

The Nutrition Reporter™

© Jack Challem November 2003 Vol 14 No 11

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

Boosting Protein, Lowering Carbs Can Help Diabetics Lower Their Blood Sugar

A modest increase in dietary protein, accompanied by a slight decrease in carbohydrates, can lead to a significant reduction in blood sugar levels.

Mary C. Gannon, PhD, of the Veterans Affairs Medical Center, Minneapolis, Minn., and her colleagues asked 10 men and two women with mild, untreated type 2 diabetes to follow one of two diets for five weeks, then switch to the other diet.

The conventional diet consisted of 15 percent protein, 55 percent carbohydrates (mostly starches), and 30 percent fat. The higher protein, lower carbohydrate diet contained 30 percent protein, 40 percent carbohydrate, and 30 percent fat. The high-carbohydrate diet followed the recommendations of the American Diabetes Association, the American Heart Association, and the American Cancer Society in 1997, when the study began.

When the subjects consumed the higher protein diet, they benefited from a 40 percent decrease in 24-hour blood sugar responses, compared with when they ate the high-carbohydrate diet. Blood sugar levels were tracked after breakfast, lunch, and dinner.

In addition, the subjects' glycated hemoglobin, which reflects average blood sugar levels over four to six weeks, declined significantly while eating the higher protein diet. Initial glycated hemoglobin levels averaged 8.0 percent and declined by 0.8 percent (or by one-tenth). In contrast, people eating the high-carbohydrate diets had a decrease of only 0.3 percent.

Both insulin and glucagon levels increased while patients consumed the higher protein diet, and both hormones may have played roles in lowering blood sugar levels.

Although there was no significant loss of weight with either diet, there was a trend for weight loss among subjects on the higher protein diet.

"When dietary recommendations for the general population or for persons with diabetes are considered, the focus has been on the relative amounts and types of carbohydrates and fat to include in the diet. Both the type and amount of protein in the diet has

largely been ignored," wrote Gannon and her colleagues.

The researchers noted that protein consumption generally does not increase blood sugar levels in healthy people or those with diabetes. In fact, protein consumption often results in a small decrease in blood sugar levels in people with diabetes.

Still, the higher protein diet was not what most people would consider a "high-protein" diet. It contained large amounts of refined and high-glycemic carbohydrates, such as bread, crackers, and baked potato.

Reference: Gannon MC, Nuttal FQ, Saeed A, et al. An increase in dietary protein improves the blood glucose response in persons with type 2 diabetes. *American Journal of Clinical Nutrition*, 2003;78: 734-741. □

Omega-3 Fish Oils and Dietary Protein Prevent Weight Loss in Cancer Patients

The extreme weight loss, or cachexia, that frequently occurs in cancer patients is largely the result of the body's immune and inflammatory response to the cancer. Instead of destroying the tumor, the inflammatory response depresses appetite and leads to the loss of both fat and muscle tissue.

But a recent study found that a protein drink containing omega-3 fish oils can help cancer patients gain weight.

Kenneth C. H. Fearon, MB, MD, of the Royal Infirmary of Edinburgh, Scotland, and his colleagues at 12 medical centers, asked 200 patients with advanced pancreatic cancer to consume two cans daily of a formula containing 16 grams of protein. About half of the subjects consumed a conventional protein drink, while the others had a protein drink with added omega-3 fatty acids (1.1 grams of EPA per can) and modest amounts of antioxidants for eight weeks.

Patients in both groups had been losing about 7 pounds of weight monthly. During the study, patients

Continues on next page

stopped losing weight, regardless of the formula they were consuming.

However, patients consuming the fish oils benefited from an increase in weight, lean body mass, and overall improved quality of life. These improvements occurred even though patients consumed an average of 1.4 cans of formula, instead of two full cans daily.

A commentary by Robert F. Grimble, PhD, of the University of Southampton School of Medicine, noted that there was an apparent synergism between the consumption of omega-3 fats and dietary protein, which enabled patients to gain more lean muscle mass. The average daily consumption of fish oils was about 1.5 grams.

Reference: Fearon KCH, von Meyenfeldt MF, Moses AGW, et al. Effect of a protein and energy dense n-3 fatty acid enriched oral supplement on loss of weight and lean tissue in cancer cachexia: a randomised double blind trial. *Gut*, 2003;52: 1479-1486. □

Frequent Fish Eaters Experience Lower Risk of Developing Alzheimer's Disease

People who eat fish at least once a week have a significantly lower risk of developing Alzheimer's disease. Coldwater fish are particularly rich in essential omega-3 fats, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which are normally concentrated in the membranes of brain cells.

Martha Clare Morris, ScD, and her colleagues at the Rush-Presbyterian-St. Luke's Medical Center, Chicago, tracked the health of 815 Chicago residents who ranged from 65 to 94 years of age at the start of the study. The subjects were free of Alzheimer's disease when the study began, and they completed a dietary questionnaire about 2.3 years before clinical follow up.

During follow up, 131 of the subjects were diagnosed with Alzheimer's disease.

"Participants who consumed fish once per week or more had 60 percent less risk of Alzheimer disease compared with those who rarely or never ate fish," Morris and her colleagues wrote in *Archives of Neurology*, an AMA journal.

In an editorial, Robert P. Friedland, MD, of the Case Western Reserve University School of Medicine, Cleveland, wrote: "Dietary intake is best considered from the point of view of diet patterns, rather than individual foods. A high antioxidant-low saturated fat diet pattern with a greater amount of fish, chicken, fruits, and vegetables and less red meat and dairy products is likely to lower the risk of Alzheimer's disease, as well as that for heart disease and stroke. Furthermore, B vitamin supplements, containing

vitamins B12 and B6, and folic acid lower plasma total homocysteine levels, possibly decreasing the risk of stroke, heart disease, and perhaps Alzheimer's disease."

Reference: Morris MC, Evans DA, Bienas JL, et al. Consumption of fish and n-3 fatty acids and risk of incident Alzheimer disease. *Archives of Neurology*, 2003;60:940-946. □

Vitamin E Speeds Recovery from Unexplained Loss of Hearing

Idiopathic sudden hearing loss – without an obvious cause – affects some 4,000 people each year in the United States and an estimated 15,000 worldwide. Approximately two-thirds of affected patients recover without treatment within several days, with nearly all recovering within two weeks. Still, the inexplicable condition creates anxiety and discomfort among those affected.

However, supplements of natural vitamin E may speed the return of normal hearing, suggesting that the hearing loss may involve some type of free-radical damage.

Henry Z. Joachims, MD, of the Technion-Israel Institute of Technology, Haifa, and his colleagues, treated 66 patients who had been diagnosed with idiopathic sudden hearing loss within the prior week. All of the patients were treated with conventional therapies, including bed rest, prednisone, magnesium, and carbogen inhalation. Some of the patients were given 400 IU of natural vitamin E twice daily.

Hearing loss improved in almost 26 subjects, or almost 80 percent, of those taking vitamin E supplement. In contrast, hearing improved in only 15, or 45 percent, of those not receiving vitamin E.

Reference: Joachims HZ, Segal J, Golz A. Antioxidants in treatment of idiopathic sudden hearing loss. *Otology & Neurotology*, 2003;24:572-575. □

Vitamins C and K May Prove Helpful in Treating Ovarian Cancer

Ovarian cancer is one of the most deadly of cancers. More than 26,000 women are diagnosed with ovarian cancer each year in the United States, and 15,000 die annually from it.

But a recent cell study suggests that vitamins C and K might have antitumor activity against ovarian cancer.

Vivian E. von Gruenigen, MD, of the University Hospitals of Cleveland, Ohio, led a team of researchers investigating the effects of vitamin C, vitamin K, or a combination of both nutrients on three types of ovarian cancer cells.

Each of the vitamins and the combination of vitamins C and K show antitumor activity against all

three types of adenocarcinoma cancer, but the vitamins had the greatest effect against the CaOV3 line of cancer cells. In addition, the antitumor effect was greatest with the combination of vitamins.

The vitamins appeared to block the normal growth cycle of the cancer cells, resulting in a breakdown of DNA in the cells.

“The use of antioxidants during cancer therapy has raised concern in the medical community – primarily because chemotherapy and radiation therapy work by generating free radicals and antioxidants may diminish the therapeutic action... These fears have also been reduced by the fact that no studies have clearly demonstrated a reduction in efficacy of radiation or chemotherapy due to the coadministration of antioxidants,” von Gruenigen wrote.

She also cited earlier research showing that a combination of antioxidants and cisplatin (a chemotherapeutic drug) allowed doctors to administer more cycles of chemotherapy with less toxicity, compared with the drug alone.

Reference: von Gruenigen VE, Jamison JM, Gilloteaux J, et al. The in vitro antitumor activity of vitamins C and K3 against ovarian carcinoma. *Anticancer Research*, 2003;23:3279-3288. □

A Daily Multivitamin Supplement May Reduce Heart Attack Risk

Not disciplined enough to take a few vitamin supplements?

It turns out that you can significantly lower your risk of having a heart attack by doing nothing beyond taking a conventional multivitamin supplement, according to a new study by Swedish researchers.

Christina Holmquist, PhD, of the Karolinska Institute, Stockholm, and her colleagues studied 1,296 Swedish men and women who survived a heart attack and 1,685 who never had a heart attack. Overall, 40 percent of the study participants, ranging from 45 to 70 years of age, had taken daily vitamin supplements for at least a year. Of those taking supplements, most took multivitamins with modest dosages of vitamin C, vitamin E, B-complex vitamins, and the mineral selenium.

Holmquist found that women taking multivitamins were 34 percent less likely to have a heart attack. Men had a 21 percent lower risk if they took multivitamin supplements.

The researchers noted that Swedes typically eat relatively few fruits and vegetables, and they do not consume any foods fortified with folic acid, habits that would increase the risk of heart disease.

Reference: Holmquist C, Larsson S, Wolk A, et

al. Multivitamin supplements are inversely associated with risk of myocardial infarction in men and women—Stockholm heart epidemiology program (SHEEP). *Journal of Nutrition*, 2003;133:2650-2654. □

Vitamin C Supplements Lower Risk of Heart Attack in Women

Women who take vitamin C supplements can lower their risk of heart disease, according to a study by researchers at the Harvard School of Public Health.

Stavroula K. Osganian, MD, and colleagues analyzed data from the Nurses’ Health Study, which tracked the health of 85,000 female nurses over 16 years. During this time, there was 1,356 cases of fatal and nonfatal heart attacks.

Women taking vitamin C supplements benefited from a 28 percent reduced risk of heart attack. “The reduction in risk appeared to be limited to women who took vitamin C supplements,” rather than obtaining vitamin C only from foods, the researchers wrote.

Furthermore, women who took more than 400 mg of vitamin C daily had a slightly greater reduction of heart attack risk.

Reference: Osganian SK, Stampfer MJ, Rimm E, et al. Vitamin C and risk of coronary heart disease in women. *Journal of the American College of Cardiology*, 2003;42:246-252. □

Periodic Vitamin D Supplements Help Protect Elderly from Fractures

Large periodic amounts of vitamin D can significantly reduce of fractures among the elderly, British researchers report.

Kay Tee Khaw, FRCP, professor of gerontology, and her colleagues at the University of Oxford, England, asked 2,686 elderly men and women to take either a vitamin D capsule or placebo every four months for five years. Each capsule contained 100,000 IU of vitamin D, averaging out to about 800 IU daily.

During the study, 268 participants had fractures, of whom 147 had fractures on common osteoporotic sites, such as the hip, wrist, forearm, or back.

Among people taking vitamin D supplements, the total incidence of fractures was reduced by 22 percent. Fractures at major osteoporotic sites decreased by 33 percent.

Vitamin D is required for the normal metabolism of calcium.

The researchers described the three annual vitamin D supplements as “acceptable, safe, and effective” in reducing fractures.

Reference: Trivedi DP, Doll R, Khaw KT. Effect

Continues on next page

Quick Reviews of Recent Research

• **Dietary habits influence survival in ovarian cancer**

In a study of 609 women with invasive ovarian cancer, Australian researchers identified dietary patterns associated with length of survival. Longer survival was associated with diets high in vegetables, cruciferous vegetables, and vitamin E. Survival was reduced among women eating more protein, red meat, white meat, and dairy products.

Magle CM, et al. *International Journal of Cancer*, 2003;106:264-269.

• **Tocotrienols may have anti-inflammatory effect**

Four tocotrienols form a subset of vitamin E molecules. In a cell study, researchers found that delta-tocotrienol reduced the activity of adhesion molecules, as well as adhesion of white blood cells. Such adhesion enables inflammatory white blood cells to stick to healthy cells while secreting inflammation-promoting compounds.

Chao JT, et al. *Journal of Nutritional Science and Vitaminology*, 2002;48:332-337.

• **Review supports benefits of St. John's wort**

In a review article, researchers noted that 40 clinical trials have been conducted with St. John's wort, an herb that has been used for more than 2,000 years. Three analyses of multiple studies have found the herb helpful in treating mild to moderate depression. Comparative studies have found that St. John's wort is as effective as common antidepressant drugs but has fewer side effects. The researchers wrote that, in some nations, "the concept of herbal therapies is well accepted by the general population, who believe in the natural and less toxic effects and actions of such remedies."

Gupta RK, et al. *European Archives of Psychiatry and Clinical Neuroscience*, 2003;253:140-148.

• **Two studies link infant cereal to type 1 diabetes**

Two studies published in *JAMA* found a strong association between the consumption of cereal or gluten-containing foods in infancy and an increased risk of type 1 (insulin-dependent) diabetes. In one study, U.S. physicians found that children consuming cereals before four months of age were more than four times more likely to have elevated "islet antibodies," typical of type 1 diabetes. Infants first consum-

ing cereal after seven months were five times more likely to develop diabetes. In the other study, German researchers reported that children consuming dietary gluten before age three months were five times more likely to have islet autoantibodies associated with diabetes. Although the results were not entirely consistent, they do point to an increased risk of type 1 diabetes after early consumption of cereal grains.

Norris JM, et al. *JAMA*, 2003;290:1713-1720.

Ziegler AG, et al. *JAMA*, 2003;290:1721-1728.

• **Antioxidants low in rheumatoid arthritis**

Researchers compared 97 patients with rheumatoid arthritis and 97 healthy subjects of similar age and gender. Dietary surveys provided data on antioxidant intake, and 20 subjects from each group provided blood samples for analysis. People with rheumatoid arthritis consumed fewer calories and smaller quantities of vitamins A and E and beta-carotene. In addition, people with rheumatoid arthritis had lower levels of two antioxidant enzymes, superoxide dismutase and glutathione peroxidase.

Bae SC, et al. *Journal of the American College of Nutrition*, 2003;22:311-315.

• **Vitamin B1 may protect kidneys in diabetics**

Researchers induced diabetes in laboratory rats, then treated some of them with vitamin B1 (thiamine) and benfotiamine, a derivative of the vitamin. Treated rats benefited from decreased protein glycation and free radical activity, as well as protein kinase C, an enzyme involved in the disease process.

Babaei-Jadidi R, et al. *Diabetes*, 2003;52:2110-2120.

• **Alpha-linolenic acid lowers C-reactive protein levels**

In a study of 76 Greek men, daily consumption of 7.5 grams alpha-linolenic acid led to significant reductions of C-reactive protein and interleukin-6. Both substances are promoters and clinical markers of inflammation.

Paschos G, et al. *American Journal of Cardiology*, 2003;41 (6 Suppl):250A.

Vitamin D, Fractures...

Continues from previous page

of four monthly oral vitamin D3 (cholecalciferol) supplementation on fractures and mortality in men and women living in the community: randomised double blind controlled trial. *BMJ*, 2003;326:469-472. □

The Nutrition Reporter™ (ISSN 1079-8609) is published monthly except for August and December and is distributed only by prepaid subscription. This issue, Vol 14 No 11, © November 2003 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