

# The Nutrition Reporter™

© Jack Challem March 2001 Vol 12 No 3

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

## With More Studies, Researchers Finally Giving Ginseng Supplements Some Respect

The Chinese have used ginseng root for thousands of years as a tonic for just about everything from fatigue to male impotence. Indeed, the herb's Latin name, *Panax ginseng*, literally means cure-all. That type of provenance has practically invited Western physicians' derision.

However, several recent human studies have found that ginseng supplements can have a powerful and positive effect on health. In recent months, *The Nutrition Reporter* has described research showing that ginseng supplements significantly lower blood sugar (glucose) levels in type 2 diabetes and, combined with ginkgo, improve memory in healthy subjects.

In another well-controlled study, Vladimir Vuksan, PhD, a researcher at the University of Toronto, found that American ginseng root, ground up and prepared in capsules, significantly reduced glucose levels in healthy, nondiabetic individuals. That's important because elevated glucose levels – even without being high enough to cause diabetes – greatly increase the risk of coronary heart disease. Maintaining normal glucose levels can improve resistance to diabetes and heart disease.

Vuksan asked his 10 subjects to take either a ginseng supplement or a placebo on 12 separate occasions. He gave them different dosages of whole ginseng root at different times before a glucose tolerance test (a 25-gram glucose drink), roughly equivalent to a soft drink and a doughnut. The supplements contained ground ginseng root in 3-, 6-, or 9- gram dosages, which were given 40, 80, or 120 minutes before the glucose test.

All of the dosages of ginseng had impressive benefits. Compared with placebo, 3 grams of ginseng reduced the glucose response by 26.6 percent. A 6-gram dose reduced glucose by 29.3 percent, and the 9-gram dose reduced glucose by 38.5 percent. The timing of the ginseng supplements did not seem to impact its effect on glucose.

"The blood glucose-lowering activity of Ameri-

can ginseng demonstrated in normal individuals in this study may represent a novel and important preventive approach in delaying the onset of diabetes mellitus and cardiovascular disease," Vuksan and his colleagues wrote.

In a separate study, researchers at the University of Milan, Italy, studied 75 patients experiencing an acute attack of chronic bronchitis resulting from infection. All of the patients received antibiotics for nine days, with about half also receiving 100 mg of a standardized ginseng root extract.

The researchers found that ginseng helped reduce bacterial counts in the bronchial system of patients, most likely by boosting their immune systems. People taking the herb with antibiotics cleared of infection about one and a half days faster than those taking antibiotics alone.

Ginseng contains 30 triterpene saponins, known collectively as ginsenosides, which are regarded as the herb's active compounds.

References: Vuksan V, Stavro MP, Sievenpiper JL, et al. American ginseng improves glycemia in individuals with normal glucose tolerance: effect of dose and time escalation. *Journal of the American College of Nutrition*, 2000;19:738-744. Scaglione F, Weiser K, Alessandria M. Effects of the standardised ginseng extract G115 (R) in patients with chronic bronchitis – a nonblinded, randomised comparative pilot study. *Clinical Drug Investigation*, 2001;21: 41-45. □

### Some Headaches May Result from Gluten, a Protein Found in Many Grains

An allergic-like sensitivity to gluten, a family of proteins found in wheat, rye, barley, and other grains, lies at the core of celiac disease. The most commonly recognized symptoms of celiac disease are gastrointestinal problems (e.g., diarrhea and abdominal distention), nutrient malabsorption, and a skin condition called dermatitis herpetiformis.

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In recent years, however, researchers have recognized that gluten can stimulate a systemic immune response, resulting in a broad array of symptoms without bowel disturbances. Now, a team of British researchers has shown that gluten can cause a variety of neurological problems, including regular headaches.

Marios Hadjivassiliou, MD, of the Royal Hallamshire Hospital, Sheffield, England, studied six female and four male patients with headaches, some who also suffered unsteadiness and uncoordinated movements. All patients had abnormal magnetic resonance imaging (MRI) tests, which showed "white matter" characteristic of cerebral inflammation.

When placed on a gluten-free diet, nine of the patients improved. Hadjivassiliou and his colleagues suggested that blood tests for antiglutin antibodies should be performed on difficult-to-diagnose patients with neurological disorders, particularly ataxia or peripheral neuropathy.

Reference: Hadjivassiliou M, Grunewald RA, Lawden M, et al. Headache and CNS white matter abnormalities associated with gluten sensitivity. *Neurology*, 2001;56:385-388. □

## Yet Another Study Confirms Benefits of Glucosamine in Osteoarthritis

In what may be a watershed study, European researchers have found that glucosamine sulfate supplements maintain joint health and reduce pain in people with osteoarthritis of the knee.

Jean Yves Reginster, MD, of the University of Liege, Belgium, led a team of Belgian, Italian, and British researchers who used digitized x-rays to carefully measure the rate of knee damage in 106 patients with osteoarthritis.

The subjects were asked to take either 1,500 mg of glucosamine sulfate or a placebo daily for three years. Glucosamine is a component of cartilage that pads knee joints and of the synovial fluid that lubricates joints.

People taking glucosamine had an average negligible loss of 0.06 millimeters in joint space, with many patients actually improving. In contrast, people taking the placebo had a much greater 0.31 mm loss in joint space. Viewing the findings a different way, twice as many patients taking placebos had significant degeneration of their joints compared with those taking glucosamine.

Reginster also reported in *Lancet* that "patients who completed treatment with glucosamine sulfate had a 20-25 percent improvement of symptoms, compared with the slight worsening of symptoms in the placebo group."

In an accompanying editorial, Timothy

McAlindon, DM, of Boston University Medical Center, noted that most pharmaceutical treatments for osteoarthritis are designed around pain release and that most physicians have low expectations of treatment. Glucosamine, however, actually alters the course of the disease.

"Although health-care professionals generally expect to be involved in medical decisions...the reality is that they are not regarded as a repository of objective advice about nutritional products...This situation must change," McAlindon wrote. "It is time for the profession to accommodate the possibility that many nutritional products may have valuable therapeutic effects and to regain the credibility of the public at large."

References: Reginster JY, Deroisy R, Rovati LC, et al. Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomised placebo-controlled clinical trial. *Lancet*, 2001;357:251-256 and 247-248. □

## High-Dose Vitamin B1 Injections Improve Cognition in Alcoholics

Vitamin B1 (thiamin) is used to treat Wernicke-Korsakoff Syndrome (WKS), a severe consequence of alcoholism characterized by structural damage to the brain. However, very few cases of WKS are diagnosed before autopsy.

"Despite the evidence that suggests a high prevalence of unrecognized neuropathology due to thiamin deficiency, few studies have investigated the therapeutic effects of thiamin in alcohol-dependent people," wrote Margaret L. Ambrose, PhD, and her colleagues in *Alcoholism: Clinical and Experimental Research*. "To our knowledge, no studies have explored the effect of thiamin treatment in a more representative sample of alcohol-dependent people."

For this reason, Ambrose and her colleagues at the University of Melbourne, Victoria, Australia, used injections of vitamin B1 to treat 107 people entering an alcohol-detoxification clinic. None had full-blown WKS symptoms.

The patients were divided in groups and each group was given a different daily dosage of vitamin B1: 5, 20, 50, 100, and 200 mg. They underwent cognitive testing at the start of the study and on the third day. Patients receiving 200 mg of vitamin B1 daily showed a "superior performance" on a short-term memory test designed to measure how quickly they recognized a repeating pattern.

Reference: Ambrose ML, Bowden SC, Whelan G. Thiamin treatment and working memory function of alcohol-dependent people: preliminary functions. *Alcoholism: Clinical and Experimental Research*; 2001;25:112-116. □

## Peppermint Oil Capsules Ease Irritable Bowel Syndrome in Children

Peppermint oil, used to treat gastrointestinal disorders for more than 4,000 years, can greatly relieve pain associated with irritable bowel syndrome (IBS) in children.

Robert M. Kline, PhD, of the University of Missouri, Columbia, and his colleagues treated 42 children, ages eight to 17, with IBS. Children weighing 66-99 pounds took one capsule of enteric-coated peppermint oil or a placebo three times daily for two weeks. Heavier children took two capsules of peppermint oil or a placebo three times daily. Each capsule contained 187 mg of peppermint oil.

At the conclusion of the two-week study, 76 percent of the children receiving peppermint oil reported having less pain with IBS. Only 19 percent of those taking placebos noted improvements.

Clinical evaluation of the childrens' IBS-related pain found that 71 percent improved, compared with only 43 percent taking the placebo.

Although the peppermint oil reduced pain, other symptoms of IBS remained unchanged. "The analysis showed that peppermint oil did not alter heartburn, gas, urgency of stools, belching, stool pattern, or stool consistency," Kline and his colleagues wrote.

Reference: Kline RM, Kline JJ, DiPalma J, et al. Enteric-coated, pH-dependent peppermint oil capsules for the treatment of irritable bowel syndrome in children. *Journal of Pediatrics*, 2001;138:125-128. □

## Alpha-Lipoic Acid May Help Prevent Kidney Disease in Diabetics

Supplements of alpha-lipoic acid may reduce the risk of kidney damage in people with diabetes, according to a recent study with laboratory rats.

Alpha-lipoic acid is a natural antioxidant found in spinach and beef. It has been used for years in Germany to treat a type of nerve disease, called polyneuropathy. Recent research has shown that it can also improve the transmission of nerve impulses.

In the study, Frederick R. Derubertis, MD, and his colleagues at the University of Pittsburgh, Penn., tested the effects of alpha-lipoic acid, vitamin E, or vitamin C on diabetic rats. After two months, they measured several indicators of kidney disease, including urinary albumin excretion, glomerular volume, glomerular content of immunoreactive transforming growth factor- $\beta$ , and collagen  $\alpha$ 1.

The glomerulus is the central part of the kidney.

All of these markers increased in the unsupplemented animals, but decreased significantly among animals given alpha-lipoic acid. Vitamins E

and C improved some of the markers of kidney disease, but not to the extent of alpha-lipoic acid.

Reference: Melhem MF, Craven PA, Derubertis FR. Effects of dietary supplementation on  $\alpha$ -lipoic acid on early glomerular injury in diabetes mellitus. *Journal of the American Society of Nephrology*, 2001;12:124-133. □

## Soy Isoflavones May Boost Bone Density in Menopausal Women

Isoflavones, a family of weakly estrogenic antioxidants found in soybeans, may help menopausal women maintain healthy bones, Japanese researchers report.

Yoshiaki Somekawa, MD, and his colleagues studied 478 postmenopausal women who regularly ate soy foods. Their isoflavone intake range from about 35 to 65 mg daily.

Women who consumed the greatest amounts of isoflavones – 65 mg or more daily, chiefly through soybean curd, fermented soybeans, and soybean paste – had significantly greater bone density compared with women who consumed fewer soy isoflavones.

In addition, women who consumed large amounts of soy isoflavones and recently experienced menopause had fewer backaches and aching joints.

"Asian people consume 10-100 times more isoflavones than Western people, and osteoporosis-related fractures are less frequent in Asian than Western communities, possibly because of the large quantities of phytoestrogen-rich soybeans and vegetables in the Asian diet," Somekawa and his colleagues wrote.

Reference: Somekawa Y, Chiguchi M, Ishibashi T, et al. Soy intake related to menopausal symptoms, serum lipids, and bone mineral density in postmenopausal Japanese women. *Obstetrics and Gynecology*, 2001;97:109-115. □

## Prenatal Vitamin Supplements Reduce Risk of Cleft Lip and Palate

Women who take vitamin supplements before becoming pregnant and during the first four months of gestation are significantly less likely to have children with cleft lip or cleft palate.

A team of Scottish and Brazilian researchers interviewed 450 women who had given birth during the previous year to an infant with either cleft lip or palate. They then interviewed 450 women who had given birth to infants without these defects.

Although the researchers did not try to identify the types of vitamins taken by the women, they did find that supplementation greatly reduced the

Continues on next page

## Quick Reviews of Recent Research

### • Vitamin E may protect against stomach cancer

Several studies have found that the natural d-alpha tocopheryl succinate form of vitamin E, commonly found in supplements, may have significant anticancer effects. In an experiment using stomach cancer cells, researchers tested the cancer-inhibitory properties of three doses of vitamin E succinate over 24, 48, and 72 hours. Although all doses had cancer-inhibiting properties, the greatest effect was noted at the highest dose for 72 hours.

Rose AT, et al. *Journal of Surgical Research*, 2001;95:19-22.

### • Vitamin E supplements reduce some types of stroke

Males smokers took 50 mg vitamin E or placebo daily for eight years, then were followed up on for another six years. Among men with hypertension, vitamin E reduced the risk of cerebral infarction.

Leppala JM, et al. *Archives of Neurology*, 2000;57:1503-1509.

### • High blood sugar levels increase heart disease risk

Glycated hemoglobin reflects average blood glucose levels over the previous three months, and it is a standard indicator of how well diabetics control their disease. In a study of 4,662 men, ages 45-79, researchers found that high glycated hemoglobin levels, even without the diagnosis of diabetes, were equivalent to high cholesterol and hypertension in determining the risk of heart disease.

Khaw, K-T, et al. *British Medical Journal*, 2001;322:1-6.

### • Vitamin C lowers glucose levels

Impaired glucose tolerance and insulin resistance increase the risk of diabetes and coronary heart disease. Researchers studied 16 smokers with normal glucose tolerance and 15 nonsmokers with impaired glucose tolerance. After giving subjects 1,200 mg of intravenous vitamin C over two hours, smokers

benefited from lower levels of blood sugar and free radicals and improved blood vessel flexibility. In addition, vitamin C reduced blood sugar levels and improved blood vessel flexibility among nonsmokers with impaired glucose tolerance.

Hirai N, et al. *American Journal of Physiology – Heart and Circulatory Physiology*, 2000;279:H1172-H1178.

### • Low lutein and zeaxanthin tied to eye disease

Two carotenoids, lutein and zeaxanthin, form the macular pigment in the central region of the retina, and previous studies have found low levels of these nutrients are associated with both macular degeneration and cataracts. Researchers investigated lutein/zeaxanthin levels in the diet and blood, and the thickness of the macular pigment, in 19 healthy men and women. They also studied lutein/zeaxanthin levels in 23 pairs of donor eyes and in blood samples from those donors. Among the healthy subjects, dietary and blood levels of lutein/zeaxanthin correlated with the thickness of the subjects' macular pigments. The greater the amounts of these nutrients, the thicker the macular pigment. Among the donor eyes, lutein/zeaxanthin levels were lower in subjects who had been diagnosed with age-related macular degeneration.

Bone RA, et al. Lutein and zeaxanthin in the eyes, serum and diet of human subjects. *Experimental Eye Research*, 2000;71:239-245.

### • Antioxidants boost immunity in AIDS patients

Researchers gave 8 patients with AIDS large oral and intravenous dosages of N-acetylcysteine and vitamin C. The five most seriously ill patients had a significant increase in CD4 lymphocytes and a reduction in HIV RNA levels, considered an improvement in the status of their infections.

Muller F, et al. *European Journal of Clinical Investigation*, 2000;30:905-914.

## Cleft Lip and Palate..

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likelihood of an infant being born with cleft lip or palate. Vitamin supplements reduced the risk of cleft palate by 40 percent and the risk of cleft lip (with or without cleft palate) by 42 percent.

Previous research has shown that folic acid and other B vitamins protects against cleft lip and palate. These birth defects result from a failure in the development of the palate during the first three months of fetal development.

Reference: Loffredo LCM, Souza JMP, Freitas JAS, et al. Oral clefts and vitamin supplementation. *Cleft Palate – Craniofacial Journal*, 2001;38:76-83. □

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