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Adequate Vitamin D and Omega-3s May Give Breast Cancer Patients an Edge

Several new studies indicate that high levels of vitamin D and omega-3 fish oils may reduce the risk of breast cancer and improve survival in patients.

Sharif B. Mohr, MPH, of the University of California, San Diego, and his colleagues analyzed data from 11 controlled studies on vitamin D levels and the risk of breast cancer. These studies involved 15,730 women, about half of whom had breast cancer and the other half were healthy subjects for comparison.

Sharif found that women with the highest blood levels of vitamin D had a 39 percent lower risk of developing breast cancer. Citing another study, he noted that a blood level of 47 ng/ml was associated with a 50 percent lower risk of breast cancer.

In an earlier study, Sharif studied the relationship between sun exposure – a source of vitamin D – and breast cancer risk in 107 countries. Greater sun exposure and higher vitamin D levels were associated with a lower risk of breast cancer.

In a separate study, Alina Vrieling, MSc, of the German Cancer Research Center, Heidelberg, and her colleagues investigated the relationship between vitamin D levels and the length of breast cancer survival in postmenopausal women.

Vrieling found that women with low vitamin D levels before starting chemotherapy had a significantly higher risk of death and a greater risk of “distant recurrence,” e.g., eventually developing bone cancer. Conversely, women with the highest levels of vitamin D had longer survivals and were less likely to develop distant cancers.

Meanwhile, Antonella L. Rastelli, MD, of the Washington University School of Medicine, St. Louis, Missouri, and her colleagues treated 60 women with either vitamin D or placebos. The vitamin D dose was 50,000 IU weekly for either eight or 16 weeks, followed by the same dose monthly.

All of the women were early-stage breast cancer

patients, had initially low vitamin D levels, and were being treated with aromatase-inhibitor drugs to shrink the size of estrogen-dependent cancers. The women were also experiencing bone pain from the aromatase inhibitors.

After two months, women taking vitamin D had less bone pain, based on the results of several clinical questionnaires. In some cases, the bone pain completely resolved.

Finally, Harvey J. Murff, MD, of the Vanderbilt School of Medicine, Nashville, Tennessee, and his colleagues analyzed the consumption of omega-6 and omega-3 dietary fats and the risk of breast cancer in a group of 72,571 women participating in the Shanghai Women’s Health Study.

Murff found that women who consumed the most omega-6 fats (found in cooking oils) and the least omega-3 fish oils had twice the risk of breast cancer, compared with women who consumed the most fish oils and relatively little omega-6s.

References: Mohr SB, Gorham ED, Alcaraz JE, et al. Serum 25-hydroxyvitamin D and prevention of breast cancer: pooled analysis. *Anticancer Research*, 2011;31:2839-2948. Vrieling A, Hein R, Abbas S, et al. Serum 25-hydroxyvitamin D and postmenopausal breast cancer survival: a prospective patient cohort study. *Breast Cancer Research*, 2011;13: doi 10.1186/bcr2920. Rastelli AL, Taylor ME, Gao F, et al. Vitamin D and aromatase inhibitor-induced musculoskeletal symptoms (AIMSS): a phase II, double-blind, placebo-controlled, randomized trial. *Breast Cancer Research and Treatment*, 2011;129:107-116. Murff HJ, Shu XO, Li H, et al. Dietary polyunsaturated fatty acids and breast cancer risk in Chinese women: a prospective cohort study. *International Journal of Cancer*, 2011;128:1434-1441. □

Perspectives Chocolate as a Cure-All?

Every couple of years, it seems that there are a rash of studies and news reports touting the health benefits of chocolate.

I enjoy an occasional piece of chocolate as much

More research summaries on next page

as the next person does. But I have to view some of these reports with a little skepticism. After all, the research makes chocolate sound like a panacea, with studies claiming eating it prevents heart attacks and strokes, reduces symptoms of chronic fatigue syndrome, and even protects against sunburn. Not surprisingly, a lot of this research is supported by large chocolate makers. You know who they are.

Chocolate is rich in a family of antioxidants known as flavonols, as well as chemicals that influence brain chemistry. But most commercial ready-to-eat chocolates are also loaded with sugars and sometimes trans fats, which I'm sure negate some or all of the benefits. With two-thirds of Americans overweight or obese, it makes no sense to load up on commercial chocolate in the hope that it will be a cure-all. You'll do much better with good eating habits and a multivitamin.

Centuries ago, chocolate was an elixir in South America. It was highly prized, and people did not over-indulge it in. Kakawa Chocolates has recreated the bitter chocolate used back then (and more modern versions). You'll find more information at www.kakawachocolates.com. The products are not cheap, which should keep you from over-indulging. By the way, I have no affiliation with Kakawa. —JC

Chondroitin Supplements Help with Osteoarthritis of the Hand

Many studies have successfully combined glucosamine sulfate and chondroitin sulfate in the treatment of osteoarthritis of the knees. In new research, doctors from University Hospitals, Geneva, Switzerland, have found that chondroitin supplements can greatly reduce hand pain resulting from osteoarthritis.

Cem Gabay, MD, and his colleagues asked 162 patients to take either 800 mg of chondroitin or placebos daily for six months.

Using a standard assessment of pain, called the Functional Index for Hand Osteoarthritis, Gabay found that the duration of morning stiffness was significantly reduced among people taking chondroitin. In addition, the patients' ability to use their hands also improved.

Chondroitin sulfate is part of a family of chemicals known as glycosaminoglycans, which are among the building blocks of the joint cartilage.

Reference: Gabay C, Medinger-Sadowski C, Gascon D, et al. Symptomatic effect of chondroitin sulfate 4&6 in hand osteoarthritis: the finger osteoarthritis chondroitin treatment study (FACTS). *Arthritis & Rheumatism*, 2011: doi 10.1002/art.30574. □

Vitamin B2 Supplements Boost Hemoglobin Levels, Maybe Iron

Taking modest amounts of supplemental vitamin B2 can boost levels of hemoglobin, the iron-containing molecule found in red blood cells.

Hilary J. Powers, PhD, of the University of Sheffield, United Kingdom, and her colleagues identified 119 women, ages 19 to 25 years, who were marginally deficient in vitamin B2, also known as riboflavin. The women were then given 2 mg or 4 mg of vitamin B2 or placebos daily for eight weeks.

Not surprisingly, the blood levels of riboflavin increased significantly among women taking the vitamin. They also had an increase in hemoglobin status, which correlated with the amount of vitamin B2 in their blood.

Women who started the study with the lowest levels of vitamin B2 had the greatest increase in hemoglobin levels.

Powers noted, "Dietary iron intake and iron absorption did not change during the study." Therefore the vitamin B2 enhanced the production of hemoglobin.

"Riboflavin deficiency is endemic in many populations in which diets low in meat and dairy products are consumed..." she added.

Reference: Powers HJ, Hill MH, Mushtaq S, et al. Correcting a marginal riboflavin deficiency improves hematologic status in young women in the United Kingdom (RIBOFEM). *American Journal of Clinical Nutrition*, 2011;93:1274-1284. □

Consuming Probiotics May Reduce Risk of Preeclampsia

Pregnant women who regularly consumed dairy-based probiotics, such as yogurt, were less likely to develop preeclampsia, according to a study by Norwegian researchers.

"Preeclampsia is a serious pregnancy condition associated with raised blood pressure (hypertension) and proteinuria," wrote Anne Lise Brantsaeter, PhD, of the Norwegian Institute of Public Health. The condition can turn into eclampsia, or toxicity of pregnancy, and threaten the lives of both mother and fetus.

Brantsaeter and her colleagues delved into the dietary habits of 33,399 women and their deliveries over a seven-year period.

Overall, women consuming dairy-based probiotics rich in Lactobacilli species were 21 percent less likely to develop preeclampsia. Women who consumed about 5 ounces of probiotics daily had a 39 percent lower risk of preeclampsia. Those who consumed probiotics once a week were 25 percent

less likely to develop the disorder.

How would probiotics – beneficial bacteria in the gut – influence the risk of preeclampsia?

Brantsaeter wrote that the gastrointestinal tract is the largest “immune interface” with the outside world. Probiotics regulate gut health by suppressing disease-causing bacteria, and they also influence inflammation, blood pressure, and the risk of diabetes.

The researchers also cited a study showing that a type of *Lactobacillus*, *L. rhamnosus*, reduced inflammation in placental cells.

Reference: Brantsaeter AL, Myhre R, Haugen M, et al. Intake of probiotic food and risk of preeclampsia in primiparous women. The Norwegian mother and child cohort study. *American Journal of Epidemiology*, 2011:doi 10.1093/aje/kwr168. □

Prenatal Vitamins Improve Health of Newborn Babies

A study of Danish mothers has found that taking prenatal supplements yields significant benefits for their babies.

Janet M. Catov, PhD, of the University of Pittsburgh, Pennsylvania, and colleagues at the University of Aarhus, Denmark, studied a group of 35,897 women, some of whom took vitamin supplements around the time of conception or during their pregnancy.

Women who took vitamins, compared with those who did not, had a 13 percent lower risk of delivering low birth-weight babies.

Women who took vitamins and had a normal prepregnancy weight – that is, a body mass index of less than 25 – were 16 percent less likely to deliver prematurely and 20 percent less likely to go into premature labor. Overweight women did not gain these benefits from vitamin supplements.

Reference: Catov JM, Bodnar LM, Olsen J, et al. Periconceptional multivitamin use and risk of preterm of small-for-gestational-age births in the Danish national birth cohort. *American Journal of Clinical Nutrition*, 2011: doi 10.3945/ajcn.111.012393. □

B Vitamin Supplements Helpful in Mild Cognitive Impairment

A supplement containing modest amounts of three B vitamins can lead to significant improvements in mild cognitive impairment.

Mild cognitive impairment affects about 16 percent of people over the age of 70 years. About half of those develop dementia within five years of their diagnosis.

Celeste A. de Jager, PhD, of the University of

Oxford, and her colleagues gave either B vitamins or placebos to 266 seniors for two years. The vitamin supplements contained 800 mcg of folic acid, 500 mcg of vitamin B12, and 20 mg of vitamin B6.

Blood levels of homocysteine, a risk factor for Alzheimer’s disease, declined by 30 percent among those taking the vitamins. In addition, the vitamins stabilized the seniors’ “executive function” – that is, their ability to plan, organize, and prioritize.

People with the highest levels of homocysteine (more than 11.3 micromol/L) at the beginning of the study benefited the most, probably because they were deficient in B vitamins. In this group, the B vitamins led to improvements in memory and thinking processes.

The improvement in executive function was not related to changes in homocysteine, so it may have been directly related to one or more of the B vitamins.

Reference: de Jager CA, Oulhaj A, Jacoby R, et al. Cognitive and clinical outcomes of homocysteine-lowering B-vitamin treatment in mild cognitive impairment: a randomized control trial. *International Journal of Geriatric Psychiatry*, 2011: doi 10.1002/gps.2758. □

Omega-3 Fish Oils Help Reduce Anxiety and Inflammation

Omega-3 fish oils are well established for their benefits in depression and bipolar disorder. A new study has found that they can reduce mild anxiety in people without serious mood disorders.

Janice K. Kiecolt-Glaser, PhD, of the Ohio State University College of Medicine, Columbus, and her colleagues recruited 68 young, healthy medical students for a 12-week placebo-controlled study. The daily fish oil dose was approximately 2.5 grams of omega-3s, consisting of 2,086 mg of eicosapentaenoic acid (EPA) and 348 mg of docosahexaenoic acid (DHA) daily.

By the end of the study, people taking the omega-3s had a 20 percent reduction in anxiety, compared with the placebo group. They also had a 14 percent decrease in interleukin-6, one of the most potent pro-inflammatory compounds produced by the body.

As a general rule, EPA has stronger anti-inflammatory effects compared with DHA. Although DHA is crucial for learning and memory, Kiecolt-Glaser’s study demonstrated that EPA is helpful in mood disorders.

Reference: Kiecolt-Glaser JK, Belury MA, Andridge R, et al. Omega-3 supplementation lowers inflammation and anxiety in medical students: a randomized controlled trial. *Brain, Behavior, and Immunity*, 2011: epub ahead of print. □

Quick Reviews of Recent Research

• **Vitamin D intake decreases over 29 years**

Over the past 25 years, the dietary intake of vitamin D has declined. Lisa Harnack, PhD, of the University of Minnesota, analyzed data from 1980 to 2009 gathered from people living in the Minneapolis-St. Paul metropolitan area. Men and women, ages 25 to 74 years, showed a decline in their vitamin D intake. Foods, with the exception of salmon and shiitake mushrooms, are generally poor sources of vitamin D.

Harnack LJ. *Journal of the American Dietetic Association*, 2011;111:1329-1334.

• **Ginger may have benefits in prostate cancer**

Whole ginger root extract may reduce the size of prostate cancers, according to an animal study. Researchers at Georgia State University, Atlanta, grafted tumors onto the prostates of laboratory mice. They then fed some of the mice extracts of fresh ginger root for eight weeks. By the end of the study, mice receiving the ginger had a 56 percent reduction in tumor size. According to the researchers, the equivalent dose of ginger for people would be 567 mg daily for a 150 pound adult.

Karna P. Benefits of whole ginger extract in prostate cancer. *British Journal of Nutrition*, 2011: doi 10.1017/S0007114511003308.

• **Consumption of some sugars decreases**

The average American has long consumed an estimated 150 pounds of sugars each year. A new study studies that the amount of “added” sugars decreased between 1999 and 2008. Researchers at Emory University, Atlanta, analyzed dietary data collected from more than 42,000 Americans, who were representative of the overall population. Added sugars are those included in foods and beverages during manufacture, not on the dining table. Overall, the consumption of added sugars decreased by almost one-fourth, from about 80 pounds to 62 pounds annually. Most of the decrease was related to people consuming fewer soft drinks. “Energy drinks were the only source of added sugars to increase over the study period,” wrote the researchers.

Welsh JA. *American Journal of Clinical Nutrition*, 2011; 94:726-734.

• **Vitamin C may protect against cardio disease**

Japanese researchers analyzed the diets and health of more than 23,000 men and 35,000 women. In women, high intake of vitamin C was associated with a 30 percent lower risk of stroke and a 37 lower risk of coronary heart disease. The association of vitamin C and reduced cardiovascular risk in men was not statistically significant.

Kubota Y. *Stroke*, 2011;42:1665-1672.

• **Omega-3s may reduce homocysteine**

Adequate to high intake of B-complex vitamins can maintain low blood levels of homocysteine, a known risk factor for heart disease, stroke, and Alzheimer’s disease. Chinese researchers analyzed 11 controlled studies, which included a total of 702 subjects, and found that people who took 200 mg to 6 grams of omega-3 fish oils had decreases in their blood homocysteine levels. On average homocysteine levels decreased by 1.59 micromole/L.

Huang T. *Nutrition*, 2011;27:863-867.

• **Low vitamin D common in hypothyroidism**

Hashimoto’s thyroiditis (HT) is the most common type of low thyroid hormone disorder and is considered an auto-immune disorder. A study by researchers in Istanbul, Turkey, found that vitamin D deficiency was present in 92 percent of patients with HT, but only in 63 percent of people without the disease. People with subclinical hypothyroidism or overt thyroid disease were even more likely to be deficient in vitamin D

Tamer G. *Thyroid*, 2011;21:891-896.

• **Tocotrienols reduce cholesterol levels**

Rather than being a single molecule, vitamin E consists of two groups of related compounds, tocopherols and tocotrienols. Although most research has focused on tocopherols, a new study by Malaysian researchers has found that the tocotrienols can lower cholesterol levels about as well as drugs. Researchers gave 32 people with elevated cholesterol levels either 300 mg of mixed tocotrienol capsules or placebos daily for six months. By the end of the study, the subjects’ total cholesterol decreased by an average of 11 percent and their low-density lipoprotein (LDL) cholesterol decreased by 17 percent.

Yuen KH. *Functional Foods in Health and Disease*, 2011;3:106-117.

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