Available By Subscription Only

The NUTRITION REPORTER™

THE INDEPENDENT NEWSLETTER THAT REPORTS VITAMIN AND MINERAL THERAPIES © MARCH 2000 VOL 11 NO 3 BY JACK CHALLEM

Vitamin C Supplements Aid in Healing Fractures, Easing Cold and Flu Symptoms

Two new studies highlight the diverse health benefits of vitamin C supplements. In one, vitamin C significantly reduced complications from wrist fractures. The other study confirmed that supplements greatly eased cold and flu symptoms.

In the first study, reported in the December 11, 1999, issue of *Lancet*, researchers investigated the prevalence of reflect sympathetic dystrophy (RSD) among men and women who had fractured their wrists. RSD refers to a type of nerve pain accompanied by swelling and sweating.

Fifty-two patients received either 500 mg of vitamin C or a placebo daily for 50 days, starting on the day of their fracture. RSD occurred in only four (7 percent) of the wrists in the vitamin C group, but 14 (22 percent) of the wrists in the placebo group.

The researchers decided to investigate vitamin C because of its recognized benefits in treating burns. Injuries generate large numbers of free radicals, and vitamin C is one of the best free-radical quenchers. "There are very few substances that have such an impact on wounds after burns and the signs of inflammation at that stage as vitamin C," wrote Paul E. Zollinger, MD, of Leyenburg Hospital, Netherlands.

In conclusion, Zollinger and his colleagues wrote that "vitamin C appears to be effective in prevention of reflex sympathetic dystrophy after wrist fractures. We suggest that this simple and cheap means of prevention could also be useful in the prophylaxis of RSD after other injuries," such as foot and ankle fractures."

In a separate paper, H. Clay Gorton, DC, of Bountiful, and Kelly Jarvis, DC, of Heber City, Utah, reported that "megadoses" of vitamin C decreased reported cold and flu symptoms by 85 percent among men and women between the ages of 18 and 32.

Gorton and Jarvis compared the effects of pain relievers and decongestants among 463 students (the control group) and vitamin C among 252 students (the test group). The vitamin C regimen called for taking 1,000 mg of vitamin C hourly for the first six hours after initial symptoms, and then 1,000 mg three times daily thereafter. Students in the test group without symptoms also took 1,000 mg of vitamin C three times daily.

"Of 47 subjects reporting flu symptoms...23 experienced relief of symptoms with one 6-hour treatment of 1,000 mg of vitamin C per hour, 19 with 2, and 5 with 3 such treatments," Gorton and Jarvis wrote.

References: Zollinger PE, Tuinebreijer WE, Kreis RW, et al. Effect of vitamin C on frequency of reflex sympathetic dystrophy in wrist fractures: a randomised trial. *Lancet*, 1999;354:2025-2028. Gorton HC, Jarvis K. *Journal of Manipulative and Physiological Therapies*, 1999;22:530-533. □

Lycopene, Tomato-Rich Diets Lower Risk of Cancers

A diet rich in lycopene and tomatoes may significantly reduce the risk of cancers of the mouth, pharynx, larynx, and esophagus.

Tomatoes are the richest dietary source of lycopene, an antioxidant carotenoid, but tomatoes also provide vitamin C, flavonoids, and phytosterols.

Eduardo De Stefani, PhD, of the Registro Nacional de Cancer, Uruguay, compared the diets of 238 patients with upper aerodigestive tract cancers and 491 patients hospitalized for other reasons. In addition to determining how diet affected cancer risk, he also sought to identify whether the health benefits of tomatoes were due to lycopene or other nutrients.

De Stefani found that diets high in foods with tomato sauces reduced the risk of these cancers by 43 percent. Consumption of large amounts of raw tomatoes was associated with a 70 percent reduction in the risk of these cancers.

After teasing out the details, De Stefani found that high intake of lycopene reduced the risk of cancer by 77 percent, and that the combined effect of lycopene and phytosterols reduced cancer risk by 91 percent.

Phytosterols are plant hormones that have no hormonal effect in people, but they may blunt the cancer-promoting effect of some human hormones.

Reference: De Stefani E, Oreggia F, Boffetta P, et al. Tomatoes, tomato-rich foods, lycopene and cancer of the upper aerodigestive tract: a case-control in Uruguay. *Oral Oncology*, 2000;36:47-53. □

Research summaries continue on next page

"Good Fats" Ease Lung Distress in Seriously Ill Patients

A diet low in carbohydrates and high in vitamins and antiinflammatory fats can improve lung function in patients with acute respiratory distress syndrome.

James E. Gadek, MD, of Ohio State University Medical Center and colleagues at four other teaching hospitals treated 98 patients with acute respiratory distress syndrome, triggered by sepsis, pneumonia, or trauma. In the potentially fatal lung disorder, the immune system overreacts and white blood cells accumulate in the lungs and attack lung cells.

Fifty-one of the patients were tube fed a low-carbohydrate formula with vitamins E and C and beta-carotene, plus the omega-3 fatty acid eicosapentaenoic acid (EPA from fish oil) and gamma-linolenic acid (GLA from borage oil). Forty-seven of the patients were tube fed a standard diet.

Patients receiving the diet high in EPA and GLA had better oxygenation of tissues and two and one-half times fewer white blood cells in lung fluid. They also needed significantly less breathing support, spent about one-third fewer days in the intensive care unit (ICU), and they had far fewer organ failures compared with patients receiving the standard diet.

"Nutrition support is increasingly becoming a routine part of ICU therapy," wrote Gadek and his colleagues. "Recommendations to treat and prevent malnutrition and nutrient deficiencies are generally part of the support of the ICU patient."

Reference: Gadek JE, DeMichele SJ, Karlstad MD. Effect of enteral feeding with eicoapentaenoic acid, gamma-linolenic acid, and antioxidants in patients with acute respiratory distress syndrome. *Critical Care Medicine*, 1999;27:1409-1420. □

Low Zinc, Selenium Levels May Impair Natural-Killer Immune Cells

Elderly people run a high risk of vitamin and mineral deficiencies, and some of these deficiencies likely affect the body's production of natural killer (NK) cells. Natural killer cells are a type of lymphocyte, or immune cell, that targets and destroys tumor or virus-infected cells.

Giovanni Ravaglia, MD, of the University Hospital Sant'Orsola-Malpighi, Bologna, Italy, studied 62 healthy men and women between the ages of 90 and 106. All of the subjects were apparently well-nourished, but more than half had some micronutrient deficiencies.

Roughly half of the subjects had low blood levels of selenium, zinc, and vitamin B6. Smaller percentages had low levels of vitamin A and E, vitamin B12, folic acid, and coenzyme Q10.

Low levels of NK cells were most strongly associated with deficiencies of zinc and selenium. "The results of this study strengthen the hypothesis that individual micronutrients may affect the number and funtion of NK cells in old age," Ravaglia wrote. He cited other studies showing a relationship between zinc and selenium and NK cell function.

Reference: Ravaglia G, Forti P, Maioli F, et al. Effect of micronutrient status on natural killer cell immune function in healthy free-living subjects aged ≥90 y. *American Journal of Clinical Nutrition*, 2000;71: 590-598. □

Chronic Fatigue Syndrome May Interfere with B Vitamin Activity

People with Chronic Fatigue Syndrome (CFS) may have a "functional" deficiency of B vitamins, particularly vitamin B6, even if they consume adequate levels of dietary vitamins. That's the conclusion of a report by Researchers at King's College School of Medicine, London.

Instead of measuring blood levels of B vitamins, T. J. Peters, DSc, and his colleagues measured the basal and activated levels of three enzymes dependent on three B vitamins: aspartate aminotransferase for vitamin B6, glutathione reductase for vitamin B2, and transketolase for vitamin B1.

Peters and his colleagues noted that blood levels of vitamins may be in the normal range, but that "subnormal vitamin activities at a cellular level" may be responsible for a functional deficiency and some of the complications of CFS.

They focused on 12 CFS patients who had not been taking any vitamin supplements and 18 healthy subjects.

The researchers found that both basal and activated enzyme levels were lower in patients with CFS than in a comparable group of healthy subjects. The most striking difference was in the enzyme dependent on vitamin B6 activity. Aspartate aminotransferase activity was about 60 percent below normal.

Reference: Heap LC, Peters TJ, Wessely S. Vitamin B status in patients with chronic fatigue syndrome. *Journal of the Royal Society of Medicine*, 1999;92: 183-185. □

Fruits and Vegetables, Magnesium Associated with Strong Bones

Eating a diet rich in fruits and vegetables, particularly at a young age, may reduce the long-term risk of osteoporosis, according to a British study.

Susan A. New, PhD, of the University of Surrey, and her colleagues measured bone density, bone resorption (calcium loss from bones), and dietary

intake of various nutrients among 62 healthy middle-age women.

"Our understanding of the influence of nutrition on bone health is limited because most studies to date concentrated primarily on the role of calcium in bone health and paid less attention to other micronutrients," New wrote.

In her study, she found that low intakes of potassium, beta-carotene, magnesium, and vitamin C were associated with increased calcium loss from bones. Magnesium turned out to be the best indicator of bone resorption.

"Magnesium is extremely important in skeletal metabolism and there is a growing appreciation that magnesium deficiency may be a cause of osteoporosis," New wrote.

All of these nutrients are found in fruits and vegetables, she noted.

In addition, the researchers found that bone density in the neck was higher among women who had eaten large amounts of fruit during childhood.

Reference: New SA, Robins SP, Campbell MK, et al. Dietary influences on bone mass and bone metabolism: further evidence of a positive link between fruit and vegetable consumption and bone health. *American Journal of Clinical Nutrition*, 2000;71:142-151. ▯

Vitamin E Supplements Protect Against Polyunsaturated Fats

If you follow the popular dietary advice to increase your intake of polyunsaturated fats (PUFAs), you should also increase your intake of vitamin E – or risk potentially serious health consequences.

The reason, researchers have confirmed, is that PUFAs are highly susceptible to free radical oxidation. Free radicals damage fatty cell membranes, proteins, and genes, in the process accelerating the aging process and increasing the risk of disease. Vitamin E, the body's principal fat-soluble antioxidant, can inhibit much of this oxidation.

PUFAs are found in vegetable oils, such as corn and safflower oil, as well as in fish and flaxseed. Over the past 30 or so years, many health organizations have encouraged people to reduce their intake of saturated fats and to consume more polyunsaturated fats. But saturated fats, found in meats (as well as monounsaturated fats, found in olive oil) are much more resistant to free radical oxidation.

In a recent study, Alison McEwan Jenkinson, PhD, and her colleagues measured the effect of increased intake of dietary PUFAs and vitamin E on 21 healthy men. Jenkinson asked the men to consume either a low-PUFA (5 percent) or a high-PUFA (15 percent) diet. The subjects also consumed small amounts of dietary vitamin E (5-7 mg daily) or received 80 mg (equivalent to about 120 IU) of natural vitamin E daily.

During the study, Jenkinson and his colleagues drew blood from the subjects and exposed lymphocytes to hydrogen peroxide, a potent generator of free radicals. They then measured DNA damage in the lymphocytes.

The researchers found that levels of DNA damage decreased after consumption of the low-PUFA diet, which may have contained fewer PUFAs than their original diets. In contrast, DNA damage increased significantly after the men consumed a high-PUFA diet.

Ordinary dietary levels of vitamin E failed to protect against this DNA damage. However, supplemental vitamin E greatly reduced the amount of DNA damage, suggesting "that increasing PUFA intakes should only be recommended when an adequate antioxidant intake is ensured."

Reference: Jenkinson AM, Collins AR, Duthie J, et al., "The effect of increased intakes of polyunsaturated fatty acids and vitamin E on DNA damage in human lymphocytes," *FASEB Journal*, 1999;13:2138-2142. ▯

Vegetables, Broccoli, and Lutein May Lower Prostate Cancer Risk

The key to reducing prostate cancer risk may be eating more vegetables, but not necessarily more fruit, according to a study in the *Journal of the National Cancer Institute*.

Jennifer H. Cohen, PhD, and her colleagues at the Fred Hutchinson Cancer Research Center, Seattle, compared the diets of 628 men with prostate cancer and 602 men without the disease.

They found that men eating a lot of vegetables – 28 or more servings per week – were 35 percent less likely to develop prostate cancer, compared with men who ate 14 or fewer servings per week. Fruit intake had no bearing on prostate cancer risk.

Men who ate three or more weekly servings of cruciferous vegetables, such as broccoli and cauliflower, had a 41 percent lower risk of prostate cancer. Cruciferous vegetables are high in antioxidant enzymes known as glutathione S-transferases, which help cells break down cancer-causing compounds. These enzymes are abundant in normal human prostate tissue, but absent from cancerous prostate tissue.

High levels of lutein and zeaxanthin, antioxidant caroteonoids found in broccoli, were also associated with a 32 percent reduction in prostate cancer risk.

Reference: Cohen JH, Kristal AR, Stanford JL. Fruit and vegetable intakes and prostate cancer risk. *Journal of the National Cancer Institute*, 2000;92:61-68. ▯

Quick Reviews of Recent Research

• Carotenoids protect skin from UV rays

Twenty-two men and women consumed natural mixed-carotenoid supplements – chiefly beta- and alpha-carotene – for 24 weeks. Researchers measured the subjects' resistance to sunburn from simulated sunlight. As the dose of carotenoids increased from 30 to 90 mg daily, the subjects' skin became less susceptible to reddening.

Lee J, et al. *Proceedings of the Society for Experimental Biology and Medicine*, 2000,223:170-174.

• Lutein linked to lower colon cancer risk

Researchers studied the relationship between carotenoid intake and disease among 1,993 people with colon cancer and 2,410 without the disease. Overall, high-lutein diets were associated with a 17 percent decrease in colon cancer risk. Younger people consuming large amounts of lutein had a 34 percent lower risk of colon cancer.

Slattery ML, et al. *American Journal of Clinical Nutrition*, 2000;71:575-582.

• Creatine improves athletic performance

Researchers asked 16 "elite" hockey players to consume either a daily 20 mg loading dose of creatine or a placebo daily for five days, followed by a maintenance dose of 5 grams creatine or placebo daily. Measurements at 10 days and 10 weeks showed that the players taking creatine had significantly great power output during ice-skating sprints and could skate much faster compared with their original performance.

Jones AM, et al. *Journal of Sports Medicine and Physical Fitness*, 1999;39:189-196.

• Vitamin E counters some effects of smoking

Smoking cigarettes results in "endothelial dysfunction," which reduces blood flow in arteries and is a risk factor for coronary artery disease. Researchers asked 22 young male smokers to take either 600 IU of vitamin E or placebo daily for four weeks, then used ultrasound to measure their endothelial function. Vitamin E supplements enabled smokers to maintain normal blood flow right after smoking. However, supplements did not restore chronic blood flow problems during the study.

Neunteufl T, et al. *Journal of the American College of Cardiology*, 2000;35:277-283.

• Monounsaturated fat reduces heart disease risk

Researchers asked 41 healthy young men to follow three diets, each for four weeks: a diet high in saturated fat, a diet low in fat, and a diet high in monounsaturated fats (found in olive oil). The saturated-fat diet resulted in the highest levels of insulin, an indicator of disturbed glucose metabolism. In contrast, the monounsaturated-fat diet resulted in the lowest levels of blood glucose, insulin, and free fatty acids. In addition, the monounsaturated-fat diet resulted in the lowest blood pressure readings.

Salas J, et al. *Medicina Clinica*, 1999;113:765-769.

• Soy and whey may reduce cancer risk

Researchers fed laboratory rats diets with casein, soy or whey, then exposed them to a chemical known to induce breast cancer. Animals consuming soy and whey were slower to develop tumors and developed fewer tumors.

Hakkak R, et al. *Cancer Epidemiology, Biomarkers & Prevention*, 2000;9:113-117.

• Beta-carotene associated with lung health

Researchers compared the eating habits, blood nutrient levels, and lung function of 367 men and women, ages 20-59. Subjects with the highest beta-carotene levels (90th percentile) had better lung function than those with lower beta-carotene levels.

Grievink L, et al. *European Journal of Clinical Nutrition*, 1999;53:813-817.

• Vitamin E may reduce lung cancer risk

Researchers measured blood nutrient levels in 339 tin mine workers and 678 cancer-free miners in China. Overall, there were no associations between vitamin E and selenium levels and the risk of lung cancer. However, men with high vitamin E levels, who were also under the age of 60 and nondrinkers, had a lower risk of lung cancer.

Ratnasinghe D, et al. Cancer Causes & Control, 2000;11:129-135.

• Researchers examine calcium absorption

Researchers compared the absorption of calcium citrate and calcium carbonate supplements in 18 postmenopausal women. They found that calcium citrate was absorbed about 2.5 times better than the carbonate form.

Heller HJ, et al. *Journal of Clinical Pharmacology*, 1999;39:1151-1154.

THE NUTRITION REPORTER™ (ISSN 1079-8609) is published monthly except for August and December. This issue, Vol 11 No 3, © March 2000 by Jack Challem. All rights reserved. Reproduction without written permission is prohibited. Phone: (520) 529-6801. Fax: (520) 529-6840. Email addresses: Nutrreport@aol.com or Jchallem@aol.com. This newsletter is strictly educational and not intended as medical advice. For diagnosis and treatment, consult your physician. Subscriptions are $25 per year in the U.S.; either $32 U.S. or $48 CND for Canada; and $38 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**

Medical Advisors:
Lendon H. Smith, MD Portland, Oregon • **Richard P. Huemer, MD** Lancaster, California
Ralph K. Campbell, MD Polson, Montana • **Peter Langsjoen, MD** Tyler, Texas
G. Edward Desaulniers, MD The Shute Institute Medical Clinic London, Ontario
Marcus Laux, ND Pacific Palisades, California