

The Nutrition Reporter™

© Jack Challem October 2004 Vol 15 No 10

The independent newsletter that reports vitamin, mineral, and food therapies

Green Tea Extracts and Bee Propolis Block Cell Damage from Dioxin, a Pollutant

Dioxin is one of the most widespread and dangerous modern pollutants. It is a byproduct of many industries, including paper making, plastics, metal refining, and even the burning backyard trash. Because of its ubiquitous nature, dioxin enters the food supply and then our bodies. It can suppress the immune system, promote the growth of cancers, cause an undesired loss of weight, and produce birth defects.

But new studies have found that two natural substances—green tea and propolis—can protect DNA from permanent dioxin-induced damage.

Dioxins do most of their biological damage by attaching to a specific type of cellular receptor, which enables it to travel to the cell nucleus and then alter the genetic programming of DNA.

In a recent study using liver cells, Hitoshi Ashida, PhD, of Kobe University, Japan, tested 20 of the antioxidants found in green tea leaves for anti-dioxin effects. Ashida found that the antioxidant epigallocatechin gallate, which accounts for about one-third of green tea by weight, was particularly good at blocking dioxin's effects.

Several other antioxidants in green tea were also protective, including the flavonoid quercetin, the carotenoid lutein, and chlorophyll.

Because dioxins enter the body primarily through the food supply, "it is important to search for natural antagonists...in food," Ashida wrote.

In another study, Ashida and Yong K. Park, PhD, of the State University of Campinas, Brazil, studied the effects of propolis on dioxin. Propolis is a sticky antioxidant-rich compound used by bees to seal their hives.

In this study, the researchers found that the complex of antioxidant flavonoids in propolis was highly effective in preventing DNA damage from dioxin. The protective effects of vegetable extracts paled in comparison to propolis.

Both green tea and propolis work by blocking the attachment of dioxin to the "cytosolic aryl hydro-

carbon receptor" in cells. Dioxin alters this receptor, and in a subsequent sequence of events damages specific DNA sequences. This DNA damage then sets the stage for cancer and other diseases.

According to Park, flavonoids suppress dioxin toxicity because their chemical structures fit the structure of this particular cell receptor. As a result, flavonoids block dioxin's entry into the cell.

References: Fukuda I, Sakane I, Yabushita Y, et al. Pigments in green tea leaves (*Camellia sinensis*) suppress transformation of the aryl hydrocarbon receptor induced by dioxin. *Journal of Agricultural and Food Science*, 2004;52:2499-2506. Park YK, Fukuda I, Ashida H, et al. Suppression of dioxin mediated aryl hydrocarbon receptor transformation by ethanolic extracts of propolis. *Bioscience, Biotechnology, and Biochemistry*, 2004;68:935-938. □

Vitamin B2 Supplements Helpful in Reducing Migraine Headaches

Supplements of vitamin B2 (riboflavin) can reduce the frequency of migraine headaches, researchers have confirmed. A 1998 study, by Belgian researchers, also found the vitamin helpful in migraines.

Guy Arnold, MD, of Charité Humboldt University, Berlin, Germany, and his colleagues treated 23 men and women who had suffered two to eight migraine headaches monthly during the six months prior to the study. The subjects, who ranged from 20 to 65 years of age, were asked to take 400 mg of vitamin B2 daily for six months, with follow-up clinical assessments at three and six months.

The frequency of migraine headaches decreased from an average of four per month to two per month during the course of the study. In addition, the length of the migraines declined by almost half. The improvements after three months were similar to those after six months.

Most of the patients had been taking triptans,

Continues on next page

drugs commonly used to stop migraines. At the beginning of the study, patients were taking an average of seven triptan tablets per month. After three months, the average number had dropped to 4.5 tablets per month, and after six months the number had dropped to only 4 tablets per month.

The researchers noted that vitamin B2 is the precursor to two coenzymes cells use with oxygen to burn foods for energy. They wrote that migraines may involve an "impaired oxygen metabolism" that the vitamin corrects.

Reference: Boeknke C, Reuter U, Flack U, et al. High-dose riboflavin treatment is efficacious in migraine prophylaxis: an open study in a tertiary care center. *European Journal of Neurology*, 2004;11:475-477. □

Diet High in Sugars and Other Refined Carbs Seems to Boost Breast Cancer Risk

A diet high in carbohydrates, particularly such sugars as sucrose and fructose, can increase the risk of breast cancer in women. According to the researchers, dietary fat has no bearing on the risk of cancer.

Isabelle Romieu, MD, of the National Institute of Public Health, Cuernavaca, Mexico, and her colleagues interviewed 475 women, ages 20 to 75 years, who had been diagnosed with breast cancer. Almost 1,400 women without breast cancer were used as controls, for comparison sake.

This Mexican population is "characterized by relatively low fat and high carbohydrate intake," Romieu wrote.

Both premenopausal and postmenopausal women had more than double the risk of breast cancer if they consumed large amounts of carbohydrates. The strongest associations were between consumption of sucrose (table sugar) and refined fructose.

High intake of dietary fiber, which slows carbohydrate absorption, was related to a lower risk of breast cancer.

Romieu wrote that the risk of breast cancer may be the result of how sugars and other refined carbohydrates boost levels of the hormone insulin.

"The ingestion of carbohydrates as starch or sucrose leads to a rapid rise in blood glucose and provokes insulin secretion," she wrote. "Elevated insulin levels reduce plasma and tissue levels of IGF [insulin growth factor] binding proteins 1 and 2, which may increase the availability of IGF-1. IGF-1 can increase cell proliferation and thus influence carcinogenesis."

An analysis of the women's fat intake showed no relationship to the risk of breast cancer.

Romieu added that 90 percent of breast cancers

are sensitive to insulin and produce excess levels of IGF.

Reference: Romieu I, Lazcano-Ponce E, Sanchez-Zamorano M, et al. Carbohydrates and the risk of breast cancer among Mexican women. *Cancer Epidemiology, Biomarkers & Prevention*, 2004;13:1283-1289. □

Fish Oil Capsules Help Some Cancer Patients Regain Some of Their Weight

Cancer patients who take fish oil capsules have a good chance of stabilizing their weight, according to researchers at the University of Iowa Carver College of Medicine, Iowa City.

Terminal cancer patients often suffer from cachexia (pronounced ka-kek'-see-uh), in which they lose large amounts of weight and muscle. Researchers believe that cell-communication chemicals called cytokines, produced in response to the tumor, play a key role in cachexia.

C. Patrick Burns, MD, and his colleagues treated 43 advanced cancer patients who were suffering from moderate to severe malnutrition. The patients had lost an average of six pounds of body weight during the month prior to joining the study.

Burns asked the patients to take a quantity of fish oil capsules relative to their weight. For example, a 154-pound person was asked to take 11 fish-oil capsules, adding up to 4.7 grams of eicosapentaenoic acid (EPA) and 2.8 grams of docosahexaenoic acid (DHA) daily.

Not all of the patients were able to comply with the regimen, but 36 took at least one capsule daily. Follow-up ranged from two to almost four months.

Twelve of the patients gained weight, ranging from about one-quarter pound to almost eight pounds, and six of these patients gained more than 5 percent of their body weight. Twenty-two lost weight, ranging from about one pound to 13 pounds.

Overall, patients lost an average of one and three-quarter pounds, a significant decrease from the start of the study.

Reference: Burns CP, Halabi S, Clamon G, et al. Phase II study of high-dose fish oil capsules for patients with cancer-related cachexia. *Cancer*, 2004;101:370-378. □

Modest Dose of Coenzyme Q10 Found to Help Patients with Heart Failure

A relatively low dose of coenzyme Q10 supplements can lead to improved heart function in patients waiting for a heart transplant, according to a new study by Israeli physicians and researchers. Previous studies of CoQ10 in heart failure have used up to 600 mg daily.

In the latest research, Marius Berman, MD, of

the Rabin Medical Center, Potah Tikva, and his colleagues treated 27 patients with severe heart failure (New York Heart Association class 3 and 4, the most severe types). The patients took either 60 mg of a special preparation of CoQ10 formulated for increased intestinal absorption or placebos daily for three months.

“The administration of CoQ10 to heart transplant candidates led to a significant improvement in functional status, clinical symptoms, and quality of life,” Berman wrote.

The most striking benefits were in a walking test and breathing. Overall, patients taking CoQ10 were able to increase their walking distance from almost 900 feet to 1,250 feet, about a 28 percent improvement. In addition, they had substantial improvements in labored breathing.

The patients had no changes in blood tests for either atrial natriuretic factor or tumor necrosis factor, both indicators of heart stress. Berman wrote that the functional improvement without blood improvement may have been due to several factors, including the modest dose of CoQ10 and the study’s short duration.

Reference: Berman M, Erman A, Ben-Gal T, et al. Coenzyme Q10 in patients with end-stage heart failure awaiting cardiac transplantation: a randomized, placebo-controlled study. *Clinical Cardiology*, 2004;27:295-299. □

Aloe Vera Extract Slows Blood Loss, May Help in Treating Trauma Patients

The gelatinous fluid from *Aloe vera* plants has been used to treat burns and even cancer. Now researchers report that an extract from the plant may reduce blood loss after traumatic accidents.

Mitchell P. Fink, MD, of the University of Pittsburgh Medical Center used a complex of aloe-derived polysaccharides—long-chain sugar molecules—to reduce hemorrhaging in laboratory rats.

The study was funded by the U.S. Defense Advanced Research Projects Agency with the objective of investigating ways to prevent battlefield deaths from hemorrhaging. However, severe blood loss is also a prime factor in half of the 150,000 civilian trauma deaths that occur each year in the United States, Fink pointed out.

In one experiment, 10 rats were injected with the aloe derivative, and another 10 received a salt solution as a placebo. Eight of the 10 rats getting aloe survived, compared with only five of those receiving the salt solution.

In a second experiment, five of 15 bleeding rats lived two hours after receiving aloe. In comparison,

only one of 14 treated with salt lived. Animals receiving no treatment died within 35 minutes.

Reference: Macia CA, Kameneva MV, Tenhunen JJ, et al. Survival in a rat model of lethal hemorrhagic shock is prolonged following resuscitation with a small volume of a solution containing a drug-reducing polymer derived from *Aloe vera*. *Shock*, 2004; 22:151-156. □

Vitamin E Supplements Reduce Common Cold Risk Among the Elderly

Nutrition has a powerful bearing on immune function, and some research in the 1990s found that vitamin E supplements could enhance immunity. In the most recent study, vitamin E supplements reduced the risk of upper respiratory infections—chiefly colds—in elderly residents of nursing homes.

Simin Nikbin Meydani, DVM, PhD, the lead researcher, noted that nursing home residents are more likely than independent living individuals to develop respiratory infections. The implications are significant, given that 43 percent of elderly individuals will be admitted to a nursing home and 85 percent of those will become long-term residents of nursing homes.

Meydani and her colleagues gave 451 nursing home residents 200 IU of supplemental vitamin E or placebos daily for one year. All of the study participants also took a daily multivitamin/multimineral supplement that contained one-half of the recommended allowance for vitamins and minerals.

Overall, “significantly fewer persons in the vitamin E group contracted one or more respiratory tract infections.” Most of the benefits were related to a lower risk of upper respiratory infections, such as the common cold. People taking vitamin E supplements were 20 percent less likely to contract a cold.

Meydani noted that the results might have been more dramatic if the subjects had not also given a multivitamin/multimineral supplement.

Reference: Meydani SN, Leka LS, Fine BC, et al. Vitamin E and respiratory tract infections in elderly nursing home residents. A randomized controlled trial. *JAMA*, 2004;292:828-836. □

Garlic Blocks Formation of Nanoplaque, an Early Step in Heart Disease

Although the research has not always been consistent, considerable evidence indicates that garlic can reduce the risk of heart disease. Studies have found that garlic can lower low-density lipoprotein (LDL) cholesterol, prevent its oxidation, reduce blood pressure, and act as a mild blood thinner.

In a series of experiments using blood drawn

Continues on next page

Quick Reviews of Recent Research

• Diuretic drugs deplete vitamin B1

Diuretic drugs, which are commonly prescribed to patients with heart failure, increase the urinary excretion of vitamin B1. Ironically, vitamin B1 plays a key role in energy metabolism, and low levels may result in heart failure. In addition, diuretic drugs can impair the metabolism of carbohydrates and fats. The researcher wrote, "Evidence suggests that heart failure can be improved by the additional administration of vitamin B1. Older individuals under a chronic diuretic therapy should obtain an oral vitamin B1 supplementation."

Suter PM, *Schweizerische Rundschau fur Medizin Praxis*, 2004;93:857-863.

• Flavonoids show potential in breast cancer

Flavonoids are a large family of antioxidants found in fruits and vegetables. In a cell study, researchers tested the effects of eight flavonoids in enhancing the cancer-killing effects of mitoxantrone, a chemotherapeutic drug. The flavonoids enhanced the action of the drug, and the effect was stronger as more of the flavonoids were combined. The researchers wrote that "the presence of multiple flavonoids... provides a rationale for using 'flavonoid cocktails' as a potential approach for multidrug resistance reversal in cancer treatment."

Zhang SZ, et al. *Pharmaceutical Research*, 2004; 21:1263-1273.

• Fruits and Vegetables Lower Risk of Eye Disease

Age-related maculopathy (ARM, also known as age-related macular degeneration) is the leading cause of nonreversible blindness among seniors. Researchers tracked the diets and risk of ARM among

77,562 women in the Nurses' Health Study and 40,866 men in the Health Professionals Follow-up Study for 18 years. Men and women who ate three or more servings of fruit each day were 36 percent less likely to develop neovascular ARM, a serious form of the disease. People who ate fewer than 1.5 servings of fruit daily had the highest risk of ARM. Consumption of carotenoids was associated with modest protection against ARM.

Cho E, et al. *Archives of Ophthalmology*, 2004;122:883-892.

• Siberian ginseng sharpens minds of seniors

Siberian ginseng (*Eleutherococcus senticosus*) is considered as an "adaptogen" – that is, it bolsters resistance to stress. In a double-blind study, researchers gave 20 elderly patients with high blood pressure either Siberian ginseng supplements (300 mg daily) or placebos for eight weeks. After four weeks, people taking Siberian ginseng had improvements in social function and mental health. The effect was so striking that 70 percent of those taking Siberian ginseng assumed they were taking the herb. However, the benefits declined somewhat by the end of the study.

Cicero AFG, et al. *Archives of Gerontology and Geriatrics*, 2004;suppl 9:69-73.

• Ginger and vitamin B6 Help with Morning Sickness

Nausea and vomiting affect 50 to 80 percent of pregnant women, most often during the first trimester of pregnancy. Ginger is often used to treat digestive disorders, and vitamin B6 has been recommended to relieve the nausea and vomiting associated with pregnancy. Researchers gave daily supplements of either 1.05 grams of ginger or 75 mg of vitamin B6 to 291 women less than 16 weeks pregnant. Both supplements were equally effective. They reduced the risk of nausea by 80 percent, dry retching by 70 percent, and vomiting by 50 percent.

Smith C, et al. *Obstetrics and Gynecology*, 2004;103:639-645.

Garlic and Nanoplaques...

Continues from previous page

from human volunteers, a team of German and Swedish researchers found that garlic also prevents the formation of "nanoplaques."

The so-called cholesterol deposits that interrupt blood flow actually consist of a complex of cholesterol, calcium, and other substances. They form in a layered format, with microscopic nanoplaques laying the foundation for additional plaque deposits.

In the experiments, the researchers found that a liquid solution made from a commercial garlic supplement (Kwai brand) reduced both the formation and size of nanoplaques. As a result, arteriosclerotic plaque formation was "decisively blunted."

Reference: Siegel G, Malmsten M, Pietzsch J, et al. The effect of garlic on arteriosclerotic nanoplaque formation and size. *Phytomedicine*, 2004;11:24-35. □

The Nutrition Reporter™ (ISSN 1079-8609) is published monthly except for August and December and is distributed only by prepaid subscription. This issue, Vol 15 No 10, © October 2004 by Jack Challem. All rights reserved. Reproduction without written permission is prohibited. Phone: (520) 529-6801. Fax: (520) 529-6840. Email addresses: Jchallem@aol.com or jack@thenutritionreporter.com. The Nutrition Reporter™ is strictly educational and not intended as medical advice. For diagnosis and treatment, consult your physician. Subscriptions are \$26 per year in the U.S.; either \$33 U.S. or \$48 CND for Canada; and \$40 for other countries, payable in U.S. funds through a U.S. bank. The Nutrition Reporter is a trademark(TM) of Jack Challem.

THE NUTRITION REPORTER™

Post Office Box 30246 • Tucson AZ 85751-0246 USA

Editor and Publisher: **Jack Challem**
Copy Editor: **Mary E. Larsen**

Medical and Scientific Advisors:

Richard P. Huemer, MD Lancaster, California

Ralph K. Campbell, MD Polson, Montana • **Peter Langsjoen, MD** Tyler, Texas
Marcus Laux, ND San Francisco, California • **James A. Duke, PhD** Fulton, Maryland