots and beets – fats also enhances the absorption of the carotenes found in the juice.

Chew your food well.

### **Super Green Foods –**

Chlorophyll – In one study published in the journal of Mutation Research, chlorophyll proved to be a more effective antimutagen than all known anticancer vitamins, including vitamins A, C and E. Chlorophyll works as an antioxidant and has an incredible ability to neutralize carcinogens such as aflatoxins. All dark green vegetables contain chlorophyll, chlorella is the richest food source of it. There are many super green food powder mixtures, which concentrate many different juices together such as barley and wheat grass juice with spirulina, chlorella and many vegetable and fruit anti-oxidants. They are easy to take, easy to digest and give concentrated nutrition to the body easily – some of the best

are Greens Plus, Natural Factors – Enriching Greens, Jarrow’s Greens, Barleans Greens, & New Chapter’s Berry Greens.

Young Barley Grass Juice – “Green Magma” is alkalizing, full of chlorophyll which helps with detoxification, enzymes, protein, vitamins, minerals, is easy to digest and highly nourishing and energizing.

**Chlorella** – increases macrophage activity and has shown anti-tumor effects. Chlorella a substance found in chlorella stimulates interferon production. Chlorella increases serum albumin levels. A drop in albumin level has many negative effects on the body.

**Fats and Oils** – Unnatural and/or denatured fats, such as margarine or other hydrogenated oils, disrupt the metabolic process and interfere with the properties of the cell membrane. Women who eat partially hydrogenated oils have more than 3x the risk of breast cancer than those who don’t. A diet high in saturated fat gradually makes the mitochondria less permeable and thus reduces its aerobic, oxygenating, metabolic capacity. Cancer and tumors live in an anaerobic (oxygen-less) environment. Cold pressed olive oil is fine for all uses. Olive oil contains squalene which helps increase cellular oxygen levels. Canola oil should be used only for baking because of the low temperatures involved. Do not use canola oil for salads or for cooking at high temperatures. Do not use corn or safflower oils (high oleic safflower or sunflower are healthier than regular safflower or sunflower oils these can be used). Use flaxseed oil rich in ALA, Fish Oils(EPA), evening primrose or black currant or borage(GLA) - these oils all have noted anti-cancer properties. Perilla oil has an excellent ratio of omega 3 fats it tastes like canola oil so its neutral in flavor and has rosmarinic acid which can help with platelet aggregation. Flaxseed oil when taken with sulfur-rich proteins such as yogurt or cottage cheese forms a lipo-protein combination with a highly active electron system, which enables the free fatty acids in the flaxseed oil to penetrate the tumor-cell membrane and exert its cytotoxic activity (*according to Joanna Budwig*) Add freshly ground flaxseeds to foods. Udo’s choice is an excellent blend of essential fats formulated by one of the top experts on essential fatty acids – Udo Erasmus Phd. When mixed with olive oil makes a good salad oil. I combine it with Nordic Naturals Cod Liver Oil for a near perfect combination of all the essential fatty acids the body needs (not as a salad oil but in smoothies). Other flax oil, borage oil blends are good (Total EFA from Health from the Sun is one of them) Small amounts of butter is fine - even better is making Ghee a clarified butter. Take 1 pound of organic butter heat to melting point and skim off the solids that float to the top. Keep skimming the solids as they rise to the surface – this eliminates many of the saturated fats and stabilizes the butter from rancidity. It is a much healthier way to use butter.

**Drink spring or filtered water** and drink throughout the day especially between meals. (Evamor brand of water has a pH of 9 highly alkalizing to the body) – Proper hydration is essential for good health. When undergoing chemotherapy it’s absolutely essential to maintain good hydration your body cannot detoxify the drugs and remove them from your system. The buildup of these toxins will lead to further symptoms and discomfort. Even sipping 4 to 6 oz an hour will give you adequate hydration. You can do part of this as herbal teas and fresh juices.

### **Foods that are bad for you**

Substitute Sucanat for white sugar or use honey or rice syrup – and use minimal quantities. Artificial sweetener consumption is at 25 lbs a year, Sugar consumption is 140 lbs a year currently in the US. High sugar consumption increases the risk of hormone dependent cancers. A diet designed to maintain low blood-glucose levels can selectively starve tumors, yielding a lower insulin output to help regulate prostaglandin synthesis. Insulin deprivation will inhibit tumor growth and cell division.

Use unrefined earth salt (Real Salt - Kal Brand – it has a light pink color is more concentrated in flavor so you can use a lot less and has a high amount of trace minerals in it) for refined salt and use sparingly – remember cancer favors a higher sodium to potassium ratio. You can purchase a product called NuSalt that tastes like salt but is potassium chloride 650mg per ¼ teaspoon to help get your potassium ratio up. Use 100% whole grain flour for refined white flour – Sprouted grains are the best such as sprouted grain breads like Ezekiel bread or Alvarado Breads. *The cookbook Essential Eating by Janie Quinn has excellent recipes using sprouted and easy to digest foods.* Limit intake of commercially prepared foods as much as possible. Canned foods are processed and have a plastic liner that can leak small amounts of an estrogen like pollutant called bisphenol-A (BPA) into the food. Avoid fast foods completely – if at all possible.

Frying using polyunsaturated fats like safflower or corn oil can produce carcinogens called heterocyclic amines butter(ghee) and eat fried foods only occasionally. Use Ghee (clarified butter). Olive oil – does not oxidize easily and is also a good source of squalene a potent inhibitor of angiogenesis. Sesame oil contains antioxidants that inhibit lipid peroxidation

Avoid all peanut products including peanut butter. Peanuts contain lectins that cause blood clotting. Do not eat commercial white mushrooms – shitake mushrooms are fine. Avoid smoked or preserved meats – sausages, salamis, coldcuts, canned meats.

Cancer patients should avoid coffee. A good substitute for coffee is green tea or other herbal teas. Green tea contains catechin polyphenols which are nonspecific and broad-spectrum anticarcinogens.

Cancer patients should avoid alcohol – it depletes glutathione levels and stresses the liver.

**Don’t smoke.** Cigarettes contain cadmium a toxic metal – that can stimulate cancer promotion. The recurrence rate of cancer coming back is dramatically higher in cigarette smokers.

Check the plastic containers the food comes in #7 biphenol A is banned in Europe. Many plastics are estrogenic.

**In Summary:** Your diet should consist primarily of foods like vegetables, fruits, and whole grains, fish, cultured low fat cottage cheese, yogurt or kefir, organic eggs, beans, nuts and lots of spices and can periodically include organic free-range chicken and beef.

One of the most important effects of the blocking agents found in herbs and foods is the inhibition of tumor formation by curbing the arachidonic acid cascade this is also known as series 2 prostaglandin's. Series 1 and series 3 prostaglandin's are anti-inflammatory and anti-cancer – omega 3 fatty acids (Fish Oil is the most powerful and Flax or Perilla Oil 2<sup>nd</sup>) GLA from primrose, borage or black currant oils, green tea and turmeric help accomplish this. (Ask for our info handout sheet on this)

### **Useful Supplements in Cancer Therapy**

The dosages you need to get someone up to par is very different than the dose you need to maintain people – to turn the corner when you have someone who is seriously ill is very different than maintenance – it's a lot harder and a lot more intense medicine than when they get to a state of equilibrium.

For patients undergoing conventional treatments, Yance recommends starting nutritional supplementation at least one week prior to surgery, radiation or chemotherapy.

**NAC** – protects healthy cells from chemotherapy without interfering with the cytotoxic effects upon cancer cells.

**CoQ10** reduces cardiac damage caused by adriamycin. **Folic acid and Beta Glucan** helps 5FU. **Quercetin** helps Adriamycin. Yance recommends Doctor's choice Anti-oxidant formula by Enzymatic Therapy or Natural Factors –The Ultimate Antioxidant (Dr. Michael Murray).

**Vitamin A** – Yance recommends Ethical Nutrients Mycellized A.

#### **Carotenoids.**

There are 2 main types of carotenoids. One type contains no oxygen and has provitamin A abilities meaning that it can convert part of it to regular vitamin A – algae and palm oil derived forms as well as lycopene are the best natural forms. The other type is called xanthophylls and are found primarily in yellow flowers and saffron. Lutein, capsanthin and canthaxanthin are examples of xanthophylls carotenoids. Carotenoids protect the epithelial tissue (skin, stomach, and lungs) from becoming cancerous. Carotenes protect against UV induced skin tumors. Carotenes along with folic acid play a critical role in protecting the cervix from cancer. They can enhance normal cellular communication; this leads to decreased proliferation of cancer cells. Carotenes are also good at down regulating HMG Co enzyme reductase – in cancer cell replication there is an over activity of this.\*\*\*\*

**Lycopene** – Tomatoes especially when cooked with olive oil significantly raises the plasma levels of Lycopene, it is also found in all red fruits and vegetables such as pink grapefruit and watermelon. It's most documented use is in the prevention and treatment of prostate cancer, pancreatic, colon and breast cancer (lycopene lowers IGF-1 levels – if a woman has high levels of IGF the chances are 4 – 5X more likely that you will have breast cancer). A mechanism in lycopene lowers insulin like growth factor receptors which are active in many types of cancers listed above. Lycopene enhances gap junction communication “gap-junction” functions as a communication channel between cells. Most tumor cells have few of these structures. Lycopene has been found to induce the formation of the protein connexin 43, one of the major building blocks of these channels, and thereby restores the gap junctions necessary for healthy cells which helps cells maintain the communication they need to stay well. It has been shown to suppress tumor cell replication (ginseng and resveratrol have been shown to do this also). High dietary lycopene correlates with prostate cancer prevention. It was found by the same Harvard researcher that high blood lycopene with a 44% decreased risk of aggressive prostate cancer in men. In test tube studies when vitamin E is added to lycopene, it strongly inhibited the growth of prostate cancer cells. In a study done by the University of Illinois researchers gave 32 men enough tomato sauce to equal 30mg of lycopene daily 3 weeks before prostate surgery. They found damage to prostate DNA was reduced significantly and PSA scores dropped 20% in just 3 weeks. Lycopene prevented the spread of prostate cancer to other tissues in 73% of the men taking it vs 18% in a control group.

**Homocysteine Protectors – B-6, B-12, Folic Acid & TMG** - These can help the liver with methylation (methylation is a process of detoxification by the liver – a phase II detoxification) and can support estrogen conjugation. The commonly used chemotherapy drug for breast cancer, methotrexate, can cause severe disruption in methylation. If you are under methylating your ability to process estrogen is hindered – therefore if you are stressing in any of these areas of detoxification estrogens that enter the liver can become oxidative. They can form oxidative by products. Tamoxifen increases oxidative stress – if you have low sulphur, low selenium and not enough folic acid you are going to have a lot of estrogen by products formed that are highly carcinogenic. Folic acid is involved with the synthesis and repair of DNA. Higher plasma levels of folate and possibly vitamin B-6 may reduce the risk of developing breast cancer. People with a higher intake of B-6 were found to have a lower risk of colon, prostate, lung, gastric and pancreatic cancers. Note: Keep Homocysteine levels under 9 on blood work – high homocysteine also means Gout, Depression, Migraine Headaches, Alzheimer's, and Heart Disease. Alcohol depletes B6, B12 & folic acid as well as birth control pills. Creatine is also good for methylation.

### **Vitamin E Succinate (Dry E)**

Studies on the antiproliferation activities of Vitamin E show the succinate form is the most effective form and that tumor cell growth inhibition is probably more than just antioxidant functions. Vitamin E and selenium act alone and in synergy to protect against the effects of radiation and chemotherapeutic agents. A recent study showed that 50mg of alpha-tocopherol per day reduced prostate cancer incidence by 32% and prostate cancer deaths by 41% in a group of male smokers in Finland. Vitamin E inhibits cancer development and management by 1) inhibiting neoplastic cell growth 2) serving as a strong antioxidant and free-radical scavenger 3)inhibiting mutagenic activity 4) influencing cell integrity and cell membrane maintenance 5) stimulating immune system activity 6) preventing platelet aggregation. \*\*\*

### **Delta-tocotrienol**

Delta tocotrienol is the most powerful antioxidant of the entire vitamin E family. (it has been shown to be 40 – 60X more potent than alpha-tocopherol in the prevention of lipid peroxidation.). This fraction of vitamin E is the most potent in inducing apoptosis (cell deaths) of human breast cancer cells. Delta tocotrienol is 2x as potent as gamma tocotrienol. Gamma-tocotrienol was shown to be 3x more potent in inhibiting growth of human breast cancer cultured cells than the chemotherapy drug tamoxifen.

**Tocotrienols** – Cell culture and animal studies show that tocotrienols inhibit proliferation of both estrogen sensitive and insensitive breast cancer cells. Tocotrienols are significantly more antiproliferative than tocopherols. The most recent research indicates that tocotrienols also help prevent lung and liver cancer in rodents and human cancer cell cultures.

### **Vitamin C – Ester C form or Ascorbate form with bioflavonoids**

When used in conjunction with other nutrients such as zinc, vitamin B-12 and other cancer-inhibiting agents. Vit C has a synergistic anti-tumor effect. It enhances traditional cancer therapies and reduces their toxicity. It protects the skin and bones from radiation treatments. Vitamin C does not kill cancer cells but restrains them. Vitamin C along with other flavanoids acts to strengthen the ground substance and to restrain the invasiveness of cancer cells by neutralizing hyaluronidase and enhancing the synthesis of collagen fibrils. Dr Mathais Rath of Germany uses vitamin C along with the amino acids L-lysine and L-Proline and Green Tea extract to stop the spread and growth of Cancer. Read his information about this. Yance uses generally no more than 3,000mg a day best taken in smaller more frequent doses of 500 to 1,000mg 3 to 4X a day along with Quercetin. \*\*\*\*

### **Vitamin D3 – Vitamin D3 may turn out to be the single most important nutrient to supplement for every type of cancer – 2,000-4,000 iu’s daily minimum. It is very inexpensive and should now be considered to be the very first supplement to take!**

Vitamin D has recently been found to help prevent colon cancer. There is a huge amount of new research coming out on vitamin D. The most active form being D-3. Vitamin D may have major effects in inhibiting both Prostate and Breast Cancers and inhibiting 15 other types of cancer. It raises calcium levels inside tumor cells – this may help substances like IP6 which triggers a signal to release calcium from cancer cells which results in tumor cell death. Vitamin D acts in a hormone like manner and is a major cellular regulator and normalizer.

Helps prevent Colon and Breast cancer. It binds with calcium and reduces the turnover rate of the cells that line the colon. Cells that don’t turn over are very resistant to carcinogens. It may inhibit the proliferative activity of hormones such as estrogen in breast cancer, and has been shown to suppress breast and prostate cancer growth. Sunlight leads to a decreased risk of breast cancer. Vit D is more important than calcium for osteoporosis. It is actually a pro-hormone. A lot of women have calcification issues – which goes back to thyroid. Statin drugs (cholesterol lowering drugs) interfere with the production of Vit D3. ***Note: the research on vitamin D3 is coming in at such a fast and furious rate that what is written here needs to be updated almost weekly. Please go to the vitamin D research website for updated research. The vitamin D council or go to [www.BrighterDayFoods.com](http://www.BrighterDayFoods.com) website and click internet links – scroll down to vitamin research and you will find it there. There is a free CD on the subject available from Brighter Day – its an interview with the top researcher in the world on Vitamin D who was on Dr. Ronald Hoffman MD – radio show. Ask for a copy.***

**Vitamin K** – Researchers at the UCLA School of medicine discovered that vitamin K is a very effective cancer-cell fighter. Tests have shown that vitamin K can stop and sometimes shrink tumor growth. It acts as a tumor analgesic. Vit K has shown significant inhibition of cancer cell lines for breast, ovary, colon, stomach and kidney cancers, as well as primary and squamous cell carcinomas of the lungs. Combining K with 5FU for metastatic adenocarcinoma of the breast and colon showed objective responses that lasted more than 12 months. It has been suggested that vitamin K- 3 is a radio sensitizing agent and helps radiation therapy. Donny Yance uses liquid Vit K from Scientific Botanicals up to 1 mg. A day. K2 (menaquinone) a form of vitamin K derived from Natto is showing great potential benefits in cardiovascular disease and osteoporosis – it takes the calcium out of the arteries and puts it in the bone. K2 significantly reduced the recurrence rate of hepatocellular carcinoma and nonsignificantly increased the survival rate in patients with a history of hepatocellular carcinoma secondary to chronic hepatitis C.

**Vitamin B-6** – P5P the co-enzyme form of B6 has been shown to reduce cell growth and kill a number of cell types in culture. The best effect was with metastatic melanoma cells.

**Folic Acid and B12** – Aid in the process that turn cancer genes off. They both work with methyl groups when methylation doesn't work in the liver or if the person is on the chemo drug methotrexate, cancer genes produce proteins that may cause cells to proliferate. Melanoma can grow faster when B-12 isn't working correctly. There is a strong association between folic acid deficiency and cervical dysplasia, cervical and uterine cancers, cancers of the GI tract, squamous cancers of the respiratory tract, and bone marrow cancers. Cancer cells increase their adhesion abilities when folic acid is low. Inadequate levels of this vitamin may contribute to the progression of malignancies. If on methotrexate – 1 mg of supplementation can reduce the side effects of methotrexate without interfering with its therapeutic effect. B-12 and folic acid reduced cellular atypia squamous metaplasia in heavy smokers. Folic acid along with fruits and vegetables protects against the risk of large bowel cancers. Folic acid and B12 helps the distress of anemia, fatigue, neuropathy and other nerve damage, liver weakness, and digestion problems and sleep problems for the cancer patient on chemo.

**Calcium** – Orotate is far superior to any other form of calcium in recalcifying bone that has been lost because of metastatic cancer, along with vit K it also helps to diminish pain.

**Potassium and Magnesium** –The aspartate form helps in the production of ATP-Adenosine Tri Phosphate (spark plugs for the cells) that is needed to insure the optimal functioning of the host's defense system. Magnesium improves the activity of white granulocytic blood cells and increases the production of immune-defensive substances, including antibodies. Increased potassium intake is associated with decreased cancer risk, whereas increased sodium intake is associated with increased cancer risk. Generally intracellular potassium concentrations are higher in noncancerous tissues than in cancerous tissues. Intracellular sodium is higher in tumor cells than in normal cells. Villous tumors of the large bowel are prone to become malignant at an earlier stage in potassium-depleted patients. Magnesium is involved with over 300 enzymatic reactions in the body. In rat studies magnesium deficiency caused neoplastic growths of both lymphomas and leukemia's. Many people have low levels of magnesium to begin with, and when they undergo chemotherapy and /or radiation therapy, their need for magnesium as well as potassium become critical. The drugs cisplatin, cyclophosphamide, vinblastine, bleomycin, cyclosporin, and taxol cause depletion of magnesium. It is important to supplement well after getting off these drugs at least 6 weeks. Magnesium Glycinate (Albion Labs) is the best form for absorption and is Yance's preferred form.

**Cisplatin and Hypomagnesemia** – Cisplatin therapy may cause renal tubular magnesium wasting. Yance recommends a continual supplementation of magnesium aspartate hydrochloride during cisplatin therapy. \*\*\*\*

**Potassium Iodide and Tumor Growth** – It is thought that potassium iodide has an effect on pituitary function mediated through the thyroid gland. This leads to decreased estrogen production in the body due to the inhibition of follicle-stimulating function and stimulation of luteinizing function of the pituitary. It may change hormonal actions within the tumor. (Especially estrogen positive cancers)

**Iodine** – Is a very important correlating factor in breast, ovarian, and endometrial cancers. Low iodine levels may allow an imbalance of estrogens. At least 75% of the breast and ovarian cancer patients Donny Yance sees are Hypothyroid. The 2 products he recommends other than eating a diet rich in kelp products are Ocean Herbs from New Chapter 2 to 6 capsules a day and Atomidine, an iodine solution that is helpful in cases of enlarged glands, tonsillitis, fibrocystic breast disease, fibroid tumors, and congestion of the ovaries accompanied by pain. It may be used both internally and externally. Normally 1 to 6 drops a day both internally and externally. Check the basal metabolic temperature and adjust the dosage accordingly. (Ask for an information sheet on checking your basal temperature from Brighter Day)

**Selenium** – Is the best-documented anti-cancer mineral it is critical in cancer therapy – it is an active compound against cancer. It is a potent inducer of cell-mediated immunity. Blood levels of this trace mineral are usually depressed in cancer patients. Its main function is to convert hydrogen peroxide to water. It has the ability to alter the metabolism of some carcinogens and can be effective in inhibiting the initiation phase of carcinogens. It inhibits virally induced mammary cancers. 200mcgs of selenium containing yeast reduced the incidence of cancer 50% in a 1996 study published by the NJM – in lung, colon and prostate cancers. The higher the level of selenium, the lower the incidence of tumor formation. Prostate Cancer, Ovarian Cancer, Skin Cancer and Bowel Cancer all are positively affected by selenium especially in prevention. 200mcgs to 400mcgs(max, dose), Jarrow Formulas Selenium is excellent also New Chapter or Yeast Grown Selenium supplements are several preferred forms. Selenium is important for liver detoxification it also helps with thyroid – the selenoproteins helps in the conversion of thyroid hormone T4 into the more active T3. Michael Tierra recommends 700mcgs a day. Using a combination of New Chapter selenium 400mcgs and Twin labs Sodium Selenite 250mcgs could be a way to use the best of both forms of selenium. One of the most recent studies showed that selenium may protect only men, not women when men who had low levels of selenium in their diets took selenium at 200mcgs there was a 50% drop in prostate cancer risk. Yeast Bound seleniums are held in the body more efficiently. Jarrow formulas makes a high quality selenium supplement which focuses support for glutathione production also.

**Selenium and Chemotherapy** – selenium has a protective effect against cisplatin-induced nephrotoxicity and bone marrow suppression. The kind of cancers being treated included lung, breast, stomach, esophagus and colon. Sodium Selenite is directly cytotoxic to cancer cells. \*\*\*\*\*

**Molybdenum** – Has been shown to inhibit and reduce the incidence of esophageal cancer. Molybdenum helps the liver chelate and excrete excess copper. A low uric acid count can sometime indicate a need for molybdenum. Yance has found that excess copper can stimulate cancer growth.

**Potassium Iodide** – makes cancer cells die. It protects us from leukemia, potassium iodide is very important in breast cancer – *this information was taken from an audio lecture from the Canadian nutritionist Lorna Vanderhaghe from a audio lecture off of her website on the relationship between Adrenals, Thyroid & Liver.*

**Cesium Chloride** – Belongs to a class of alkali metals that include lithium, potassium, and sodium. Cesium most resembles potassium and lithium most resembles sodium. Cesium chloride taken in high doses 3 – 6 grams a day can temporarily raise the pH of certain tissues, tumor cells in particular. When the pH is elevated enough in a tumor cell, necrosis will follow. Cesium when given to cancer patients in dosages of 6 grams per day will raise the intracellular pH in tumor cells to eight units, a level incompatible with the life of a tumor. This will also reduce the painful acids produced by the tumor. Even in high doses cesium produces little, if any side effects other than creating a greater need for potassium and magnesium – be sure to supplement these if using this. *Note: Cesium Chloride does not work well in the long run. Cancer cells eventually adapt to the altered pH levels in the body and can continue to grow –update from 6/05 lecture from Donald Yance.*

**Zinc** – Is important for T-cell and natural killer-cell functions, it induces the production of interferon. Zinc can improve appetite and it can correct taste abnormalities caused by radiation therapy to the head or neck. Most people with cancer are low in zinc. Donny Yance has never found a cancer patient who isn't zinc deficient. It takes a good amount of zinc to bring them back up. Yance uses 20 up to 120mg a day – he backs them down from the high dose once they are in balance. You can test yourself for your zinc levels by doing a zinc status test (available at Brighter Day for around \$ 1.00 ) you take a teaspoon of Ethical Nutrients Zinc status (zinc sulphate solution) and hold it in your mouth for about 20 seconds then swallow. If the solution tastes like water you are deficient in zinc – the more zinc you have in your tissues the more the solution tastes metallic (like licking a galvanized tin roof). New Chapter makes the most bioavailable and least nauseating form. \*\*\*\*\* Do not take zinc while taking cisplatin or carboplatin.

**Coenzyme Q10** – CoQ10 – CoQ10 enhances the energy production of the mitochondria and so supports the heart, muscles, brain and gum tissue and any other tissue dependent on mitochondria. It enhances the removal of foreign material 2X as fast among individuals using the supplement as compared to those who do not. This is particularly important for people with cancer because toxin removal is crucial to healing. Cancer itself causes toxins to accumulate, but chemo and radiation cause even more stress to the detoxifying systems of the body. It is especially important to take when the patient is on the chemotherapy drug Adriamycin which depletes CoQ10 levels in the heart. When used with this drug heart damage doesn't occur. A study done on Breast Cancer and high doses of CoQ10 brought a lot of attention to CoQ10 and cancer a number of years ago. Yance recommends anywhere from 30 – 400mg a day. \*\*\*\*\*

**Alpha Lipoic Acid** – Is one of Yance's favorite and most frequently prescribed supplements. Essential to ATP production and cell efficiency it works with glutathione to protect the cell and increase glutathione even more than NAC. It is an anti-toxin and has radiation-protective properties. It protects the liver. It can regenerate not only the liver but also nerve tissue. It is an excellent treatment for chemotherapy-induced neuropathy as well as many other problems caused by chemotherapy. It enhances Vit C, E and NAC increasing glutathione more effectively than any other supplement available. It is used to treat hypoxia, a state of low oxygen uptake by the tissues and muscles. It reduces lactic and pyruvic acids. Cancer produces and excess of lactic acid, which helps the cancer to multiply, metastasize, and create angiogenic factors. It activates T-cell function, regenerates glutathione, and prevents oncogene activation. Cancer being a sugar lover causes an increase in glycation (this process also happens in diabetics) Lipoic acid protects against this. Yance believes the effects of Lipoic acid can be dramatic. He believes it works synergistically with omega 3 fatty acids and sulfur-rich proteins - which helps with detoxification. (Joanna Budwig uses flax oil in cottage cheese to get the omega 3 and sulphur rich proteins together perhaps alpha lipoic acid could enhance this effect). \*\*\*\*\*

**Glutathione (GSH)** – Supplementing the diet with Vit C, lipoic acid, NAC, the amino acids L-Glutamine and Glycine and reduced glutathione itself, as well as herbs such as milk thistle and turmeric, will protect, maintain and enhance glutathione levels. Enhancement of glutathione is a critical part to any successful program for both preventing and treating cancer. Cancer by its very nature, depletes GSH. Chemotherapy and radiation therapy also deplete GSH, making these supplements critical when cancer patients are undergoing such therapies. In a study with ovarian cancer using the drug cisplatin, more cycles of the cisplatin treatment could be administered because less toxicity occurred. Glutathione also produced a statistically significant improvement in depression, nausea, peripheral neurotoxicity, hair loss, and shortness of breath. Yance also uses schizandra seed, and whey protein added to the supplements at the top of

the list. **Cisplatin** – the toxicity of cisplatin, an effective drug in the treatment of solid tumors depletes glutathione and this is a major obstacle to its use. GSH, prevents cisplatin-induced nephrotoxicity without affecting its anti-tumor activity. This allows higher doses of cisplatin to be used safely improving its efficacy against certain tumors.

**Glycine** – Is one of the 3 amino acids involved in glutathione production and liver detoxification (great to take at night) – it tastes like sugar so the powdered form is the easiest to take (sold in bulk at Brighter Day) – it helps GABA and relaxes the neuro muscular system. (in animal studies it reduced tumors and inhibited tumor growth)

**NAC – N-Acetyl Cysteine** – acts as a precursor to GSH (Glutathione) without it GSH cannot be synthesized (Jarrow Formulas Thio-NAC is an excellent precursor product along with reduced glutathione-they also market reduced glutathione). GSH also plays a role in protecting the nervous system. Using NAC, Lipoic acid (Thio-NAC Jarrow Formulas) and vitamin C will raise glutathione levels better than taking it itself. NAC is a potent cancer-preventative agent. NAC has been shown to enhance IL-2 (interleukin 2) because it raises GSH. Studies have demonstrated an average increase of 38% in blood plasma glutathione levels due to supplementing NAC. NAC when taken with selenium inhibits aggressive growth in cancer. It is excellent for protecting the liver and enhancing the liver's ability to detoxify. It is an excellent mucolytic for mucous congestion. \*\*\*\*\* Do not take NAC while taking cisplatin or adriamycin.

**L-Arginine** – Supplementation with L-Arginine has significantly increased the quantity and cytotoxic activity of NK cells and lymphokine-activated cells in patients with breast cancer in one study. L-arginine possesses anti-atherogenic, lipid lowering, vascular dilation, cardio-tonic, Human Growth Hormone enhancement, antioxidant, and immunomodulatory actions. It also has wound-repair activity. A positive study conducted by a team of German researchers showed that arginine contributed significantly to immune function by increasing levels of white blood cells. Scottish scientists added that dietary supplementation with arginine in breast cancer patients enhanced NK cell activity and lymphokine cytotoxicity. Arginine supplementation was found to inhibit chemically induced colon cancer. Arginine has a positive impact on the healing of gastric ulcers, bone fractures, diabetic foot ulcers, 2<sup>nd</sup> degree burns, radiation enteritis, and ulcerative lesions of the small intestines. Arginine is highly effective for pulmonary hypertension (Rhodiola helps this also).

**Taurine** – An amino acid – anti-seizure, liver enhancing, detoxifies chemicals and heavy metals helps glutathione levels, acts as a calcium channel blocking agent to help regulate blood pressure, anti-seizure helps with seizure management.

**Creatine** – According to Yancey might be one of the best neuro agents in the world. Its great for neurological and muscular systems. Creatine can be added along with L-Glutamine and Coconut in Whey Protein shakes for weight loss and cachexia. Read the information sheet on Donald Yancey's formula from Natura on Beyond Whey. Creatine is an anabolic nutrient – very critical for aiding ATP & cellular energy and enhancing mitochondrial health. Its main use to build up muscle tissue.

**Glutamine** – Glutamine levels decline markedly during periods of injury, illness, trauma, radiation therapy and stress, leading to muscle wasting. It is best taken sublingually (under the tongue) for maximum absorption. Glutamine protects the gut mucosa. During (TPN) total parenteral nutrition glutamine protects the intestinal villi. Glutamine may be second only to glucose as a source of fuel for the body, but while glucose feeds tumor growth, glutamine does not. It is considered an essential amino acid for sick people. Glutamine helps balance nitrogen in the body. Cancer patients who are in a catabolic state, causing them to lose vital muscle tissue are deficient and will benefit taking L-glutamine. Foods such as spinach, kale and parsley are rich in constituents that form glutathione. People recovering from surgery or radiation therapy experience less weight loss and speedier recovery using it than those who don't. It also enhances chemotherapy and reduces the toxicity of chemotherapy. The immune cells need glutamine. Glutamine assists in the production of NK cells and glutathione. Glutamine has the best research of any amino acid in helping to offset the side effects of chemotherapy. L-Glutamine in doses of 5 to 30 grams a day helps the drugs – Taxitir, Taxol, Methytrexate, 5 FU, and Zeloda. Glutamine reduced the neuropathy induced by chemotherapy at doses of 10 – 30 grams a day. Yancey recommends 1 to 2 teaspoons 1 – 3X a day. (Now Brand Bulk L-Glutamine is the best value available at Brighter Day). Glutamine helps remove ammonia from the body (ammonia is an excitatory neurotoxin). L-Glutamine is very protective against radiation particularly the bowel and rectal area or cervical area. It drastically reduces the diarrhea induced by those treatments (these are sometimes lifelong). To make glutamine taste better mix 1 part Glycine (an amino acid that tastes just like sugar and is also good for liver detoxification) with 3 to 4 parts L-Glutamine and take under the tongue. Yancey in 6/01 said L-Glutamine was very under-rated take 10 to 30 grams a day it helps heal all tissue in the body. Recent publications have stated that covalent bonded glutamine delivers up to 10X more glutamine to the blood stream than L-glutamine. Covalent bonded (magnesium Glyco Glutamine) is needed in smaller doses 2 to 5 grams a day will do the job. \*\*\*\*\*

**SOD – Superoxide dismutase – Glisodin** – a totally absorbable form of SOD derived from cantaloupe. This nutrient helps build Glutathione levels up in the body. Therapeutically it lowers high lactic acid levels. This can be very valuable when cancer is advanced and the individual is in a lot of pain. Therapeutic dose levels to lower lactic acid levels are 500 to 1,000mg a day. Thanks to Carl Germano for this information from a radio interview with him.

**Calcium D-Glucarate (CDG)** – Calcium-D-glucarate is the calcium salt of D-glucaric acid, a substance produced naturally in humans. Glucaric acid is also found in many fruits and vegetables with the highest concentrations to be found in oranges, apples, grapefruit, and cruciferous vegetables especially broccoli and cauliflower. Oral supplementation of calcium-D-glucarate has been shown to inhibit beta-glucuronidase, an enzyme produced by colonic microflora and involved in Phase 2 liver detoxification. When this enzyme is elevated it's showing this system of detoxification is stressing. Elevated beta-glucuronidase activity is associated with an increased risk for various cancers, particularly hormone-dependent cancers such as breast, prostate, lung and colon cancers. It increases glucuronidation and excretion of potentially toxic compounds. A number of studies have shown calcium-D-glucarate alone, and in combination with retinoids (vitamin A compounds), inhibits mammary carcinogenesis in rats by as much as 70%. It reduces serum estrogen levels, which inhibits breast tumors. It can also benefit prostate cancer. It may be a more effective than tamoxifen, which has numerous side effects. Yance recommends 2 to 4 500mg cap. 2 – 3X a day. **Chrysin** (Jarrow Formulas), an aromatase inhibitor works a lot better than Tamoxifen. (Yance 6/01)

**Flavanoids** – referred to as “biological response modifiers” possess anti-inflammatory, antiallergic, antiviral, and anticarcinogenic properties and are antioxidants. They remove toxic copper from the body. Because they inhibit carcinogenesis by several mechanisms Flavanoids inhibit mitosis – the rate of uncontrolled cell division caused by cancer. They block the docking of cancer cells on the surface of healthy cells. They inhibit collagen breakdown, which inhibits tumor invasion and metastasis. Flavanoids bind with Laminin (reducing tumor activation and tumor invasion). They inhibit genetic viral and chemically induced damage to cells and inhibit the blood supply to a tumor. Yance uses more than 1 – Grape Seed Extract 100 – 200mg 2 to 6X a day and Quercetin 500 – 1,000mg 3X a day. Also use with Green Tea. \*\*\*\*\*

Chamomile, Apples, Onions and green tea contain numerous flavanoids called apigenin, luteolin and amentoflavone all of these foods have numerous benefits. Eat lots of berries and add frozen berries to your shakes. *Ask for the handout on Nutraceuticals from Brighter Day for more information on food sources of flavanoids and many other anti-cancer foods.*

**OPC's from grape seed extract** – help with post surgical lymphedema in women with breast cancer who have had lymph node dissections. Grape seed extract inhibits post-radiation scarring in breast cancer patients. The antioxidants in grape seed and skin extracts prevent scarring caused by radiation fibrosis. The condition in which tissue around the breasts becomes hard and stiff can occur as a result of radiotherapy years after it has been carried out. Grape seed extract inhibits advanced human prostate tumor growth and angiogenesis and upregulates insulin-like growth factor binding protein-3. Also bromelain and butchers broom and horse chestnut extract work synergistically with it. \*\*\*\*\* Dose level 95% OPC's with grape skin extract 100 – 200mg/day regular dose. Cancer adjuvant dose 400-800mg/day.

**Quercetin** – is one of the most powerful anti-cancer agents found in nature. By blocking pro-inflammatory reactions in the body that release arachidonic acid into the cells, quercetin acts as a powerful inhibitor of the tumor promoting PGE-2. It has been shown to inhibit the growth of several human cancer-cell lines, including breast + - estrogen receptor, ovarian, squamous cell, cervical, bladder, and gastric cancers, plus acute leukemia and some lymphomas. Quercetin inhibits multi-drug resistance within the tumor-cell line, which can lead to chemotherapy resistance within the tumor cell this results in the cytotoxic drug no longer doing its job. Heat Shock Proteins are also involved in MDR(Multi Drug Resistance), Quercetin and Resveratrol have both been shown to inhibit Heat Shock Proteins and enhance cytotoxic therapies. Quercetin keeps the cancer cells vulnerable to the chemotherapy. Quercetin binds to type II estrogen-binding sites more effectively than the anti-estrogen drug tamoxifen. Quercetin inhibits the mutation of the tumor suppressor protein gene p53. There is no supplement Yance recommends more than Quercetin. Take it with bromelain 30 min before meals 1.5 to 3 grams per day in divided doses. \*\*\*\*\*

**Essential Fatty Acids (EFA's)** – Flaxseed oil is rich in essential fatty acids, particularly ALA which when taken in combination with sulfur-rich proteins actually works to create a new food. Joanna Budwig found that feeding people with terminal cancer this oil-protein combination the yellowish-green substance in their blood was replaced by the healthy red pigment, hemoglobin. *Of all the deficiencies that may exist in people with cancer, perhaps that are most important and most ignored are the EFA's* which when taken with protein, enhance our albumin levels. Albumin is a blood protein of immense importance to good health. To get this combination add 1 to 2 teaspoons of flaxseed oil or ground flaxseeds to 1 cup of organic yogurt or Helios brand of organic kefir or organic cottage cheese. Omega 3 fatty acids are important because they modulate prostaglandins. They suppress tumor-promoting E2 and inhibit cancer wasting. EPA, ALA and GLA(helps prostaglandin series 1) have been found to kill a number of tumor-cell lines. GLA has been found to potentiate the effects of Taxitier and Taxol. Yance uses Siberian Pine Seed Oil for GLA. Nordic

Naturals, Eskimo 3, Natural Factors, Carlson and Fisol are high quality fish oils. Udo's choice essential fat blend is my favorite plant oil blend. Health From The Sun – Total EFA is also good. \*\*\*\*\*

**Fish Oils** – There is now a substantial amount of research that has shown that omega 3 (n-3) fatty acids enhance immune function and reduce cancer growth. Diets high in n-3 fatty acids, exert suppressive effects on cancer growth and are associated with impaired angiogenesis. Fish Oils down regulate protein kinase C, reduces inflammatory PG2 & Prostaglandin E2. Both EPA and DHA have shown to inhibit metastasis of several cancer cell lines including breast and colon cancer. Dietary n-3 fatty acids inhibit the growth of pre-existing breast cancer micrometastases when used as adjuvant nutritional therapy after excision of the primary tumor. Most likely the suppression of angiogenesis contributes to this therapeutic effect. Another beneficial effect of n-3 fatty acids in cancer therapy is its ability to treat malnutrition and inhibit cachexia-wasting that occurs in late-stage cancer. N-3 fatty acids have shown to improve immune function, effect tumor necrosis factor, and most important improve the quality and prolong the life of patients with generalized malignancy. The study concludes by saying clinical application of supplemental fish oil in cancer therapy is long overdue. Fish Oil induced apoptosis in lymphoma cells. In Michael Murray's book on cancer, he states that fish oil supplementation cannot be stressed enough – get a dose of at least 700 – 1000mg of EPA and 400 – 800 mg of DHA daily. Donny Yance recommends 3 parts EPA = 2 grams, 2pts DHA= 1 gram and 1pt GLA = 500mg a day. Sometimes he doubles this dose depending on the case. Fish oils supplements not only address many of the underlying biochemical features of cancer but also have been shown to address quite effectively the underlying features that contribute to cancer cachexia. Fish Oil supplementation along with vitamin E has also been shown to produce favorable effects on immune status and the survival of cancer patients. Nordic Naturals liquid Cod Liver Oil or Liquid Omega 3 taste decent (believe it or not) and offer the best quality, price and dose. Carlson brand Cod Liver Oil is also good. Natural Factors pharmaceutical grade fish oil from Dr. Murray is excellent; Nordic Naturals Omega 3 capsules are excellent. Other good products are Natures Way Fisol, Enzymatic Therapy Eskimo-3, and Health From the Sun's Fish Oil. – Ask for the handout sheet by Dr Perlmutter MD and on series 1,2 &3 prostaglandin's from Brighter Day.

**Squalene** – is especially indicated for those cancers of a herpes virus origin – for example cervical cancer. Squalene activates glutathione transferase. It potentiates the cytotoxicity and antitumor activity of Adriamycin, 5-FU, and cis-platinum. Olive oil is also rich in squalene. It has an enhancing effect on cellular oxygen uptake, which produces a more efficient metabolism at the cellular level. By oxygenating the cells of the body, it is able to impair the development and proliferation of tumors. Hans Neiper belied squalene normalizes DHEA. It also inhibits multi-drug resistance. *Ask for info sheet on squalene from cardiovascular research from Brighter Day.*

**Alkylglycerols** – have been shown to be powerful protectors of bone marrow function during chemotherapy and radiation. They can inhibit leucopenia, (white blood cell suppression), thrombocytopenia (low platelet count) and to a lesser extent anemia. (Amino Acid and Botanical Supply has the best and most potent on their label they have the suggested therapeutic doses) \*\*\*\*\*

**Medium Chain Triglycerides** – are used to induce the body's energy source to derive from fats rather than sugar (glucose). Maintaining low levels of blood glucose selectively starves tumors. MCT oil (Twin Labs) can aid in keeping blood glucose levels low – it is also a very easily absorbable source of energy. Cancer cells gobble up sugar 10 – 17X more than normal cells do. Tumors of the central nervous system seem to be the most sensitive to glucose, but all cancerous growth is fed by glucose. Brain tumors love glucose. Inhibiting the feeding of cancer cells of sugar without interfering with normal cell metabolism may be one important aspect to slowing or stopping tumor growth and inhibiting cachexia. Cachexia, not the cancer itself, is what makes some cancers fatal. Coconut milk is a rich source of medium chain triglycerides. Look for the unsweetened cans in the Thai food section of your food store. \*\*\*\*\*

**Lecithin** – is recommended for those using methotrexate as a cancer therapy. Lecithin may also enhance the proper utilization of EFAs, such as converting Flax Seed Oil –ALA into PG3. It helps people with high homocysteine levels.

**Butyric Acid** – Foods that are rich in butyric acid are cottage cheese, yogurt (whole organic milk), and butter. It induces cell differentiation in mouse leukemia cells, human carcinoma, and colon carcinoma cell lines. When fiber is exposed to colonic flora, butyrate is the major metabolite. Dr Johnathan Wright MD has found that colon cancer risk is high when butyrate is low. Inulin found in Burdock Root and Jerusalem Artichokes and Chicory Root or Inulin powder by itself (Now Foods) stimulates Butyric Acid production in the intestines.

**CLA – Conjugated Linoleic Acid** – is an anti-carcinogen, studies done with mice showed it inhibited mammary tumors. It is found in meat and dairy products and its efficacy in cancer protection occurs at levels that are normally consumed by humans. Only organic meat and dairy should be consumed whenever possible because of the chemicals and growth hormones found in commercial meat and dairy products.

**DMG** – Lowers lactic acid levels and can help with the pain of cancer. It improves oxygen utilization. It possesses anti-cancer activity helping to prevent metastasis. DMG acts on the body to reduce the effects of hypoxia (low oxygen

availability in the tissues ) and reduces lactic acid buildup. Research at Clemson Univ. has show that DMG enhances both B- and T-cell production as well as stimulates the production of cytokines such as interferon, tumor necrosis factor, and a number of interleukins. In animal studies DMG also has a direct toxic effect on a wide range of cancer cells including breast, prostate and ovarian cancers.

**Enzymes** – Act as anti-inflammatory, fibrinolytic, and thrombolytic agents in the body. Fibrinogen is 4 – 15X higher in cancerous tissue as compared to healthy tissue; the protective fibrin net that surrounds cancer cells helps to protect them from our own immune system. Often enzymes work well with mushroom extracts (maitake) taken between meals to synergistically break down fibrin (bromelain or pancreatic enzymes)\*\*\*\*\*

**Natto Kinase** – is a “clot buster enzyme” derived from soy. It is the most noted anti-thrombolytic enzyme – used to help dissolve blood clots, it doesn’t interact with coumadin and can be taken with it. (coumadin users become calcified ie. Athlerosclerosis and kidney stones over a period of time).

**Proteolytic enzymes:** Digest immune (antigen/antibody) complexes and facilitate normal macrophage function, they may also digest the fibrin stroma with which cancer cells protect themselves. Bromelain, papain, trypsin and chymotrypsin (pancreatic enzymes) all stimulate cytokine activation and induce shedding fo TNF (Tumor Necrosis Factor ) receptors by cancer cells.

**Wobenzyme – Mega –Zyme (Enzymatic Therapy) – Zymactive (Natural Factors) Michael Murray’s super potent enzyme** – are used as an adjunct to radiation therapy and to inhibit metastatic cancer. The enzymes are strong modulators of the immune system because they activate macrophages that induce phagocytosis and release tumor necrosis factor-alpha (TNA-alpha), TNF-beta, IL-1 and IL-2. They also activate cytotoxic lymphocytes and natural killer cells. They stimulate lymphocytes to infiltrate tumor sites. Circulating immune complexes (CIC) are known to be present in people with cancer and are responsible for much of the cancer-associated immuno-suppression. Removal or modulation of these blocking factors can reverse this condition. In one study of the use of enzymes combined with radiation therapy showed that those taking enzymes had a greater sense of general well-being, were better able to tolerate radiation, and required fewer drugs to offset the side effects of radiation treatments.

Yance’s combination protocol includes:

- 1- Zymactive (Natural Factors) or Wobenzyme or Bromelain
- 2- Turmeric extract tablets containing 95% curcumin (Source Naturals)
- 3- Quercetin
- 4- Mushroom extract tablets

Fibrin is used by the cancer cells as a form of camouflage called glycoprotein shield. This protects the cancer cells from the immune system. Proteolytic enzymes, along with turmeric (which acts as an anticoagulant and fibrolytic agent), unmask the fibrin coating of cancer cells, thereby allowing attack from the immune system. This removes the stickiness of the cancer cell and helps to reduce the spread of cancer. Proteolytic enzymes may also benefit patients undergoing radiation/chemotherapy by reducing side effects and exposing cancer cells to the therapy allowing for better effectiveness. \*\*\*\*\* (the therapeutic dose for Wobenzyme is 10 tablets 3x a day 1 hour before meals – Zymactive is 2x + as potent so less tablets are needed – Wobenzyme has the greatest amount of clinical studies done on it in Germany)

**Bromelain** – Is an aqueous extract from pineapple stem that contains proteinases and exhibits numerous therapeutic effects, ie. Anti-edema, anti-inflammatory, anti-metastatic, anti-thrombotic, and bibrinolytic activities. Bromelain increases the “appetite” of macrophages and the potency of natural killer (NK) cells – 7 to 10X. Proteolytic enzymes can break up existing pathogenic immune complexes and even prevent their formation in the first place, enhancing lymphatic drainage. Proteolytic enzyme modulate the inflammatory process by a variety of mechanisms, including reducing the swelling of mucous membranes, decreasing capillary permeability, and dissolving blood clot-forming fibrin deposits and microthrombi. By reducing the viscosity (thickness) of the blood, enzymes improve circulation. This increases the supply of oxygen and nutrients to and the transportation of harmful waste products away from traumatized tissue. This facilitates their passage through the lymphatic system, resulting in more rapid resolution of inflammation. Bromelain causes interference with the growth of malignant cells by inhibiting the production of a mucous substance that protects the surface of the cancer cell from identification and docking by the lymph cells. This is one of the ways cancer cells elude the body’s defenses. Bromelain inactivates prostaglandin E2 and thromboxanes – these 2 things normally are produced by the cancer to keep the tumor-killing function of the macrophages inactive. The enzymatic deshielding effects of bromelian are also necessary to prevent metastasis. Bromelian has been shown to inhibit the metastasis of breast and ovarian cancer. Cancer cells produce excessive amounts of fibrin and therefore people who have cancer are more likely to develop blood clots, emboli, phlebitis and thromboses. Fibrin is used by the cancer cells as a form of camouflage referred to as a glycoprotein shield. This protects the cancer cells from our immune system. Proteolytic enzymes, along with turmeric (which acts as an anticoagulant and fibrinolytic agent) unmask, in part, by activating macrophages to dissolve the fibrin coating of cancer cells, thereby allowing attack from the immune system. This removes the stickiness of the cancer cell and helps to reduce the spread of cancer. Bromelain causes interference with the growth of malignant cells by inhibiting the production of a mucus substance that protects the surface of the cancer cell from identification and docking by the lymph cells. The enzymatic deshielding effects of bromelain are also necessary to prevent metastasis. Bromelian has also been shown to enhance the cytotoxic effects of

many chemotherapeutic drugs including 5-FU and vincristine. Undiluted 2400 GDU is best. Yance recommends that bromelain, quercetin and turmeric be taken together 30min before meals. Their combined action is very powerful. He recommends bromelain even more often than Wobenzyme although he uses them both. Yance recommends 1000mg – 2400GDU – 3 – 4x a day between meals is an essential part of his protocol. \*\*\*\*\*

**Gliomas** – Bromelain significantly and reversibly reduced glioma cell adhesion, migration, and invasion without affecting cell viability, even after treatment periods extending over several months.

**Nattokinase** – is a potent fibrinolytic enzyme extracted and purified from the traditional Japanese food called natto. Research has shown nattokinase to support the body in breaking up and dissolving the unhealthy coagulation of blood and to support fibrinolytic activity. Nattokinase is an effective agent at dissolving thrombus, decreasing the risk of cardiac and cerebral infarction (blood clots associated with heart attacks and strokes). The presence of soluble fibrin monomers leads to a reflexive increase of the synthesis of fibrinogen, which causes a “clumping”, or “gumming-up” of the microcirculation. This in turn, creates blood stagnation and inefficient cellular exchange of oxygen, nutrients, carbon dioxide and other waste products of metabolism within the blood. Thus the fundamental cellular energy producing and waste removal systems become compromised. Because Nattokinase closely resembles plasmin it dissolves fibrin directly. Nattokinase produces a prolonged effect, different from drugs that wear off shortly after administration. By preventing or reducing fibrin accumulation you can enable the body to transport oxygen and nutrients more efficiently as well as removal of cellular and tissue waste. Clinical studies link high levels of uPA and plasminogen activator inhibitor-1 with poor prognosis.

**Lumbrokinase** – is an enzyme derived from the earthworm is currently the enzyme Donny Yance favors.

### **Glandular Supplements**

**Spleen Extracts – Polyagra** – Spleen extracts contains 2 polypeptides tuftsin and splenopentin. Tuftsin increases macrophage against cancer cells and splenopentin increases white blood-cell production if it is suppressed, as well as other immune-regulating compounds. Spleen extracts inhibit the spreading of tumor metastases reduces the damaging effect from radiation and induces interferon production. The product from Germany Polyagra is thought to increase the output of a protein called gamma-interferon. This chemical acts as a communications link between the macrophages and lymphocytes. A low gamma interferon level is a common problem among cancer patients – significantly impairs immune function. The best results with Polyagra were found in Breast Cancer Patients and patients suffering from colon and other carcinomas. Lung cancer patients did not respond well to it. Oral doses for 4 months improved appetite, reduced pain, increases energy and activity levels and improved the general sense of well-being. Each tablet contains 100mg of polypeptides. People weighing under 140lbs should take 1 –3x a day. For each 40 lbs of weight add 1 additional tablet. 1- 4x a day ect. \*\*\*\*

**Thymus Extract** – Increases the activity and number of T-lymphocytes and boosts the gland’s level of testosterone, which migrates directly into the nucleus of the cancer cell, where its natural gene-repairing factor erases its erroneous genetic programming. This either kills the cancer cell or causes it to revert to normal. **Thymic Protein A** acts as a software program that turns on the immune systems computer system. Many people who undergo chemotherapy and radiation therapy die of opportunistic infections because of the weakening effects the therapies have on the immune system. Thymic Protein A is one of the more valuable supplements available to enhance the immune system.\*\*\*\* Enzymatic Therapy makes a product called **Thymulus** with standardized astragalus this formula can be useful for all cancer patients, but especially those whose immune systems have been compromised as a result of chemo and radiation therapy. \*\*\*

**Liquid Liver Extract – Enzymatic Therapy** – Yance recommends this supplement to cancer patients and has found it helpful in strengthening not only the liver but also the entire body. It is also very useful in treating the anemia caused by the cancer itself or by chemotherapy or hormone therapy. 1 capsule is = to 1oz of fresh liver.

**Urea** – available in powder form. Urea is derived from urine but there are interesting studies in its use in Liver Cancer. Google this topic and investigate its potential. Consider combining it with vitamin K2 for liver cancer.

### **Other Useful Supplements –**

**Avemar** – A fermented wheat germ extract from Hungary – it is approved as a cancer drug there. Avemar blocks glucose from feeding a cancer cell. Glucose is the major food for cancer cells – so its action is to starve cancer cells of glucose. You take 1 packet of the powder daily.

**Chlorella** – is a one-celled green algae food that is highly nutritive. It contains 58% protein, vits, mins, trace elements, and the highest chlorophyll content of any food in the world. Chlorella has been shown to improve immune function in

people undergoing chemotherapy and / or radiation therapy. Chlorella increases macrophage activity, activates both T-cells and B-cells, and has shown antitumor effects. Chlorellan, a substance found in chlorella, stimulates interferon production. Chlorella growth factor, or CGF is believed to be one group of compounds in chlorella that give it its health-promoting ability. It stimulates the growth of friendly bacteria, which strengthens gut flora and resisting disease. In mice tumor growth could be stopped or reduced by injecting chlorella around the cancer growth. The same researchers found that oral doses of chlorella were still significant as an anti-tumor factor. A study published in Japan in 1992 showed that chlorella has impressive effects on blood chemistry. It increased red blood cells, white blood cells, platelets, and albumin. The ability of chlorella to increase albumin is vitally important because so many people with cancer have a decreased level of albumin. This decreased level correlates with a poor prognosis; chlorella is a truly important supplement for anyone whose albumin level is low. Yance believes chlorella is the best of all algae products, particularly for people with cancer and/ or a weak constitution. Make sure the chlorella you use is broken cell wall. Sun Chlorella is the best and most expensive, we often recommend using the bulk chlorella at our store (Source Naturals or Jarrow Formula's –Yaemeya , or Now Foods) it is quite economical this way. You can put it into your protein shakes easily. \*\*\*\*\* *see info on spirulina under the sea herbs section.*

**DHEA** – A hormone produced by the adrenals. Is considered a “mother hormone” in that the body makes other hormones from it. DHEA typically counters cortisol. They oppose each other. DHEA is an immunological surveillance hormone. Hans Neiper found the connection that when DHEA levels are low oncogenes get activated and so it initiates the genetics that lead to genetic breakdown and the start of cancer. Adaptagens typically help balance DHEA levels.

**Greens Plus / Enriching Greens or other Super Green Foods Mixtures** – Provides optimum alkaline pH for every cell in the body. Highly nourishing easy to digest it's like eating a big plate of fresh raw vegetables and fruits. These products are an ideal way to support the body when someone has cancer. Michael Murray ND strongly recommends them. \*\*\*\*\**see info sheet available*

**Haelen or Haelen - 851**– Soybean Extract (it is one of the richest sources of Genistein available) – Michael Tierra believes this is one of the most valuable anticancer food agents it is a special fermented soybean extract that was first developed in a cancer hospital in China. It is made by concentrating approximately 25 to 27 pounds of organic soybeans down to 8 oz of liquid. This is an expensive product. It is recommended that one 8-ounce bottle a day is taken for the first month. For the 2<sup>nd</sup> month and after take 4 oz daily. It is the richest source of cancer-blocking genistein and phytoestrogens. See p.366-367 in Michael Tierra's book for more detailed information.

**(DIM) Diindylmethane & (I3C) Indole-3-carbinol** – (DIM) is the bioactive form of Indole-3-carbinol (I3C) which is a compound found in cruciferous vegetables. It is next to impossible to consume enough of these vegetables to alter a beneficial shift in estrogen metabolism and support liver detoxification. I3C and DIM modify cytochrome p450 enzyme and carcinogen metabolism. These in turn help produce healthy hormonal balance, promoting normal cell growth and division, and inducing programmed cell death (apoptosis). DIM, as well as I3C, promotes healthier estrogen metabolism by preventing the receptor binding of “stronger” more stimulating estrogens. I3C and DIM induce Phase 1 and Phase 2 enzymes involved in carcinogen metabolism. DIM can induce apoptosis in breast cancer cells independent of estrogen receptor status by a process that is mediated by the modulated expression of the Bax/Bcl-2 family of apoptotic regulatory factors.

**Sulforaphane** – exists in cruciferous vegetables such as broccoli and cabbage. In its precursor form, sulforaphane glucosinolate (SGS) functions as an indirect antioxidant. As such, this compound does not directly neutralize free radicals as do direct antioxidants like vitamins E and C and beta-carotene. Indirect antioxidants induce (or boost) the activity of the Phase 2 detoxification enzymes. Sulforaphane is the most potent booster of Phase 2 enzymes, which protects cells against disease.

**Chrysin** – is an aromatase inhibitor – derived from passion flower and is popular with bodybuilders to prevent testosterone from turning into estrogen. Yance uses it – if you are making too much estrogen

**Inulin** – Inulin has been shown to potentize chemotherapy. It is a sweet tasting powder used to stimulate the growth of probiotics and promotes butyric acid in the intestines. Add a teaspoon to a shake 1x a day or more especially if you are on chemotherapy. Now Brand Inulin Powder \*\*\*\*\* Inulins are present in onions, leeks, garlic, bananas, asparagus, chicory, Jerusalem artichokes, and burdock. Inulins are only slightly digested in the small intestine but undergo a fermentation process, which leads to increasing the production of beneficial bacteria, such as bifidobacteria, which have many health benefits. Inulins may have anti-tumor, chemo-drug enhancing activity, anti-microbial, hypolipidemic, it enhances mineral absorption and balance and may have anti-osteoporotic activity. The anti-tumor activity of inulins, might be accounted for, in part, by the production of butyrate, formed during the fermentation of inulins. Note: when starting the use of Inulin begin with small amounts – it can cause intestinal gas.

**IP-6 Inositol Hexaphosphate** – **Inositol hexaphosphate (IP-6)**, is a naturally occurring polyphosphorylated carbohydrate that is present in substantial amounts in almost all plant and mammalian cells and is found abundantly in

cereals and legumes. It has recently been the subject of many studies that have demonstrated its ability to inhibit cell proliferation and act as a chemopreventive and chemotherapeutic agent for human cancers. IP-6 is now recognized to possess multiple biological functions. The most consistent and best anticancer results were obtained from the combination of IP-6 plus inositol in a 4:1 ratio. In addition to reducing cell proliferation, IP-6 increases differentiation of malignant cells, often resulting in a reversion to normal phenotype. IP-6 holds great promise in strategies for the prevention and treatment of cancer. It enhances the anticancer effect of conventional chemotherapy, controls cancer metastases, and improves the quality of life, as shown in a pilot clinical trial. One study demonstrated that IP-6 not only decreases cellular proliferation, but also causes differentiation of malignant cells, which can result in a reversion to normal phenotype. This study strongly indicates that IP-6 works in a number of ways – by being involved in the signal transduction pathways, cell cycle regulatory genes, differentiation genes, oncogenes and even tumor suppressor genes. In addition, IP-6, which is soluble and can be administered in drinking water, is rapidly absorbed through the stomach and upper small intestine where it becomes quickly dephosphorylated within the mucosal cells and is distributed to various organs. IP-6 has shown an ability to exert its anti-neoplastic effects by significantly reducing large intestinal cancer in rats, even though the treatment was begun 5 months after carcinogenic induction, thereby demonstrating its potential use as an important chemo-intervention agent. IP-6 demonstrated significant enhancement against 3 human breast cancer cell lines in combination with adriamycin or tamoxifen. IP-6 is particularly effective against ER alpha-negative cells and adriamycin-resistant cell lines. IP-6 inhibits cancer cell adhesion to the extracellular matrix (ECM) proteins, thereby leading to inhibition of cell migration and invasion. IP-6 inhibits androgen-independent human prostate carcinoma, inducing their apoptotic death, in part by an inhibitory effect on NF-kappa B signaling pathway. IP-6 significantly inhibits the metastasis of human breast cancer cells inhibiting the secretion of matrix metalloproteinase (MMP) reducing cancer cell adhesion, migration and invasion. In the body when Ip3 levels are low (as they are in cancer cells), the cells replicate out of control. But when cancer cells are bathed in a broth with Ip3, they literally turn themselves off. Vitamin D may enhance the effectiveness of IP-6 as well as green tea. Vitamin D raises calcium levels inside tumor cells with help from IP-3 triggers a signal to release calcium from cancer cells which then results in tumor cell death. IP-6 also binds with iron and lowers levels of it in the body (*Health Reporter Bill Sardi is extremely enthusiastic about IP6 value as a chelator for iron and copper - pulling Iron and Copper levels out of the body – this may be another key factor why this works especially since both Iron and Copper are tumor growth stimulants – ask at Brighter Day for a copy of the CD interview Bill Sardi did on the Deborah Ray radio show in the fall of 2006 for more specific info or visit his website for information on it*). The combination of Ip6 with inositol has been shown to be an effective antioxidant and immune function booster. The combination is especially helpful in stimulating the activity of white blood cells (NK cells). Lab studies show that it exerts anti effects against virtually all types of cancers, including cancers of the breast, prostate, lung, skin, and brain, as well as lymphomas and leukemia. Enzymatic Therapy has a powdered product that gives the effective dose level – take on an empty stomach (they also have it in capsules blended with Maitake Mushroom extract with green tea). It has been found that green tea can greatly enhance the effectiveness of this product. This product works extremely well with chemotherapy and radiation therapies and is extremely safe. 2 teaspoons a day (7 grams) \*\*\*\*IP-6 is available in bulk from Brighter Day

**Lactobacillus Brevis** – Increases interferon production 65% in 4 weeks and increased natural killer cell activity by 57% (Japanese research) Yance uses it to increase interferon levels (it can make you have a low grade fever – like interferon therapy). Yance uses it for lymphomas, leukemias, and brain tumors. 3 caps 3x a day. At night when taking it drink a diaphoretic tea like Yarrow mixed with some peppermint. Drink 2 to 3 cups while taking a hot Epson salt bath. Source Naturals used to carry it and it has been discontinued. It may be hard to find.

**Limonene** – Is found abundantly in orange oil. Midseason sweet orange oil may contain between 80-96% limonene. It has recently become popular as a remedy for gastric reflux and hiatal hernia problems. In rodent models limonene have demonstrated chemopreventive and chemotherapeutic activity against mammary, skin, lung, pancreas, and colon tumors. They are capable of increasing tumor latency, decreasing tumor multiplicity, and causing regression of mammary carcinomas. Limonene –may help Pancreatic Cancer and in Breast Cancer it may benefit the most, Yance uses 4,000 – 8,000mg therapeutically for these. General preventative dose is 500mg/day. Cancer Adjuvant dose is 1000-2000mg 3x a day.

**Beta 1,3 Glucan** – Considered a biological response modifier of the immune system, beta 1,3 glucan has been shown to stimulate both humoral and cell-mediated immunity as well as to activate macrophages more effectively than any other agent known. Activating macrophages strengthens the immune system significantly. Beta 1,3 Glucan is recommended before and after cancer surgery to enhance healing, reduce the chance of infection, and inhibit recurring and /or metastatic cancer. Yance recommends (94% pure) 3 to 6 capsules daily (500mg each).

**Beta-Sitosterol** – In an in vitro study (test tube) with human prostate cancer cells – cancer cell growth decreased by 24% and increased apoptosis by 400%. In a study with mice the administration of beta sitosterol reduced the activity of 5-alpha reductase enzyme by 42% in the liver and 33% in the prostate gland. This decreases the conversion of testosterone to dihydrotestosterone which may reduce the stimulation of the growth of prostate cancer cells.

**Resveratrol** – found in grape leaves and red wine and Japanese Knotweed, Resveratrol is produced by the plant under times of stress such as unfavorable weather, or insect or pathogenic attack. Resveratrol is a plant kind of immune-enhancing cytokine that protects the plant from fungal attack. Resveratrol, is a potent anti-inflammatory, antioxidant, and antitumor agent. Resveratrol doesn't do 1 thing perfectly – it happens to do about 30 things very well, that have to do with healthy cell gene transcription and inhibition to cancer cells. It induces cancer-cell apoptosis in part through p53-mediated mechanism. It inhibits angiogenesis through a multitude of pathways including inhibition of COX-2 expression, inhibits cell proliferation, modulates immune response, enhances gap-junctional intercellular communication (GJIC). Inhibits blood clotting and platelet aggregation inhibition., Inhibits DNA synthesis and angiogenesis in lung carcinoma cells. It makes cancer cells more vulnerable to radiation therapy – pre-treatment with resveratrol enhanced tumor cell killing (in 2 cervical tumor cell lines) by radiation in a dose-dependent manner. It upregulates more than 80 genes, most profoundly p21 CIPI/WAF1, which is associated with growth arrest of cancer cells. It may be more useful than steroids for treating Chronic Obstructive Pulmonary Dysfunction. It inhibits cancer by many mechanisms, anti-inflammatory, antioxidant, and Phase II detoxifying enzyme activator. In mice it inhibited promyelocytic leukemia when given a carcinogen that stimulated this type of cancer. Red Wine especially Merlot contains 20-25mg per glass and dark grape juice are high in this. Resveratrol – upregulates p21 and p27 for gene stability. Resveratrol inhibits Heat Shock Proteins which are involved in MDR (Multi Drug Resistance) and enhance cytotoxic therapies. Yance 6/01 In his lecture stated that Resveratrol is the strongest Cox 2 inhibitor in cancer cell lines, he repeated this emphasis 5/04 as one of his most important supplements to recommend. Dose levels Resveratrol (Knotweed 20% resveratrol) regular dose 30-50mg/day – Cancer adjuvant dose 300-500mg/day. It is also greatly synergistic with Green Tea \*\*\*\*\*

**Modified Citrus Pectin** – Modified Citrus Pectin should be strongly considered anytime a person is going for a Cancer biopsy a great example is a prostate cancer biopsy. Modified Citrus Pectin can block an errant cancer cell that might have gotten into the blood stream – it can assist in preventing the errant cancer cell from establishing itself onto tissue. Use it for several weeks after the biopsy can be a prudent idea.

Is a specially prepared pH modified complex carbohydrate fiber that appears to block, or jam up, the metastatic process of cancer development. It binds to the sites where cancer would colonize to. One type of molecule cancer cells have in excess is galectin-3. Galectin-3 molecules function as “hands” and help cancer spread. First they are important in reaching out and stimulating growth of new blood vessels – this allows the cancer to obtain the blood flow and nutrients it needs to grow out of control. Second, galectins allow cells that break off from the primary tumor to clump together in the blood stream, enabling them to move to new sites. Third, the galectin hand can grab hold of the new location and complete the metastasis, or spread, of the cancer. Modified Citrus Pectin is a natural substance that can bind to galectin molecules and block their spread and growth. Early research on prostate cancer showed that oral administration of MCP to rodents resulted in a dramatic reduction in prostate cancer metastasis to the lungs. More recent research by the same scientists extended MCP protection to breast and colon cancer, and showed that MCP blocks primary tumor growth and formation of new blood vessels. A pilot trial using MCP at 15 grams a day and a subsequent phase II trial both showed that MCP slows prostate cancer progression, as evidenced by a reduction in the rate of PSA rise. The phase II trial, published in *Prostate Cancer and Prostatic Diseases* (Dec 2003), involved men who at first experienced successful primary conventional treatment: subsequently their PSA again began to climb, representing cancer recurrence. 70% of these men showed a significant reduction in the rise of their PSA. Because of the mechanism of action, it is expected that people with other cancers (leukemia, breast, colon, lung, nasopharyngeal, brain, lymphoma, melanoma and others that express galectin molecules) also would benefit from MCP. In an animal model with mice with the highly metastatic mouse B16-F1 melanoma. MCP significantly decreased tumor metastasis to the lung by more than 90%. In healthy individuals, MCP increased urinary excretion of the toxic metals mercury, cadmium, arsenic and lead. Donald Yance recommends doses ranging between 6-30grams daily in divided doses. The MPC powder is usually dissolved by blending in a small amount of water, then diluting with any juice, as an ingredient in a shake recipe. Because it is a soluble fiber, administration of modified citrus pectin is unlikely to result in gastric intolerance, even at high doses. No pattern of adverse reaction has been recorded in the scientific literature. As with any dietary fiber, MCP at high doses may result in mild cases of loose stool, but this is usually self-limiting and does not warrant discontinuing treatment. Source Naturals is the company that markets it. \*\*\*\*\*it is also available in bulk at Brighter Day

**Low-Temperature Whey Protein** – High quality, low temperature, un-denatured whey protein is the highest bio-available protein there is. It is a great precursor to glutathione. It has the amino acid cysteine intact. Cysteine is the #1 building block to glutathione. Whey protein selectively builds glutathione in healthy cells and depletes glutathione in cancer cells. It is rich in immunoglobins, vital to the health of the immune system and to the digestive system, and is excellent for patients with impaired gastrointestinal function. It contains the highest concentrations of glutamine and branched-chain amino acids found in nature. Glutamine and branched-chain amino acids are critical to cellular health and protein synthesis. Glutamine is especially important as a source of fuel for white blood cells. Cross-flow micro filtration (CFM) is the best. These benefits were not seen with other proteins. It helps combat diarrhea and irritable bowel syndrome, it is antiviral, antibacterial, antifungal, and antiparasitic, it acts as a barrier to further bowel invasion in incidences of colon cancer. It builds back muscle tissue and is easy to digest. Michael Murray ND recommends

taking 20 to 30 grams of whey-protein 2X a day. This is an outstanding way to build a person back up who has cancer. Natura has a Whey – Glutamine, Creatine combination called Beyond Whey designed by Donny Yance. Nature's Life, Country Life, Solgar and Jarrow Formula's also make very high quality whey protein powders. \*\*\*\*\*

**Lactoferrin** – Lactoferrin, lipoic acid, and chlorella are the three best supplements Yance has found for enhancing the nutritional status and raising the albumin level of those with cancer or any chronic illness. Lactoferrin can also assist the body by helping to produce alpha-interferon which has profound immune-stimulating action. Lactoferrin is an iron-binding protein, is a vital element to the human body. It retrieves iron from the foods we eat and delivers it to areas of the body where it is needed. Many cancer patients are anemic. For patients who are anemic. Yance recommends 4 capsules before bed. Ironically cancer cells thrive on copper and iron being delivered to the tumor cells even though lactoferrin helps build healthy hemoglobin it simultaneously starves bacteria of excess iron so the bacteria die, it may also help prevent tumors from massing iron. \*\*\*\*\*

**Soy Products** – Yance recommends the consumption of fermented soy. The fermenting process transforms the negative aspects of soy i.e. thyroid suppression into positive. Jarrow fermented soy protein powder is one that Yance recommends, soy yogurt is another also Tempeh, Miso and Tamari sauce.

**Genistein** – an isoflavone from soy has an antiangiogenesis effect on tumors – it inhibits blood vessel development to tumors. It also inhibits cancer-promoting forms of sex hormones from binding to receptor sites. Inhibits some of the inflammatory processes that promote cancer such as leukotriene production. It inhibits cancer-signaling enzymes, tyrosine kinase, which can cause cancer cells to differentiate. It inhibits mitosis of cancer cells. Prostate and Breast Cancer benefit the most. Jarrow Formulas Fermented Soy Protein powder is a rich source of Genistein. It is also available in tablet form from Source Naturals and Solgar.

**Bovine Cartilage** – John Pruden MD has done the most work on this. Antiogenesis factor.

**Melatonin** – a hormone produced by the pineal gland – people with cancer who are not sleeping well may indeed have low levels of melatonin and may benefit in at least 2 ways from taking it as a supplement. 1<sup>st</sup> it may help a person sleep longer and more soundly. 2<sup>nd</sup> – it aids the immune system and is an anticarcinogen. It is an important antioxidant, possibly 5x better than glutathione. Melatonin due to its lipophilic structure is readily diffused into all tissues of the body, including intracellular membranes. There it protects against free-radical damage. Breast cancer patients with estrogen positive cancers have lower melatonin than regular women. Some people with late-stage metastatic cancer have been reported to stabilize as a result of melatonin supplementation. It has been shown to suppress the severe nephrotoxicity caused by Adriamycin. It has been shown to inhibit prostate cancer. It decreased PSA levels by 57%. Yance strongly believes that cancer patients must get quality sleep if they are to get well. It works better for elderly than it does for middle aged or younger people. Yance starts people with 1mg. before bed sublingually (Source Naturals Brand). The dose can be slowly increased to 5 mg. even 10mg. If it doesn't improve sleep quality stop using it. (Many people have very individual responses to melatonin, for some it works perfectly others it keeps them awake or gives them too vivid dreaming or they wake up feeling groggy) \*\*\* Giving 1/3 mg to 1/2 mg is what brings balance. It has been shown to help chemo, hormone regulation and has antioxidant properties. B-12 is essential for melatonin production. Feverfew has melatonin in it as well as walnuts..

**Hydrazine Sulphate** – is a very effective anticachexia agent, capable of improving glucose tolerance, decreasing glucose turnover, increasing caloric intake and weight gain, or at the very least, weight stabilization. This is very important in that it can save many lives often lost because of wasting away that is brought on by the cancer, the cancer treatment or both. It possesses antitumor/cytotoxic activity against many types of cancer. It has been found to enhance the cytotoxic effects of other cancer drugs. It helps kill glioblastomas the most life threatening type of cancer. See table on dose (p. 245-Herbal Medicine Healing and Cancer). Use for 45 days and rest 1 to 2 weeks then start again for 45 days. Avoid alcohol, tranquilizers, and barbiturates.

**Urea** – Controversial Therapy using ones own urine. See Michael Tierra's book p 367-368 for more info. There are practioners who feel this is particularly supportive with those with liver cancer. Urea can be purchased in a powdered form and added to beverages.

### **Herbal Medicine, Healing, and Cancer**

“Herbs have healing powers because they are charged with light and are alive with life. Herbs, like humans and all living beings, are positioned to adapt and respond, as opposed to drugs, which are solely functional” Donald Yance

**Fu-Zeng** – Is a blend of Chinese herbs traditionally used to support the immune system as a deep acting immune system tonic. The most common herbs used in **Fu-Zeng** are astragalus, milletis, reishi mushroom, panax ginseng, schizandra, jujube, ligusticum, hoelen, salvia, ho shou wu, cordyceps, atractylodis, and codonopsis. Planetary

Formula's Reishi Mushroom Supreme is one of my favorite formulas it is a Fu-Zeng formula. Herbalist Alchemist carries a FuZeng tea you can brew or a liquid extract you can take.

**Fu-Zeng** successfully protects the immune system and increases survival rates by enhancing the effectiveness of radiation and chemotherapy without negative side effects. Studies show that a full 91.5% of patients in China who received both chemotherapy and fu-zheng therapy responded with tumor shrinkage, compared to 46.9% of patients who received chemotherapy alone. In every study conducted, the group receiving fu-zheng herbs plus chemotherapy did better. According to Roy Upton take 9 to 12 tablets of the Reishi Mushroom Supreme formula every day, it is one of the most important supporting formulas you can take for the immune system.

Donny Yance will use an approach of making a formula for the individual. Using 1 or 2 herbs which are anti-tumor against the particular cell line, some immune enhancing herbs, some detoxifying herbs that improve the liver and lymphatic systems, herbs to help the endocrine function (thyroid) and herbs that alter the cancer promoting agents. In treating people with cancer Donny finds that people need tonic therapy 1<sup>st</sup> to strengthen their vitality and immune system (adaptogens and immune enhancers), 2<sup>nd</sup> they need detoxification (alteratives and lymphatics) and 3<sup>rd</sup> they need cytotoxic therapy (gene repairing, enzyme-inhibiting and cytotoxic herbs). According to Yance – FuZeng works 10% of the time dramatically, 50% of the time wonderfully and 40% of the time partially.

**The nervous system must be healed before any other aspect of healing can take place.**

**Pulsatilla** extract 1 to 5 drops 2 to 3 x a day for calming, soothing – good for depression and melancholy and constantly anticipating death, sadness and fear the person weeps easily. Homeopathic doses 30C acute, 6C 3X a day chronic

**Hypericum (St.John's Wort)** – postoperative depression – it acts as an inhibitor of neoplastic activity especially with a virally oriented cancer.

**Gotu Kola (Centella Asiatica)** – relaxes the brain when it is in overdrive, especially when people have been told they have cancer. Donny believes it is one of the best herbs for people with cancer. “Centella has incredible anti-cancer activity”. It is good for postoperative surgical healing. It increases the formation of connective tissue (hyaluronan), strengthening connective tissue is one of the strategies used to prevent metastasis as it makes it more difficult for the cancer to invade into other tissues of the body by inhibiting the enzyme cancer produces that breaks down connective tissue. (read Mathias Raths little book on cancer – free from Brighter Day). Centella is also rich in terpenoids, its rich in hylauronic acid, GAG (glucose amino glycans – they used to be called mucopolysaccharides). It jams up RAS signaling – RAS is the most active oncogenic signaling in cancer. The hylauronic acid can jam up the RAS signal. Cancer in order to spread must puncture a hole – imbed itself through the intercellular matrix in order to spread. Gota Kola helps prevent this from happening. Other plants that help this are Echinacea, horse chestnut, and butchers broom. Horse chestnut and centella are good for cerebral swelling. Centella limits glutamate from getting to the brain (which is a neurotoxin). A study in India found centella effective with 100% of cultured tumor cells – killing all of them.

**Tonics, Adaptogens, and Immune Enhancers:**

**Adaptogens** – Increase the capacity of the cells to build “energy factories” by activating mitochondria. Adaptogens also act as powerful redox/antioxidants. By normalizing our bodily responses, Adaptogens help maintain the stable internal environment known as homeostasis and more importantly, allostasis. They are not vitamins, or are they isolated constituents of a plant. They are safe, unique whole-plant extracts that work at the cellular level to help the body overcome the harmful side effects of stress. They increase the health and vitality of the cells, thus increasing the health and vitality of the entire organism. Adaptogens can be a very important piece for the long-term success in treating cancer. Donny Yance strongly believes that a person with cancer should be on a good adaptogenic formula or be taking 1 or more adaptogens. He strongly believes that the endocrine system has to be in balance before healing can occur and adaptogens do the best job of accomplishing this.

**Reishi Mushroom** – anticancer, chemotherapy-protective, immunomodulatory, antimetastatic. See medicinal mushroom section for more information. Reishi has been used in Traditional Chinese Medicine for at least 2,000 years. Reishi's overall effects could be described as regulatory and beneficial to the restoration of homeostasis. Its effect on the immune system is total enhancement of immune function including an increase of white blood cell count, platelets, hemoglobin and various tumor-fighting cells. As an adaptogen, reishi will also improve both energy and sleep. Being a true adaptogen, reishi enhances the healthy, normal functions of the body, and works therapeutically to address imbalances. Reishi can lower blood pressure significantly.

**Cordyceps sinensis** – Anticancer, chemotherapy-protective, immunomodulatory, antimetastatic. Cordyceps is considered to be one of the most valuable medicinal herbs used traditionally in China, equaling Ginseng as a restorative tonic. In Chinese medicine it is classified as a kidney and lung tonic. Known effects include: Oxygen free radical scavenger, cholesterol lowering, antiatherosclerotic, immunomodulator, sexual function restorative – replenishing sperm, renal, hepatic, respiratory, nervous system, cardiovascular tonic, and stress-reducing effect. Yance frequently uses the CS-4 strain (Planetary formulas)

**Rhaponticum carthamoides** – An anabolic adaptogen, excellent for rebuilding muscle mass lost by the cancer itself (cachexia) or chemotherapy. It contains 8 ectasterones – it is one of the strongest anabolic agents in nature. Its anabolic

effects are greater when combined with deer antler extract. Lowers the occurrence and/or multiplicity of tumors, chemoprotective, chemopotentiating. Rhaponticum is great for building up the blood without iron.

**Panax Ginseng (Meyer) Chinese or Korean** - Donny recommends Panax Ginseng for those undergoing radiation therapy – it helps immensely to hasten the recovery and reduce the chance of scar tissue damage. Ginseng has been shown to enhance the overall activity of the immune system, including antibody response, natural killer-cell activity, interferon production and stimulates phagocytic activity. It directly helps with multi-drug resistance to chemotherapy and makes the cancer cells more vulnerable to chemotherapy by increasing the intracellular accumulation of drugs in MDR (multidrug resistant cancer cells). In animal studies, panax has been shown to inhibit metastases to the lung and liver and to reduce elevated platelet and fibrinogen levels caused by the tumor cell lines. American ginseng has been shown to reverse cancerous liver cells back to normal. Red Ginseng is best for those who are very depleted, have low vitality, are anemic and have a passive personality. Anticancer, chemo-enhancing, chemo-protective, immune restorative. Specific newer research on Panax Ginseng has shown the following actions:

1. Inhibition of cell proliferation, anti-tumor
2. Induction of apoptosis, induction of differentiation in cancer cells
3. Enhancement of immunosurveillance, including antibody response, natural killer (NK) cell activity, interferon production, and proliferation of phagocytic ability of leukocytes.
4. Regulates the gap junction-mediated intercellular communication (GJIC)
5. Increase cancer fighting response of Dendritic cells which play a role in the initiation of T-cell mediated immune response.
6. Anti-inflammatory (Suppresses Cox-2, NF-kB, AP-1)
7. Enhancement of the antioxidative defense system, antimutagenic and anti-toxin. Enhancing the effects of chemotherapy and radiation, while protecting the body from the toxic effects, inhibiting Multi Drug Resistance as well.
8. Endocrine system enhancement.

**Panax Quinquefolium – American Ginseng** – Helps with all the above for Panax Ginseng Meyer but is cooler on the body – better for “Yang excess types” and many believe is better to use in the summer. It is less stimulating and more relaxing than the oriental ginsengs. According to Bill Mitchell ND, Seattle WA it augments the chemotherapy drugs Doxyrubicin, Cyclophosphamide, and Fluorouracil.

**Eleuthero (Siberian Ginseng)** – Improves the body’s capacity to respond to stress, fatigue, and disease. Its adaptogenic properties help regulate the endocrine system, normalizing the weight of the adrenals, thymus gland, spleen and liver. In rat studies it along with Panax Ginseng doubled the life of rats exposed to prolonged radiation. Yance often recommends Eleuthero to patients who are undergoing chemotherapy or radiation therapy. Administered along with chemotherapy showed a notable reduction in side effects like nausea, dizziness and appetite loss, inhibits metastasis. \*\*\*\*

**Rhodiola rosea** – is an adaptogen that helps with stress management and helps improve immune system functioning. It is a great adaptogen for the type A personality person. Anticancer, antimetastatic, chemoprotective, chemopotentiating. Gerinol found in Rhodiola is extremely cytotoxic to liver tumor cells. He uses ½ the dose of Eleuthero 1½ to 3 ml a day. Its extremely astringent. It has great cardioprotective properties.

**Holy Basil** – Is very effective at lowering cortisol levels and is receiving a lot of attention recently for managing stress levels. Who with cancer isn’t dealing with a lot of stress. Preventative dose 10-20mg/day Cancer adjuvant dose 10-20mg 3X/day. Check for 2.37%/1.5% ursolic acid for quality.

**Ashwagandha (Withania somnifera)** – is a relaxing adaptogen. It inhibits angiogenesis. Yance recommends it during and after radiation therapy. It significantly increases white blood-cell count, reducing leucopenia caused by radiation and immune suppressive drugs. It also has a normalizing effect on red blood-cell count, hemoglobin, and platelet count. (Also look a Chlorella and Shark Oil AKG’s). It has been shown to have antitumor, immunomodulatory, and radio sensitizing effects in experimental tumors in vivo without any systemic toxicity. Kenneth Proefrock ND has found it to be very helpful for high cortisol levels caused by stress. Taken before bed it relaxes and helps sleep and lowers cortisol levels. It has very beneficial effects on the endocrine system helping thyroid and adrenal function. \*\*\*

**Schizandra** – Is one of Donny’s favorite herbs, it is well known as one of the best adaptogenic herbs in Chinese medicine, he uses it as a general tonic herb as well as a detoxifier to help rid the body of chemical toxicities, including chemotherapy and radiation therapy. Schizandra really enhances the liver it may be as effective a liver protector as milk thistle seed (even superior to it) and also is beneficial for those with any liver issue especially for hepatitis B & C. It also builds back energy levels. The seed is more potent than the berry, Yance uses schizandra seed more than the fruit. \*\*\*

**Summa** – anticancer, immune modulator.

#### Secondary Adaptagens –

**Astragalus**, a secondary adaptogen can stimulate many aspects of immune response, but does not increase resistance to a wide variety of stressors (e.g., psychological stress). It is one of the main herbs used in fu-zheng therapy to enhance the immune system during chemo and radiotherapy. When cooking with astragalus roots use 3 – 5 slices of the grade A roots in a marrow boosting soup. (see recipe in Herbal Medicine Healing and Cancer). 20:1 powder extract 2-4 grams. 1:1 fluid extract 5-10ml a day.

**Licorice Root** – anticancer, chemo-protective, immune modulator. He uses it as a secondary adaptagen– not primary be careful with a salt sensitive person they are usually hyper aldosterone and more sensitive to licorice.

**Epimedium (Horny Goat Weed)** – *see info in herbal section of this paper*

#### **Anti-inflammatory, Fibrinogenic, and Antiangiogenic Herbs:**

The herbs in this group can enhance the cytotoxic effects and make them more target specific in both radiation and chemotherapy.

Bromelain and quercetin along with herbs like turmeric, horse chestnut, and licorice act as powerful nontoxic anti-inflammatory agents especially when taken together.

**Turmeric** – is one of the most important anti-cancer botanicals. The main spice in curry blends, it protects against environmental toxins and carcinogens. It enhances many aspects of liver function, it serves as an anti-inflammatory – it inhibits arachadonic acid, cyclooxygenase and lipoxigenase which are pro-inflammatory - tumor-producing and inhibiting to the immune system. It affects all stages of cancer formation: initiation, promotion, and progression. It inhibits epidermal growth factor receptor sites (cancer produces an abundance of these receptors); curcumin decreases the cancer cells tendency to proliferate. It inhibits angiogenesis, it inhibits nuclear factor kappa beta (NF-kb), which stimulates cancer cells to proliferate. It stimulates apoptosis so cancer cells will die and not liver forever. It inhibits the growth promoting enzymes. Evidence suggests that it causes cancer to regress. It enhances the body's production of glutathione. Donny Yance rates turmeric among his absolutely most important botanicals. His protocol will consist of combining bromelain with turmeric, green tea extract and a medicinal mushroom extract. It's anticancer, antioxidant, anti-inflammatory, fibrinolytic, and liver-protective properties works best when taken with bromelain – the enzymes in bromelain reduce the degradation of the cucuminoids and enhance their ability to get in the blood stream – also the cucuminoids prevent the breakdown of the enzymes in bromelain. (Natural Factors has a combination product of both). Use Turmeric during radiation therapy to protect the body (in head and neck tumors add Quercetin according to Michael Murray ND). Turmeric with bromelain will inhibit a cancer from coming back – a wise combination to use after successful chemotherapy and radiation treatments. It makes all cancer cells more sensitive to chemotherapy. Turmeric has shown to protect the heart from Adriamycin toxicity, and it shows promise for the prevention of Alzheimer's disease, and may block the progressio of multiple sclerosis (MS). Yance uses 500 – 1000mg daily as preventive and the Cancer adjuvant dose of 1000 mg 3x a day or more of Cucumin 95% extract daily. He likes to use 1 gram of Green Tea extract with it. Bromelain taken with Curcuma increases bioavailability by 20%. Black pepper extract Bioperine increases the absorption by 40%. (Source Naturals Turmeric includes bioperine with it already) Turmeric & Bromelain, Chinese Scullcap, Grape Seed Extract and Resveratrol creates a stronger tumoural impact.

\*\*\*\*\* Newest research on Turmeric: The anticancer potential of curcumin stems from its ability to suppress proliferation of a wide variety of tumor cells and target multiple pathways some of which include the following:

1. down-regulate transcription factors NF-kappa B, AP-1, STAT-3, and Egr-1;
2. down-regulate the expression of COX-2, LOX5/12, NOS
3. reduce MMP-2 and -9, uPA
4. reduce cancer promoting cytokines: TNF, chemokines;
5. reduce cell surface adhesion molecules and cyclin D1
6. down-regulate growth factor receptors (such as EGFR, HER2,bFGF,TGF-B1, and VEGF)
7. inhibit several cancer-inducing pathways (kinases) including c-Jun N-terminal kinase, protein tyrosine kinases, and protein serine/threonine kinases
8. In several systems, curcumin has been described as a potent redox cycling agent, as regulating, anti-oxidant and pro-oxidant actions, and as a modulator of inflammation.

Human clinical trials indicated no dose-limiting toxicity when administered at doses up to 10 grams a day. All of these studies suggest that curcumin has enormous potential in the prevention and therapy of cancer.

In Prostate Cancer Curcumin is a therapeutic anti-cancer agent, as it significantly inhibits prostate cancer growth it has the potential to prevent the progression of this cancer to its hormone refractory state. It can also inhibit the initiation of bone metastasis. It is a novel and potent inducer of apoptosis in both androgen-dependent and androgen-independent prostate cancer cells. It may provide an alternative, nontoxic modality by which the clinician may prevent the progression of prostate cancer to its hormone refractory state or to treat advanced prostate cancer by forcing cells to undergo apoptosis.

**Bupleurum** – is used for stagnation of the liver and cooling to inflammation of the liver. Planetary formulas makes a Bupleurum formula which is identical to the best known Chinese formula (Xiao Chai Hu Tang). This formula has been found extremely effective at inhibiting cancer by enhancing the immune system, inducing apoptosis and inhibiting angiogenesis. It has also been shown to increase the effectiveness of 5-FU. It is most useful in breast and liver cancers, but can also be used to treat colon cancer. Make sure to take a dose at bedtime – the liver does it's regenerating at night and the support of bupleurum at night is essential for the liver. \*\*\*

**Green Tea** – protects against 4 major categories of carcinogens: 1- Indirect chemical carcinogens (ie. benzopyrene in diesel fuel) 2- direct chemical carcinogens (Nitrates found in meats) 3 – Physical carcinogens (ultraviolet light). 4 – Tumor promoters (pesticides, DDT). It inhibits tumor initiation, helps with liver detoxification, protects DNA, and blocks abnormal cell growth. The caffeine in green tea possesses anticancer activity. Caffeine is able to induce

apoptosis within cancer cells and enhances radiation therapy and alkalinizing chemotherapy drugs including carboplatin, cytosin, busulfan, and valalbine. It inhibits human lung cancer-cell line PC-9 and protects against stomach cancer. Theanine, a major amino acid found in Green tea helps multi-drug resistance - it is a very powerful inhibitor of the P-glycoprotein pump which aids in keeping chemotherapy in cancer cells. It especially helps the chemotherapeutic drugs adriamycin, doxorubicin without an increase in DOX- induced side effects. Inhibition of metastasis is also increased and theanine reverses the free radicals responsible for the cardiac damage that the drug can cause. Unlike standard multi-resistance drugs, theanine doesn't force chemotherapeutic drugs into all cells only cancer cells. Theanine is a GABA precursor. Theophylline is a very powerful regulator of Cyclic Amp – which is typically dysfunctional in the mitotic activity of cancer cells. It is an extremely powerful down regulator of the gene (Bcl2). The anti-apoptotic gene Bcl2 is active and mutated in more than 50% of all cancers especially B cell lymphomas. CLL Lymphomas, Prostate, Breast and Melanomas all overexpress Bcl2. Green Tea and Green Tea extracts are considered one of the top essential things to take. There are 130 scientific references on Green Tea and its effect on cancer according to Donald Yance. \*\*\*\*\* The curcuminoids, found in turmeric and the catechins found in Green Tea extract work synergistically together to inhibit cancer. Dosage levels Green Tea 30:1 (95% phenols 50% EGCG) 3x a day preventative dose 200-500mg/day Cancer adjuvant dose 1000-1200mg/day. The newest updates on Green Tea are that it like resveratrol and curcumin have an almost endless list of anti-cancer actions including

- inducing apoptosis in a wide-range of cancer-cell lines: elevation of caspase 8 activity. Activation of caspase-3
- Inhibition of NFkB
- Inhibits cancer inducing inflammation and PG2: COX-2 inhibition
- Inhibits angiogenesis: Binds tissue-type plasminogen activator (t-PA) an enzyme that facilitates tumor invasion in cancers
- Inhibits Protein Kinase C, and reduces VEGF expression, suppression of VE-cadherin tyrosine phosphorylation and inhibition of Akt activation
- Suppresses the activity of matrix metalloproteinase (MMP)-2 and MMP-9
- Inhibits topoisomerase 1
- Mediates mitogen-activated protein kinases (MAPKs)
- Reduces oxidative damage and tumor development as a result, producing enzymes that speed carcinogen removal and enhance DNA repair activity
- Inhibition of phenol sulfotransferase
- Induces p.21 and p27
- Counteracts carcinogen-induced damage to the gap junction, and improves gap junction communication
- Modulates insulin-like growth factors and receptors, down-regulating cancer growth
- Inhibits aromatase activity
- Down-regulates tNO

The anti-cancer effects of GTE appear to be greatly enhanced by other anti-cancer compounds including curcumin, selenium, lycopene, and Grape skin and seed.

#### **Alteratives and Lymphatics: Herbs that Detoxify:**

Intracellular – helps cells detoxify into the lymph and blood systems. Thuja and Red Root are in this category.

Organismic – assist the liver, kidneys and spleen – dandelion and celandine, which have tumor-fighting ability, are in this category.

Organs of excretion – bowels, kidneys, skin, and lungs – nettles and horsetail (kidneys), butternut, pectin and triphala (ayurvedic herbal combination for the intestines). Diaphoretic herbs for the skin include elder, yarrow and boneset.

#### **Understand the metabolism –**

1- Thyroid metabolism – to measure the average level of body temperature – take the morning temperature, put a basal thermometer under the arm pit before getting out of bed - a normal person runs 97.6 (about 1 degree below normal), subnormal would run below that consistently - many cancer patients have a subnormal body temperature. To boost thyroid function take bladderwrack, one of the most effective seaweeds for thyroid function. *See info sheet on ways to enhance thyroid function by Donald Yance*

2 – The degree of tissue hydration – make sure the body is properly hydrated.

3 – acid/alkaline state check the Ph with both saliva and urine several times a day with nitrazine paper.

**Dandelion** is an amazing plant that heals and provides nutrition. The leaf cooked is a bitter green, very high in potassium great for the kidney's, the root benefits the liver. \*\*

**Corydalis** – is one of the best herbs used in advanced cancer states when the patient has swollen lymph glands, dry and scaly skin and a toxic system. It is one of the best nontoxic analgesics for people suffering from the pain caused by cancer. (Herbalist alchemist liquid is the best I've found).

**Thuja** – Cancers of viral origin, colon/rectal cancer, uterine cancer, and breast and lung cancer. It is effective in precancerous conditions like polyps and warts. West German research has reported it to stimulate T-lymphocytes and increasing interleukin-2 production. It may allow for greater tolerance of chemotherapy and radiation therapy.

**Poke** – Is helpful for fibroid tumors that aren't cancerous. Most useful for cancers of the breast, throat, colon, lymph and uterus. Cancer of the breast when the breast is hard, painful, and purple in color. Yance often combines poke with other lymphatic herbs – thuja, echinacea, baptisia, figwort, red root, tiger lily, ocotillo, and corydalis. Poke is one of the best lymph remedies. It has to be used very carefully because it can be toxic when overdosed (severe diarrhea)

**Burdock** – contains an antitumor substance called the B-factor that reduces mutation. Benzaldehyde a constituent has been shown to have antitumor activity. The seeds contain the highest lignan content and this is the part Yance uses the most. Extracts have induced differentiation of myeloid leukemia cells and have demonstrated potent anticancer action against lymphocytic leukemia. Arctiin a compound found in burdock has shown to inhibit mammary, colon and pancreatic cancer. Burdock seed extract has shown to be liver-protective and inhibit metastasis of cancer to the liver. This is one of the key herbs used in the well-known herbal formula Essiac from Canada. \*\*\*

### **Gene Repairing, Enzyme Inhibitors, and Cytotoxic Herbs**

These herbs have a more direct anticancer effect. They are capable of inducing cell death by selectively removing cells in which DNA has been damaged.

**Catechin** found in **Green Tea** and **Chinese FoTi (polygonum multiflorum)** inhibits the invasion of a variety of tumor-cell lines. **Quercetin** can inhibit the tumor suppressor protein gene p53, a critical suppressor gene involved in at least ½ of all cancers, including breast and prostate cancers. This keeps cell growth in check and prevents cancer transformation.

**Lactic acidosis** is a state in the blood that stimulates cancer. Plants that inhibit this are those high in oxalic acid (raw spinach, sorrel, allacin found in garlic and gossypol from cottonroot. Taxol from the Yew Tree can inhibit cell division.

**Sundew** – contains the same active components as the Venus-Flytrap plant. It repairs genetic malfunction, is cytotoxic, is anti-viral and enhances the action of antibiotics.

**Mistletoe** – Iscador is a fermented extract of mistletoe that reduces the leukocytopenia produced by radiation and chemotherapy. It is tumor inhibiting and increases natural killer cells. It has a cytotoxic effect only on tumor cells inhibiting tumor growth and metastasis by increasing apoptosis and inhibiting angiogenesis. This is widely used in Europe with Anthroposophic physicians who follow the philosophy of Rudolph Steiner.

**Periwinkle** – contains an alkaloid that has the ability to stop cellular division. Colchicine (Saffron) and Taxol have the same properties. 3 Chemo agents have been extracted from Madagascar periwinkle (over 100 different alkaloids have been identified from this plant). The periwinkle has a great affinity for the pancreas in helping with regenerating the pancreas.

**Isatis** – has strong anti-cancer activity and is particularly effective against CML (chronic myelocytic leukemia)

### **Herbs that can alter the action of Hormonal Receptor-Type Cancers**

Herbs that bind with the receptor sites for estradiol. Saw Palmetto and Nettle root extracts can inhibit the aromatase enzyme, which decreases the conversion of androgens to estrogen. The enzyme 5-alpha-reductase is in part responsible for converting testosterone to DHT, Nettle Root and Saw Palmetto help prevent this enzyme from converting to DHT also. Breast and Prostate cancers can manipulate hormones, causing estrogens to fuel prostate cancer and androgens to fuel breast cancer. Tamoxifen used in treating breast cancer and flutamide used in treating prostate cancer start out inhibiting cancer, but over time their effects can actually be reversed and they can promote cancer.

**Red Clover** – seems to be most active against prostate, breast and colon cancers and melanoma. It is a key part of the anti-cancer combination the Hoxey Formula. Coumarin is a main active ingredient in Red Clover as well as Dong Quai has been shown to stimulate macrophages and reduce the recurrence of metastatic melanoma. (*note the Cancer Center of America Hospital warns against using Red Clover if you have estrogen + Breast Cancer.*) \*\*

**Licorice** – In Chinese medicine licorice is a harmonizing agent. It is anti-inflammatory, anti-viral, phytoestrogenic, anti-hepatotoxic, it is an immune modulator, interferon inducing and mast cell stabilizing. It possesses liver-protective effects. Glycyrrhizin possess blocking ability against tumor promoting agents. It contains terpenes that regulate Her 1 (Epidermal Growth Factor). It has effects on the polarization of the cell membrane ie. It feeds the cell membrane. It can inhibit liver cancer caused by hepatitis. Licorice affects adrenal function in a positive way by increasing the production of cortisol, DHEA and aldosterone. Low levels of DHEA are found in women with Breast Cancer. It may inhibit the growth of leukemia and lymphoma cells by affecting glucocorticoid receptor sites on their plasma membranes. It helps natural killer cells. \*\*\*\*

**Chinese Skullcap** – differs from American skullcap. It inhibits many viruses including tumor viruses and the HIV virus; it is anti-inflammatory and induces cell death in a number of cancer cell lines including two sarcomas and cervical cancer. It inhibits human hepatoma cell growth by 50%. It is very rich in flavanoids. Chinese skullcap is one of Donald Yance's favorite herbs – more information about it is written further down in this paper in the general herb section. \*\*\*\*\*

### **Herbs to Treat Specific Symptoms**

**Red Root** – excellent for spleen and lymph disorders. It strengthens the lymph system, helps portal circulation to the liver and especially to the spleen. A specific for increasing platelet counts that may have dropped as a result of cytotoxic drug use. Useful for enlarged spleen, liver and lymph nodes. It raises the activity of T-cells. It improves digestion and assimilation. \*\*\*

**Wild Geranium** – is useful when cancer causes excessive bleeding. Yance usually combines it with yarrow and or red root.

**Horse Chestnut** – used for fluid accumulation caused by cancer. It may also act as an angiogenesis inhibitor. It is valuable for lymphedema caused by breast cancer surgery.

**Slippery Elm** – is an excellent herb for convalescence and debilitated states, especially when digestion is weak and overly sensitive. It is indicated for people who are undergoing radiation to the respiratory or digestive area. A cold-water infusion is a good way to use this herb. Soak 1 tablespoon of slippery elm bark in 12 to 16 oz of water for several hours or overnight. Heat gently being careful not to boil, strain and drink. The powder can be put in oatmeal or in water or juice and drunk directly.

#### **Other Useful Herbs in Cancer Treatment**

**Aloe Vera** – the polysaccharides such as emodin, has shown anti-leukemia activity, and the polysaccharide acemannan, which has shown to have antiviral and immune – boosting activity. Aloe has anti-inflammatory, antitumor, and antiangiogenic activity and inhibits platelet aggregation. Lupeol and salacin account for aloe's pain-relieving effects. Aloe has also shown to provide a protective effect against injury from radiation treatment. Aloe Vera can help digestive problems with cancer patients. It helps the assimilation of nutrients and gently promotes regularity. It can immediately help digestion. Start with 2oz 2x a day (mixed in orange juice helps the taste) gradually increase to 6 or 8oz a day (total). Salute' Aloe is one of the best quality aloe products I've found also Natures Way has a high polysaccharide aloe and Lily of the Desert is a good product. \*\*\*

**Amla** – is part of a popular ayurvedic rejuvenizer called chavanprash it is the richest food source of vitamin C - a wonderful ayurvedic tonic that is a paste used like jam or butter - an overall tonic. \*\*\*

**Andrographis** – has important immune activating and cancer-inhibiting abilities making this an important medicinal herb in cancer therapy. The extract has been shown to inhibit the proliferation of cancer by causing differentiation-inducing activity upon dividing cells. Some of the tumor cell lines inhibited by andrographis are stomach cancer, breast cancer, prostate cancer, lymphocytic leukemia, melanoma, and non-Hodgkins lymphomas. The Journal of Chinese Medicine in 1977 found it inhibited skin cancer even after it became metastatic. It also lowered PSA levels in Prostate cancer and inhibited prostate cancer in vitro. In another study it equaled tamoxifen in inhibiting breast cancer. Besides being cytotoxic to cancer cells it provides liver and kidney protection and helps to regulate immune functions against second line pathogenic infections that could otherwise be life-threatening to a person with cancer. One study concluded Andrographalide to be more active than Paclitaxel an anti cancer drug and to be as toxic to prostate cancer cells as cisplatin. \*\*\*

**Artemisia annua (Chinese wormwood)** – Recently artemisinin has shown broad-spectrum cytotoxic activity against a variety of cancer cell lines. Artemisinin becomes cytotoxic to cancer cells in the presence of ferrous iron. Since iron influx is high in cancer cells (cancer cells have more iron binding sites than regular cells – transferring receptors), artemisinin selectively kills cancer cells under conditions that increase intracellular iron concentrations. Compared to normal cells, most cancer cells have high rates of iron intake and express a high cell surface concentration of transferring receptors. Artemisinin reacts with iron within the cancer cell causing a generation of free radicals to damage the cancer cell and induce death to the cell. Artemisinin killed virtually all human breast cancer cells exposed to it within 16 hours. 4 other artemisinin analogs have also shown anticancer activity. Artemisinin has been found to have immune-regulating effects, by enhancing T-cell proliferation, and IL-2 production. Artemisinin also remarkably lowered VEGF expression on tumor cells and KDR/flk-1 expression on endothelial cells as well as tumor cells. Artemisinin shares with other sesquiterpene lactones the ability to inhibit the activation of the nuclear factor NF-kb, an important activator protein in cancer development and progression. Overcoming MDR(multidrug resistance) phenomena is a crucial aspect of cancer chemotherapy research. Artemisinin and its derivatives have been found to inhibit the proliferation of cancer cells in the microM range. Yance uses a 400:1 extract dosing at 600-1200mg a day. It can be a hit or miss situation in effectiveness. When doing artemisinin therapy – you need to have bloodwork showing a higher level of ferritin 40 or above.

**Astragalus** – Is one of the main herbs used in fu-zheng therapy to enhance the immune system during chemo and radiation therapy. Astragalus makes cytotoxic cells more intelligent. It increases T1 helper cells and decreases T2 helper cells (which are involved in the inflammatory response). It increases interferon levels and also natural killer cell and T-cell activity. It makes the T-cells more aggressive. It has a liver protective property. It helps build up the blood. It also possesses anti-tumor activity and inhibits platelet aggregation. It has been shown to increase 10X lymphokine-activated killer-cells (tumor fighters). It protects the heart, liver, and kidney from the toxicity of chemotherapy. In traditional Chinese medicine astragalus roots are cooked in chicken stock as a base for soups that are nourishing to people with weakened immune systems. Herbalist Roy Upton strongly believes astragalus should be cooked in soup stocks, in rice, chicken broth ect. - this is how the Chinese use it. He believes when someone is undergoing chemo and or radiation and for general immune system support, it is the food of choice for the immune system. The roots look like tongue depressors – try to purchase the highest grade possible, it has a pleasant sweet smell and flavor. People with cancer need to take serious doses of it. \*\*\*\*\*

**Atractylodes** – Contains 3 cancer inhibiting compounds that have demonstrated activity against esophageal cancer. It helps restore immunity in people with cancer who have had immune-suppressing therapies like chemotherapy. \*\* Yance doses using a 15:1 dose at 10 grams a day.

**Bacopa** - is one of the most effective chelators of toxins in the body. It possesses adaptogenic, and potent redox/anti-oxidant actions and can detoxify heavy metals including aluminum and cadmium. It is also calming to the mind and helps with anxiety by increasing a “calm focus conducive to meditation and prayer”.

**Bee Pollen** – Is one of the most nutrient dense rejuvenative healing foods we can include in our diets. Add 1 to 2 tablespoons a day to any food or drink. Bee Pollen has been shown to slow the growth of Breast Cancer.

**Bitter Melon** – Constituents in it inhibit guanylate cyclase, which is elevated in many cancer cells. Extracts were found to block the growth of prostate cancer cells in rats. The crude extract is cytotoxic for leukemic cells vs. normal cells. You can purchase these in oriental markets, its excellent for diabetes.

**Black Cohosh** – a 2004 study found that Black Cohosh promotes apoptosis – cellular suicide in both estrogen receptor positive and estrogen receptor negative breast cancer cells. Black Cohosh has been found to be safe for women at risk for breast cancer as well as breast cancer survivors. (*Dr. Michael Murray's Newsletter 02/05*)

**Bloodroot** – Traditionally used as a paste for skin cancers, possesses antitumor, antiviral and antimicrobial compounds.

**Boswellin** – Contains triterpenes acids that demonstrate potent antitumor activity. These acids were found to inhibit the synthesis of DNA, and protein in human leukemia HL-60 cells. Boswellin has shown a strong inhibitory effect against several forms of human leukemia including CML and HL-60 leukemia. Boswellin is a potent reducer of the cancer pathway topoisomerase 1 & 2 (genistein from soy and quercetin also affect this activity) 2 cancer cell lines helped by boswellia are glioblastoma and melanoma. In brain cancers malignant glioma (surgery, radiation therapy, and chemotherapy) does not yield satisfying results. Boswellan may offer an important support for these therapies in enhancing their effectiveness. It is a major anti-inflammatory herb that inhibits cancer by working synergistically with turmeric, licorice, green tea, bromelain, and quercetin. It is a 5 & 12 lipogenase inhibitor and NF-kB (inhibits prostate cancer and melanoma), it reduces the over expression of telomerase and helps tell cancer cells to die (apoptosis). (Brain and Leukemia). Use an extract 1:1 liquid or even stronger is a 75% Boswellic Acids tablet or capsule use 1,000mg 3X a day for Brain Tumors and Melanoma. \*\*\*\*

**Bugleweed** – Traditionally used for hyperthyroid conditions, its astringent properties make it useful for conditions of excess bleeding, particularly helpful in cases of lung cancer when the patient is coughing up blood.

**Butterbur** – Is a tumor analgesic and therefore very useful for the pain caused by tumors.

**Cat's Claw** – Uno de Gato – Enzymatic Therapy makes the best product for the immune system - Savantaro ask for information from Brighter Day for the most up to date information. Cat's claw is best known medicinally for healing intestinal inflammations such as colitis and chronic's disease. Cat's claw balances the intestinal flora, inhibits dysbiosis and resists infection. U. tomentosa extracts and fractions exert a direct antiproliferative activity on MCF7 breast cancer. Cat's claw effects on the immune system increase the ability of the spleen to produce immunological cells. Extract of cat's claw caused a statistically significant decrease of DNA damage and a concomitant increase of DNA repair in supplemented groups compared to non-supplemented groups.

**Celandine (Chelidonium Majus)** – Rich in alkaloids that are cytotoxic it is particularly useful for cancers of viral origin as well as all gastric cancers. A well-known liver remedy, Celandine is indicated when there is an enlargement of the liver, constipation & indigestion. Celandine has been shown to possess anti-cancer, anti-viral, anti-fungal, and anti-microbial activity. The extract was found to significantly enhance the quality of life and prolong life of patients with pancreatic cancer. It has been shown to inhibit prostate cancer. It also possess protective effect against radiation toxicity. It has shown to be an effective herbal anti-cancer agent. Used for stomach and gastric cancers and squamous cell cancers. It was one of the top herbs used by the eclectics for liver and gallbladder stagnation.

**Chaga** – Is a fungus that grows on birch trees and is David Winton's favorite mushroom for cancer. It is rich in betulinic acid which has been shown to inhibit the growth of human melanoma by inducing apoptosis. Animal studies have shown it to be more effective and less toxic than any other cytotoxic therapy presently being used to treat melanoma. It is believed to down-regulate the mutant p53 suppressor gene responsible for allowing proliferation of oncogenes. Michael Tierra's book states that Russian clinicians have found that is effective for some but not all cancers and that it requires long term use for at least a year.\*\*\**see the section on mushrooms later on in this article.*

**Chaparral** – Contains (NDGA), a potent antitumor agent. NDGA inhibits aerobic and anaerobic glycolysis of cancer cells.

**Chinese Skullcap (Scutellaria baicalensis)** – Modern research indicates that it is an effective remedy in treating allergies, cancer & inflammation (COX-2 inhibition). It is a very powerful mast cell stabilizer (like quercetin). Tumors are over secreting mast cells. Scutellaria B is a strong inhibitor of COX-2. In cancer we want to down regulate COX-2, LOX-5 and LOX-12 it also reduces VEGF, bFGF and MMP all of which contribute to angiogenesis. It is a cooling herb which helps inflammation. In liver disease it helps stagnation of the liver, and is beneficial in heart disease. Scutellaria b. potently inhibited beta-glucuronidases and protected against CC14-induced liver injury. In cancer research early laboratory studies investigating this herb in preliminary research are showing promise for combating bladder, liver, prostate, ovary and other types of cancers. Baicalin has demonstrated direct anti-tumor effects on human prostate cancer cells. It keeps cancer in the G phase & G1 phase – it prevents it from moving to the growth phase. Scutellaria b. has shown to enhance the efficacy of chemotherapy in experimental tumors. Yancey uses Chinese skullcap all the time with his cancer patients – the fluid extract containing an 8 to 1 concentration. Yancey prefers a 400: to 1 extract. Baicalin – from skullcap is especially beneficial for prostate, ovarian, breast and liver cancer. In prostate cancer it effectively suppressed growth and PSA expression and induced G(1)/S arrest in LNCaP cells. It suppresses prostate cancer by effecting multiple changes in target cells to intervene in prostate cancer progression. The results indicate that baicalin

has direct anti-tumor effects on human prostate cancer cells. This is one of Yance's favorite herbs. \*\*\*\*\* An updated review of the newest research shows that Chinese Skullcap (*Scutellaria baicalensis*)

- Redox regulating/Anti-oxidative
- Anti-inflammatory, in part by COX-2 inhibition
- Anti-allergenic, antihistamine, treats allergies such as hay fever
- Cardiovascular tonic
- Liver protective, anti-viral – effective against Hep B
- It has been found to have broad antimicrobial effects
- **Anti-cancer-multi-factorial mechanisms and pathways:**
- Inhibits NK-kB, inhibits Cox-2, inhibits LOX-5, reduces PG2, binds to androgen receptor reducing cancer-cell proliferative ability, inhibits beta-glucuronidase, induction of apoptosis, inhibition of angiogenesis: down regulates bFGF & MMP-2

**Colchicum** – From saffron is being explored as an antileukemic drug for acute leukemia, lymphoblastic leukemia in children and some skin cancers. Colchicum, because of its ability to reduce uric acid, should also be considered for people who are undergoing cytotoxic therapies that interfere with uric acid excretion. Eat a lot of saffron to get this into your diet.

**Condurango** – Used especially for gastric and breast cancer. It has been repeatedly been found to be beneficial in cancer treatment, increasing the appetite, reducing pain, and restoring weight.

**Corydalis (Corydalis yanhusuo)** – Corydalis is used extensively by practitioners of Chinese herbal medicine for pain, especially abdominal pain. It works on the opiate receptors. It relieves pain by reducing B-endorphin-like substances in cerebrospinal fluid and serum, decreasing monoamines, and increasing ACT levels. Corydalis, standardized to 80% tetrahydropalmatine (THP) is a wonderful tumor analgesic. It is useful in advanced stages of cancer with swollen lymph glands, dry and scaly skin and a toxic system. It is strongly anti-inflammatory. Corydalis has shown cytotoxicity to many cancer-cell lines, in particular, liver tumors. It's mechanism includes suppression of the oncogene N-ras mRNA. Hepatoma cells are known to over express N-ras mRNA. Using a liquid extract of a 1:2 take 10 – 20ml a day. Or 5 – 10 grams of the dried root, a 400:1 THP extract should be 50mg. – 250mg.

**Dong Quai** – Is good for anemia and blood deficiency. Dong Quai is one of the richest sources of coumarins (Red Clover is also rich in coumarins) – coumarins are immune activating, anti-thrombotic and discourage blood platelet aggregation.

**Echinacea** – Promotes T-cell activation, interferon production, natural killer cell activity. It inhibits hyaluronidase indirectly inhibiting cancer growth. Through immune modulation, Echinacea is a very valuable herb in cancer treatment and prevention. It activates specific anti-tumor immune-fighting cells, makes macrophages cytotoxic, and has some direct tumor-destructive constituents, namely the essential oils. Echinacea is also very valuable in assisting the body with detoxification by activating macrophages. It acts like a garbage collector getting rid of cellular waste and debris. As cancer is being destroyed Echinacea helps to get the dead debris carried out of the body. Echinacea extract – 6:1 powdered – it was commonly used with Baptisia, Phytolacca and Thuja. Echinacea enhances T-Cell, interferon, NK cell, lymphocyte. Caffeic Acid down regulates cancer. Echinacea inhibits the cancer promoting enzyme. Yance uses small amount of it in his formulas and for prolonged periods of time. It has mild anti-tumor activity and mild anti-leukemic activity and recently found to have immune restoring effects after chemotherapy. \*\*\*

**Eclipta** – Encourages liver regeneration. Its hepatic-protective properties help to guard against liver cancer.

**Epimedium – (Horny Goat Weed)** – is good for thyroid function.. It reduces the inflammatory cytokines for IL-6 and TNF alpha. It is a botanical for osteoporosis (osteoporosis has high levels of IL-6) Osteoporosis is a catabolic state. Epimedium is an anti-catabolic botanical – building anabolic metabolism is very important to help the body build and renew itself. It increases IL2 in the body and is a mild hypotensive agent. It contains Icarin – a glycoside component. It is good for the Yang deficient person. (*helps with nerve regeneration – see pain section*).

**Feverfew** - Feverfew potentiates chemotherapy it helps with multi-drug resistance. The parthenoloids – helps chemo particularly with Taxol (it helps the drug tremendously) and Taxitier. The lactone parthenolide inhibits the COX-2 enzyme. Feverfew inhibits 5-lipoxygenase a byproduct of the metabolism – (HETE) feeds cancer cells and promotes angiogenesis. Parthenolide is a potent NF-B and Bcl-2 inhibitor. Parthenolide has been shown to inhibit leukemia and cancers of the breast, bladder and liver. Scientists at the University of Rochester Medical Center have found that an extract of feverfew is effective against a type of human leukemia. According to Monica L. Guzman, PhD, and Craig T. Jordan, PhD, feverfew extracts kill malignant stem cells like no other single therapy they have tested. Myeloid leukemia is killed by it at the level of stem cells. Currently the recently approved drug Gleevec, is only moderately effective. In laboratory experiments, the Rochester scientists have now shown that parthenolide is in fact more selective at stopping cancer through apoptosis (programmed cell death) than was the standard drug cytarabine (Ara-C). \*\*\*\*\*

**Figwort** – Is useful when cancer has invaded the lymph system. This is one of the best herbs for lymphatic congestion.

**Fringe tree (Chionathus virginica)** – Fringe tree is an herb seldom used today, that has much value for the liver and other digestive organs. It has no cancer inhibiting effects that Yance is aware of, but it has a specific use in cancer therapies. It is indicated when the patient is suffering from jaundice, acute dyspepsia, acute or chronic inflammation of the liver, or irritable liver. It is very helpful for people with cancer, particularly those with obstructions in the digestive tract, bile ducts, or cancerous tumors in the liver.

**Ginkgo** – has pretty good anti-cancer activity. It is radio-protective, radio potentiating and has angiogenic activity. It is good to use during radiation therapy. New research suggests that it may benefit brain cancer and breast cancers. It has anti-platelet aggregating factors. Platelet aggregation is a major cancer growth factor.

**Goldenseal** – Is used to treat breast and stomach cancers. Berberine, a main component of goldenseal, has potent antitumor activity, particularly against malignant brain tumors.\*\* (in homeopathic medicine goldenseal was one of the major remedies for cancer in the 1800's & early 1900's especially stomach and liver cancer) \*\* Michael Tierra states it was used for Liver, Breast, Lungs, GI and various other types of cancers. Pages 174-176 of Michael Tierra's book have formulas using Goldenseal for Liver, Lung, Cervical, Colo-rectal and skin cancers.

**Graviola** – helps with multi-drug resistance of adriamycin.

**Hibiscus** - Is the strongest down regulator of the anti-apoptotic gene Bcl2. Bcl2 is active and mutated in more than 50% of all cancers especially B cell Lymphomas., CLL Lymphomas, Prostate, Breast and Melanomas all over express Bcl2. (it would be a great herb to mix with green tea for an anti-cancer tea blend).

**Lapacho – Pau d'Arco** – Contains lapachol, which suppresses tumor formation it has proven to be particularly effective against leukemia.\*\* Many have found that pau d' arco tea will significantly reduce the pain associated with cancer. Many people in the US and South America have claimed it to be occasionally effective for a wide variety of cancers including solid tumors, non-solid cancers such as leukemia, Hodgkin's and lymphomas. It is a cool-natured herb so it should be used with caution by those with severe gastric weakness. The biochemical constituent Lapachol apparently has shown strong biological activity against cancer. The Argentina species is the preferred type. Using a liquid extract 1:1 in 50% alcohol, 15 – 60 drops up to 5X a day is used or make a tea and use it on a rotating basis – see bottom notes on this section.

**Licorice** – Activates T-cells in the liver. Licorice is a potent antitoxin, lowering the toxicity of many toxins. It affects adrenal function by increasing the production of cortisol – helping the conversion of cortisol to cortisone on demand – DHEA, and aldosterone. By increasing cortisol. Produces anti-inflammatory actions and may inhibit the growth of leukemia and lymphoma cells by effecting glucocorticoid receptor sites on their plasma membranes. Licorice polyphenols induce apoptosis in cancer cells. Glycyrrhizic acid, present in licorice, inhibits lipooxygenase and cyclooxygenase, inhibits protein kinase C, and down-regulates the epidermal growth factor (EGF) receptor. Glycyrrhizic acid was recently found to inhibit the virus that triggers Kaposi sarcoma. A recent study done in Japan demonstrated that glycyrrhizin can inhibit liver cancer caused by hepatitis. Licorice enhances IL-10 production, reducing inflammation.

**Ligustrum** – Is one of the main herbs in China to offset the toxicity of chemotherapy and radiation therapy. It is used in fu-zheng therapy. Ligustrum protects the liver during chemotherapy.\*\*

**Maca –Lepidium meyenii** – An herb that grows in the high altiplano of Peru looks like a turnip but is in the watercress family. It contains glucosinolates which are storage molecules that evolved for plants to protect themselves from being eaten. Enzymes in the plant convert this into (BITC) benzyl isothiocyanate. In recent years, BITC has drawn interest from the scientific community due to its potential as a cancer preventive molecule. In 1986, BITC was recognized as an anti-carcinogen. Italian researchers, using human cancer cells in vitro, found BITC more effective at inhibiting cancer cell growth than any other compound tested. They theorize that BITC may work by blocking carcinogens from reaching target sites in the body. In Japan researchers determined BITC to be a potent chemopreventive agent against bladder tumor induction.

**Magnolia Tree Seed Cones** – The seed cones from magnolia trees contain substances that inhibit the growth of new blood vessels. Honokiol. The active ingredient in the magnolia cones, inhibited the growth of blood vessel endothelial cells more than other kinds of cells and cut tumor growth in ½ in experiments in mice.

**Milk Thistle – Silymarin** – Silymarin possesses exceptionally high protective effects against tumor promotion. It is the best known liver protecting herb. It protects the kidneys also – research in the future may show it to be for the kidneys what milk thistle is to the liver. Cisplatin is known to be toxic to the kidney and milk thistle protects the kidneys from this drug (Cisplatin is one of the most common chemotherapy drugs used for Lung Cancer and Ovarian Cancer). Milk Thistle potentiates adriamycin, cisplatin and cytoxin. It has direct cytotoxic anti-cancer activity itself and direct angiogenic activity. The anti-tumor effects affect vascular endothelial growth factor. Silybin, a silymarin compound in milk thistle, bound to phosphatidylcholine, was shown to inhibit VEGF when used as a single agent against human ovarian cancer. Yance always supplements the diet of people who are undergoing chemotherapy or radiation therapy with silymarin. Silymarin has also demonstrated a synergistic effect when combined with cisplatin and doxorubicin in treatment of ovarian cancer. Silymarin exerts exceptional anticarcinogenic effects against breast cancer through an apparent down-regulatory effect on certain breast cancer promoting enzymes, namely cyclin-dependent kinases (CDKs) in the G1 phase of the cell cycle. Silibinin, one of the flavonoids found in silymarin, has been found to inhibit prostate cancer. Silymarin helped doxorubicin work better, this combination caused 41% apoptotic cell death compared with 15% by either agent alone. Silymarin and doxorubicin alone as well as in combination were also effective in inhibiting the growth of androgen-dependent prostate carcinoma LNCaP cells. Silymarin and alpha lipoic acid have been shown to elevate intracellular glutathione levels following periods of oxidative stress, and have demonstrated an ability to inhibit COX-2. Silymarin's action can be accounted for by the inhibition of NF-kB activation, inhibition of pro-inflammatory cytokines, and the suppression of oncogene expression. One of the best times to take it is before bedtime. The liver is central to so many functions in the body – much of what the liver does in the way of detoxifying occurs while sleeping. Sleep is essential for optimal liver function. To enhance anabolic liver function take liver supporting

herbs at bedtime.\*\*\*\* In his most recent lecture he has bumped up the importance of Milk Thistle extracts stating that it may benefit every type of cancer. Preventative dose is 200mg of standardized extract daily and Cancer adjuvant dose of up to 2,000mg daily. Make sure bedtime is used for one of the doses.

**Nettles** – Yance uses the root and seed, in extract form, for prostate cancer. Yance considers nettle leaf equal or superior to all the super green foods on the market when eaten fresh.

**Orange Peel** – Contains a terpene compound called D-limonene, which has been found to destroy cancer cells and to increase the metabolism of some cytotoxic drugs. It is available from Solaray – Natural Max label called Appetite-X 1000mg of D-Limonene per capsule.\*\*refer to the previous section on Limonene in the supplement section of this paper.

**Paw paw (Asimina triloba)** – Administration of a standardized extract of paw paw seed has shown to reduce tumor markers, tumor sizes, and increase longevity among 94 cancer patients while causing minimal side effects. Inhibition of cancer cellular energy (ATP), using the paw paw supplement, thus offers a novel, safe, and effective mechanism for the control of various types of clinical cancer.

**Phyllanthus** – Has been shown to effective against Hep B and other liver disorders. It is useful as a preventive against liver carcinoma.

**Propolis** – Is one of the best infection fighters and healing agents available. Studies have shown it to be particularly helpful for those undergoing radiation therapy. It inhibits the enzyme hyaluronidase, which inhibits the breakdown of hyaluronic acid a component of the connective tissue. Propolis 65% extract “it is the most miraculous thing he knows – if he’s on an island this is what he would take.” Donald Yance. Good propolis is 4% Caffeic Acid –particularly for lymphocytic leukemia.

**Rabdosia** – Traditionally used to treat many forms of cancer, particularly breast and esophageal cancers. It contains several terpenes that have demonstrated anticancer activity, strong anti-inflammatory & very powerful tumor cell activity also against squamous cell cancer, prostate cancer, glioblastoma, non small cell lung cancer & acute leukemia activity. Rabdosia has been shown to work synergistically with and potentiate the cytotoxic drug cisplatin (cisplatin is one of the most common chemotherapy drugs used for Lung Cancer and Ovarian Cancer) and cytotoxin (Cyclophosphamide) and it assists in the regeneration of white blood cells. Its cytotoxic effects against esophageal cancer are stronger than 2 popular chemotherapeutic drugs, bleomycin A5 and 5FU.\*\*\*

**Rosemary** – Rosemary, with its pleasant camphor-like scent possesses some of the most powerful antioxidant activities of any agent studied. Rosemary traditionally was used to increase overall vitality and to improve circulation and mental outlook. Rosemary is often referred to as the “Herb of Remembrance.” The antioxidant capability of rosemary is unique for a number of reasons. In rosemary there exists at least six phenolic diterpenoids with antioxidant activity. The most powerful of these diterpenoids appears to be carnosic acid. As a carnosic acid molecule does its job of quenching a free radical, it transforms into another antioxidant compound called carnosol. The transformation of one antioxidant to another repeats itself 3X. The cascade of antioxidant activity is quite uncommon and may explain its positive results in certain studies. Carnosic acid also supports T3 thyroid hormone. Rosemary also contains significant amounts of the phenolic acid, rosmarinic acid. Unlike carnosic acid, rosmarinic acid is a water-soluble antioxidant and extracts containing rosmarinic acid score extremely high on the ORAC (Oxygen Radical Scavenging Activity) analyses. Phenolic acids also delay vitamin E depletion. Some of rosemary’s other known anti-oxidand compounds include carvacrol, carvone, cymene, cineole, fenchone, limonene, terpinene, and thymol. Many of these compounds have shown to inhibit aging of the brain, and act through a mechanism referred to as acetylcholinesterase inhibition. Rosemary inhibits the metabolic activation of procarcinogens catalyzed by the phase I cytochrome P450 enzymes, and the induction of phase II detoxification activation for these reasons it is considered to be excellent for enhancing liver detoxification. Rosemary also promotes normal mammary cell growth and prevents disruption of DNA caused by chemical carcinogens. Rosemary potentiates chemotherapy and helps prevent Multi Drug Resistance of chemotherapy to cancer cells. It has been shown to inhibit mammary tumors in mice. Carnosol and ursolic acid are the major constituents both of these inhibit tyrosine protein kinase(TPA), ornithine decarboxylase activity, and tumor promotion. A potent tea blend would be putting rosemary into green tea along with hibiscus.\*\*\*

**Royal Jelly** – Is more useful than liver in treating anemia. It can reduce hyperlipidemia. And is also an endocrine enhancer, assisting thyroid, adrenal, and reproductive hormones, especially by enhancing progesterone and testosterone levels. Hyperhealth computer program mentions it being good for leukemia.\*\*

**Saffron** – Is a rich source of carotenoids and is a potent cell oxygenator. The carotenoids have been shown to increase the supply of oxygen in the blood. Crocetin is believed to be the most active constituent found in saffron. Crocin and dimethyl-crocetin exhibit potent cytotoxic effects on human cancer cell lines by disrupting DNA-protein interaction of a cancer cell. In addition they have protective effects against the chemotherapeutic agent cytoxine. Yance often combines it with selenium using a product called Selenstaff by Scientific Botanicals. Herb Pharm makes colchicum – use 5 to 15 drops max..\*\*\*

**Sage** – Is used by Yance for breast and prostate cancers. It contains rosmarinic acid, a potent anti-inflammatory and anti-oxidant. It is also a useful herb for enhancing the ability of the liver to detoxify more efficiently. \*\*

**Saw Palmetto** – Besides all the uses for men as a prostate remedy for BPH. It has demonstrated anabolic, anti-androgenic, and estrogenic properties make it useful in prostate cancer therapies. It is also a very useful for women who have an excess of androgenic hormones. Some of the indications for saw palmetto include hirsutism (excess facial hair), infertility, acne, amenorrhea & polycystic ovaries.

**Sea Buckthorn (Hippocystis rhamnoides)** – In Russia it is approved for Protecting against exposure to radiation. It possesses a pronounced anti-tumor action. Sea Buckthorn is a virtual powerhouse of phytochemicals including essential fatty acids, amino acids, carotenoids, tocopherols, flavones, phospholipids, vitamins C, K and B-complex and 15 trace minerals. New Chapter is marketing this and calling it an omega 7 fatty acid. It helps with liver detoxification, it is anti-inflammatory, helps the heart and circulation and increases the regeneration of epithelial cells (the cells that line the throat, stomach and intestine). Macademia Nut Oil has similar fatty acids in it as sea buckthorn.

**Stephania** – This Chinese herb is specifically useful for edema in the lower legs, a common problem with cancer patients because cancerous tumors attract sodium, which can cause swelling in the abdomen and lower extremities. Combined with corydalis, stephania has also demonstrated pain relief.

**Venus Flytrap** – Dr. Helmut Keller, a German physician has used this more than anyone – It contains at least 3 known cancer-inhibiting components. It has been found to be an effective nontoxic treatment for many different types of cancer. High in proteolytic enzymes it helps with multi-drug resistance. Yance uses Sundew as a substitute for Venus Flytrap because it's less costly. Herb Pharm has the original formula for sale.\*\*

**Violet** – Has been used for neoplasms in the breast and alimentary canal.

**White Pond Lily** – Was used primarily in cancers of the uterus and/or cervix by the Eclectic physicians. P.193 of Michael Tierra's book has the original formula used by Eli Jones for uterine cancer.

**Wild Indigo – Baptisia** – has a synergistic effect with Echinacea it stimulates white blood-cell production. Check the uses in a homeopathic materia medica. It is used when a person has an infection that has rapidly advanced with a high fever.

**Yarrow** – a diaphoretic herb (helps induce sweating) is helpful to drink when taking an epsom salt bath. It is high in sesuiterpene lactones which are anti-cancer. Combining it with Boneset and Elder Flowers in a bath can stimulate interferon production.

**Yew – Taxus brevifolia (US Pacific Yew)** – The active component Taxol is one of the most effective chemotherapeutic drugs used today. The plant contains over 100 different acinoginins, the drug taxol and taxitier uses only 1 of them as the active constituent. It is cytotoxic to many types of cancers including ovarian, breast, and non-small cell lung cancer. Rather than inhibiting microtubulin formation at the mitotic phase during the time the cell is dividing the way other plant alkaloids do - Taxol inhibits cell division by decreasing the concentration of tublin required for assembly. It has been shown to reverse multidrug resistance in breast cancer cells when co-administered with placitaxol. It reduces multi drug resistance when using a full spectrum wxtract with taxitier. It also has COX-2 inhibiting effects.

**Zedoria (Curcumin zedoria)** – Like turmeric it has the ability to break down fibrin and expose viral and cancer cells to more effective attack by other agents and immune-fighting chemicals. Used traditionally to treat cervical cancer (65% success rate). Curcumin and curcuminoids are potent inhibitors of mutagenesis and tumor promotion. Curcumol is rapidly absorbed by the body and is distributed to all body tissues, including the brain.

#### **Herbal Tea Blends -**

Herbalist David Winston feels that herbal combinations should be rotated on a regular basis for the cancer patient. He feels that giving the same substance over and over again may possibly allow the cancer to get used to it just like it does to chemotherapy. He rotates herbal formulas every 3 weeks – 1<sup>st</sup> cycle he uses the red clover stilingia (Hoxey Formula) the next cycle he uses Scudders formula the next cycle Essiac and then switches back. He finds that his clients do better this way. It makes sense to me.

**Making herbal Teas** – Rotating herbal tea blends is also an excellent idea. **Drinking Green Tea on a regular basis is a top priority** if possible. These also are excellent tea blends to use on a rotating basis – even consider rotating them on a daily basis 1 cup at one point of the day another at another part of the day.

**Herbalist Alchemist – Chaga** – loose mushroom tea has a pleasant flavor (it is one of the best medicinal mushrooms for the immune system) and Herbalist David Winston's favorite for cancer.

**Herbalist Alchemist - FuZeng tea** – the classic immune enhancing formula – it's the tea version of Planetary Formulas – Reishi Mushroom Supreme

**Celebration Herbs – C-Blend or Flora – Flor essence**, these are the Essiac formulas – The celebration formula is the most reasonably priced – you cook each part separately and re-mix the tea together before drinking it. The Flora formula is one of the best-known formulas and has been researched more. There is an excellent article in the Herbal Gram about its clinical and general uses.

**Michael Tierra in his book Treating Cancer with Herbs has this tea recipe:** Mix equal parts of Red Clover blossoms, Violet leaves and blossoms, Burdock Root, and Yellow Dock Root. Simmer at least 2 oz of the combination in a quart of water for 20min. Drink 3 to 4 cups a day.

**Medicinal Mushrooms – In Yance's protocols he always includes one or more medicinal extract products.**

Medicinal mushroom extracts, rich in beta glucans, are some of the most researched agents in integrative cancer therapies. Beta glucans are natural carbohydrate molecules found in medicinal mushroom extracts such as Reishi, Poria Cocos and Coriolus versicolor the beta glucans recruits the immune cells to assist monoclonal antibodies (Mabs) in killing cancer cells. There are two other mechanisms by which Mabs can destroy tumors. One is to attract natural killer T

cells to attack a tumor, and the other is to activate the complement system, a series of blood proteins that work together to puncture tumor cells. This last mechanism relies on orally administered medicinal mushroom extracts to deliver beta glucan. Beta Glucan binds to specific receptors on neutrophils, which enable them to see the cancer as foreign. The antibodies and complement attract the primed neutrophils to the site of the cancer, where they join in the attack. Reishi extracts also contain another important, but often overlooked, compound called terpenes, or terpenoids, which actually work in a more direct way in fighting cancer.

**Maitake – Maitake D-fraction** is one of the most potent mushrooms for enhancement of the immune system. Studies have also shown that, of all the medicinal mushrooms, it promotes the highest degree of cancer inhibition in oral administration. Studies have shown it to have antitumor, anti-HIV, antihypertension, antidiabetes, antiobesity, and antihepatitis activities. Maitake D-fraction has been shown to complement conventional chemotherapeutic agents. Not only does it seem to improve their positive benefits, it also aids in the amelioration of many of their side effects. In a study of 36 Japanese patients with advanced cancer were given a combination of maitake whole mushroom and the proprietary water-based D-fraction extract along with chemotherapy or alone. Tumor regression or significant improvement in symptoms was seen in about 60% of patients with breast, lung, or liver cancer. Patients with leukemia, stomach cancer, or brain cancer had 10-20% improvement. Dr Namba from Japan has done the best-known research on Maitake. Roy Upton herbalist believes that the formula Reishi Mushroom Supreme is even more effective than Maitake alone. Natural Factors – MaitakeGold 404 MD-fraction is one of the most potent single maitake products developed by Dr Namba from Japan. \*\*\*\*\*

**Reishi (Ganoderma)** – Reishi is the perfect remedy for the typical American suffering from constant stress. When a person's vital force is down and is then faced with chemotherapy, the situation calls for reishi. Reishi's overall effects are regulatory, it totally enhances the immune system – it increases white blood-cell count, platelets, hemoglobin, and various tumor-fighting cells. It also improves both energy and sleep. Due to its stimulating effects on bone marrow, reishi can protect the body during radiation and chemotherapy. Clinical studies have shown reishi to be effective in the treatment of leukopenia induced by radiation, chemical agents, and other factors. It can elevate all suppressed blood counts. And improve symptoms of weakness, dizziness, and sleeplessness. Reishi has a high amount of polysaccharides – the terpenes found in it are more tumorcidal. After alkaloids, terpenes are the most active anti-cancer compounds found in nature. The terpenes give reishi its bitterness. Donny Yance doses it high 3 to 6 grams of the 20:1 extract daily. Doses of 90g a day of Reishi Mushroom extract may play an adjunct role in the treatment of patients with advanced lung cancer. After 12 weeks of treatment stable disease occurred in 35% of patients compared to 22% in a control group. \*\*\*\*\*

**Shitake** – Can stimulate helper T-cells and reduce the synthesis of immune-suppressive prostaglandins. It contains KS-2, a peptide component, which has been shown to induce interferon production after oral administration. It seems to reverse the depressed enzyme activity associated with cancer, and its antitumor activity is part of the thymus-derived immune mechanism. Lentinan inhibits metastasis, prevents chemical and viral oncogenesis. In follow-up studies with advanced and recurrent stomach and colon/rectal cancers have shown excellent results in using lentinan. \*\*\* *There is a lot of data on a Japanese anti-cancer compound made from Shitake Mushrooms called AHCC – google it for more info until I get the updated documentation.*

**Cloud Fungus (Coriolus versicolor) Turkey Tail** – PSK is a polysaccharide preparation from Coriolus is the subject of over 200 cancer-related articles. Over 400 clinical studies published in Japan since the 1970's have shown that a purified extract from Coriolus versicolor has strong benefits to the immune system when given alone or with conventional chemotherapy or radiation treatments for cancer. Coriolus stimulates both T-killer lymphocytes and macrophages to the tumor, and at the same time inhibits the tumor cell's motility. It stimulates spleen and thymus activity. It inhibits cancer progression in a number of ways: 1- Inhibits tumor invasion, adhesion, and production of cell matrix-degrading enzymes. 2 – By suppressing tumor-cell attachment to endothelial cells through inhibiting platelet aggregation. 3 - By suppressing tumor-cell migration through the inhibition of tumor cell motility. 4 – By suppressing tumor growth through the inhibition of angiogenesis. In stomach cancer patients studies done in Japan conducted from 1976 to 1994 PSK treatment extended patients 2,5 or 15 year survival rates in all cases. PSK has also been used successfully in conjunction with chemotherapy to produce remissions and extend survival time in cases of leukemia, it also increased survival in lung, esophageal, breast and colorectal cancer in most but not all studies. In a more recent study when given for only 28 days it slowed the deterioration of advanced non-small cell lung cancer patients compared to placebo. Coriolus, sometimes called turkey tail. Has been shown to diminish the immune suppression of some other forms of therapy. The vast majority of Coriolus – 70% is excreted through the lungs, with makes it very effective when kidney or liver function is impaired. The dose Yance uses is 5 capsules daily before or between meals. \*\*\*\*\*

**Chaga** – “I believe that chaga may be the most powerful of the immune enhancing fungi” David Winston. It grows on birch and alder trees in the extreme northern latitudes of Russia, Canada, and Scandinavia. Chaga is a rich source of betulinic acid. Betulinic acid has shown strong anti-tumor activity and virtually no toxicity in human trials. In Russia, chaga is used to treat cancers of the breast, uterus, lip, stomach, lungs, skin, bowel, Hodgkin's lymphoma and melanoma. Herbalist Alchemist liquid extract is the only Chaga available. Tea is available also (Herbalist Alchemist) \*\*\*\*\*

**Sea Herbs –**

**Wakame** is thought to have the strongest cancer-inhibiting activity of all sea herbs. It was used in Miso soup after the A-Bomb was dropped on Nagasaki to help against the effects of radiation.

All seaweeds are rich in organic iodine – Yance believes that hypothyroidism is a major contributing factor to breast and ovarian cancers. Yance recommends Ocean Herbs from New Chapter. For anyone undergoing radiation therapy Yance normally recommends 3 to 4 capsules of Ocean Herbs daily for the duration of therapy. And for 1 or 2 months after.

**Kombu** – Michael Tierra recommends it for Thyroid tumors, cancer of the neck, digestive tract and lungs. See p. 180 of his book for more information.

**Spirulina** – Is a blue-green microalgae that is rich in chlorophyll. Its nutrients are easy to digest and absorb, making it an excellent source of energy for those who are weak and suffer from poor assimilation. It offers an effective nutrient treatment for severe liver damage – resulting from a bad lifestyle. It also offers protection to the kidneys when taking strong medications. The blue pigment phycocyanin, a biliprotein has been shown to inhibit cancer colony formation.

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**Herbal Formulas for Cancer Treatment.****Hoxey Formula ( Red Clover Stilingia Formula – Herb Pharm, Hoxey – Gaia Herbs)**

Its primary action is to increase the body's ability to remove metabolic waste, which leads to overall enhancement in the assimilation of nutrients. Yance adds the herb Celendine to it because of its anticancer and liver-protective effects. This formula has a long history of use: Harry Hoxey used it in his cancer clinics all over Texas in the 1940's and is still used in clinics in Mexico. Many of the most respected herbalists such as Michael Tierra, Christopher Hobbs and David Winston feel it is far superior to the well-known Essiac Formula. \*\*\*\*

**Compound Scrophularia – Eli Jones Cancer Syrup (Scudder's Formula – Gaia Herbs)**

Is another classic formula used by the Eclectic Physicians – David Winston believes it should be alternated with the Hoxey Formula every 2 to 3 weeks. Use 1 then the other. \*\*\*

**Minor Bupleurum (Xiao Chai Hu Tang)**

This formula has been found extremely effective in treating Hepatitis C. It is also effective at inhibiting cancer by enhancing the immune system, by inducing apoptosis, and by inhibiting angiogenesis. It has been shown to increase the effectiveness of the standard chemotherapeutic drug 5-fluorouracil (5-FU). It is most useful in Breast and Liver Cancer and can be used to treat Colon Cancer. Yance sometimes uses this formula to detox chemotherapy such as cisplatin. Planetary Formulas makes it the normal dose is 3 tablets 1 to 2 times a day.

Always take 1 dose before bed because the liver does most of its detoxifying at night. This time is the anabolic time because while we are resting, the enzyme systems Phase 1 and 2 kick in and go to work, rebuilding and repairing any damage that's been done. \*\*\*\*

**Codonopsis** is used in China to treat patients with low white blood-cell counts due to radiation or chemotherapy, and is also administered to increase red blood-cell counts.

**Pioneer Formulas** – Super Tonic is a good overall cancer-inhibiting compound of herbs Yance recommends frequently – especially when the individual is undergoing chemo and radiation therapy.

**Topical Treatments –**

Lavender Poke Oil see p. 172 Yance's book for Breast Cancer following Lumpectomy. Use 2 to 3 weeks following surgery. Use on the breast and lymph nodes 2-3X a day.

**Melazepam –**

Azelaic Acid is a naturally occurring, nontoxic dicarboxylic acid. Cell culture studies in melanoma showed cell death to the melanoma cells but the adjacent normal cells were unaffected. Other studies have shown Basal Cell carcinoma responds dramatically to a mixture of axelaic acid and standard dermatological agents such as 5FU. The cream is helpful when applied to pre-basal cell cancerous skin growths. Strata Dermatologics a division of Cardiovascular Research makes this.

**To summarize:**

- 1- Address the stresses in your life
- 2- Building adaptive energy

- 3- Guide yourself toward making healthy nutritional choices
- 4- Improve digestion and the ability to assimilate nutrients
- 5- Get good quality sleep.
- 6- Enhance vitality and adaptive capacity by strengthening yourself. Balance the endocrine and nervous system, improve metabolism, digestion and assimilation.

#### **The importance of prayer and intent :**

“ Every aspect of the assessment, the choices, the interaction, the relationship all should be cloaked with prayer and intent. This can be and for the most part is done in silence. All aspects of healing are inter-related and are forever in motion. Illness is not something separate from one’s self. As a matter of fact, an illness like cancer is very much part of self. It is one of the reasons our immune system does not attack it. If aspects of illness are a combination of all our external environment as well as our internal environment, how can we believe that only outside treatments can be entirely effective ?” Donald Yance.

#### **Idea’s to use when specific problems arise**

##### **To find which chemotherapy drug and a what dose works the best for the specific individual cancer.**

**Weisenthal [www.weisenthal.org](http://www.weisenthal.org) is a lab in Huntington Beach California that does specific tumor tissue testing**  
Another important strategy that should be implemented is the administration of tailored chemotherapy protocols, using live tissue in-vitro testing. This technique will ascertain the best chemo-agents to use against the individual’s cancer cell type. In addition, dosage of the chemo agent(s) should be customized for the individual not solely based on their weight (as is customarily done) but also on their tolerability (for example; a severe drop in WBC after the first dosage would call for a reduction in the amount of the drug given). Weisenthal Labs [www.weisenthal.org](http://www.weisenthal.org) does this exact type of work – go to and get your oncologist to go to their website [www.weisenthal.org](http://www.weisenthal.org) to contact them. They do live tissue testing for specific protocols (each cancer has its own energy). In breast cancer there are 100 types. Some cancers have a low IQ and others a high IQ. Some cancers are dumb and easy to treat others are tough. Breast Cancer has never killed anyone – It’s the metastasis that kills. Use Onco tech for difficult cancers – when its difficult to decide what type of treatment to do.

Testing for TGF-B1 and IL-6 – prostate cancer testing.

Josie Beck, Tumor Marker Division, Scott Department of Urology, Baylor College of Medicine, One Baylor Plaza, Room N730, Houston, TX 77030, 713-798-7264 – fax 713-798-1891 Attention Dolores Lamb, Ph.D and Medical Director, Kevin M. Slawin, MD

Some ideas to consider:

Do systemic chemotherapy before surgery to shrink the tumor 1<sup>st</sup>.

Make sure the tumor is sensitive to the chemo – use onco testing (especially if the 1<sup>st</sup> round of chemo did not get the expected results)

**Biopsy Support** - Using Modified Citrus Pectin taken 5 days before a biopsy and for 2 weeks after could be a prudent idea in preventing a possible cancer cell that might have escaped the tumor site from attaching somewhere else in the body. Read the section on Modified Citrus Pectin for more information.

**Chemotherapy Support** – *Dr Michael Murray ND’s book – How to Prevent and Treat Cancer with Natural Medicine has an excellent section on the different chemotherapy drugs and what nutrients to use with and what not to use – it is an excellent reference.*

A vast array of research has demonstrated that certain botanicals can actually enhance, the cytotoxic effects of specific antineoplastic drugs on cancer cells, and inhibit multi drug resistance (MDR). Most things that are anti-inflammatory enhance the effectiveness of chemotherapy. Feverfew, Panax Ginseng, Rosemary, Resveratrol, Green Tea and Inulin all help. Yance always supplements the diet of people who are undergoing chemotherapy or radiation therapy with silymarin.

**Metronomic Dosing of Chemotherapy Drugs:** Many chemotherapeutic agents, such as cytoxin, taxol, and thalidomide, are being used in low dosages to inhibit angiogenesis. This new strategy is permitting advanced cancer patients to live with cancer by managing it. With this approach, they fair much better in terms of quality of life as opposed to when very high and toxic doses are used to try and completely eradicate the cancer. The harshness of such treatment causes the patient to greatly weaken and the cancer, which may have seemed gone, often comes back with a vengeance. This new low dose therapy is referred to as “metronomic” dosing. The advantages of low-dose metronomic or continuous dose delivery using a combination of phytochemicals, together with whole-plant extracts that possess known cytotoxic compounds, is a therapy I utilize in patients with active or more aggressive cancer.

#### **General Info:**

Chemotherapy works best with fast growing cancers. It works best in the S – phase of cellular mitosis. The G1 and G0 phases are more normal phases of growth and it doesn't work nearly as well when the cells are in this phase.

Chemotherapy is usually used in 2-3 week cycles. Usually after 1- 3 week cycle look for results – if there isn't good progress consider another chemo drug or think about using Weisenthal Labs – to test the tumor sample directly and access which chemo drug and at what dose works the best on that particular tumor. (see above)

The older the person the less effective is chemotherapy.

Do systemic chemotherapy before surgery – to reduce tumor mass (see beginning of this article)

Ask your oncologist about “metronomic” dosing of chemotherapy – it is a low dose therapy that inhibits angiogenesis it is being used with cytoxin, taxol, and thalidomide. This approach allows the person to fare much better in terms of quality of life as opposed to the very high and toxic doses used to try and completely eradicate the cancer. Donny Yance currently uses a combination of phytochemicals, together with whole-plant extracts that possess known cytotoxic compounds with the “metronomic” dosing with patients with active or more aggressive cancers.

A lot of chemotherapy depletes Magnesium and B6

Hydrate yourself a lot prior to chemotherapy – this can help with the nausea (my idea drink a bottle of penta water before chemo to super hydrate the body)

Herceptin – should be used on early stages of cancer also use it as a mono therapy (currently it is being used more for latter stage cancer) but it would work wonderfully for earlier stages of cancer – talk to your oncologist about this.

Herceptin can help Renal Cell Cancers

Her 2 Nu can help Prostate and Ovarian Cancer.

Do not use IL2 (the drug) for Renal Cell or Melanoma – it is extremely toxic and doesn't really work and it gets the person further behind. Try to raise IL-2 naturally. Melatonin helps IL-2 production take ½ to 20mg before bed.

#### **Specific support for specific chemotherapy agents:**

If you are on the drug Taxotere – take a full spectrum Yew extract – it potentiates the chemotherapy and reduces multi-drug resistance. Yew extract has COX-2 inhibiting effects. High doses of vitamin D – 4,000iu's of D3 helps taxotere. L-Glutamine helps Taxotere also see D3 above 4,000iu's daily, Taxol, Methytrexate, 5 FU and Zeloda use 5 to 30 grams a day.

Buluperum helps 5FU work better.

Bromelain helps 5FU and Vincristine

GLA helps Taxitier and Taxol, IP-6 helps adriamycin and tamoxifen.

Milk Thistle potentiates adyamyacin, cisplatin, cytoxin.

Adriamycin – if you give a person COQ10, Carnitine, Rhodiola and Magnesium bound creatine – the person can tolerate 3 – 4X more adriamycin before getting cardiomyopathy and you can take adriamycin with herceptin without any ill effects.

Squalene potentiates the cyto-toxicity and anti-tumor activity of Adriamycin, 5FU & Cysplatin

Methotrexate needs B-12 and Folic Acid – Lecithin also helps Methotrexate

IP-6 helps Adriamycin and Tamoxifen

Turmeric protects the heart along with CoQ10 for Adriamycin toxicity

The drugs cisplatin, cyclophosphamide, vinblastine, bleomycin, cyclosporin, and taxol cause depletion of magnesium.

Green Tea helps Carboplatin, Cytoxin, Busulfan & Ralabine

Theanine – 200mg 2X a day a potentiator and for multi drug resistance to chemo therapy (its excellent with adriamycin).

Panax Quinquefolium (Dioxyrubicin, Cyclophosphamide, and Florouricil)

Selenium protects against Cisplatin induced nephrotoxicity. Vitamin E 600iu's lowers peripheral neuropathy and neurotoxicity of Cisplatin.

Cisplatin & Paclitaxel – Vitamin E supplementation at 600 iu's a day – use a natural full spectrum mixed tocopherol form to reduce the incidence of peripheral neuropathy those using vitamin E supplement had 25% neurotoxicity – using no E had 73.3% peripheral neuropathy.

#### **General supporting substances for chemotherapy:**

Wobenzyme or Zyme Active (Natural Factors)

Ashwaganda extract potentiates both chemotherapy and radiation, while protecting vital organs and improving immune system recovery, Ester C, Potassium and Magnesium, CoQ10, Pancreatic Enzymes, Thymic Protein A, Chlorella, Fish Oils, Feverfew, IP6w/inositol, Inulin (can 2x the effectiveness), Reishi Supreme formula, Schizandra, Green Tea, Thio/NAC (Jarrow Formulas), atracholydes, Drs Choice Antioxidant formula, Ligustrum, Vit E dry with selenium, Rabidosa, folic acid, B-12, Siberian ginseng, reishi mushroom, shitake mushroom, turkey tail mushroom (coriolus versicolor), Pioneer formulas –SuperTonic

The Homeopathic Remedy - Cadmium Sulph 30C

**Multi-Drug Resistance** happens when a person on chemotherapy during which certain cancer cells survive the chemotherapy agent and then become stronger, eventually they become resistant to the chemotherapy. They have a P-Glyco Protein Pump that pumps the chemo back out of the cancer cell. They also have heat shock proteins that pump out the chemotherapy.

Green Tea – Theanine especially adryamyacin and doxol.

Feverfew (helps taxol multidrug resistance and helps the drug tremendously), in AML (acute myelogenous leukemia it may work better than Gleevec and better than cytarabine (Ara-C).

Rosemary, Resveratrol, Inulin, **Panax Ginseng**, Sundew, Venus Fly Trap, Squalene all help multi-drug resistance as well as many of the compounds written about above in the chemotherapy support section – read more about them individually in the earlier parts of this paper.

### **Radiation Support**

**Important:** If the tumor marker shows a high CA-9 level the radiation treatment won't work on the tumor. Get a CA-9 test done before radiation therapy is started. The CA-9 test is a Carbonic Anhydrase – 9 (spelling is probably wrong here) what it does is tell you if the cancer cell is 100% Glycolytic in that the cancer cell no longer uses oxygen at all just sugar as a fuel. Radiation therapy is useless in treating this type of cancer cell. Normal Cells have 70% oxygen in their metabolism a cancer cell waste is Lactate pyruvic acid.

Radiation makes the cancer more systemically active – especially with melanoma, colon cancer and lung cancers.

Yance always supplements the diet of people who are undergoing chemotherapy or radiation therapy with silymarin. Zinc supplements can improve appetite and can correct taste abnormalities caused by radiation therapy to the head and neck.

L-Glutamine especially bowel, rectal area and cervix

Grape seed extract inhibits post-radiation scarring in breast cancer patients. It prevents scarring caused by radiation fibrosis.

Resveratrol – selectively helps people undergo radiation therapy – it potentiates radiation. Vitamin K and Vitamin D are radio-sensitizing so is Ginkgo Biloba.

Melasia reduces radiation induced fibrosis – post radiation fibrosis is a cause of pain (call Yance's clinic for more info and to purchase it)

These substances also help with radiation – read about them individually in their sections earlier in the paper.

ZymeActive (Natural Factors), Ester C, Potassium Magnesium, CoQ10, alpha lipoic acid, pancreatic enzymes, chlorella, fish oils, IP6/inositol, Reishi Mushroom supreme formula, panax ginseng, vit K-3, schizandra, thio/NAC (Jarrow Formulas), green tea, Ashwaganda (bedtime)- the extract potentiates both chemotherapy and radiation, , Ligustrum, Siberian Sea Buckthorn, Dr's choice antioxidant, Propolis, Siberian ginseng, reishi mushroom, turkey tail mushroom (coriolis) New Chapter Ocean Herbs, Pioneer Formula's – super tonic.

The Homeopathic remedy - Cadmium Sulph 30C

A topical spray that works on the skin to relieve the discomfort of radiation is to purchase New Chapter – Arnica Ginger Gel – put Herb Pharm's calendula succus in it with a couple of drops of frankincense essential oil in it – add enough water to make the solution work in a spray bottle and spray it on the affected area.

Soy isoflavones increase the effectiveness of radiation therapy for the treatment of prostate cancer – Jarrow fermented soy powder.

Note: in prostate cancer surgery is superior to radiation in localized prostate cancer in terms of prolonging overall and disease-specific survival.

Head and Neck Cancers – do not use synthetic beta carotene and synthetic vitamin E -

**Surgery** – ask your oncologist about doing systemic chemotherapy before doing surgery to reduce the tumor size. To keep NM23 intact which controls the spread of cancer – read the section at the beginning of the paper.

Read the info sheet on Nutritional Protocol before and after surgery. Don't forget to use the homeopathic remedy Arnica and Calendula before and after surgery. Cancer Surgery

Beta Glucans 1-3, L-Glutamine powder, Gotu Kola, OPC's, Modified Citrus Pectin (to prevent the spread of cancer cells released during the surgery)

**Important note from Donald Yance: Panax ginseng should be administered to any cancer patient undergoing surgery to promote healing and inhibit cancer metastasis. There isn't a single patient he sees that isn't getting some form of Panax ginseng together with other primary adaptogens.** Natura Power Adapt contains this. He also uses a super concentrated form containing 80% ginsenosides.

**Aromatase enzymes** – if you are on a drug to inhibit the aromatase enzyme – do a lot of liver support.

**Nausea** – Ginger Root in any form (tea, liquid extract, capsules, ginger candy, fresh grated) acts directly on the GI system as well as areas in the brain that control nausea. Citrus Oils such as tangerine (Donny Yance's favorite) or orange or just keeping a tangerine or lemon or orange peel to smell can help. If people are depleted in magnesium they

tend to be more nauseated. If you can't take magnesium because of nausea do an Epsom salt bath to absorb it through your skin. Peppermint, Cannabis. Homeopathic remedies Nux Vomica, Ipecac, Tabacum and Cadmium Sulph can be very helpful either 30C or even 200C for extreme nausea. Ask for the information sheet about this from Brighter Day. Nausea and vomiting – Zofran – this pharmaceutical drug works.

**Loss of Appetite** – Bio Strath an herbal tonic from Switzerland is one of my favorite products for this. Its made with about 20 different herbs which are fed to a brewers yeast - fermented and is made into a syrup that is very pleasant tasting. It enhances the appetite, energy levels and supports the immune system. This product has been used for over 60 years in Europe by millions of elderly, pregnant and athletes. I often use it for people coming out of the hospital and who are recovering. Cola Nut is one of the best appetite stimulants (you can get a liquid extract of it from HerbPharm), Nux vomica, Cannabis.

**Edema** – Nettles seed, Burdock seed, Celery seed, Poria cocos. Bromelain, GLA from primrose oil

**Lymphedema** – Beta Rutin (Cardiovascular research) 97% of users in a study with 26 patients postmastectomy lymphedema of the arm used 3 grams a day for 6 months in a double-blind crossover study.

**Constipation** – Never let an advanced cancer person get constipated. Ask for an information sheet about coffee enemas from Brighter Day

**Fevers** – In fevers to prevent brain damage – keep the head cool and the feet with mustard packs and use diaphoretics such as yarrow tea to disperse the heat. Also the homeopathic remedy Aconite 30C-200C or Belladonna 30C-200C can help bring down the fever and of course there are over the counter medicines – always use good common sense and the emergency room at the hospital if necessary.

**Diarrhea** – Probiotics and Kefir. L-Glutamine drastically reduces diarrhea caused by radiation of the bowel, rectal or cervix. Wild geranium, white oak bark, goldenseal, carob.

**Mouth Ulcers** – Use L-Glutamine powder as a mouth rinse. DGL – licorice extract tablets take 1 or 2 chewable tablets between meals or 20 min after or suck on 1 or 2 whenever you want. Enzymatic Therapy, Natural Factors and Planetary Formulas all make chewable DGL. Swish Aloe Vera Juice with ½ teaspoon of L-Glutamine powder put in. Propolis tincture.

#### **Neuropathies -**

EPA 2,000mg, DHA 1,500mg, GLA 1,000mg

B-12, Folic Acid – Hydrofolate each drop = 200mcgs take 10 to 20 drops a day, B-6 – P-5-P or PAP (B6 chelated to alpha keto glutarate VO2 max

B-6 100 – 200 mg a day

This protocol will save anyone from neuropathies

#### **Pain Relief**

Morphine promotes cancer growth – so finding ways to minimize its use is important. Reducing tumor burden will reduce cancer pain. Corydalis can reduce the need for morphine. Corydalis is 40% as effective as morphine.

Corydalis (Liquid Extract – Herbalist Alchemist) is one of the best herbs for cancer pain, butterbur, rhabidos rubescens, Peony, Aspirea compound (Herbalist Alchemist), Condurango, Vit K, Cesium Chloride (take with potassium and magnesium aspartate). Alpha Lipoic acid, DMG – B-15 (Food Science Labs) by reducing lactic acid buildup might be very beneficial for cancer pain.

Pain Management – the energy of the body and vital force is diverted for the pain – the more pain they have the lower the vitality. Pain is a viscous cycle. Traditionally Echinacea helped with the pain of cancer.

Coffee enema's are useful for the pain of abdominal cancers. Only use them if the bowels aren't working – do them 1x a day.

Promote lactic acid removal (*see the lactic acid removing bath below*) Pyruvic and Lactic acid are the by products of cancer cell growth. Quercetin buffers lactic acid. GliSODin is a form of SOD that is derived from Cantalope that is totally absorbable acute dose 1,000mg a day to lower Lactic acid levels in cancer pain.

*Donny Yance has developed a formula Corydalis PIS contains a 400:1 concentration of corydalis with numerous anti-inflammatory botanicals is the best formula available by Natura.*

**Bone Pain** – Ipriflavone 800mg a day combined with very high doses of vitamin D 3,000 to 4,000 iu's of vitamin D daily and Vit K-1 - 30mg water soluble K (Vitamin K is extremely cytotoxic to cancer cells and is anti-inflammatory) daily helps reestablish the bone.

The drug Zemeda – 1<sup>st</sup> choice and Iridia 2<sup>nd</sup> choice are much better drugs now the drug solidifies and prevents the infiltration of cancer and helps with bone pain.

**Nerve Pain** – can be completely preventable with high doses of Vitamin B-12, and B-6. Panax Ginseng, Epimedium (Horny Goat Weed) & Mumie (Shilat) are excellent for nerve regeneration.

**Lactic acid removing bath:** Take a daily ½ hour bath in water heated to 102 degrees add ¼ pound of baking soda to the hot water. The baking soda increases the water's pH value, which pulls the acid from the body. Its cheap, fast and 100% effective – when the lactic acid has been removed often you don't need morphine and pain medicines or it can greatly reduce the doses of pain medicines needed.

### **Weight Loss –cachexia**

Fish Oil supplements –12 capsules a day or use the equivalent of liquid fish liver oils, Melatonin 20mg in the evening before bed, Whey Protein, L-Glutamine, MCT (medium chain triglycerides), coconut and coconut milk (unsweetened), Panax Ginseng, Condurango, all adaptagenic herbs. Muscle wasting –Rapumpticim, Epimedium (Horny Goat Weed) Take Arginine before bed 1 to 2 grams with 500mg of Lysine. L-Carnitine 1,000 – 3,000 mg a day. BCCA's Branch chain amino acids. Soups with lamb and bison –You can turn a situation around. Ask for the information sheet from Donald Yance – Sample protocol for cachexia (Cancer Related) Resource #28 from his Atlanta seminar handout. Here is a good protocol idea for weight loss in Cancer using the Natura line created by Donald Yance –

1. Use Power Adapt as directed on the bottle
2. Use Botanibol as directed
3. Night Gain 4 to 8 capsules taken at bedtime
4. Beyond Whey shakes with Beyond Essential Fats in them – add 2oz of coconut milk to the shakes
5. Take a good enzyme formula with all foods – such as Enzymedica enzymes – Gold are the best
6. Add the appropriate formulas to take with the shakes – Botanical Treasures, Immune Care 1 or 2 or both.

### **Blood Work –**

Check the blood work for insulin, fasting insulin and glucose. Make sure in your bloodwork your hemoglobin A1L – is lower than 6.

Fasting insulin should be under 5

Homocysteine Levels should be under 9

Fibrogen levels should be under 350 – if its over this there is a potential risk of aggragation and to fibrin forming which creates “a healthy environment for tumor growth and for blood clots to form” Nattokinase an enzyme from Natto taken at a dose of 3 to 6 tablets a day is one of the best ways to lower fibroginogen but its expensive.

C reactive protein should be under .5 the lower the better.

Yance likes to see ferratin levels in bloodwork to be 20-50 (low normal) even under 100 – if ferritin levels are over 100 its too high.

Copper levels cerulaplasm should be between 18 & 24 that's the optimum range. Chelate the copper out of the body – measure cerulaplasm 18 – 24 is the range in blood work. Keep copper at 2 to 10% of the normal range to help stop tumor growth.

Another test you can do is get a cytocon panel from Life Extension for \$ 250.00 check their website for information about that.

VEGF – levels can be checked by blood work. It is a marker of angiogenesis.

### **Blood tests – from Chanchal Cabrera –**

Keep LDL cholesterol from getting too high.

1 – Complete blood count – look for low white or red blood cells, low hemoglobin, low platelets, low B12, folic acid or ferritin

2 – Blood chemistry – look for low or high glucose, low protein, albumin or uric acid, high creatinine, AST, ALT, lactate dehydrogenase or alkaline phosphatase. – Elevated blood glucose leads to elevated insulin-like growth factor 1 and this feeds cancer growth cycles. Adjust glycemic balance as needed through the diet. Low albumin or low total protein incases a need for more dietary intake.

3 – Low uric acid indicates poor toxin clearance, especially of aldehydes. It also indicates immune system and especially lung stress. (use shrimp and other shellfish, red meat and molybdenum to raise it. Aid aldehyde clearance with pantethine and taurine)

4 – ALT and AST are markers of liver stress. (use milk thistle, curcuma to reduce this)

5 – Alkaline phosphatase rises when there is excessive bone metabolism (metastases) and in liver metastases.

6 – Copper, zinc and ceruloplasmin – copper feeds angiogenesis. Ideal is to be in the lowest 20% of normal. Curuloplasmin is stored copper. – (use cilantro, black beans and molybdenum to chelate it out of the tissues, zinc to compete for binding and absorption)

- 7 – UPA – urokinase type plasminogen activator – a proteolytic enzyme that contributes to weakening of the extra-cellular fluid matrix. Should be greater 3 ng / mg of protein. Elevation indicates poor prognosis. (if elevated use Alpha and Gamma linoleic acids (Flax and Primrose Oils, Green Tea and catechins.)
- 8 – DHEA – a steroid precursor hormone that inhibits glucose and phosphate dehydrogenase which feeds cancer metabolism. Often deficient, especially in pre-menopausal breast cancer. – if low use the 7keto form of DHEA.
- 9 – Lipid profile. – elevated cholesterol indicates high activity of 3 hydroxy 3 methyl glutaryl co-enzyme A reductase (HMG-CoA) in the liver which makes cholesterol but also promotes cancer cell activity. (use EPA/DHA lycopene, allicin, Yew Taxanes, Leukemenin B in Rhabdosia, Limonene in citrus peel, geraniol.
- 10 – Insulin like Growth Factor 1 – stimulates cell turnover. Down regulated by IGF 1 binding protein that is activated by exercise and reduced calorie intake and improved insulin sensitivity. Especially significant in brain, prostate, breast, ovarian and gastro-intestinal cancers.
- 11 – Sex hormone binding globulin in breast and prostate cancer – carries sex hormones and prevents them from locking into receptors on the cancer cells. (use flax seed meal)
- 12 – Prostate specific antigen (PSA) and free PSA and % free testosterone, testosterone, dihydrotestosterone and prostate acid phosphatase (PAP) in prostate cancer.
- 13 – CEA in many solid tumors eg. Colorectal, breast, thyroid, prostate, as well as malignant pleural effusion,
- 14 – CA 15-3 and CA 27 – 29 in breast cancer
- 15 – CA 19-9 in cancers of the pancreas, breast, liver, stomach, thyroid and colon.
- 16 – CA 125 used as a marker for ovarian and endometrial cancer
- 17 – Alpha feto protein in liver cancer, ovarian and testicular cancer.
- 18 – Anti-malignin anti-body – a non-specific cancer marker.
- 19 – Arylsulfatase A – a lysosomal enzyme found in all cells. Should be less than 11 U/L. Elevation may indicate cancer of the bladder, colon or rectum or myeloid leukemia.
- 20 – b-2 microglobulin – This is a protein discharged by cells involved in multiple myeloma
- 21 – Melatonin – often depleted in cancers of the breast and prostate and possibly others.
- 22 – Monoclonal protein – an anti-body produced by plasma cells and elevated in multiple myeloma.
- 23 – Neurone specific enolase – a marker for neuro-endocrine tumors especially non-small cell lung cancer and neuroblastoma in children as well as pancreatic islet cell tumor, pheochromocytoma, and medullary carcinoma of the thyroid gland.

**If while blood cells are low or red blood cells are low the following substances can help balance these levels**

**WBC (white blood cells) , RBC (red blood cells) increases**

Chorella – WBC, RBC & Albumen

AKG's – WBC

Ashwaganda WBS'c, RBC's – helps leucopenia caused by radiation therapy and immune drugs.

Baptisia WBC

Reishi WBC, RBC

Codonopsis WBC

Reishi Mushroom Supreme formula – FuZeng Tea WBC, RBC

Liquid Liver Extract (Enzymatic Therapy) RBC

Lactoferron – RBC's

Royal Jelly – RBC's

Raising the albumen levels of the blood – Alpha Lipoic Acid, Chlorella, Lactoferron

**Donny Yance's product line Natura**

Donny Yance has developed a number of products based on his experiences in his clinical practice. I highly recommend them – ask for information about them at Brighter Day or go to his website for more information They are Beyond Whey, Beyond Essential Fats, Vital Adapt, Power Adapt, Max Amino (Night Gain), Rapumpticum 10 with more on the way.

He also has an educational CD on adaptagens that is free and very informative.

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How to Prevent and Treat Cancer with Natural Medicine

Michael Murray ND, Tim Birdsall, Joseph Pizzorno ND, Paul Reilly

Riverhead Books – a member of Penguin Putnam, Inc. 2002

375 Hudson Street, New York, NY 10014 ISBN 1-57322-222-4

Preventing and Treating Cancer - an article written by Chanchal Cabrera 2004 Chanchal is a brilliant medical herbalist trained in England. She has been living in Vancouver B.C. and recently has been partnering with Donald Yance in his clinic in Ashland Oregon. Her paper has excellent clarifying information and some of the best information I have found on using botanicals to partner with various chemotherapy drugs. I wish to thank her for her valuable contribution to this paper. See also the specific sections which are directly taken from this paper.

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360-938-2898 E Mail info@hyperhealth.com

Treating Cancer with Herbs – An Integrative Approach

Dr. Michael Tierra L.Ac, AHG

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David Winston AHG –

Tape series

(Herbal) Ed Smith

Tape on Echinacea

Steve Austin ND – What’s new in nutrition SOHO expo lecture 12/03 – Lycopene and prostate cancer

Bill Sardi – ask Bill Sardi.com – how to overcome cancer at home [www.askbillsardi.com](http://www.askbillsardi.com)

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MCP - Modified Citrus Pectin updated information copyright 2004 by Issac Eliaz, M.D., L.Ac. [www.dreliaz.com](http://www.dreliaz.com) 707-829-5900 Amitabha Medical Clinic and Healing Center in Sebastopol, CA

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