

## **It Takes More Than Vitamin D Supplementation To Optimize Your Defence Against Cancer**

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As most people know a recent study in the American Journal of Clinical Nutrition showed that adults, who were given vitamin D supplements at dosage of 1000 IU per day, showed a 50-60% reduction in cancer incidence compared to individuals not taking vitamin D supplements. These findings should not be surprising as many previous studies have shown that vitamin D exhibits a number of anti-cancer properties and has been used successfully in other recent trials to slow the progression of prostate cancer. Vitamin D encourages cells to fully mature during their growth cycle and to replicate more slowly. These are biological influences are known to reduce the likelihood that a cell will become cancerous within the body. The question was how much vitamin D is required to acquire the maximum preventive benefit from vitamin D, and what is now obvious is that acquiring vitamin D from food alone is not sufficient. A number of recent studies strongly suggest that adults should ingest 800-1,000 IU of vitamin D per day (to achieve a fasting blood level of at least 85 nmol/L of 25-hydroxycholecalciferol). Individuals suffering from sarcoidosis or hyperparathyroidism should refrain from this practice, however, due to potential side effects. This is also true for pregnant and breast feeding women. Overall, there seems little doubt that vitamin D supplementation is a critical aspect of cancer (and osteoporosis) prevention for most adults

However, it takes more than a vitamin D supplement to maximize your defence against cancer, as a number of other supplement ingredients also provide important additional anti-cancer benefits as outlined below:

1. **Calcium** – the calcium your body does not absorb into the bloodstream (about 60-70% of your intake level) remains in the intestinal tract and provides important prevention against colon cancer in its travels through the large intestine. Calcium binds to bile acids in the intestinal tract, preventing their conversion into cancer-causing substances known as secondary sterols (e.g lithocholic acid and deoxycholic acid). Calcium also works with vitamin D to slow the rate of cell division of colon cancer cells. Both of these effects have been shown to reduce colon cancer. In the largest study published to date, Peters and fellow researchers showed that individuals who ingested calcium supplements at a minimum of 1200 mg per day had a 27% reduction in risk of developing colon cancer, compared to nonusers of calcium supplements.
2. **Folic acid and Vitamin B12** – folic acid and vitamin B12 are necessary to provide the body with an ingredient (a methyl group) that is necessary for DNA replication, as cells replace themselves from one generation to the next. Studies show that insufficient folic acid and/or vitamin B12 status allow DNA to become hypo-methylated, which makes them weak, fragile and susceptible to cancerous mutations. The Health Professional Follow Up Study and the Nurses' Health Study have shown that insufficient intake of folic acid increases risk of colon and

breast cancer under certain conditions. Insufficient folic acid and vitamin B12 intake are also factors in cervical dysplasia and cervical cancer in women. Overall, studies support daily supplementation with 400 mcg of folic acid and 50 mcg of vitamin B12. These levels keep DNA methylated, strong and more resistant to the influence of cancer causing agents.

- 3. Antioxidants Supplementation** – antioxidants such as vitamin C, selenium, lycopene, beta-carotene, vitamin A, lutein, and vitamin E help to reduce cancer risk by quenching free radicals, which are unstable compounds that damage DNA and cause cancerous mutations. Vitamin C has been shown to be especially helpful in protecting the esophagus, stomach, pancreas, cervix and colon, whereas vitamin E protects the mouth, cervix, prostate and colon. Together, vitamin C and vitamin E supplementation have been shown to reduce the concentrations of cancer-causing agents (fecal mutagens) in the colon and rectum and block the formation of cancer-causing nitrosamines within the stomach and intestinal tract. Selenium supplementation is strongly linked to prevention of prostate and colon cancer. Lycopene is acclaimed for its ability to reduce prostate cancer, but it also appears to be important in the prevention of cervical cancer and skin cancer. Vitamin C, vitamin E and selenium are also important in the prevention of skin cancer according to animal studies. Beta-carotene supplementation has been shown to reverse a precancerous condition in the mouth known as leukoplakia as well as early-to-moderate stage cervical dysplasia (a precancerous condition of the cervix). Vitamin A protects much of the interior lining of the body surfaces and has been used to reverse a number of precancerous conditions. Although lutein is not linked to cancer prevention yet, it is vital to the prevention of macular degenerations, which is the leading cause of blindness in people over the age of 55. For all of these reasons the daily antioxidant cocktail you should consider for disease prevention purposes is as follows:

Vitamin A – 2500 - 3000 IU (anything higher can cause liver damage over time)

Beta-carotene – 10,000 – 20,000 IU

Vitamin C – 1,000 mg

Vitamin E – 400 IU (all natural)

Selenium – 100-200 mcg

Lycopene Powder – 5 mg

Lutein Powder – 5 mg

- 4. Omega-3 Fats** – omega-3 fats from fish, fish oil and flaxseed oil, are converted by your body tissues into a cancer fighting hormone (prostaglandin series-3), which slows the rate of cell division within our tissues. As mentioned above when you slow the rate of cell division you reduce the chances of cancerous changes occurring in the cells of the body. This point has been illustrated many times in studies showing that women and men with higher tissue levels of omega-3 fats

experience significantly lower subsequent breast and prostate cancer incidence in follow-up studies. The same appears to be true for colon cancer as well, according to some preliminary findings. Most people do not ingest the amount of EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) that experts recommend to reduce risk of heart disease, optimize brain development, reduce dementia and Alzheimer's disease risk and help prevent cancer. Unfortunately fish supplies are running low and many fish now contain high levels of mercury, with experts warning us not to consume more than two fish servings per week. Moreover, the essential fat in borage seed oil (GLA) has been shown to work with omega-3 fats to block the production of inflammatory agents that are linked to inflammation and cancer. To optimize your intake of omega-3 fats (EPA, DHA and ALA) and GLA it is highly advisable to take three capsules per day of a supplement containing:

Fish oil – 400 mg

Flaxseed oil –400 mg

Borage seed oil – 400 mg

This combination not only helps to optimize disease prevention, but also promotes the formation of skin hormones that make the texture of your skin smoother and softer and slow certain aspects of aging.

Speak to your health practitioner about how you can acquire these important dosages from a well-formulated high potency multiple vitamin; a calcium/vitamin D (and other bone support ingredients) supplement, and an essential fatty acid supplement containing 400 mg each of borage, flaxseed and fish oil.

For more details on this subject consult the book, *The Meschino Optimal Living Program:7 steps to healthy, fit, age-resistant body* (Wiley Publishing 2004).

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