

ANTI-CANCER SUBSTANCES

1. Coenzyme Q10

Probably one of the most important (and overlooked) nutrients in cancer prevention and treatment is Coenzyme Q10, also known as ubiquinone or ubiquinol,

Cancer cells have different metabolism than healthy cells: while healthy cells usually generate their energy aerobically (with oxygen) in a process called cellular respiration, cancer cells generate their energy anaerobically (without oxygen) in a process called cellular fermentation. For this discovery, made in 1928, Dr. Otto Warburg was awarded the Nobel Prize in 1931.

The cellular respiration takes place in four steps. The last step is called "oxidative phosphorylation". In this step, Q10 plays a key role as electron carrier molecule and is often the limiting factor. In several studies, cancer patients were found to be deficient in Q10 (1,2,3)

By supplementing Q10 cellular respiration is enhanced, whereas cellular fermentation is not. Thus, healthy cells (which use respiration) obtain a competitive advantage over cancer cells (which use fermentation).

The value of Q10 in cancer management has been shown both in animal models and in human studies. Bliznakov et al. induced tumors in mice by using carcinogen chemicals. One group was receiving additional Q10, the other group was not. After 69 days, 100% of the mice in the control group developed tumors vs. just 55% in the Q10 group. After 132 days, 100 % of the mice in the control group were dead, after 300 days only 20% in the Q10 group were dead (80% were still alive). More details can be found here (in German):

http://www.webmed.ch/q10_spezifische_themen/q10_und_krankheiten/q10_und_krebs/immunsystem.htm

Q10 was also found to be effective against tumors in humans, with dosages of 360-600 mg resulting in remission of breast cancers. For more details on this, check "Antioxidants against Cancer" by Ralph Moss, PhD, or these links:

<http://www.newswithviews.com/Howenstine/james2.htm>

<http://www.alkalizeforhealth.net/oxygen.htm>

(1)Folkers, K., Brown, R., Hanioka, T., Williams, M., Quillin, P., Jafelice, R.: Involvement of a deficiency of coenzym Q10 in cancer therapy and blood levels of Co Q10 in cancer patients in America. I.Proc.Nat.Acad.Sci. USA 1993 (submitted).

(2)Folkers, K., Brown, R., Judy, WV., Morita, M.: Survival of cancer patients on therapy with coenzym Q10. Res.Commun.Biochem.Biophys. 1993; 192, 1:241-245.

(3)Folkers, K., Shizukuishi, S., Takemura, K., Drzewoski, J., Richardson, P., Ellis, J., Kuzell, W.: Increase in levels of Ig G in serum of patients treated with coenzym Q10. Res. Commun. Chem.Path. Pharm. 1982; 38, 2:335-338.

2. Omega-3 fatty acids

Probably one of the most underrated health factors today are unsaturated fatty acids Omega-3 and Omega-6. These fatty acids play a key role in many metabolic processes, especially in the synthesis of substances called eicosanoids.

Eicosanoids are tissue hormones and include: prostaglandins, leukotrienes, prostacyclin, and thromboxanes. Prostaglandins and leukotrienes control inflammation processes, whereas prostacyclin and thromboxanes regulate thrombosis (blood clotting) and vasoconstriction (widening or tightening of blood vessels).

Prostaglandins can be divided into two groups: pro-inflammatory and anti-inflammatory. Pro-inflammatory prostaglandins are synthesized from Omega-6 fatty acids, whereas anti-inflammatory prostaglandins are synthesized from Omega-3 fatty acids.

The same is true for thromboxanes: thromboxanes which increase blood clotting and cause blood vessels to contract are synthesized from Omega-6 fatty acids, whereas thromboxanes which decrease blood clotting and cause blood vessels to relax are synthesized from Omega-3 fatty acids.

Traditional diets provided plenty of Omega-3 and Omega-6 fatty acids in a ratio of approximately 1:1. This is also the ratio to which our hormone system has adopted, over tens of thousands of years.

Modern diets, however, provide much more Omega-6 than Omega-3 fatty acids, usually in a ratio of 1:15 to 1:20. This results in vastly increased pro-inflammatory, pro-thrombotic, and pro-vasoconstrictory stimuli which, in turn, contribute to conditions like asthma, allergies, arthritis and cardiovascular diseases.

It has also been found that Omega-6 to Omega-3 ratio plays an important role in cancer. The exact mechanism has not yet been determined, though a few mechanisms have been proposed.

Several studies support this idea. For example, it has been found that supplementing Omega-3 fatty acids in mice reduced the average tumor size by about 50%, and increased the effectiveness of chemotherapy by a factor of 10 (this is not a spelling error, chemotherapy was ten times more effective in killing cancer cells in mice fed supplemental Omega 3 fatty acids).

In another study, it was found that Omega-3 supplements could reduce the side effects of chemotherapy. Mice were divided into two groups: Omega-3 group (fed corn oil and fish oil) and control group (fed corn oil only). The mice were then given high-dose chemotherapy. After 60 days, 50% of the mice in the control group were dead, whereas no mice in the Omega-3 group were dead.

There is also one documented human case in which supplementation with Omega-3 fatty acids resulted in almost complete remission of terminal stage-IV lung cancer. The man was taking Omega-3 supplements, and nothing else. He was diagnosed with terminal lung cancer in 2000 and given a few months to live. In early 2006 (last update I could find) he was still "alive and well".

As regards dosing: he takes 18 capsules a day of fish oil, and 18 capsules a day of gold algae oil which is also rich in Omega-3 fatty acids. I was not able to find out the dose per capsule, but I would suppose that they are standard fish oil capsules (500 mg of fish oil per capsule, with 18% EPA and 12% DHA). This would correspond to about 2,700 mg of combined EPA and DHA from 18 fish oil capsules. I do not know the amount of Omega-3 fatty acids in the gold algae capsules, but I would suppose it to be similar (with the exception that algae usually have much more DHA than EPA).

To increase the effects of Omega-3 supplementation, you may want to reduce the intake of foods rich in Omega-6 fatty acids such as corn. It seems that the amount of Omega-3 and Omega-6 fatty acids consumed is not of primary importance; more important is the ratio "Omega-3 to Omega-6".

It is advisable to bring this ratio down from some 1:15 or 1:20 (today's average) to below 1:4. For optimum results you might want to bring it even lower to around 1:1 (original paleolithic ratio). The average consumption of Omega-6 fatty acids in the West is about 5-15 grams a day, depending on eating habits.

If choosing an Omega-3 supplement, it is important that:

- the content of EPA and DHA (Omega-3 fatty acids) is high
- they are free from mercury, PCB, and other pollutants
- ideally, the EPA and DHA should be in the triglyceride form for better absorption, but from what I currently know it is not the most critical criterion

BTW, olive oil is a very good source of Omega-9 fatty acids and contains almost no Omega-6 fatty acids so its intake does not have to be reduced.

For more details, you may check the following books:

"Omega 3 Connection" by Andrew Stoll

"Omega Diet" by Artemis Simopoulos

or the following links:

http://intelegen.com/nutrients/fish_oil_and_fighting_cancer.htm

<http://cebp.aacrjournals.org/cgi/content/abstract/12/9/926>

http://www.scienceagogo.com/news/20051010003544data_trunc_sys.shtml

<http://www.mysanantonio.com/news/metro/stories/MYSA020506.healthstudy.KENS.755e1a93.html>

<http://www.sciencedaily.com/releases/2005/11/051110083907.htm>

3. Vitamin E

This is a very important nutrient. For example, vitamin E is the most important membrane antioxidant protecting cell membranes.

Studies have shown that women with high levels of vitamin E have risk of breast cancer which is up to 90% lower than for women with low vitamin E levels (for women with family history of breast cancer), or up to 50% lower for women with no family history of breast cancer.

The important thing to keep in mind, however, is that natural vitamin E consists of eight different substances (4 different tocotrienols and 4 different tocopherols), whereas over-the-counter vitamin E supplements usually contain only alpha-tocopherol.

Even supplements with alpha-tocopherol can be divided into natural and synthetic formulas. Alpha-tocopherol exists in two molecular variations, called "D" and "L". These are identical molecules except that they are symmetrical to each other like the left and right glove.

Natural vitamin E formulas contain the biologically active D-form of alpha-tocopherol. Synthetic vitamin E formulas are a mixture of D- and L-forms. The problem here is the following: the L-form is similar enough to the biologically active D-form to occupy vitamin E "action sites", thus preventing the D-form from arriving at these sites. But the L-form is not capable of performing the functions of vitamin E. So we have here a case of "competitive inhibition", where the L-form of alpha-tocopherol actually blocks the D-form of alpha-tocopherol.

For that reason, taking supplement which contain only synthetic vitamin E can not only yield results which are suboptimal, but can actually be even detrimental to your health.

The impressive results (90% or 50% reduction in risk of breast cancer) were obtained using dietary vitamin E. Studies conducted with alpha-tocopherol showed much less impressive results (or no results at all). So it seems to be important to take vitamin E supplements which contain all eight substances (sometimes called Super vitamin E or natural vitamin E).

For more details look up the book "Safe Estrogen" by Dr. Edward Conley

There is also a special form of vitamin E, called alpha-tocopheryl succinate. This is the form of vitamin E which has the highest potency against cancer cells. For more details, look up "Antioxidants against Cancer" by Ralph Moss.

4. MSM

MSM (Methyl-Sulphonyl-Methane) is the chemical name for organic sulfur. The substance MSM is virtually non-toxic: its LD50 dose is 5 times higher than that of table salt (it means that MSM is just 20% as toxic as salt). It has many interesting properties: for example it can alleviate arthritis and allergies.

It can also postpone the onset of cancer. In a study, rats were exposed to carcinogen chemicals. Rats in the MSM-treated group developed tumors on average 100 days later than in the control group. Keep in mind that, after taking into account the average rat life span of two years, 100 "rat days" is equivalent to about 10 "human years".

Book: "The Miracle of MSM" by Stanley Jacob

Link: <http://www.msm-info.com>

5. AHCC

AHCC is a blend of 5 medicinal mushrooms, and as such is comparable to RM10 from Garden of Life. There are several human studies which demonstrate the effectiveness of AHCC in stimulating NK-cells to destroy cancer cells. The increase of NK-cell activity against cancer cells was found to usually be somewhere between 100% to 300%.

I have also seen a positive testimonial in a German Yahoo! group in which a man with terminal prostate cancer began taking AHCC and observed that his immune system began to restore itself after being damaged by conventional therapies.

Another key function of the AHCC is that it significantly decreases the side effects of chemotherapy and makes it more effective.

Here are a few links:

<http://www.annieappleseedproject.org/ahbattherune.html>

<http://www.glyconutrients-center.org/mushrooms-cancer.php>

<http://ahcc-nutrients.com/AHCC-Cancer.html>

<http://www.tanno-holistic-medicine-japan.com/ahccEn.html>

http://www.meganutrition.com/Hot_Selling_Products/ImmPower_clinical_studies.htm

http://www.drdauidwilliams.com/order/new_health_breakthroughs_cncr/page_a3.asp

6. Spirulina

The spirulina algae have been found to have many health-improving and anti-cancer properties. One example:

In a study conducted by Medical College Campus in Kerala, India, men who developed oral pre-cancerous conditions due to chewing tobacco were given 1 gram of Spirulina or placebo over 12 months. In the spirulina group, 45% of the people showed full remission of the condition, in the placebo group only 7% showed remission.

Marianne E. Meyer is a German scientist living in the USA since 1986. She holds an MD title (medical doctor), and has a PhD in nutrition. The topic of her PhD thesis was the interaction between spirulina and immune system. Any book written by her is highly recommended.

<http://www.newstarget.com/008421.html>

7. Oral vitamin C

Oral vitamin C is maybe the single most important nutrient as regards cancer prevention and treatment. This may help explain why the debate about oral vitamin C has been so controversial. I personally take large amounts of vitamin C (more than 20 grams a day), and plan to continue doing so.

For more details about oral vitamin C you can look up:

“The Science of Ascorbate” by Hilary Roberts and Steve Hickey
“How to Live Longer and Feel Better” by Linus Pauling
“Vitamin C, Infectious Disease, and Toxins” by Thomas Levy

<http://www.positivehealth.com/permit/Articles/Nutrition/vitcpre.htm>

<http://vitamincfoundation.org/stone/chap1-11.htm>

<http://www.cforyourself.com>

For oral vitamin C to be effective, it is very important that it is taken in divided doses throughout the day, as only such administration results in continuously elevated blood levels. Taking one or even two doses a day yields much less effect, or even no effect at all.

8. Intravenous vitamin C

Vitamin C, when taken orally, is not toxic to human cells. The blood level of vitamin C is limited by the route of administration: more than a certain amount of vitamin C is not absorbed in the intestine and moves down to the colon where it can cause gastrointestinal discomfort like gas or diarrhea.

However, if by intravenous administration higher concentration of vitamin C in blood is achieved than the maximum concentration achievable orally, then a very interesting thing happens: at such high concentrations vitamin C is not an anti-oxidant any more, it acts like a pro-oxidant. Especially, it causes hydrogen peroxide to be produced within cells.

Usually, many free ROS (reactive oxygen species) are produced within the cells as by-products of cellular respiration. For that reason, healthy cells are equipped with many enzymes which are capable of neutralizing these ROS. The enzyme “catalase”, for example, is responsible for neutralizing hydrogen peroxide.

Cancer cells have a different enzymatic metabolism, though. For example, the concentration of catalase within cancer cells is up to 10 times lower than within healthy cells.

For that reason, it is possible to achieve vitamin C levels in blood which are non-toxic to healthy cells, but toxic to cancer cells. This has been demonstrated in vitro, and there are also human clinical studies which support I.V. administration of vitamin C to cancer patients.

For more information, you can look up:

“Vitamin C and Cancer” by Linus Pauling and Ewan Cameron
“Cancer: Nutrition and Survival” by Hilary Roberts and Steve Hickey
“Vitamin C, Infectious Disease, and Toxins” by Thomas Levy

or the following links

<http://www.townsendletter.com/Oct2004/warcancer1004.htm>

<http://www.doctoryourself.com/riordan1.html>

<http://www.doctoryourself.com/vitciv.html>

<http://www.doctoryourself.com/cameron.html>

<http://www.brightspot.org/cresearch/ivctumor.shtml>

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>

9. Hoffer protocol

Dr. Abram Hoffer was practicing in Canada as a board-certified psychiatrist. But he also had a PhD in biochemistry. He developed a supplement protocol for his schizophrenic patients which consisted of a few basic vitamins and minerals. Many patients participated in this protocol, but many did not.

He was also seeing many cancer patients who sought psychological support. Again, some of the cancer patients went on the protocol, but some did not.

After several years Dr. Hoffer made an observation: cancer patients in the protocol group seemed to survive longer than those in the non-protocol group. He analyzed his records and found that cancer patients in the protocol group lived, on average, 12 times as long as those in the non-protocol group.

After factoring in the fact that all patients in the non-protocol group were already dead, whereas many patients in the protocol were still alive, this factor increased to about 16 times as long.

These findings were published in 1989 (if I recall correctly) in a publication co-authored by Abram Hoffer and Linus Pauling.

http://www.doctoryourself.com/hoffer_vitc_can.html

<http://www.alkalizeforhealth.net/cancerpain.htm>

<http://www.islandnet.com/~hoffer/>

10. Phytonutrients

There are many studies which show that a diet rich in fruit and vegetables is very beneficial to health, and that people on such diet have significantly lower risk of cancer.

These health benefits are often contributed to so called “phytonutrients”. The general definition of phytonutrient is a substance which can be found in plants and has health-enhancing properties.

However, many fruits and vegetables which can be bought today at a regular supermarket have only a fraction of the nutrients they used to have. Also, many phytonutrients are destroyed by long storage and cooking. So using a phytonutrient supplement may be advisable.

“Juice Plus” is a quality phytonutrient supplement. Comparable supplement is manufactured by Nature’s Way (Orchard Fruit and Garden Veggies). Usually two fruit capsules AM and two vegetable capsules PM are taken. For better absorption, they can be taken on empty stomach with some water.

<http://www.vitacost.com/NaturesWayOrchardFruitsFormerlyNutriJuice>

<http://www.vitacost.com/NaturesWayGardenVeggiesFormerlyNutriJuiceVeggies>

Another quality supplement is *Rechtsregulat*. This is a fermented beverage rich in enzymes, manufactured in Germany. Below a testimony :

„I use it and have for about 4-5 months. Definite difference in the color of my blood in less than a month – from almost black to bright red. More details on my protocol is on my site at www.BetterHealthGuy.com.

Be well,
Scott“

One comment: dark-red color is usually a clear sign of poor blood oxygenation, whereas bright-red color is a sign of good blood oxygenation. And good oxygenation is very important in cancer (see above).

11. Organic germanium

Organic germanium is not widely known in the West, though it is much more popular in Japan where it was “invented”. It has many positive properties.

The most interesting fact for cancer patients is that it has the ability to almost completely protect healthy cells from even strong radiation, while at the same not reducing the effectiveness of the radiation upon cancer cells (for example during radiation therapy).

There is a documented case in which a cancer patient underwent radiation therapy with Cobalt 60 (47 radiation sessions within 2 months), and his immune indicators remained virtually unchanged during this period (usually they just nose-dive)

<http://www.positivehealth.com/permit/Articles/Nutrition/Germanium/Germanium.htm>

12. Hormone replacement therapy (HRT)

All HRTs can be divided in two groups: therapies to help alleviate menopause symptoms in women, and therapies to help alleviate age-related decline (anti-aging).

In both groups, different kinds of HRTs are available, some of them increase the risk of cancer, some of them do actually decrease it. For everyone considering HRT, I would recommend the following books:

“Safe Estrogen” by Dr. Edward Conley (menopausal HRT)

“Grow young with HGH” by Dr. Ronald Klatz (anti-aging HRT)

13. Ralph Moss

Ralph Moss has been for years one of the most influential figures in alternative cancer therapies. I would especially recommend his book “Antioxidants against Cancer”, in which he discusses minerals, vitamins, and flavonoids (like those found in green tee) and their role in cancer prevention and treatment. In this short book (about 100 pages) over 500 publications and studies are reviewed.

Any other book written by Ralph Moss is a valuable source of information, too. You may also visit his homepage at <http://www.ralphmoss.com/>

14. Vitamin D

There are new insights into the relationship between cancer and vitamin D. It seems that adequate intake of vitamin D can significantly reduce the risk of cancer.

In a 2004 study from Quebec, Canada, it was found that women with the lowest Calcidiol (vitamin D) blood level had four times higher incidence of breast cancer than women with the highest Calcidiol blood level. Other studies seem to support these findings. More info can be found here:

<http://www.vitamindcouncil.com/cancerMain.shtml>

<http://www.vitamindcouncil.com/cancerBreast.shtml>

<http://www.knowledgeofhealth.com/report.asp?story=Cancer%20Defeated%20Vitamin%20D%20Pill%20For%20All&category=Cancer.%20Vitamin%20D>

<http://www.knowledgeofhealth.com/report.asp?story=Vitamin%20D%20Is%20For%20Cancer%20Defense&category=Vitamin%20D.%20Cancer>

Additionally, Vitamin D has other beneficial effects: it regulates the inflammatory response, thus preventing it from being too strong, while increasing the immunity against virus diseases such as colds and flu. Here a few links:

<http://www.medicalnewstoday.com/medicalnews.php?newsid=51913>

<http://www.knowledgeofhealth.com/report.asp?story=Why%20Flu%20Epidemics%20Occur%20in%20Winter&category=Infectious%20Disease.%20Vaccines.%20Flu.%20Vitamin%20D>

As regards safety of vitamin D supplementation, it is necessary to distinguish between vitamin D toxicity and vitamin D hypersensitivity. Vitamin D toxicity occurs when blood levels of Calcidiol exceed the optimum level of 35-55 ng/mL. No documented case of vitamin D toxicity has been reported at doses below 10,000 I.U. of vitamin D per day.

Vitamin D hypersensitivity occurs when hypercalcemia (increased blood calcium levels) are found despite Calcidiol blood levels below 55 ng/mL. It is quite seldom and usually develops in patients with existing pre-conditions like hyperparathyroidism and some forms of cancers like non-Hodgkin's lymphoma. The risk of hypercalcemia can be virtually eliminated by regular monitoring of blood calcium levels. More information can be found here:

<http://www.vitamindcouncil.com/vitaminDToxicity.shtml>

<http://www.vitamindcouncil.com/vdds.shtml>

<http://www.doctoryourself.com/d/vitamin.htm>

Before beginning supplementation with vitamin D in therapeutic dosing (2,000 – 4,000 I.U. per day), it is advisable to test blood levels of Calcidiol and calcium.

15. Vitamin C and Glucose

A very interesting relationship exists between vitamin C and glucose. Vitamin C and glucose have very similar molecular structures and are transported into the cells by the same channels. Thus, increasing the concentration of one substance inhibits the intra-cellular uptake of another substance (competitive inhibition).

Healthy cells can use sugars, fats, and proteins as energy sources. Cancer cells usually can only utilize glucose. Besides, cancer cells usually have a fermentative metabolism which is 18 times less efficient than the oxidative metabolism of healthy cells. Thus, cancer cells need 18 times as much glucose as healthy cells to generate the same amount of energy. As consequence, glucose transport channels on cancer cells' membranes are much more numerous than on healthy cells' membranes.

Also, it has been shown that high intra-cellular concentrations of vitamin C have different impacts on healthy cells and cancer cells. In healthy cells, vitamin C action is mostly anti-oxidative. In cancer cells, vitamin C action is mostly pro-oxidative: it causes hydrogen peroxide to be produced which then damages the cancer cells.

Reducing the amount of simple sugars in the food and simultaneously increasing vitamin C intake has the following effect: it deprives cancer cells of necessary energy-delivering nutrients much more than it deprives healthy cells. And because the glucose-vitamin C transport channels are much more numerous on cancer cells than on healthy cells, vitamin C is concentrated within cancer cells where it causes oxidative damage.

Combining these two measures (reduction of sugar intake and sufficient vitamin C supply) has a much stronger effect than either measure alone. There are even two documented cases in which patients with terminal breast cancer in stage IV experienced total remissions by eliminating sugars from their diets and increasing vitamin C intake to some 10 grams, spread throughout the day.

More info can be found in „Cancer: Nutrition and Survival“ by Steve Hickey and Hilary Roberts (page 193)

16. Artemisinin

Artemisinin (also called artemisin) is a herbal formulation obtained from the plant *Artemisia annua*. It selectively kills cancer cells, without causing much damage to healthy cells. It works by producing free radicals in the presence of iron: cancer cells are much more abundant in iron than healthy cells, and they are much more susceptible to oxidative damage than healthy cells.

<http://www.townsendletter.com/Dec2002/artemisinin1202.htm>

<http://www.annieappleseedproject.org/artemisinin.html>

http://www.drlam.com/A3R_brief_in_doc_format/Artemisinin.cfm#2

17. Copper

Cancer cells, as any other cells, cannot grow without a steady supply of nutrients. Actually, cancer cells' need for nutrients is so great that new blood vessels must be grown to accommodate this task. This is demonstrated by the very high turnover rate of endothelial cells in tumor blood vessels: 5-6 days as compared to 1000 days (and even more) for normal tissues.

Thus, finding a way to slow the growth of new blood vessels should harm tumor tissue much more than healthy tissues.

Copper plays a crucial role in the growth of new blood vessels, so reducing the amount of copper in the body should considerably slow the growth of blood vessels, resulting in reduced tumor growth.

There is already some experience with copper-lowering protocols for cancer. There is even a documented case in which a female patient with stage IV cancer was able to achieve remission by using such protocol.

<http://www.cancerprotocol.com/about.html>

18. EDTA chelation

Chelation is a process in which a large molecule (called chelator) “wraps” itself around a smaller one, for example a heavy-metal ion. As result, the metal ion is trapped inside the large molecule, and shielded from the outside world. The consequences are twofold:

- the toxicity of the heavy-metal ion is greatly reduced (as it cannot participate in chemical reactions anymore)
- if the large molecule (chelator) can be easily excreted from the body, so will be the metal ion inside the chelator.

Thus, by following a chelation protocol, it is possible to significantly reduce the concentrations of chelatable toxins in the body. The most common chelatable toxins are heavy metals like mercury, lead, or cadmium.

One of such chelators is EDTA. In Switzerland in the 1960's, in a small community close to a busy highway, a group of patients underwent a course of EDTA chelation to reduce their high levels of lead. Other inhabitants of the community, however, chose not to undergo such treatment.

Analyzing statistical data for both groups revealed that cancer-related death rate was 90% lower among the chelation group than among the non-chelation group. Also, the overall death rate was significantly lower among the chelation group than among the non-chelation group.

More details can be found here:

http://www.gordonresearch.com/articles_lead/journal_adv_medi_cranton_blumer.html

It seems that reducing the heavy-metal load significantly reduces cancer-related mortality.

19. Chlorella

Chlorella is a an alga species usually used for heavy-metal detoxification. It also contains a broad array of beneficial nutrients, and possesses significant anti-tumor properties.

In several animal experiments, it could be shown that water solutions of chlorella powder, injected directly into the tumor, were toxic to cancer cells but non-toxic to healthy cells.

In other experiments, animals were inoculated with tumors, or exposed to carcinogenic substances. Animals which were fed chlorella survived up to three times longer than controls. Preliminary studies on humans with advanced brain cancer confirmed that chlorella can prolong the survival time by a factor of 3-4 times.

In addition, chlorella significantly reduces the side effects of chemotherapy.

<http://www.ralphmoss.com/html/chlo.shtml>

<http://www.newstarget.com/008527.html>

<http://www.chlorellafactor.com/chlorella-spirulina-19.html>

There are two kinds of chlorella: chlorella pyrenoidosa (which is better at chelating metals), and chlorella vulgaris (whose nutrient content is more easily absorbed).

Any side-effects of taking chlorella will probably be related to heavy metals being mobilized. Dr. Klinghardt (one of the first medical doctors to use chlorella therapeutically) writes:

“...most side effects [of chlorella] reflect the toxic effect of the mobilized metals which are shuttled through the organism. This problem is instantly avoided by significantly increasing the chlorella dosage, not by reducing it, which would worsen the problem (small chlorella doses mobilize more metals than are bound in the gut, large chlorella doses bind more toxins than are mobilized). Some people have problems digesting the cell membrane of chlorella. The enzyme cellulase resolves this problem. “

<http://www.neuraltherapy.com/LymeNeurotoxinProtocol.doc>