

# The Nutrition Reporter™

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## Certain Supplements May Enhance the Treatment of Cancer Patients

Several recent studies suggest that a variety of supplements might be helpful as adjunct treatments for patients with cancer.

Both low-fat diets and anti-inflammatory omega-3 fish oils have been found helpful in slowing the growth of some cancers. So William J. Aronson, MD, of the University of California, Los Angeles, and his colleagues studied whether a low-fat diet combined with omega-3 fish oil capsules might be beneficial to men with prostate cancer.

Aronson studied 55 men who were scheduled to undergo surgery to have their prostates removed. He asked the men to follow either a 15-percent fat diet plus fish oils or a 40 percent high-fat Western diet.

Men eating the low-fat diet took three 1.1-gram fish oil capsules with breakfast and 2 more capsules with dinner. Each capsule contained 200 mg of eicosapentaenoic acid (EPA) and 367 mg of docosahexaenoic acid (DHA), providing a total of 1,000 mg of EPA and 1,835 mg of DHA daily.

Forty-eight of the men completed the study. The low-fat diet and fish oils capsules improved the omega-3:omega-6 ratio, leading to a lower proportion of pro-inflammatory omega-6 fats. In addition, this combination of diet and supplements reduced the proliferation of prostate cancer cells.

In a separate study, Masashi Kanai, MD, PhD, of Kyoto University Hospital, Japan, and his colleagues focused on the safety of curcumin, an extract of turmeric root, which has been the focus of considerable research in the United States. Kanai treated 21 patients with pancreatic cancer, using the chemotherapeutic drug gemcitabine and 8 grams of curcumin daily.

All of the patients tolerated the curcumin without any problem. The average length of survival was just over five months, and 19 percent of patients survived for at least a year.

In another study, Julie L. Ryan, PhD, MPH, of the University of Rochester Medical Center, New York,

and her colleagues tested whether various dosages of ginger supplements would reduce chemotherapy-induced nausea.

The patients, who were mostly middle-age women, took three capsules of ginger or placebos twice daily for six days, starting three days before beginning chemotherapy.

Ryan analyzed the responses of 576 patients. She found that ginger dosages of 500 mg and 1,000 mg daily had the greatest benefit in reducing nausea.

References: Aronson WJ, Kobayashi B, Barnard RJ, et al. Phase II prospective randomized trial of a low-fat diet with fish oil supplementation in men undergoing radical prostatectomy. *Cancer Prevention Research*, 2011;4:1-10. Kanai M, Yoshimura K, Asada M, et al. A phase I/II study of gemcitabine-based chemotherapy plus curcumin for patients with gemcitabine-resistant pancreatic cancer. *Cancer Chemotherapy and Pharmacology*, 2011;68:157-164. Ryan JL, Heckler CE, Roscoe JA, et al. Ginger (*Zingiber officinale*) reduces acute chemotherapy-induced nausea: a URCC CCOP study of 576 patients. *Supportive Care in Cancer*, 2011: epub ahead of print. □

### Perspectives

#### A Breakfast of Cereal Killers

Children need good nutrition to stay mentally sharp in school, to reduce the risk of behavior problems, and to remain in good physical health. Yet for any number of reasons, many parents simply feed their kids commercial cereals. Many of these cereals are nothing more than junk food.

The Environmental Working Group recently publicized the sugar content of 10 popular breakfast cereals for children. When I read the organization's report, I realized things were worse than I had imagined.

Kellogg's Honey Smacks, was 56 percent sugar! It should be called dessert, not breakfast. Second on the sugar-laden list was Post Golden Crisp, which was 52 percent sugar.

The other eight cereals were 41 to 48 percent sugar. They included Kellogg's Froot Loops

More research summaries on next page

Marshmallow, Quaker Oats Cap'n Crunch's OOPS! All Berries, Quaker Oats Cap'n Crunch Original, Quaker Oats Oh's, Kellogg's Smorz, Kellogg's Apple Jacks, Quaker Oats Cap'n Crunch Berries, and Kellogg's Froot Loops Original.

There are plenty of tasty cereals at any natural foods market, to which you can add fresh fruit.

The big cereal companies ought to be ashamed of themselves. So should any parent who feeds this stuff to their children. –JC

## **Pycnogenol® Supplements Lead to Improved Cognitive Function**

A new study has found that supplemental Pycnogenol, a natural complex of antioxidants derived from French maritime pine bark, can lead to improvements in cognitive function among university students.

Gianni Belcaro, MD, PhD, of Chieti-Pescara University, Italy, and his colleagues asked 55 students, ages 18 to 27 years, to take 100 mg of Pycnogenol daily for eight weeks. Belcaro tracked another 55 students as a control group.

The researchers found that students taking Pycnogenol had significant improvements in sustained attention, memory, decision making, and mood when compared with the control group.

Test scores for the Pycnogenol group were better, averaging 7.6 percent higher than those the control group.

Reference: Luzzi R, Belcaro G, Zulli C, et al. Pycnogenol® supplementation improves cognitive function, attention and mental performance in students. *Panminerva Medica*, 2011;53 (Suppl 1):75-82. □

## **Studies Reveal Details of How Fish Oils Work as Blood Thinners**

Omega-3 fish oils are well known for their blood-thinning effects. Two recent studies have identified some of the details of how they actually work.

Akira Sekikawa, MD, PhD, of the University of Pittsburgh, Pennsylvania, and his colleagues studied omega-3 and fibrinogen levels in 795 men, ages 40 to 49 years, without any signs of cardiovascular disease. The study included white American, Japanese, and Japanese-American men from Hawaii.

Fibrinogen is a compound that promotes clotting of the blood.

The Japanese men had the highest blood levels of omega-3s – about twice as high as those in Japanese-American men, and about 2.5 times higher than in white American men. The Japanese men also had the

lowest fibrinogen levels. Sekikawa found no association between omega-3 and fibrinogen levels in the American and Japanese-American men.

In a separate study, Monohar L. Garg, PhD, of the University of Newcastle, Australia, and his colleagues gave 30 healthy men and women either a high-EPA (eicosapentaenoic acid) or a high-DHA (docosahexaenoic acid) fish oil supplement.

Twenty-four hours later, Garg and his colleagues measured the subjects' blood levels of platelet microparticles and their procoagulant activity. Platelet microparticles have been described as "platelet dust," which are shed from stimulated or dead platelet cells. Although found in healthy people, platelet microparticles increase in many diseases.

Garg found that both EPA and DHA reduced platelet aggregation. Men had reductions in both platelet aggregation and microparticle activity, whereas women had only reduced platelet aggregation after taking the supplements.

References: Hassen LJ, Ueshima H, Curb JD, et al. Significant inverse association of marine n-3 fatty acids with plasma fibrinogen levels in Japanese in Japan but not in whites or Japanese Americans. *European Journal of Clinical Nutrition*, 2011: doi 10.1038/ejcn/2011.155. Phang M, Lincz L, Seldon M, et al. Acute supplementation with eicosapentaenoic acid reduces platelet microparticle activity in healthy subjects. *Journal of Nutritional Biochemistry*, 2011: epub ahead of print. □

## **Vitamin C, Fruits and Veggies Protect Against Heart Failure**

Eating fruits and vegetables rich in vitamin C may reduce the risk of heart failure, according to a European study.

Roman Pfister, MD, of the University of Cologne, Germany, in collaboration with British researchers, analyzed the incidence of fatal and nonfatal heart failure among 9,187 men and 11,112 women, ages 39 to 79 years when the study began. Pfister and his colleagues also analyzed blood levels of vitamin C in the study's subjects.

After an average follow-up of approximately 12 years, people with relatively high blood plasma levels of vitamin C had a 24 to 38 percent lower risk of heart failure. The risk of heart failure also decreased as blood levels of vitamin C increased.

Although high vitamin C levels appeared to protect against heart failure, the researchers wrote that the vitamin was most likely a marker of fruit and vegetable intake.

Reference: Pfister R, Sharp SJ, Luben R, et al. Plasma vitamin C predicts incident heart failure in men and women in European Prospective Investigation into cancer and nutrition – Norfolk prospective study. *American Heart Journal*, 2011; 162:246-253. □

## Low Vitamin D Levels Common in People with Spinal Cord Disease

Low levels of vitamin D are a risk factor for many different diseases, including multiple sclerosis (MS) and chronic low-back pain. A new study has found a strong relationship between vitamin D deficiency and inflammatory spinal cord disease, an autoimmune disease related to MS.

Michael Levy, MD, PhD, of Johns Hopkins University, Baltimore, and his colleagues studied 77 patients with either monophasic (having only one phase) or recurrent inflammatory diseases of the spinal cord.

There are several different types of autoimmune inflammatory diseases of the spinal cord, including transverse myelitic (TM) and neuromyelitic optica (NMO). TM typically causes back pain and weakness in the legs, whereas NMO affects the spinal cord and optic nerves.

Levy and his colleagues reported that patients with recurrent inflammatory disease of the spinal cord were more likely to be deficient in vitamin D when compared with people who had monophasic disease. They suspected that the recurring nature of the disease and the frequency of relapses might be related to low vitamin D levels.

Levy wrote that “vitamin D may play a role in preventing monophasic immune-mediated central nervous system attacks from developing into recurrent disease.”

Reference: Mealy MA, Newsome S, Greenberg BM, et al. Low serum vitamin D levels and recurrent inflammatory spinal cord disease. *Archives of Neurology*, 2011: epub ahead of print. □

## Herbal Remedy Found Helpful in the Treatment of Gingivitis

Herbal remedies, whether taken internally or used topically, have long been used to reduce inflammation and pain. In a recent study, researchers found that a topical herbal patch significantly reduces inflammation caused by gingivitis.

Gingivitis, a mild form of periodontal disease affects an estimated 50 to 90 percent of people, including more than 80 percent of those over age 65. It is a chronic inflammatory response to bacteria, which form a “biofilm” on teeth.

John Grbic, DMD, of the Columbia University College of Dental Medicine, New York, and his colleagues treated 53 patients for three days by applying patches infused with herbal extracts to the patients’ gingival tissues. The patches contained gotu kola, echinacea, and elderberry, which have

antioxidant and anti-inflammatory properties. In another phase of the study, the same subjects used a placebo patch.

Use of the herbal patch led to reductions in gingival inflammation on days four, eight, and 15 of the study. Grbic noted that the reduction in inflammation was significant on days four and 15.

Reference: Grbic J, Wexler I, Celenti R, et al. A phase II trial of a transmucosal herbal patch for the treatment of gingivitis. *Journal of the American Dental Association*, 2011;142: 1168-1175. □

## Coenzyme Q10 Reduces Cell Damage After Exercise

Strenuous exercise increases, at least temporarily, levels of free radicals and inflammation. In a recent experiment, researchers found that short-term supplementation with coenzyme Q10 (CoQ10), protected against these changes.

Javier Diaz-Castro, PhD, of the University of Granada, Spain, and his colleagues gave 20 ultra-runners either CoQ10 supplements or placebos before asking them to run 50 kilometers (23 miles) at high altitudes. The runners took five 30 mg CoQ10 capsules – one capsule two days before the run, three capsules (with meals) the day before, and one capsule the day of the run.

Strenuous exercise led to increases in several markers of free radical activity and inflammation, including tumor necrosis factor alpha and interleukin-6. After taking the CoQ10 capsules, most markers were reduced, helping to maintain cell integrity. In addition, creatinine levels decreased, a sign of reduced muscle damage.

Reference: Diaz-Castro J, Guisado R, Kajarabille N, et al. Coenzyme Q10 supplementation ameliorates inflammatory signaling and oxidative stress associated with strenuous exercise. *European Journal of Nutrition*, 2011: doi 10.1007/s00394-011-0257-5. □

## Higher Nutrient Levels Help Keep Brain in Good Shape While Aging

High blood levels of several nutrients might help prevent brain shrinkage, a risk factor for Alzheimer’s disease.

Gene L. Bowman, ND, MPH, of Oregon Health Sciences University, Portland, and his colleagues measured blood levels of 30 nutrients in 104 men and women with an average age of 87 years. The subjects underwent tests to assess their thinking abilities and memory, and 42 of them had magnetic resonance imaging scans to determine their brain size.

Overall, the subjects had few conventional risk

# Quick Reviews of Recent Research

• **Vitamin D activates immune system**

Recent studies have found that vitamin D plays a crucial role in activating the immune system to fight infections. In the latest research along these lines, a team of American, German, and South Korean researchers discovered that vitamin D was necessary to prompt T cells (a type of immune cell) to release interferon-gamma. Interferon-gamma facilitates communication between cells and prompts infected cells to fight bacteria. The immune response also activates macrophages (a type of white blood cell) to attack bacteria and to secrete a germ-fighting compound called cathelicidin.

Fabri M. *Science Translational Medicine*, 2011;3:104ra102.

• **Vitamin D increases chromosome protection**

Several nutrients appear to maintain the length of telomeres, the protective tips of chromosomes, and shortened telomeres are associated with aging. Researchers from Georgia Health Sciences University, Atlanta, asked 37 overweight African-Americans to take either 60,000 IU of vitamin D or placebos once a month for 16 weeks. The vitamin D was equivalent to 2,000 IU daily. People taking the vitamin D had a three-fold increase in their blood levels of the vitamin. In addition, they had almost a

20-percent increase in the activity of telomerase, an enzyme involved in increasing the size of telomeres. African-Americans and overweight individuals have a higher than average risk of vitamin D deficiency.

Zhu H. *International Journal of Obesity*, 2011: doi 10.1038/ijo.2011.197.

• **Eating fish may reduce stroke risk**

Researchers at the Karolinska Institute, Stockholm, Sweden, analyzed 15 previously published studies on fish consumption and stroke risk. Overall, eating three servings of fish weekly was related to a modest 6 percent reduction in the risk of stroke. In the nine studies that analyzed subtypes of stroke, fish intake was related to a 10 percent lower risk of both ischemic and hemorrhagic stroke.

Larsson SC. *Stroke*, 2011;42:3621-3623.

• **GABA may reduce blood sugar and weight**

Gamma aminobutyric acid (GABA) is an amino acid and neurotransmitter that improves mental focus. In a study using obese mice, researchers at the University of California, Los Angeles, found that oral supplements of GABA reduced blood sugar levels and improved insulin function. The supplements also reduced fat mass and the size of fat cells in the mice. It is not known yet whether GABA supplements would have a similar effect in people.

Tian J. *PLoS One*, 2011;6(9):e25338.

• **Supplements improve "working memory"**

Researchers from Australia asked 56 elderly women to take either a multivitamin/mineral/herbal supplement or placebos daily for 16 weeks. The subjects underwent cognitive tests at the beginning and end of the study. Women taking the supplements had an increase in working memory, which involves language, comprehension, analytical thinking, and intelligence.

Macpherson H. *Psychopharmacology*, 2011: doi 10.1007/s00213-011-2481-3.

## Nutrients Linked to Brain...

Continues from previous page

factors for thinking and memory problems. However, high blood levels of the B-complex vitamins (specifically B1, B2, B6, folate, and B12) and vitamins C, D, and E, as well as the omega-3 fats, were associated with better thinking, memory, and brain size.

In contrast, people whose diets contained relatively large amounts of trans fats – found in packaged foods, fast foods, fried foods, baked goods, and margarine – were more likely to have poorer brain function and smaller brain size.

Non-nutritional factors, such as education and blood pressure, accounted for 46 percent of the variation in thinking and memory test scores. Nutrient levels accounted for 17 percent of the variation in test scores. In addition, nutrients accounted for 37 percent of the variation in brain size.

The study was notable because the researchers measured blood levels of nutrients instead of relying only on questionnaires about dietary intake.

Reference: Bowman GL, Silbert LC, Howieson D, et al. Nutrient biomarker patterns, cognitive function, and MRI measures of brain aging. *Neurology*, 2011: epub ahead of print. □

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