

Vitamin Research News

Complementary Prescriptions™ Edition

JULY 2007

Vol. 21, Number 7

\$79.00/Year U.S. (\$89.00/Year International)

Table of Contents

Bilberry and Black Currants: ... 1 Vision-Supporting Nutrients Enhance Heart Health, Build Immunity and Protect Against Damage from Computer Use Surprising uses for nutrients known primarily for their ocular effects.
Lactobacillus Rhamnosus GG: .. 1 Powerful Probiotic Strengthens Digestion and Immunity Consuming this human-derived probiotic offers advantages over other strains.
President's Desk 3 Purity Over Profit
Multiple Sclerosis: 6 Natural Strategies to Enhance Quality of Life Building a supplement regimen for optimal autoimmune and overall health.
Proton-Pump Inhibitors: 8 Strategies to Protect Against Potential Bone-Destroying Effects Natural ways to guard against acid reflux and build stronger bones.
Customer Corner 9 <ul style="list-style-type: none">• Benign Prostatic Hypertrophy• ADD• COPD and Emphysema• Valley Fever, Sinus Infections• Ulcerative Colitis• Cancer, Heart Medications• Meralgia Parasthetica• Schizophrenia, Depression• Lupus and 5-HTP• Anti-Coagulants• Rheumatoid Arthritis• Performance Enhancement
From the Library 14 Neptune Krill Oil™ Part III: Its Effects on Premenstrual Syndrome, Painful Periods, H. Pylori and Skin Health The final installment of a three-part series about a novel source of omega-3 fatty acids.
Nutrition Review 18 <ul style="list-style-type: none">• Antioxidant Supplements May Improve Health of Chemotherapy Patients• Ginseng and Ginkgo at Recommended Doses Do Not Impair Drug Absorption• Green Tea Enhances Blood Vessel Function, Reduces Sun Damage to Skin• Vitamin D and Calcium May Support Premenopausal Breast Health• Diabetes Drug Avandia May Increase Heart Attack Risk

Bilberry and Black Currants: Vision-Supporting Nutrients Enhance Heart Health, Build Immunity and Protect Against Damage from Computer Use

by Chris D. Meletis, ND

Some of the most powerful antioxidants in the plant kingdom are pigments known as anthocyanosides. These pigments are found in a variety of fruits—especially bilberry and black currants—and are even partly responsible for the intense red and orange hues seen in fall foliage. Anthocyanosides are not a household name, but anyone who wants to improve his or her health should take note of this plant-derived compound. Although anthocyanosides are best known for their eye-protective properties, studies indicate this compound's uses go far beyond those involved in maintaining vision. Animal

studies have found that anthocyanosides strengthen blood vessels and improve blood flow and that these plant pigments also help maintain healthy blood sugar levels. In addition, anthocyanosides are extremely powerful antioxidants and anti-inflammatories that can protect against DNA damage and LDL oxidation, the process by which cholesterol turns rancid and increases the risk for heart disease. They also mount a defense against the yeast/fungus candida albicans and against the ulcer-causing bacterium *Helicobacter pylori*.

Continued on page 2

Lactobacillus Rhamnosus GG: Powerful Probiotic Strengthens Digestion and Immunity

by Rose Young, MS, RN

Many individuals concerned about digestive health are familiar with the good bacteria known as probiotics. The probiotic *Lactobacillus rhamnosus GG* (LGG) is especially well researched for its positive effects on the intestinal tract. Yet, discussions about probiotics would not be complete without mentioning one of their lesser known properties: building a strong immune system.

Although most people think of blood cells as powering the immune system, the gut is actually the body's largest immune organ. Research has demonstrated that certain probiotic bacteria can influence the human

intestinal cells' production of secretory IgA and intestinal mucus, both of which serve as an immunological envelope stopping harmful organisms from entering the body through the bowel wall.

When we are born our gastrointestinal tracts are sterile, but throughout the first year of life, they become populated with bacteria. During that time, the environment in which we live and the nutrients we consume influence the types of bacteria our bodies recognize as "normal" and this then directs how our immune system develops.

Continued on page 5

Bilberry and Black Currants

Continued from front page

Bilberries and black currants are a particularly rich source of anthocyanosides. Bilberries, which are related to blueberries, have a high antioxidant content. Black currants, a popular fruit in Europe, is a powerful source of antioxidants—even more so than blueberries—and has four times the amount of vitamin C than oranges and more potassium than bananas. Black currants also have an extremely high anthocyanosides' content. This article will address potential uses for bilberry and black currants.

Ocular Advantages

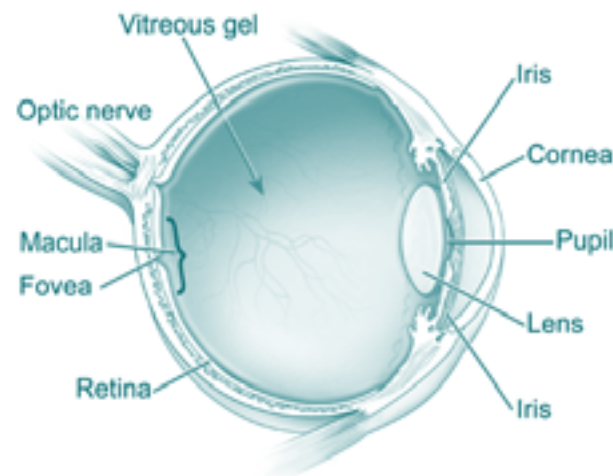
The anthocyanosides found in bilberries are drawn to the retina's visual purple area. This area of the eye controls vision and adjustments to various lighting conditions. It is thought that anthocyanosides, by their presence in the retina, provide ocular nourishment.

During World War II, French researchers noted Bilberry extract's ability to strengthen eye health when it was given to Royal Air Force pilots. When given bilberry extract, these subjects experienced improved night vision, faster adjustment to darkness, and faster restoration of visual acuity after they were exposed to glare.¹ Many subsequent studies achieved similar results.²⁻³

Researchers have proposed that bilberry extract's effects might be more pronounced in individuals with impaired visual acuity

since studies of bilberry extract on subjects with retinitis pigmentosa³ and hemeralopia (inability to see directly in bright light)⁴ resulted in a significant improvement in visual performance.

Because bilberry enhances collagen structures through the inhibition of free radicals, it also has proved supportive in human studies of glaucoma patients. Researchers believe that the integrity of the aging eye is weakened and that it



undergoes a reduction in tensile strength, causing an increase in intraocular pressure and the peripheral vision loss that occurs in glaucoma. Because bilberry stops collagen breakdown, researchers have investigated its effects in glaucoma. In one study, eight glaucoma patients given a single oral dose of 200 mg bilberry anthocyanosides experienced noteworthy improvement.⁵

Studies have shown that bilberry may play an equally supportive role in stopping cataract development. In 50 patients with senile cortical cataracts, 180 mg, twice per day of bilberry extract combined with vitamin E resulted in arrested cataract formation in 48 of the 50 subjects.⁶

Another form of ocular disorder in which bilberry has been investigated is diabetic retinopathy. Several clinical studies support its use in diabetics with this condition. One month-long, double-blind study of participants with diabetic and/or hypertensive retinopathy investigated the effects of bilberry extract compared to a placebo. Researchers observed significant improvement in the interior of the eye in 11 of the 14 subjects receiving bilberry. Furthermore, 12 patients experienced an improvement in the function of blood vessels of the eye.⁷

Researchers believe that the reason why bilberry-derived anthocyanosides have shown such results in studies of diabetic retinopathy is because of their ability to affect the synthesis of connective tissue. In diabetic retinopathy, connective tissue synthesis is abnormally increased to help the eye repair leaking capillaries and form new capillaries. Human studies have shown that anthocyanosides decrease biosynthesis-activity of connective tissue, helping to prevent injuries in diabetic eyes.⁸

Scientists also have begun studying black currant for its visual effects. In a double-blind, placebo-controlled, crossover study of healthy human subjects, researchers investigated black currant's effects on several factors: 1) the ability of eyes to adjust to the dark 2) the negative effects on vision that occurs after using a video display terminal and 3) subjective symptoms of weakness or tiring of the eyes accom-

panied by pain, headache and dimness of vision (asthenopia). In the study of dark adaptation, researchers gave 12 subjects a 12.5 mg, 20 mg or 50 mg dose of black currant. In each of these groups, the ability of eyes to adapt to the dark improved, although the 50 mg dose had the largest effect. In the study with the video display terminal, 21 subjects who received 50 mg of black currant anthocyanosides experienced no decline in visual health after using the computer, whereas the placebo group's visual health declined. When the researchers assessed the subjective symptoms of asthenopia by administering a questionnaire, they noted significant symptom improvement in the subjects.⁹

Cardiovascular Support

The anthocyanosides in bilberries and black currants have a number of interesting effects on the heart. Both bilberries and black currants can play an important role in improving the health of the body's microcirculation. Although it is usually macrocirculation—the network of arteries and larger blood vessels—that receives a great deal of attention, microcirculation—the smaller blood vessels and

Vol. 21 • Number 7

JULY 2007



Vitamin Research News

Complementary Prescriptions™ Edition

Publisher

Robert Watson

Medical Editor

Ward Dean, MD

Editor

Kimberly Pryor

Contributors

Chris D. Meletis, ND
Rose Young, MS, RN
Nieske Zabriskie, ND
Tina Sampalis, MD, PhD

How to reach us: Call 1-888-401-0967; e-mail to: info@cpmedical.net; visit our website at www.cpmedical.net; or write to: VRP, 4610 Arrowhead Drive, Carson City, NV 89706.

The information in this newsletter is not intended to provide personal medical advice, which should be obtained from a medical professional, and has not been approved by the U.S. FDA.



© 2007 by Vitamin Research Products®, Inc. (VRP®) The use of information found in Vitamin Research News for commercial purposes is prohibited without written permission from VRP®. Subscriptions are available for \$79.00 per year (international \$89.00).





Bilberry plant



Black Currant plant

capillary system—is equally important. Because atherosclerosis is a systemic disease, patients who experience it have both damaged macrocirculation (large blood vessels) and microcirculation (small vessels and capillaries).

A rodent study showed that black currants can improve the function of smooth muscle in the aorta. In the animals given black currant concentrate, there occurred a relaxation of the aorta, indicating black currant improved blood flow.¹⁰

Improving the body's microcirculation can be especially helpful for people with venous insufficiency and varicose veins. Animal studies of bilberry show that it helps decrease vascular permeability and improve vascular tone and blood flow.¹¹

In humans, clinical trials have reached similar conclusions. One such study involved 15 patients with polyneuritis due to peripheral vascular insufficiency. Researchers gave the subjects 480 mg per day of bilberry extract and noted significant improvement in microcirculation in the subjects.¹² The same dose of bilberry extract in 47 patients who suffered from venous diseases resulted in an elimination of the microstagnation that occurs in the vessels in these patients and increased blood flow in the foot.¹¹ A review of uncontrolled trials on bilberry that involved 568 patients with venous insufficiency of the lower limbs added further support for bilberry's vein-enhancing actions. The review found that bilberry extract rapidly decreased symptoms and improved both venous microcirculation and lymph drainage.¹³ Other studies have confirmed that anthocyanosides can reduce capillary fragility.¹⁴

Another way in which bilberry extract supports circulatory system health is by virtue of its ability to stop blood platelets from sticking together. It has demonstrated this effect in humans when given at doses of 480 mg per day for 30 to 60 days.¹⁵

Furthermore, bilberry extract protects LDL cholesterol from oxidation. In the body, when lipids oxidize, it initiates the atherosclerosis process. Even small amounts of bilberry extract have strongly inhibited LDL oxidation, leading researchers to suggest that bilberry may be even more powerful than ascorbic acid in stopping the initiation of this destructive process.¹⁶

Immune Enhancement

Beyond their heart-protective and vision-enhancing abilities, anthocyanosides appear to have an equally strong effect on the immune system. In particular, researchers have studied black currant for its antiviral, antifungal, antibacterial and antimutagenic actions and its ability to stimulate immune cells.

Black currant may stop *H. pylori*, the bacterium thought to cause ulcers and gastric cancer, from adhering to the gastric mucosa in humans.¹⁷

Another *in vitro* study investigating black currant's antiviral actions found that it completely stopped the herpes simplex virus from attaching to the cell membrane.¹⁸ Black currant has been equally effective during *in vitro* studies at inhibiting influenza A and B viruses. Black currant inhibited the virus release from infected cells and inhibited virus adsorption to cells.¹⁹⁻²⁰

Help for Hyperglycemia

Bilberry has a long history of traditional use to help support healthy blood sugar levels. In studies of dogs, oral administration of bilberry reduces hyperglycemia even when the dogs are given bilberry together with glucose injections. The blood-sugar-lowering component of bilberry is thought to be the anthocyanoside known as myrtillin. Bilberry extracts also are thought to protect against some of the neurological complications of diabetes by virtue of

Continued on page 4

The President's Desk

Purity Over Profit

Many of you may have read a recent Associated Press article that called attention to the harmful ingredients in products from toothpaste to pet food, particularly Chinese imports. After reading the article, many consumers walked away with the impression they're being cheated by nutritional supplement and food companies who intentionally put bogus ingredients in their products.

I want to assure every one of you that we have some of the most rigorous quality control standards within the industry. Prior to acceptance of raw materials, we validate their identity, purity and strength. Next, all received ingredients are quarantined and sampled for analysis in our quality control laboratory. Incoming materials are tested using a high-tech near infrared scanner called FT-NIR normally only found in the pharmaceutical industry. Any material that doesn't pass quality scrutiny causes us to conduct an in-depth investigation of both the material and the supplier.

When an ingredient has met our high standards we release it for formulation. Even at this stage our quality control team continues to monitor the manufacturing process using the FT-NIR machine to assure that the weighing and blending of ingredients produced the formula instructed by our science team. Using precise equipment, the formulas are encapsulated to create the proper dosage and uniformity of material from capsule to capsule. From here, quality control carefully monitors inspection, bottling and labeling to assure the proper product is in the bottle. A final audit using a multitude of tests further helps ensure product quality. Finally, only after we're certain the product meets our strict standards do we release it for sale.

My family and I are our company's most devoted consumers. I regularly give my young daughter our nutritional supplements. Therefore, quality control is as important to my family as it is to yours. Here purity and safety will always take priority over profit.

**Robert Watson
President/CEO**

Bilberry and Black Currants

Continued from page 3

their ability to improve collagen integrity, stabilize capillary permeability and inhibit sorbitol accumulation.²¹

Multi-Functional Nutrients

Researchers have investigated a number of other interesting properties of bilberry and black currant. New science shows that black currant may be especially useful in today's society where many people spend much of the day in front of a computer. In a double-blind, placebo-controlled study in humans performing typing tasks, black currant anthocyanosides improved shoulder stiffness in the subjects by increasing peripheral blood flow and reducing muscle fatigue.²² Black currants have demonstrated powerful anti-inflammatory effects²³ and have inhibited the growth of tumor cells in mice.²⁴ Black currants also may reduce risk factors associated with kidney stone formation, due to their alkalizing effect.²⁵

Bilberries are equally powerful anti-inflammatory agents that have reduced symptoms of experimental rheumatoid arthritis in rodents.²⁶ In women with painful periods (dysmenorrhea), bilberry extract given three days before and during menstruation resulted in significant improvement in pelvic pain, breast tension, nausea, and lower-limb heaviness.²⁷ In animals, bilberry decreased the incidence and severity of experimentally induced ulcers.²⁸

Eye-Supporting Nutrients

Bilberry and black currants work synergistically with other eye-supporting nutrients such as carnosine, taurine, N-acetyl cysteine, ginkgo biloba, lutein, R-lipoic acid and quercetin. Bilberry is particularly effective when teamed up with lutein and zeaxanthin as each of these nutrients have been shown to be important to the health of the macula of the eye. Age-related macular degeneration (AMD) is thought to be the result of a lifetime of oxidative insult that results in photoreceptor death within the macula. Because lutein and zeaxanthin are important antioxidants, increased risk of AMD may result from low levels of these nutrients in the diet, serum or retina combined with excessive exposure to sun light.

Although consumption of lutein and zeaxanthin is best known for the reduced risk

of AMD, studies also are now linking their consumption to a reduced risk of cataracts. One group of researchers studied 899 subjects and determined that the highest levels of plasma zeaxanthin was significantly associated with reduced risk of AMD, nuclear cataract and any cataract. The highest combined plasma lutein and zeaxanthin levels were significantly associated with a reduced risk of AMD.²⁹ Therefore, combining bilberry with these and other eye-supporting nutrients can prove useful in maintaining ocular health.

“Bilberry and Black Currant also serve as powerful antioxidants and promote good circulation.”

Increasing Anthocyanosides Intake

Because the active components in bilberry and black currant are the anthocyanosides, choosing a supplement that contains a high concentration of these plant pigments is important. A new formulation provides both 80 mg of bilberry extract delivering 25 percent anthocyanosides per capsule together with 40 mg of a high-ORAC black currant. ORAC is a measure of a substance's antioxidant capacity, indicating the black currant found in the supplement is particularly effective at fighting free radicals.

References

1. Terrasse J, Moïnade S. Premiers resultats obtenus avec un nouveau facteur vitaminiqne P "les anthocyanosides" extraits du *Vaccinium myrtillus*. Presse Med. 1964;72:397-400.
2. Sala D, Rolando M, Rossi PL, Pissarello L. Effect of anthocyanosides on visual performances at low illumination. Minerva Ophthalmol. 1979;21:283-85.
3. Gloria E, Peria A. Effect of anthocyanosides on the absolute visual threshold. Ann Ottalmol Clin Ocul. 1966;92:595-607.
4. Junemann G. On the effect of anthocyanosides on hemeralopia following quinine poisoning. Klin Monatsbl Augenheilkd. 1967;151:891-96.
5. Caselli L. Clinical and electroretinographic study on activity of anthocyanosides. Arch Med Int. 1985;37:29-35.
6. Bravetti G. Preventive medical treatment of senile cataract with vitamin E and anthocyanosides: clinical evaluation. Ann Ottalmol Clin Ocul. 1989;115:109.
7. Perossini M, et al. Diabetic and hypertensive retinopathy therapy with *Vaccinium myrtillus* anthocyanosides (Tegens): Double-blind placebo controlled clinical trial. Ann Ottalmol Clin Ocul. 1987;113:1173.
8. Boniface R, Robert AM. Effect of anthocyanins on

human connective tissue metabolism in the human. Klin Monatsbl Augenheilkd. 1996 Dec;209(6):368-72.

9. Nakaishi H, Matsumoto H, Tominaga S, Hirayama M. Effects of black current anthocyanoside intake on dark adaptation and VDT work-induced transient refractive alteration in healthy humans. Altern Med Rev. 2000 Dec;5(6):553-62.
10. Nakamura Y, Matsumoto H, Todoki K. Endothelium-dependent vasorelaxation induced by black currant concentrate in rat thoracic aorta. Jpn J Pharmacol. 2002 May;89(1):29-35.
11. Colantuoni A, Bertuglia S, Magistretti MJ, Donato L. Effects of *Vaccinium myrtillus* anthocyanosides on arterial vasomotion. Arzneim Forsch. 1991;41:905-9.
12. Lietti A, Cristoni A, Picci M. Studies on *Vaccinium myrtillus* anthocyanosides. I. Vasoprotective and anti-inflammatory activity. Arzneim Forsch. 1976;26:829-832.
13. Pennarola R, et al. The therapeutic action of the anthocyanosides in microcirculatory changes due to adhesive-induced polyneuritis. Gazz Med Ital. 1980;139:485-91.
14. Mian E, Curri SB, Lietti A, Bombardelli E. Anthocyanosides and the walls of the microvessels: further aspects of the mechanism of action of their protective effect in syndromes due to abnormal capillary fragility. Minerva Med. 1977 Oct 31;68(52):3565-81.
15. Puilleiro G, et al. Ex vivo study of the inhibitory effects of *Vaccinium myrtillus* anthocyanosides on human platelet aggregation. Fitoterapia. 1989;60:69-75.
16. Laplaud PM, Lelubre A, Chapman MJ. Antioxidant action of *Vaccinium myrtillus* extract on human low density lipoproteins in vitro: initial observations. Fundam Clin Pharmacol. 1997;11:35-40.
17. Lengsfeld C, Deters A, Faller G, Hensel A. High molecular weight polysaccharides from black currant seeds inhibit adhesion of *Helicobacter pylori* to human gastric mucosa. Planta Med. 2004 Jul; 70(7):620-6.
18. Suzutani T, Ogasawara M, Yoshida I, Azuma M, Knox YM. Anti-herpesvirus activity of extract of *Ribes nigrum* L. Phytother Res. 2003 Jun;17(6):609-13.
19. Knox YM, Suzutani T, Yosida I, Azuma M. Anti-influenza activity of crude extract of *Ribes nigrum* L. Phytother Res. 2003 Feb;17(2):120-2.
20. Acta Virol. 2001;45(4):209-15. Activity of anthocyanins from fruit extract of *Ribes nigrum* L. against influenza A and B viruses. Knox YM, Hayashi K, Suzutani T, Ogasawara M, Yoshida I, Shiina R, Tsukui A, Terahara N, Azuma M.
21. Bever B, Zahnd G. Plants with oral hypoglycemic action. Quart J Crude Drug Res. 1979;17:139-196.
22. Matsumoto H, Takenami E, Iwasaki-Kurashige K, Osada T, Katsumura T, Hamaoka T. Effects of blackcurrant anthocyanin intake on peripheral muscle circulation during typing work in humans. Eur J Appl Physiol. 2005 May;94(1-2):36-45.
23. Garbacki N, Tits M, Angenot L, Damas J. Inhibitory effects of proanthocyanidins from *Ribes nigrum* leaves on carrageenin acute inflammatory reactions induced in rats. BMC Pharmacol. 2004 Oct 21;4(1):25.
24. Takata R, Yamamoto R, Yanai T, Konno T, Okubo T. Immunostimulatory effects of a polysaccharide-rich substance with antitumor activity isolated from black currant (*Ribes nigrum* L.). Biosci Biotechnol Biochem. 2005 Nov;69(11):2042-50.
25. Kessler T, Jansen B, Hesse A. Effect of blackcurrant-, cranberry- and plum juice consumption on risk factors associated with kidney stone formation. Eur J Clin Nutr. 2002 Oct;56(10):1020-3.
26. Rao CN, Rao VH, Steinman B. Influence of bioflavonoids on the collagen metabolism in rats with adjuvant induced arthritis. Ital J Biochem. 1981;30:54-62.
27. Colombo D, Vescovini R. Controlled trial of anthocyanosides from *Vaccinium myrtillus* in primary dysmenorrhea. G Ital Ost Ginecol. 1985;7:1033-1038.
28. Magistretti MJ, Conti M, Cristoni A. Antitumor activity of anthocyanidin from *Vaccinium myrtillus*. Arzneim Forsch. 1988;38:686-90.
29. Delcourt C, Carriere I, Delage M, Barberger-Gateau P, Schalh W. Plasma lutein and zeaxanthin and other carotenoids as modifiable risk factors for age-related maculopathy and cataract: the POLA Study. Invest Ophthalmol Vis Sci. 2006 Jun;47(6):2329-35.

Lactobacillus

Continued from front page

Consequently, from the moment we are born, our intestinal tracts play a vital role in how we will ultimately cope with the dangerous bacteria and viruses our bodies are exposed to daily.

The hygiene hypothesis, a relatively new notion in the world of medicine, proposes that a lack of adequate immune system exposure early in life is in part related to the increasing incidence of asthma and various allergic disorders. This observation grew from the fact that researchers recognized that children in daycares and those born in less sanitary environments had a much lower incidence of allergic conditions. There's even some indication that exposure to abnormal gut bacteria for the first year of life may be associated with irritable bowel syndrome as an adult.

In this article, I will explain how the probiotic LGG can help strengthen not only digestive health but also the immune system. Furthermore, I will explain why taking the wrong strain of probiotic can be just as useless as not taking any probiotics at all.

Nourishing Our Digestive Systems

LGG's most well known effects revolve around its ability to influence digestive tract health. As a pediatric nurse practitioner at the University of Nebraska Medical Center, I became involved in a number of research projects in the 1990s that investigated the gastrointestinal effects of LGG. One of our most interesting studies involved LGG's effects on antibiotic-associated diarrhea in children. A team of investigators and myself randomized the children (ages newborn to 12 years) who were receiving antibiotics into two groups. One group received the

antibiotics with a placebo, the other group received the antibiotics with LGG. The results of our placebo-controlled, randomized study indicated that children who received LGG not only had fewer episodes of diarrhea but their stools were less likely to become loose compared to the children who did not receive the probiotic.

The success of our first study led to other studies that investigated how LGG influenced community-acquired viral diarrhea in infants attending daycare. In a multi-centered trial in European countries, researchers investigated LGG's effects on viral diarrhea because they knew that other researchers had obtained similar results with LGG in children suffering from diarrhea in third-world countries. These studies indicated that LGG was particularly helpful with rotavirus infections, a common cause of diarrhea, by decreasing the duration of loose stools by at least one day.¹

Recently, a medical literature review confirmed these results. The review, which looked at randomized, double-blind, placebo-controlled trials, found that use of probiotics was associated with a significantly reduced risk of diarrhea lasting three days, but only Lactobacillus GG showed a consistent effect. LGG significantly reduced the duration of diarrhea when compared with placebo, particularly in rotavirus-caused diarrhea.² Other studies also have demonstrated that giving LGG to healthy children is beneficial in preventing the acquisition of viral diarrhea. LGG was not effective in bacterial diarrhea, however, although other probiotic strains may be useful in this case.

Studies in adults have reached similar conclusions. In subjects taking antibiotics to eradicate the ulcer-causing bacterium *Helicobacter pylori*, LGG significantly

reduced side effects such as bloating, diarrhea and taste disturbances that occur with antibiotic therapy.³

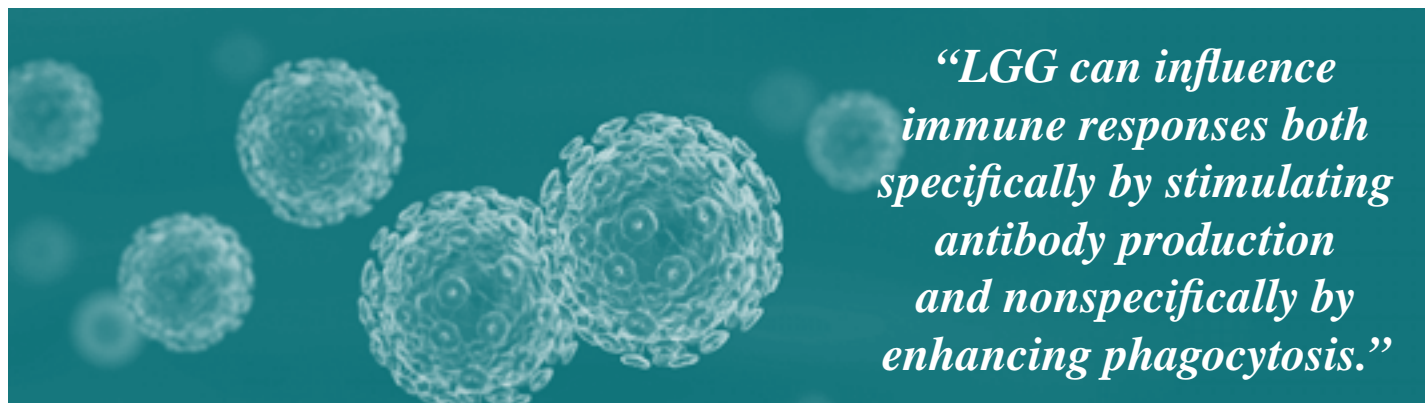
In subjects with ulcerative colitis who underwent a proctocolectomy (the surgical removal of the rectum and all or part of the colon), Lactobacillus rhamnosus GG reduced the occurrence of a typical complication known as pouchitis. This complication occurs when the artificially created pouch becomes acutely inflamed. LGG had, according to the researchers, "a significant clinical benefit" in patients suffering from this condition.⁴

LGG and Immunity

Lactobacillus rhamnosus GG has been studied extensively for its immune-enhancing properties. LGG can influence immune responses both specifically by stimulating antibody production and non-specifically by enhancing phagocytosis, one of the processes by which the body destroys foreign invaders. LGG also modifies production of cytokines, proteins important in the immune response.

In a double-blind, crossover study, researchers investigated whether LGG could affect the immune system in dairy-hypersensitive adults and healthy adults not sensitive to dairy. Both dairy-sensitive and dairy-non-sensitive subjects were given either milk alone or milk with LGG. When the dairy-sensitive subjects were given milk without the probiotic, the milk-induced an inflammatory response. However, LGG eliminated this inflammatory response in the milk-sensitive subjects to a significant degree. Moreover, in the healthy subjects, in whom milk did not trigger an inflammatory response, the LGG stimulated the immune system.⁵

Continued on page 13



“LGG can influence immune responses both specifically by stimulating antibody production and nonspecifically by enhancing phagocytosis.”

Multiple Sclerosis: Natural Strategies to Enhance Quality of Life

by Nieske Zabriskie, ND

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS). It is characterized by loss of myelin, the fatty tissue that surrounds and protects nerve fibers allowing them to conduct electrical impulses. Scar tissue, or sclerosis, forms at the sites of demyelination and destruction of nerve fibers known as axons also occurs. It is estimated that 266,000 individuals in the U.S. have MS.¹

The cause of MS is unknown, but evidence suggests genetic, environmental, immunologic, and infectious agents may be involved. At this time, MS is presumed to be an autoimmune disease that develops in genetically susceptible individuals upon activation of some unknown environmental trigger. Several risk factors have been associated with MS. Some studies indicate that female gender, tobacco smoking, presence of the human leukocyte antigen (HLA) DR2, and previous infection with Epstein-Barr virus (EBV) are risk factors for MS.² Also, living in northern latitude, and individuals of northern European descent are at increased risk suggesting a possible link with vitamin D and sun exposure. It is apparent that genetics plays a role in the development of MS, based on an increased risk in siblings of individuals with MS, as well as an increased rate in monozygotic twins compared to dizygotic twins.³ A great deal of research is being done to determine the gene or genes that cause susceptibility.

Additionally, numerous infectious agents have been associated with MS and are currently being investigated. Evidence indicates that infectious mononucleosis caused by the Epstein-Barr virus increases the risk of MS, and that increased risk persists for at least 30 years after infection.⁴ Also, Varicella zoster viral DNA has been detected more frequently in individuals with MS, and found in 43.5 percent of individuals with relapsing-remitting MS. In addition, the results of this study indicated that JC virus and human herpes virus-6 (HHV-6) were replicating actively in the CNS in some individuals with MS.⁵

Although there are conflicting studies, some research also suggests that there is a link between the recombinant hepatitis B vaccine and increased risk of developing MS.⁶

Individuals with MS exhibit a variety of symptoms and the condition can present as a relapsing-remitting disease course, a progressive disease course, or a combination. Symptoms may include difficulty walking, problems with balance and coordination, dizziness or vertigo, depression or emotional changes, fatigue, numbness, cognitive impairment, bladder or bowel problems, pain, vision loss, and muscle spasticity.

“Studies have shown a 40 percent reduction in the risk of developing MS with vitamin D supplementation.”

MS patients have increased circulating T-cell, a type of white blood cell, and antibody reactivity to myelin proteins. T-cells cross the blood-brain barrier and attack the myelin sheath as well as secrete chemicals that damage nerve fibers known as axons. The neurodegeneration includes both destruction of nerve axons and programmed cell death (apoptosis) of the nerve cell bodies.

Building an MS Supplement Regimen

Calcium AEP

Calcium 2-amino ethyl phosphoric acid (Calcium AEP) is a calcium derivative important for maintaining cell membrane integrity. It also modulates other cellular functions such as decreasing cellular permeability to harmful substances, increasing cellular transport of required cell nutrients, and maintaining nerve conductivity by retaining electrical charges of ions on the cell membrane. Studies show that calcium

AEP supports the health of individuals with MS. One study showed that 82 percent of MS patients had positive results with calcium AEP and as many as 92 percent showed positive results when the supplementation began early in the disease process. Some positive benefits reported include improved kidney function and bone integrity, increased tissue elasticity, and decreased appearance of aging.⁷

Vitamin D

Studies indicate that in MS subjects with increased disability have insufficient levels of vitamin D as well as decreased exposure to sunlight, which is required for vitamin D activation.⁸ In addition, research shows that higher levels of vitamin D are associated with decreased risk of developing MS.⁹ Experimental animal models of MS indicate that supplementation with vitamin D decreases disease development and progression. In fact, some studies have shown a 40 percent reduction in the risk of developing MS with vitamin D supplementation.¹⁰

Additional Vitamins and Nutrients

Several vitamins have been shown to be sub-optimal in patients with MS. Vitamin B12, important for myelin formation, regulates the immune system and is often low in individuals with MS.¹¹ Studies also indicate that homocysteine levels are increased in MS patients with lower levels of B12 and folate. In addition, research has shown low levels of the antioxidant vitamins beta carotene, retinol, alpha tocopherol and ascorbic acid in serum or cerebrospinal fluid of MS patients.¹²

Lipoic Acid

Alpha lipoic acid (ALA) is an antioxidant and coenzyme required for several biochemical pathways. Several studies indicate that supplementation with ALA in animal models of MS suppresses disease progression as well as decreases demyelination and T-cell infiltration into the CNS.¹³ Additional research indicated that not only does ALA decrease T-cell migration, but it also stabilizes the dysfunctional blood-

brain barrier and inhibits permeability caused by reactive oxygen species.¹⁴ Human studies indicate that ALA is well tolerated and decreases markers for MS inflammation as well.¹⁵

Essential Fatty Acids

Supplementation with essential fatty acids (EFA) from fish oil, flax seed oil (Alpha-linolenic acid) and borage seed oil (Gamma-linolenic acid) has been shown to improve the health of individuals with MS. EFAs compete with pro-inflammatory pathways leading to a decrease in inflammatory mediators, suppression of B- and T-lymphocyte synthesis, and decreases in antibody production. Animal models of MS indicate that oral supplementation with linoleic acid, an omega-6 fatty acid that is a precursor to GLA, significantly decreased the incidence and relapse of experimental autoimmune encephalomyelitis.¹⁶ One study demonstrated that the combination of low-fat diet and supplementation of omega-3 fatty acids decreased fatigue in patients with MS as well as decreased the relapse rate.¹⁷ Another study found decreased levels of linoleic acid concentrations in white blood cells and platelets in subjects with MS.¹⁸ Also, studies show lower plasma omega-3 fatty acids and lower red blood cell linoleic acid in MS subjects.¹⁹

Hormone Balancing

Researchers suggest that hormones influence the duration and severity of central nervous system autoimmunity. Evidence indicates that males with MS have abnormally low testosterone. Animal models demonstrate low levels of testosterone and increased luteinizing hormone in males. Additionally, there was an inverse relationship between testosterone and levels of inflammatory mediators.²⁰

Research indicates that estrogen levels also play a role in severity of MS symptoms. In one study, researchers administered a questionnaire enquiring about changes in severity of symptoms of multiple sclerosis with the menstrual cycle, menopause and use of hormone replacement therapy. Eleven premenopausal and 19 postmenopausal women participated in the study. Of the women undergoing menopause, 82 percent reported an increase in the severity of MS symptoms premenstrually. Of the postmenopausal women, 54 percent reported a worsening of MS symptoms once they had

undergone menopause and 75 percent of those who had tried hormone replacement therapy reported an improvement.²¹

Studies indicate that low-dose estradiol may be beneficial for individuals with MS. Animal models show that low dose estradiol inhibits T-cell migration into the central nervous system and exhibits neuroprotective effects that promote axon and myelin survival.²² In addition, the androgen dehydroepiandrosterone (DHEA) is significantly lower in MS patients and supplementation may be indicated.²³ Salivary hormone testing for estrogen, testosterone, and DHEA may provide useful information to augment MS therapies.

Naltrexone

Naltrexone is a pharmaceutical used for numerous conditions such as drug addiction, cancer, and autoimmune diseases. It acts by blocking opioid receptors, which is believed to modulate the immune response. When prescribed at a low dose, naltrexone has been shown to dramatically decrease relapses and disease progression in 98-99 percent of patients with MS.²⁴

Conclusion

Multiple sclerosis is a complex, chronic disease of unknown origin. Currently, it is believed to be an autoimmune disease that develops in genetically susceptible individuals upon activation of some unknown environmental trigger. Studies using calcium AEP, vitamin D, vitamin B12, essential fatty acids, and lipoic acid suggest all of these substances have a great deal of potential in supporting the health of individuals with MS.

References

1. Hirtz D, Thurman DJ, Gwinn-Hardy K, Mohamed M, Chaudhuri AR, Zalutsky R. How common are the "common" neurologic disorders? *Neurology*. 2007 Jan 30;68(5):326-37.
2. Nielsen TR, Pedersen M, Rostgaard K, Frisch M, Hjalgrim H. Correlations between Epstein-Barr virus antibody levels and risk factors for multiple sclerosis in healthy individuals. *Mult Scler*. 2007 Apr;13(3):420-3.
3. Oksenberg JR, Barcellos LF. The complex genetic aetiology of multiple sclerosis. *J Neurovirol* 2000 May;6 Suppl 2:S10-4.
4. Nielsen TR, Rostgaard K, Nielsen NM, Koch-Henriksen N, Haahr S, Sørensen PS, Hjalgrim H. Multiple sclerosis after infectious mononucleosis. *Arch Neurol* 2007 Jan;64(1):72-5.
5. Mancuso R, Delbue S, Borghi E, Paganì E, Calvo MG, Caputo D, Granieri E, Ferrante P. Increased prevalence of varicella zoster virus DNA in cerebrospinal fluid from patients with multiple sclerosis. *J Med Virol* 2007 Feb;79(2):192-9.
6. Hernán MA, Jick SS, Olek MJ, Jick H. Recombinant hepatitis B vaccine and the risk of multiple sclerosis: a prospective study. *Neurology* 2004 Sep 14;63(5):838-42.

7. Dean W, English J. Calcium AEP, Membrane Integrity Factor Aids Treatment of Multiple Sclerosis, Asthma and Osteoporosis. Available at: <http://www.vrp.com/articles.aspx?ProdID=art254&zTYPE=2>. Accessed on 06-10-07.
8. van der Mei IA, Ponsoy AL, Dwyer T, Blizard L, Taylor BV, Kilpatrick T, Butzkuven H, McMichael AJ. Vitamin D levels in people with multiple sclerosis and community controls in Tasmania, Australia. *J Neurol* 2007 May;254(5):581-90. Epub 2007 Apr 11.
9. Munger KL, Levin LI, Hollis BW, Howard NS, Ascherio A. Serum 25-hydroxyvitamin D levels and risk of multiple sclerosis. *JAMA*. 2006 Dec 20;296(23):2832-8.
10. Brown SJ. The role of vitamin D in multiple sclerosis. *Ann Pharmacother* 2006 Jun;40(6):1158-61. Epub 2006 May 9.
11. Miller A, Korem M, Almog R, Galboiz Y. Vitamin B12, demyelination, remyelination and repair in multiple sclerosis. *J Neurol Sci* 2005 Jun 15;233(1-2):93-7.
12. Besler HT, Comoglu S. Lipoprotein oxidation, plasma total antioxidant capacity and homocysteine level in patients with multiple sclerosis. *Nutr Neurosci* 2003 Jun;6(3):189-96.
13. Morini M, Roccatagliata L, Dell'Eva R, Pedemonte E, Furlan R, Minghelli S, Giunti D, Pfeffer U, Marchese M, Noonan D, Mancardi G, Albini A, Uccelli A. Alpha-lipoic acid is effective in prevention and treatment of experimental autoimmune encephalomyelitis. *J Neuroimmunol* 2004 Mar;148(1-2):146-53.
14. Schreibelt G, Musters RJ, Reijerkerk A, de Groot LR, van der Pol SM, Hendriks EM, Dopp ED, Dijkstra CD, Drukarch B, de Vries HE. Lipoic acid affects cellular migration into the central nervous system and stabilizes blood-brain barrier integrity. *J Immunol* 2006 Aug 15;177(4):2630-7.
15. Yadav V, Marracci G, Lovera J, Woodward W, Bogardus K, Marquardt W, Shinto L, Morris C, Bourdette D. Lipoic acid in multiple sclerosis: a pilot study. *Mult Scler* 2005 Apr;11(2):159-65.
16. Harbige LS, Layward L, Morris-Downes MM, Dumonde DC, Amor S. The protective effects of omega-6 fatty acids in experimental autoimmune encephalomyelitis (EAE) in relation to transforming growth factor-beta 1 (TGF-beta1) up-regulation and increased prostaglandin E2 (PGE2) production. *Clin Exp Immunol* 2000 Dec;122(3):445-52.
17. Weinstock-Guttman B, Baier M, Park Y, Feichter J, Lee-Kwen P, Gallagher E, Venkatraman J, Meksawan K, Deinehart S, Pendergast D, Awad AB, Ramanathan M, Munschauer F, Rudick R. Low fat dietary intervention with omega-3 fatty acid supplementation in multiple sclerosis patients. *Prostaglandins Leukot Essent Fatty Acids* 2005 Nov;73(5):397-404.
18. Fisher M, Johnson MH, Natale AM, Levine PH. Linoleic acid levels in white blood cells, platelets, and serum of multiple sclerosis patients. *Acta Neurol Scand* 1987 Oct;76(4):241-5.
19. Cunnane SC, Ho SY, Dore-Duffy P, Ellis KR, Horrobin DF. Essential fatty acid and lipid profiles in plasma and erythrocytes in patients with multiple sclerosis. *Am J Clin Nutr* 1989 Oct;50(4):801-6.
20. Foster SC, Daniels C, Bourdette DN, Bebo BF. Dysregulation of the hypothalamic-pituitary-gonadal axis in experimental autoimmune encephalomyelitis and multiple sclerosis. *J Neuroimmunol* 2003 Jul;140(1-2):78-87.
21. Smith R, Studd JW. A pilot study of the effect upon multiple sclerosis of the menopause, hormone replacement therapy and the menstrual cycle. *J R Soc Med* 1992 Oct;85(10):612-3.
22. Offner H, Polanczyk M. A potential role for estrogen in experimental autoimmune encephalomyelitis and multiple sclerosis. *Ann N Y Acad Sc*. 2006 Nov;1089:343-72.
23. Ramsarasing GS, Heersma DJ, De Keyser J. Serum uric acid, dehydroepiandrosterone sulphate, and apolipoprotein E genotype in benign vs. progressive multiple sclerosis. *Eur J Neurol* 2005 Jul;12(7):514-8.
24. LDN and Multiple Sclerosis. Available at: http://www.lowdosenaltrexone.org/ldn_and_ms.htm. Accessed on 06-10-07.

Proton-Pump Inhibitors: Strategies to Protect Against Potential Bone-Destroying Effects

by Chris D. Meletis, ND

Gastroesophageal reflux disease (GERD), heartburn and acid indigestion are becoming some of the most common health complaints of our time. In fact, a new review of the medical literature found a significant trend for an increase in the prevalence of reflux symptoms in the general population over time, especially in the U.S., Singapore, and China.¹

“If this trend continues,” the researchers wrote, “it could contribute to the rapidly increasing incidence of more serious complications associated with GERD, such as esophageal adenocarcinoma [cancer], as well as costs to healthcare systems and employers.”

The standard treatment for GERD and acid reflux is proton-pump inhibitors known by the brand names Aciphex®, Nexium®, Prevacid®, Prilosec® (called Losec® in Europe), and Protonix®. These pharmaceuticals work by inhibiting the generation of acid-ions known as protons.

However, the nature by which they work—reducing stomach acid—causes a number of side effects. First, when stomach acid is lowered the gastric mucosa becomes more vulnerable to certain pathogens. Salmonella, for example, is destroyed by stomach acid and lowering the levels of acid could allow this food-borne bacterium to flourish unchecked. Helicobacter pylori, another pathogen common to our digestive tract, has been linked to the development of gastritis, ulcers and stomach cancer. However, because H. pylori is killed by stomach acid, lowering levels of stomach acid can therefore make the digestive tract more susceptible to this pathogenic bug.

Proton-pump inhibitors have also been associated with a 300 percent increase in the incidence of pneumonia in elderly subjects.²

Most recently, a new study reported on another possible side effect of long-term use of proton-pump inhibitors—their potential to weaken bones. The study, which appeared in the *Journal of the American*

Medical Association (JAMA), included subjects over age 50 in Britain who were either users of proton-pump inhibitors or subjects who were not taking any kind of acid suppression drugs.

Researchers compared 13,556 subjects who had experienced a hip fracture with 135,386 controls. After controlling for all factors, including a diagnosis of GERD, the researchers found that the risk for hip fracture among patients prescribed high-dose proton-pump inhibitors (PPI) for more than 1 year was significantly increased. Furthermore, the increased risk grew stronger the longer a subject had been taking proton-pump inhibitors. Patients who took these drugs for more than one year had a 44 percent increased risk of breaking a hip. The most startling finding of the study was that taking the proton-pump inhibitors in high doses for long periods increased the risk of hip fracture by 245 percent.³

The researchers concluded, “Long-term PPI therapy, particularly at high doses, is associated with an increased risk of hip fracture.”

The effects may be particularly exaggerated, the study authors suggested, in people already at risk of osteoporosis.

The researchers theorized that because stomach acid helps the body absorb calcium, lowering stomach acid levels with proton-pump inhibitors may stop the absorption of this important bone-building mineral.

One way to maintain healthy bones is to find an alternative approach to proton-pump inhibitors. I have seen many of my acid reflux patients improve considerably after they implemented a holistic approach. For some acid reflux sufferers, however, their problem is so severe that abandoning proton-pump inhibitors isn’t an option. Therefore the remainder of this article will discuss two different approaches. First, for anyone who feels as if they must consume an acid-blocking drug I will describe ways to protect bones against the weakening effect of proton-pump inhibitors. Second,

“Long-term PPI therapy, particularly at high doses, is associated with an increased risk of hip fracture.”



I will discuss natural alternatives and lifestyle factors that can be very helpful in assisting those with acid reflux or GERD.

Natural Bone-Building Measures

Anyone consuming proton-pump inhibitors can protect the health of his or her bones by undertaking a bone-building nutritional support program.

First, supplementing with high-quality, bioavailable calcium can offset the depletion of this mineral caused by acid-blocking drugs. A recent study showed that many Americans reportedly are not meeting current calcium recommendations.⁴ Individuals who are not receiving enough calcium prior to consuming proton-pump inhibitors may be even more at risk of experiencing the bone-damaging effects of the drugs.

Calcium can be a particularly effective bone builder when combined with vitamin D. Vitamin D deficiency causes osteopenia, precipitates and exacerbates osteoporosis, causes the painful bone disease osteomalacia, and worsens proximal muscle strength and postural sway.⁵

Continued on page 12



CUSTOMER CORNER

Benign Prostatic Hypertrophy

Dear Dr. Dean,

I am a 63-year-old male with long-standing BPH. My PSA went from 1.4 to 3.1 over the last 6 months. I've noticed that my symptoms (flow rate, nighttime urination) have worsened. My urologist said my prostate has not grown in size in a year, but he is concerned with the velocity of the increase in the PSA. He wants me to take a course of antibiotic (Septra®) to rule out an infection, then do a biopsy if the PSA doesn't decrease. I have no symptoms of prostatitis.

Eighteen months ago I finished chemo/radiation for non-Hodgkin's lymphoma. The treatment significantly degraded my energy level, immune system and libido. My testosterone and DHEA levels were low so my naturopathic MD put me on AndroGel® and 20 mg per day of DHEA with very good results. Would the DHEA or testosterone cause the PSA increase? I have been using ProstaCol®, I3C, BioDIM® and recently progesterone cream (MaleBalance™ Cream). I also take a long list of immune builders such as IP6.

Mr. V.

Dear Mr. V.,

I don't think the DHEA would affect your PSA, but the AndroGel might be having that effect. Have you tracked your estrogen levels?

I noted that you are taking both I3C and BioDIM—which should presumably be helping to keep your estrogen levels down. I don't think you need both. My recommendation is to take BioDIM.

Also, if your estrogen levels are tending to the high side, I'd add the natural aromatase inhibitor Resveratrol to your regimen—and if that doesn't keep your estrogen levels where you want them, ask your physician for a prescription for Arimidex®, 1/2 to 1 mg twice per week.

You might consider discontinuing AndroGel for several months, to see if that affects your PSA, free testosterone, and estrogen levels.

I would do the above, before doing the biopsy. In the meantime, I think your physician's plan to prescribe a therapeutic challenge with Septra is appropriate.

Please let me know how you do.

Ward Dean, MD

ADD

Dear Dr. Meletis,

I just read the article "Natural Control of ADD & ADHD" on your website. In it, there are several amino acids described. In what combination are these taken? Can a child take 5-HTP and GABA together? Or are they best used alone?

My child has ADD, and has been on Adderall® for a number of years. Recently, he has been displaying Trichotillomania (hair loss caused by compulsive pulling and/or twisting of the hair until it breaks off), which may be a side effect or exacerbated because of prolonged stimulant use. He also suffers from anxiety.

Inositol is not recommended for ADD, but seems to work great for obsessive-compulsive disorder (OCD). I want to try 5-HTP or GABA. Which would you recommend? Can I use both?

Any suggestions would be helpful to point me in the right direction.

Thank you,
Ms. T.

Dear Ms. T.,

In order to best understand what nutrients your son may benefit from for his ADD/and OCD-like behavior there is a test called an *Organic Acid Metabolic Profile*. It is available here and requires a simple urine collection that is sent off to a nationally licensed lab. The results help provide insight in terms of milligram dosage and which nutrients may best meet an individual's unique biochemical need.

Typically, only one brain nutrient is given at a time with 2-4 weeks between adding an additional one. For children over the age of 12, 50 mg of 5-HTP is often used depending on other health issues. Also 100 mg of L-Theanine 2-3 times per day can help calm and increase focus in many of my patients.

Sincerely,
Chris D. Meletis, ND

COPD and Emphysema

Dear Dr. Dean,

I have Alpha 1 Antitrypsin deficiency, which has caused chronic obstructive pulmonary disease (COPD) and emphysema. I've inherited both

deficient genes. Two weeks ago I had a lung biopsy, which revealed that one nodule in my lungs is sarcoid. Would the *Advanced Inflammation Control* product be useful in keeping the inflammation in my lungs to a minimum?

Ms. A.

Dear Ms. A.,

Unfortunately, there is no known cure for sarcoid. However, there are some rational approaches that may help to ameliorate it.

I agree that *Advanced Inflammation Control* is one supplement that may help. Other suggestions include *UniZyme™*, *Forskolin Extract*, and especially *Calcium Aminoethanol Phosphate (CaAEP)*.

CaAEP is especially helpful in alleviating symptoms of emphysema. *Forskolin Extract* helps with asthma, and *UniZyme* is a powerful combination of anti-inflammatory, proteolytic enzymes.

Although none of these are specific for the cause or symptoms of sarcoid, their combined effects may help to delay the progress of this poorly understood condition.

Hope these suggestions help. Please let me know how you do.

Ward Dean, MD

Valley Fever, Sinus Infections

Dear Dr. Dean,

I have had recurring sinus and respiratory infections for several months. I also have a history of Valley Fever. I have just started taking EpiCor® and just came down with another bad fever, chills, and cough. Can I take 2 EpiCor per day? Thanks.

Ms. R.

Dear Ms. R.,

Yes, *EpiCor* can be taken in doses of 2 caps per day. Our CEO takes two per day to help guard against the immune-lowering effects of stress.

A recent study also found that *Echinacea* was effective in reducing the duration of respiratory infections in athletes so consuming *ImmunoMax* along with the *EpiCor* may offer additional support.

Ward Dean, MD

Continued on page 10



CUSTOMER CORNER

Ulcerative Colitis

Dear Dr. Meletis,

I have had ulcerative colitis for the past 10 years. However, in the last two years my condition has worsened. I have been taking prednisone (sometimes as much as 40 mg per day) or have been hospitalized in order to receive a hydrocortisone intravenous drip). I am also taking Salofalk® 500 mg x 6 tablets per day together with Imuran® 75 mg per day. I am depressed because I have tried everything but nothing seems to work. One year ago, I tried AMP Molocure but it didn't work. I began to have digestion problems. I really need help learning which alternative supplements to take because every time my prednisone is tapered down to 10 mg per day every 4 to 5 months, my ulcerative colitis relapses and I will be put on the high dose of 40 mg again.

Kindly advise me what kind of supplements I can consume that will help me.

Thanks in advance,

Ms. M.

Dear Ms. M.,

There are few conditions more frustrating or painful than inflammatory bowel conditions such as UC. The following is an approach to consider after discussion with a local doctor that is open to finding a path that will allow your health to improve at a foundational level.

I have over the years worked with many patients with these conditions and also personally know of the anguish that goes along with this territory. Here is some general information to contemplate: 1) Take a *Food Allergy Test*, although the steroids you are on may interfere with the results so that any previous strong reaction to a food may be suppressed or appear very small. Yet, even while on the steroids you might still consider it. 2) Nurture the lining of the colon with *L-Glutamine*, *Carnosine*, *DGL (CeaseFire™)*, and probiotics such as *Culturelle®*. 3) Visit with your doctor about doing a comprehensive digestive stool analysis. 4) Ensuring that you are receiving proper hydration also is very important. 5) Go on an anti-inflammatory diet that increases essential fatty acids (omega-3 oils), limit all red meats, and avoid processed carbs. In addition, supplement with fish oil (such as *Nordic Naturals*

ProOmega) to further enhance your intake of the anti-inflammatory omega-3 fatty acids. Even individuals who usually “burp up” fish oils do not have this problem with *Nordic Naturals*, so this is a good option to try. To further enhance the effects of an anti-inflammatory diet and the fish oil supplements, try either the *Inflammation Control* or *Advanced Inflammation Control* formula.

Once again, since I am not familiar with your overall health history, working with a local doctor that is open to exploring these kinds of concepts would be a definite plus.

I wish you the best.

Chris D. Meletis, ND

Cancer, Heart Medications

Dear Dr. Dean,

My husband (55 years old) had a heart attack and had angioplasty and a stent inserted in October 2006. Since then he has been diagnosed as diabetic and now has cancer—the type is currently unidentified, but appeared as a lump on the side of his neck.

I would like to know if *Poly-MVA®* would interfere with any drugs he's taking for his heart and diabetes (metoprolol, lisinopril, Plavix®, simvastatin, ActoPlus Met® [metformin], and aspirin). I would also appreciate any suggestions you have regarding treatment of his heart condition, diabetes, and especially the cancer. Thanks so much for your help!

Mrs. G.

Dear Mrs. G.,

First, *Poly-MVA* will not interfere with any of the medications that your husband is now taking.

In addition to *Poly-MVA*, I suggest that your husband consider adding *Resveratrol*, *Turmeric Extract*, *Oral ChelatoRx* and *Beta Glucan*.

Resveratrol, especially, is indicated in BOTH of your husband's conditions (cancer and cardiovascular disease). *Resveratrol* blocks all three mechanisms of cancer development, as well as offering powerful support to the cardiovascular system.

The other supplements also have multiple mechanisms of action that should be of benefit.

Ward Dean, MD

Meralgia Parasthetica

Dear Dr. Meletis,

Can you recommend nutrients for the amelioration of meralgia parasthetica episodes?

Ms. D.

Dear Ms. D.,

As you know, meralgia parasthetica is a condition characterized by pain and an increased sensitivity to stimuli on the outer femoral surface, either from a lesion or disease of the external cutaneous nerve of the thigh. This kind of pain and discomfort can be overwhelming as you are unfortunately all too aware. I typically take the approach of using *Lipoic Acid*, *Vitamin B12* and *B-Complex* (as in *Extension B-Plex*). Many MDs will also add lidocaine patches as prescribed.

Please work closely with your personal physician as you use these general suggestions as a starting point

Sincerely,

Chris D. Meletis, ND

Schizophrenia, Depression

Dear Dr. Dean,

I suffer from schizophrenia, depression and generalized anxiety. I currently take *Abilify®* and *Effexor®*. I function well to a certain extent. However, I am looking for other alternatives like vitamins and minerals to take in place of medication. Can you please help me?

Kind Regards,

Ms. F.

Dear Ms. F.,

I suggest a combination of *Extension B-Plex*, plus high-dose *Niacinamide* (a non-flushing form of *Vitamin B3*) 3 to 5 grams per day.

These supplements can be taken in addition to your medications, although you may find that you will be able to reduce your dosage of one or more of the drugs after a while on these nutrients.

Ward Dean, MD

Continued on page 11



CUSTOMER CORNER

Lupus and 5-HTP

Dear Dr. Meletis,

Is it okay to take 5-HTP if you have lupus? I've seen conflicting information.

Thank you.
Ms. R.

Dear Ms. R.,

I have patients with systemic lupus erythematosus (SLE) who use 5-HTP to assist with aches and pains while also supporting brain chemistry relative to depression or anxiety.

Sincerely,
Chris D. Meletis, ND

Anti-Coagulants

Dear Dr. Dean,

I was recently referred to your website by a friend and am very impressed by what I have read. I have a dilemma that I am currently dealing with and I would be very interested in your opinions related to it. I am male, age 63, in reasonably good health with mild hypertension, and have been told that I have some hardening of the arteries. I exercise regularly and try to eat intelligently.

In August, I had a double pulmonary embolism that was attributed to deep vein thrombosis (air travel related). The doctors tell me that I am very fortunate to be alive. The doctors installed a Greenfield Screen and put me on Coumadin®—they say for life because of the screen. I have a stabilized PT/INR range of between 2.3 to 2.5 with 2.5 mg per day of Coumadin. I exercise (aerobic and resistance) daily and have pretty much fully recovered with no lingering issues, although the clot in my leg has not totally dissolved yet. I am very concerned about the long-term warfarin/calcium issue particularly as it relates to arterial deposits. I would like to get off the stuff completely and am trying to figure out what my options may be.

I have read your information on blood thinners and have found it very informative. What are some of the areas that you would encourage me to explore to get this stuff out of my veins and still

maintain the optimum PT/INR level? Do you think that it is possible to get to that level with nutritional supplements?

I welcome your comments and suggestions. Thank you for your thoughtful consideration and willingness to share your knowledge. I am sure that you have had a positive influence on the health and well-being of many people.

Mr. C.

Dear Mr. C.,

Thank you for the kind words.

If you have read my previous answers to questions regarding nutritional anti-coagulation approaches, you know that I recommend a combination of aspirin (81 mg per day), *Oral ChelatoRx*, *Turmeric* (about 2-3 grams per day), *Resveratrol*, and fibrinolytic enzymes such as *UniZyme™* or *Nattokinase Plus* (or Natto 3X).

I suggest initiating nutritional therapy in conjunction with your physician, who is undoubtedly checking your PT/INR about every two weeks. Start with one substance at a time, and add another substance about every 2-4 weeks. Your physician will be able to carefully titrate down your Coumadin, while maintaining your bleeding parameters in a desirable range.

In addition to checking your PT/INR, I suggest he monitor your fibrinogen, as well—a major risk factor.

Please let me know how you do.

Ward Dean, MD

Rheumatoid Arthritis

Dear Dr. Meletis,

I am taking methotrexate for rheumatoid arthritis. Can I take *EpiCor™* at the same time? My rheumatoid arthritis is mild at this stage.

Ms. A.

Dear Ms. A.,

I have several patients on *EpiCor* that have RA, some that are also taking methotrexate. I am assuming you are also taking *Folic Acid*, since methotrexate inhibits the metabolism of folate, and something to protect your liver, such as *HepatoGen™*. In addition, I always have my patients with RA take a *Food Allergy Test*, so that potential immune provoking foods can be avoided.

Omega-3 fatty acids from fish oil (such

as *Nordic Naturals ProOmega*), which are natural anti-inflammatories, also have been shown to benefit RA patients.

Additionally, strengthening your gastrointestinal health with probiotics such as *Culturelle®* or *BioPro™* is important as is controlling your stress level since stress is highly linked to autoimmune conditions.

The thoughts shared above are general and should be discussed with your physician.

Sincerely,
Chris D. Meletis, ND

Performance Enhancement

Dear Dr. Dean,

I'm a 54-year-old man. I've read many claims on the web about penis size and erection duration enhancement by various products. Are the claims legitimate and does your *Natural Libido Enhancer* produce similar results?

I currently use your *Optimum 6* and *Ethyl EPA*. My doctor had me on *Prozac®* for 10 years and then changed to *Wellbutrin®* 30 days ago because of the sexual side effects associated with the *Prozac*. The sexual side effects have subsided to some degree, but I'm still not satisfied with my performance. What would you recommend?

Mr. H.

Dear Mr. H.,

I don't put much stock in the ads that claim efficacy for penis enlargers. We don't make such claims. However, the statements about enhanced libido are much more credible, as with our *Natural Libido Enhancer* product. The article, "Libido Enhancement: Botanical and Hormonal Support for Increased Satisfaction," found on our website, sums up the research on the components of *Natural Libido Enhancer*.

At your age, you might also be a candidate for testosterone replacement therapy. You might want to discuss this with your physician. As an alternative to testosterone replacement therapy, try using our *AndroAMP* formula, which is designed to support healthy testosterone levels. Supplemental testosterone can be taken in conjunction with *Natural Libido Enhancer*.

Ward Dean, MD

Proton-Pump Inhibitors

Continued from page 8

Although calcium and vitamin D often steal the lion's share of attention, vitamin K, which mediates the synthesis of proteins regulating bone metabolism, is equally important to bone health. In a recent study of vitamin K2 in 325 postmenopausal women, vitamin K2 did not affect bone mineral density, but bone mineral content and femoral neck width increased in the vitamin K2 group relative to placebo. In addition, hip bone strength remained unchanged in the vitamin K2 group during the 3-year intervention whereas in the placebo group bone strength decreased significantly.⁶

Combining Ipriflavone, a synthetic isoflavone, with vitamin K, calcium and vitamin D is another way to guard against any bone-destroying effects of acid blockers. Studies have shown that Ipriflavone is supportive in bone health, especially in estrogen deficient women. In one study of ovariectomized women, subjects taking Ipriflavone 600 mg per day plus calcium for 12 months experienced a reduction in bone-destroying processes and a stabilization of bone density and radial bone density. By comparison, subjects receiving calcium alone experienced a reduction in bone density and radial bone density.⁷

Other nutrients important for anyone taking acid blockers are the mineral strontium and omega-3 fatty acids. A recent review of the medical literature found that strontium-treated patients show large increases in bone mineral density.⁸ After studying the medical literature, the reviewers wrote that strontium "is a useful addition to the range of anti-fracture treatments available for treating postmenopausal women with osteoporosis and is the only treatment proven to be effective at preventing both vertebral and nonvertebral fractures in women aged 80 year and older."

Finally, emerging evidence indicates that omega-3 fatty acids found in fish oil increase bone mineral density and bone formation markers in mice and reduce the generation of bone-destroying osteoclasts in bone marrow cell cultures.⁹ Nordic Naturals fish oils are especially appropriate for individuals with acid reflux as they are formulated to eliminate the regurgitation

effect that occurs in some people who take standard fish oil supplements.

Natural Support for Acid Reflux

In my clinical practice, I have found that natural strategies can be quite effective in reducing or eliminating the heartburn that accompanies acid reflux and GERD. First, eliminating processed carbohydrates and sugars from the diet can offer a great deal of relief. A study in the journal *Digestive Diseases and Sciences* mirrors my clinical experience with this approach. The study

“Stomach acid declines with age, making it even more unlikely that many individuals are producing too much acid.”

indicates that obese people who restrict their carbohydrate intake can reduce the symptoms of acid reflux. Researchers studied eight obese people who were put on a low-carb diet of meat, eggs, hard cheeses and non-starch vegetables, limiting carbs to 20 grams per day. After only three to six days on this diet, subjects experienced fewer symptoms. They reported a reduced incidence of burning pain in the chest and throat, sour taste in the mouth, nausea and bloating. Furthermore, there was a shorter duration of high acidity in the lower esophagus after eating when the subjects were on the low-carb diet.¹⁰

In addition to dietary strategies, I have found that in clinical practice one of the most effective methods for decreasing acid reflux is to supplement with a combination of mastic gum and deglycyrrhizinated licorice. Mastic gum has been well studied for its anti-ulcer effects. In a double-blind controlled clinical trial on patients with symptomatic and endoscopically proven duodenal ulcers, one gram per day of mastic gum was given to 20 patients and a placebo to 18 patients over two weeks. Symptomatic relief was obtained in sixteen (80 percent) of patients given mastic and in nine (50 percent) of patients on placebo. Moreover, endoscopically proven healing occurred in fourteen (70 percent) patients

on mastic and four (22 percent) patients on placebo. The difference between treatments was highly significant.¹¹

The researchers concluded that mastic was well tolerated, that it did not produce side effects and that it has "an ulcer healing effect."

While much of the research on mastic gum revolves around its ability to support the health of patients with ulcers and its ability to inhibit the bacteria *H. pylori*, clinically it has been equally useful in patients with GERD and acid reflux.

Deglycyrrhizinated licorice has been used by people with gastric and peptic ulcers for nearly a hundred years. Licorice increases prostaglandin production in the endothelial cells of the stomach, which protects the gastric mucosa.¹²

Another strategy for controlling heartburn, acid reflux and GERD is one that surprises many sufferers of these conditions. This is because they are habitually told they need to lower their stomach acid in order to achieve improvement. However, in many instances, it is actually low stomach acid that may result in acid reflux and GERD.

Although conventional doctors assume that patients suffering from heartburn or GERD have high stomach acid, in reality physicians don't actually test patients to prove this is what's causing the condition. In fact, stomach acid is known to decline with age, making it even more unlikely that many individuals are producing too much acid.

Jonathan Wright, M.D., has monitored thousands of individuals complaining of heartburn and indigestion for stomach acid production using an extremely precise, research-verified procedure. He has almost never found overacidity in any of his patients, especially in those over age 35. Usually, tests show underacidity (from just a little under to no acid at all). (See the article *Heartburn, Indigestion, Reflux and GERD The Digestive Failure Theory of Aging* on our website.)

A successful approach therefore entails consuming a combination of hydrochloric acid (Betaine HCL), glutamic acid HCL, gentian, peppermint and pepsin. Many clinicians have successfully used this approach to reduce or eliminate acid reflux, heart-

Continued on page 17

Lactobacillus

Continued from page 5

Studies also have investigated LGG's ability to improve the efficacy of various vaccines. One group of researchers set out to study whether and how LGG affects the immune response following a booster polio vaccination as well as how LGG influences infections outside of the gastrointestinal tract in healthy adults. In the randomized, double-blind, placebo-controlled study, 64 volunteers consumed either milk without a probiotic or milk with LGG or *Lactobacillus acidophilus* for five weeks. In the second week of the study, subjects were vaccinated against polio.

In subjects given the probiotics, there was an increase in poliovirus neutralizing antibodies. In probiotic-treated subjects, there was also an increase in the immunoglobulins specific to poliovirus. The maximum increase for immunoglobulins was up to

“Human-derived probiotics, such as *Lactobacillus rhamnosus* GG, are considered superior, since human-derived products tend to be more compatible with our bodies.”

4-times higher in subjects who consumed the probiotics compared to those who consumed the placebo.⁶ A similar study done in children also demonstrated an improved response to rotavirus vaccine when the children were concurrently receiving LGG.⁷

According to the researchers, “Probiotics induce an immunologic response that may provide enhanced systemic protection of cells from virus infections by increasing production of virus neutralizing antibodies.”

New science has found that LGG can affect the immune system in a variety of populations, and that it can affect the health of parts of the body that are far removed from the intestinal tract. Building on past studies that looked at probiotics' ability to reduce intestinal inflammation in children

with cystic fibrosis, researchers in Italy conducted a randomized, placebo-controlled, cross-over study. The trial included 19 children with cystic fibrosis who received LGG in oral rehydration solution for 6 months and then shifted to a plain oral rehydration solution for 6 months. The other group of subjects received the plain oral rehydration solution first and then shifted to LGG. When the patients were given LGG, they experienced reduced pulmonary exacerbations and hospital admissions compared to when they were taking the oral rehydration solution without the LGG. Patients given LGG also experienced an improvement in the forced expiratory volume (a measurement of lung health), and an increase in body weight.⁸

The researchers concluded that the results “suggest that probiotics may delay respiratory impairment and that a relationship exists between intestinal and pulmonary inflammation.”

Choosing the Best Probiotic Strain

Probiotic products are often lumped under the same category, but it has become apparent that it actually does matter which probiotic strain an individual consumes. Human-derived probiotics, such as *Lactobacillus rhamnosus* GG, are considered superior, since human-derived products tend to be more compatible with our bodies. Certain non-human probiotics may adversely stimulate the immune system because they're perceived as foreign to the body. In some cases low-level adverse stimulation is good, such as noted with the mechanism of action of normal vaccinations. However, a person never really knows when the immune system might be stimulated in the wrong direction.

It's also important to recognize that even though LGG is a human-derived probiotic, its origin is from no particular individual. When we were conducting the studies on LGG, quite a few people would ask, “How do you know that the person this came from was really a healthy person?” We had to explain that the strain is identical to that found in humans, but its commercial production occurs under sterile laboratory conditions and it's continually monitored to know that it hasn't mutated.

Conclusion

So much scientific evidence exists to support LGG's effects that the government is

convinced that further studies on LGG are worth pursuing. Currently, the National Center for Complementary and Alternative Medicine, a division of the National Institute of Health (NIH), is endorsing a study to determine if LGG improves immune response to the flu vaccine. They have also funded another in-progress study that is examining whether giving LGG to pregnant mothers with a family history of asthma reduces the occurrence of asthma in their infants.

Clearly, the intestinal tract is in the driver's seat when it comes to maintaining not only digestive health, but also a healthy immune system. In this world of processed, sterile food, where we are not giving our good gut bacteria all the nourishment they need, it is therefore prudent to help the intestinal tract maintain a healthy balance by consuming LGG.

Rose Young, MS, RN

*Rose Young is a pediatric nurse practitioner at Boy's Town National Research Hospital in Omaha, Nebraska. She was a member of the University of Nebraska Medical Center team who conducted a number of studies on *Lactobacillus rhamnosus* (LGG).*

References

1. Guandalini S, Pensabene L, Abu Zikri M, Amil Dias J, Gobio Casali L, et al. *Lactobacillus* GG Administered in oral rehydration solution to children with acute diarrhea: A multicenter European trial. *J Ped Gastroent Nutr.* 2000;30:54-60.
2. Szajewska H, Mrukowicz JZ. Probiotics in the treatment and prevention of acute infectious diarrhea in infants and children: a systematic review of published randomized, double-blind, placebo-controlled trials. *J Pediatr Gastroenterol Nutr.* 2001 Oct; 33 Suppl 2: S17-25.
3. Armuzzi A, Cremonini F, Ojetti V, Bartolozzi F, Canducci F, Candelli M, Santarelli L, Cammarota G, De Lorenzo A, Pola P, Gasbarrini G, Gasbarrini A. Effect of *Lactobacillus* GG supplementation on antibiotic-associated gastrointestinal side effects during *Helicobacter pylori* eradication therapy: a pilot study. *Digestion.* 2001;63(1):1-7.
4. Gosselink MP, Schouten WR, van Lieshout LM, Hop WC, Laman JD, Ruseler-van Embden JG. Delay of the first onset of pouchitis by oral intake of the probiotic strain *Lactobacillus rhamnosus* GG. *Dis Colon Rectum.* 2004;47(6):e876-84.
5. Peltola L, Isolauri E, Lilius EM, Nuutila J, Salminen S. Probiotic bacteria down-regulate the milk-induced inflammatory response in milk-hypersensitive subjects but have an immunostimulatory effect in healthy subjects. *Clin Exp Allergy.* 1998 Dec;28(12):1474-9.
6. de Vrese M, Rautenberg P, Laue C, Koopmans M, Herremans T, Schrezenmeier J. Probiotic bacteria stimulate virus-specific neutralizing antibodies following a booster polio vaccination. *Eur J Nutr.* 2004 Dec 1 Epub.
7. Isolauri E, Joensuu J, Suomalainen H, Luomala M, Vesikari T. Improved immunogenicity of oral D_xRRV reassortant rotavirus vaccine by *Lactobacillus casei* GG. *Vaccine.* 1995;13:310-2.
8. Bruzzese E, Raia V, Spagnuolo MI, Volpicelli M, De Marco G, Maiuri L, Guarino A. Effect of *Lactobacillus* GG supplementation on pulmonary exacerbations in patients with cystic fibrosis: A pilot study. *Clin Nutr.* 2007 Jun;26(3):322-8.

Neptune Krill Oil™ Part III: Its Effects on Premenstrual Syndrome, Painful Periods, H. Pylori and Skin Health

by Tina Sampalis, MD, PhD

This is the final installment of a three-part series about a novel source of omega-3 fatty acids known as Neptune Krill Oil™ (NKO). In the first part of the series, I discussed Neptune Krill Oil as a source of a powerful antioxidant known as astaxanthin, the way Neptune Krill Oil's fatty acids are bound to phospholipids, and Neptune Krill Oil's role as a lipid-lowering agent. In the second installment, I discussed Neptune Krill Oil's ability to reduce inflammation and lower levels of the inflammatory marker known as C-reactive protein.

In this third part of the series, I will explain how Neptune Krill Oil can support women with PMS, dysmenorrhea (painful menstruation with cramping) and breast tenderness and how NKO's carotenoid component astaxanthin inhibits H. pylori in animals. I will also discuss NKO's ability to increase feelings of well being and improve skin health.

PMS and Painful Menstruation

Between puberty and menopause, 85 to 97 percent of women are estimated to experience premenstrual symptoms. For 30 to 40 percent of these women, symptoms are severe enough to warrant seeking out a physician's advice and 3 to 5 percent of women find their lives significantly disrupted by this condition.¹

PMS is characterized by a cluster of cyclical symptoms that begin after ovulation and end with the onset of menstruation or shortly after. Symptoms include feeling suddenly sad, tearful, irritable or angry; persistent and marked anger and irritability; significant anxiety, tension and feelings of being "keyed up" or "on edge"; decreased interest in usual activities such as work or hobbies; fatigue; difficulty in concentrating; food cravings or overeating; insomnia or sleeping for excessive lengths

of time; breast tenderness or swelling; headaches; joint or muscle pain; and bloating.² These symptoms disrupt work, social activities and relationships with others.

A number of factors are thought to play a role in PMS. Hormonal imbalances, nutritional deficiencies or excess, increased production of inflammatory prostaglandins, and neurotransmitter imbalances could all be involved.³⁻⁴ However, results of laboratory tests are inconsistent, with some women showing adequate levels of hormones and nutrients while other women seem to have an excess or deficiency of certain hormones, neurotransmitters or nutrients. Consequently, the most likely cause of the physical symptoms of PMS is an inflammatory response caused by the interaction of hormones and nutrients. The emotional symptoms of PMS, on the other hand, could be triggered by an exaggerated response of neurotransmitters to psychosocial stresses. Both of these physical and emotional imbalances are different among different people and vary even among menstrual cycles within the same individual.

Along with PMS, dysmenorrhea, or painful menstruation with cramping, is one of the most common gynecological complaints among women. It is estimated that 50 percent of menstruating women suffer from this condition. Dysmenorrhea can be so severe that 10 percent of women experiencing it are incapacitated for several days during each period, due to the cramping and other symptoms that may occur including nausea, vomiting, diarrhea, low back pain, headache, dizziness, and in some cases, even fainting and collapse. Painful periods are the greatest single cause of absence from school and work among menstrual-age women. In the U.S., an estimated 140,000,000 work hours are lost each year due to this condition.⁵

Mechanisms of Menstruation

Hormonal regulation and the maintenance of healthy cell membranes are partly dependent upon the balance of essential fatty acids in the body. However, the Western diet often includes an abundance of omega-6 fatty acids and lacks a sufficient amount of omega-3 fatty acids to provide the proper balance between these two nutrients. When omega-6 fatty acids are consumed, they are converted into such pro-inflammatory substances as arachidonic acid. When arachidonic acid builds up in the phospholipids of cell membranes, this can trigger the production of pro-inflammatory type-2 prostaglandins, the increased production of which is linked to dysmenorrhea. Omega-3 fatty acids, on the other hand, assist the body in producing anti-inflammatory prostaglandins.⁶

When progesterone levels plummet just before menstruation, omega-6 fatty acids, especially arachidonic acid, are released in the body. In the uterus, this onslaught of omega-6 fatty acids causes the production of inflammatory prostaglandins. In addition, arachidonic acid metabolites known as leukotrienes that function as chemical mediators of inflammation are produced in the uterus. Simultaneously, arachidonic acid is broken down into cyclooxygenase (the enzyme also involved in arthritis pain), which causes vasoconstriction and contractions of the myometrium, the smooth muscle layer of the uterine wall, forming the main mass of the uterus.⁷⁻⁸

The omega-3 fatty acids eicosapentanoic acid and docosahexanoic acid cause the body to produce less powerful leukotrienes and anti-inflammatory prostaglandins. Consequently, myometrial contractions and uterine vasoconstriction decrease, relieving ischemia and reducing pain.⁹⁻¹¹

As confirmation that the imbalance of

omega-6 to omega-3 fatty acids may play a role in PMS and menstrual pain, scientists measured plasma fatty acids levels in 42 women with PMS. Levels of linoleic acid, the main dietary source of omega-6 fatty acids, were significantly above normal in all the women. However, levels of linoleic's anti-inflammatory metabolites, such as gamma-linolenic acid, were deficient.¹² This study lends credence to the belief that one of the primary causes of PMS is omega-6-triggered inflammation.

Furthermore, research has indicated omega-3 fatty acids from fish oil can help control food and sweet cravings that occur before menstruation. Inadequate intake of essential fatty acids or problems in converting linoleic acid to gamma-linolenic acid can result in a deficiency of prostaglandin E1 (PGE1). PGE1 inhibits glucose-induced insulin secretion and a deficiency of PGE1 could cause the hypoglycemic symptoms, cravings for sweets and increased appetite that occur during PMS.¹³⁻¹⁶

Alleviating Menstrual Symptoms

In a recent study, I decided to investigate whether Neptune Krill Oil™ (NKO), a rich source of omega-3 fatty acids, could help alleviate PMS and dysmenorrhea.¹⁷ NKO, extracted from Antarctic krill, contains phospholipids and triglycerides linked to omega-3 fatty acids. NKO is also rich in antioxidants such as vitamins A and E and the carotenoid astaxanthin.

The double-blind study included 70 women of reproductive age who met the criteria for PMS. The subjects were then randomly divided into two groups. One group of 36 subjects received NKO, the other group of 34 subjects received fish oil. Once randomized into these two groups, subjects underwent a physical examination then completed a self-assessment questionnaire and reported their usual intake of analgesics to alleviate menstrual pain. My colleagues and I asked participants to stop supplementation with other dietary supplements for two weeks before starting supplementation with either fish oil or NKO. For the study's first month, subjects consumed either two, one-gram soft gels of NKO per day or fish oil supplements containing 18 percent EPA and 12 percent DHA once per day with meals. For the next two months, the women consumed two, one gram soft gels of either

NKO or the fish oil eight days before and two days during menstruation. All patients were asked to consume a diet containing 20 percent fat with less than 10 percent animal fat, 40 percent protein, and 40 percent carbohydrates.

The results of the study were determined according to the scores of a self-assessment questionnaire for PMS based on the American College of Obstetricians and Gynecologists diagnostic criteria for premenstrual syndrome. The measures range from 0 for no symptoms to 10 for unbearable symptoms. In addition, researchers noted the difference in consumption of analgesics for menstrual pain at the study's start compared to 45 and 90 days.

“NKO-treated subjects noted a significant reduction in overall emotional and physical PMS symptoms.”

According to the self-assessment questionnaire, subjects taking NKO experienced a statistically significant reduction in scores. After the first menstrual cycle at 45 days and after the second and third menstrual cycles at 90 days, NKO-treated subjects noted a significant reduction in overall emotional (feeling overwhelmed, stressed, irritable and depressed) and physical (breast tenderness, and joint pain) PMS symptoms. NKO and fish oil both worked equally well in reducing weight gain, abdominal pain, bloating and swelling.

Before the study started, both the women in the NKO group and the women in the fish oil group consumed roughly the same amount of analgesics (ibuprofen, acetaminophen, and aspirin) to combat symptoms of PMS and menstrual pain. The number of analgesics consumed by women taking NKO, however, was significantly reduced—up to 40 percent in the first 45 days and by 50 percent after 90 days. During the ten days of the month the women were treated, the NKO group experienced a significantly greater reduction in analgesic use com-

pared to the fish oil group. After taking NKO, subjects also reported an increase of alertness, energy and well-being.

None of the subjects reported serious side effects. Three of the NKO-treated women experienced a shortened menstrual cycle by 3 to 7 days, an effect that only occurred during the first month of treatment and disappeared when the dose was reduced to two gel caps per day for 10 days per month. Minor oiliness of the facial skin also occurred in some of the NKO subjects. Sixty-four percent of the subjects taking fish oil experienced regurgitation of the supplement while none of the NKO-treated subjects complained of this effect.

As we wrote in our report of the study, which was published in the *Alternative Medicine Review*, “The results of the present study indicate that Neptune Krill Oil has statistically significant and clinically marked benefits against the inflammatory dysmenorrhea symptom complex as well as on the emotional symptomatology that characterizes premenstrual syndrome.”

We theorized that NKO's ability to alleviate emotional symptoms of PMS may be due to its phospholipids content, which influences neurotransmitters that control emotional and psychological symptoms. In the brain, phospholipids are rich in the cognitive-supporting omega-3 fatty acid DHA. Furthermore, these cerebral phospholipids themselves play an integral role in cognitive function. There is a synergistic effect between NKO's omega-3 fatty acids and its phospholipids, an effect that doesn't exist in regular fish oil since the process used to create fish oil can damage phospholipids.

H. Pylori

Helicobacter pylori is a gram-negative bacterium that is pervasive in our society and affects about half of the world population. Its presence in the gastrointestinal tract relates to an increased risk of ulcers. Helicobacter pylori infection in humans also is associated with chronic type B gastritis, peptic ulcer disease, and gastric cancer.

Studies have indicated that a low dietary intake of antioxidants such as carotenoids and vitamin C may leave the human body vulnerable to H. pylori infections. In mice, dietary antioxidant levels predict how likely an animal will contract an H. pylori

Continued on page 16

Neptune Krill Oil

Continued from page 15

infection as well as the bacterial load of *H. pylori* infected animals.

The development of *H. pylori*-related disease is in part caused by the immunological response of the body to the invading pathogen. Blood cells involved in immunity such as T-lymphocytes, in the process of doing their job, create inflammation and damage the gastric mucosal lining.

Because antioxidants, including carotenoids, have anti-inflammatory effects, researchers in one study investigated whether the carotenoid antioxidant astaxanthin found in algae as well as in Neptune

thin-rich algal meal or vitamin C showed significantly lower colonization levels of *H. pylori* and lower inflammation scores than those of untreated or control-meal-treated animals.¹⁹

Skin Health

Neptune Krill Oil has also demonstrated an ability to improve skin health, probably due to its anti-inflammatory and antioxidant properties. Studies have shown that women who consumed NKO experienced an improvement in the look and feel of their hair, skin and nails. In addition, in one study, subjects experienced a 58 percent reduction in wrinkling, redness and other skin conditions.²⁰ In other studies, NKO appeared to induce a greater sense of well-being and happiness.

Conclusion

In various studies, Neptune Krill Oil, a novel source of omega-3 fatty acids, has lowered C-Reactive protein, alleviated arthritis symptoms, supported beneficial cholesterol levels, and improved women's health. In addition, astaxanthin, one of NKO's most powerful antioxidants, can inhibit *H. pylori*. I am convinced that this substance plays an integral role in optimal health and well-being.

Tina Sampalis MD, PhD

Dr. Tina Sampalis is an Oncology Surgeon with training in Physiology at McGill, training in Medicine at the University of Patras (Greece), Dermatology at the Göttingen University (Germany) and Marselisborg University (Denmark), Pediatric and General Surgery at the University of Athens (Greece) and graduate training (PhD) in Surgical Research at the University of Athens. She also holds a Ph.D. in Epidemiology and Experimental Surgery at McGill University. She has received several international scholarships and awards for her work on the clinical implementation of retinols and breast cancer including the Helen Hutchison Award for geriatric medicine. Her work on Scintimammography, has resulted in her appointment at the Educational Speakers Bureau, in the Canadian and U.S. Faculty of Medical Speakers for Breast Imaging. As an international scholar she is leading the development and implementation of innovative micro-invasive and stereo tactic surgical techniques for breast cancer, for which a USA and Canadian patent application has been filed. She has had her work appear in multiple peer-reviewed publications, and has been a presenter

at international conferences. In addition, she is a member of the American Association of Naturopathic Medicine. Since May 2000 she has held the position of vice-president of Research & Business Development of Neptune Technologies & Bioresources and has been devoted to the research and development of Neptune Krill Oil.

References

1. Korzekwa MI, Steiner M. Premenstrual syndromes. Clin Obstet Gynecol. 1997;40:564-576.
2. Spitzer RL, Severino SK, Williams JB, Parry BL. Late luteal phase dysphoric disorder and DSM-III-R. Am J Psychiatry. 1989;146:892-97.
3. Stevinson C, Ernst E. Complementary/Alternative therapies for premenstrual syndrome: a systematic review of randomized controlled trials. Am J Obstet Gynecol. 2001;185:227-35.
4. True BL, Goodner SM, Burns EA. Review of the etiology and treatment of premenstrual syndrome. Drug Intell Clin Pharm. 1985;19:714-22.
5. Thomas CL, Editor. Taber's® Cyclopedic Medical Dictionary, Edition 18, p 588.
6. Horrobin DF. The role of essential fatty acids and prostaglandins in the premenstrual syndrome. J Reprod Med. 1983;28:465-68.
7. Alvin PE, Litt IF. Current status of etiology and management of dysmenorrhea in adolescence. Pediatrics. 1982;70:516-25.
8. Cameron IT, Fraser IS, Smith SK. Clinical Disorders of the Endometrium and Menstrual Cycle. Oxford, United Kingdom: Oxford University Press. 1998, p. 359.
9. Drevon CA. Marine oils and their effects. Nutr Rev. 1992;50:38-45.
10. Hansen HS. Dietary essential fatty acids and in vivo prostaglandin production in mammals. World Rev Nutr Diet. 1983;42:102-34.
11. Endres S, Ghorbani R, Kelley VE, et al. The effect of dietary supplementation with n-3 polyunsaturated fatty acids on the synthesis of interleukin-1 and tumor necrosis factor by mononuclear cells. N Engl J Med. 1989;320:265-71.
12. Brush MG. Evening primrose oil in treatment of premenstrual syndrome. Published in Clinical Uses of Essential Fatty Acids, Horrobin DF, editor, Eden Press, Montreal, Quebec, 1982:155-162.
13. Lee TH, Mencia-Huerta JM, Shih C, et al. Effects of exogenous arachidonic, eicosapentaenoic and docosahexaenoic acids on the generation of 5-lipoxygenase pathway products by ionophore-activated human neutrophils. J Clin Invest. 1984; 74:1922-1933.
14. Krall JF, Barrett JD, Jamgotchian N, Korenman SG. Interaction of prostaglandin E2 and beta-adrenergic catecholamines in the regulation of uterine smooth muscle motility and adenylate cyclase in the rat. J Endocrinol. 1984;102:329-336.
15. Priddy AR, Killick SR. Eicosanoids and ovulation. Prostaglandins Leukot Essent Fatty Acids. 1993;49:827-31.
16. Malle E, Kostner GM. Effects of fish oils on lipid variables and platelet function indices. Prostaglandins Leukot Essent Fatty Acids. 1993;49:645-63.
17. Sampalis F, Bunea R, Pelland MF, Kowalski O, Duguet N, Dupuis S. Evaluation of the effects of Neptune Krill Oil™ on the management of premenstrual syndrome and dysmenorrhea. Alternative Medicine Review. 2003;8(2):171-79.
18. Bennedsen M, Wang X, Willen R, Wadstrom T, Andersen LP. Treatment of *H. pylori* infected mice with antioxidant astaxanthin reduces gastric inflammation, bacterial load and modulates cytokine release by splenocytes. Immunol Lett. 1999 Dec 1;70(3):185-9.
19. Wang X, Willen R, Wadstrom T. Astaxanthin-rich algal meal and vitamin C inhibit *Helicobacter pylori* infection in BALB/cA mice. Antimicrob Agents Chemother. 2000 Sep;44(9):2452-7.
20. Sampalis T. Unpublished research, in print.

Proton-Pump Inhibitors

Continued from page 12

burn and GERD. Peppermint relaxes the lower esophageal sphincter.¹³ Gentian root, historically used for digestive complaints such as gastritis, complements peppermint's actions. A recent study showed that both gentian root and peppermint inhibit the growth of *H. pylori* in vitro.¹⁴

Conclusion

The new study showing that proton-pump inhibitors may cause significant bone loss has caused a lot of concern among individuals suffering from heartburn, GERD and acid reflux. However, natural approaches remain a viable alternative to pharmaceutical acid blockers. Furthermore, by consuming calcium, vitamins D and K,

ipriflavone, strontium and omega-3 fatty acids, individuals who must continue to consume proton-pump inhibitors can protect the health of their bones.

References

1. El-Serag HB. Time trends of gastroesophageal reflux disease: a systematic review. *Clin Gastroenterol Hepatol*. 2007 Jan;5(1):17-26.
2. www.hopkinsmedicine.org. podcasts, Week of May 18, 2007.
3. Yang YX, Lewis JD, Epstein S, Metz DC. Long-term proton pump inhibitor therapy and risk of hip fracture. *JAMA*. 2006 Dec 27;296(24):2947-53.
4. Ma J, Johns RA, Stafford RS. Americans are not meeting current calcium recommendations. *Am J Clin Nutr*. 2007 May;85(5):1361-6.
5. Shinchuk L, Holick MF. Vitamin D and rehabilitation: improving functional outcomes. *Nutr Clin Pract*. 2007 Jun;22(3):297-304.
6. Knapen MH, Schurgers LJ, Vermeer C. Vitamin K(2) supplementation improves hip bone geometry and bone strength indices in postmenopausal women. *Osteoporos Int*. 2007 Feb 8; [Epub ahead of print].
7. Gambacciani M, Spinetti A, Cappagli B, Taponeco F, Felipetto R, Parrini D, Cappelli N, Fioretti P. Effects of ipriflavone administration on bone mass and metabolism

in ovariectomized women. *J Endocrinol Invest*. 1993 May;16(5):333-7.

8. Scans Blake GM, Lewiecki EM, Kendler DL, Fogelman I. A Review of Strontium Ranelate and Its Effect on DXA. *J Clin Densitom*. 2007 Apr-Jun;10(2):113-9.
9. Bhattacharya A, Rahman M, Sun D, Fernandes G. Effect of fish oil on bone mineral density in aging C57BL/6 female mice. *J Nutr Biochem*. 2007 Jun;18(6):372-9.
10. Austin GL, Thiny MT, Westman EC, Yancy WS, Shaheen NJ. A very low-carbohydrate diet improves gastroesophageal reflux and its symptoms. *Dig Dis Sci*. 2006 Aug;51(8):1307-12.
11. Al-Habbal MJ, Al-Habbal Z, Huwez FU. A double-blind controlled clinical trial of mastic and placebo in the treatment of duodenal ulcer. *Clin Exp Pharmacol Physiol*. 1984 Sep-Oct;11(5):541-4.
12. Takeuchi T, Shiratori K, Watanabe S, Chang JH, Moriyoshi Y, Shimizu K. Secretin as a potential mediator of antiulcer actions of mucosal protective agents. *J Clin Gastroenterol*. 1991;13 Suppl 1:S83-7.
13. Imai H, Osawa K, Yasuda H, Hamashima H, Arai T, Sasatsu M. Inhibition by the essential oils of peppermint and spearmint of the growth of pathogenic bacteria. *Microbios*. 2001;106 Suppl 1:31-9.
14. Mahady GB, Pendland SL, Stoia A, Hamill FA, Fabricant D, Dietz BM, Chadwick LR. In vitro susceptibility of *Helicobacter pylori* to botanical extracts used traditionally for the treatment of gastrointestinal disorders. *Phytother Res*. 2005 Nov;19(11):988-91.



The Institute for Healthy Aging Presents a Conference for Health Care Professionals

"The Safe and Effective Implementation of Orthoiodosupplementation in Medical Practice"

SEATING IS LIMITED - CALL 1-800-340-2832 TO REGISTER TODAY!

The Institute for Healthy Aging invites all health practitioners to register for its newest conference, "The Safe and Effective Implementation of Orthoiodosupplementation in Medical Practice." Experts in the field of iodine supplementation will gather to share their immense knowledge from October 4 - 6, 2007. The IHA's February 2007 conference on Iodine sold out quickly. The February conference was recognized by attendees as one of the best conferences ever held offering great science and relevant clinical applications. This conference will provide an equal level of informative content and will shed even more light on an essential mineral that can have a dramatic effect on your patients' health.

Attendees to the conference can earn 15 Hours Category 1 CME, 15 Nursing Contact Hours, or 15 Hours Pharmacy CE while attending fascinating and enjoyable presentations by some of the country's foremost experts on Iodine.

Featured presenters at the conference include Guy E. Abraham, MD, a renowned iodine researcher whose writings have revolutionized the way health care professionals use iodine in their practice. Dr. Abraham will outline the methodologies available for the measurement of the various forms of iodine and their proper utilization and identify new approaches in assessing iodine metabolism without the use of radioiodide. David Brownstein, MD, author of *Iodine: Why You Need It, Why You Can't Live Without It*, will discuss why iodine deficiency may be the underlying cause of cancer of the breast, prostate and thyroid.

Other distinguished speakers at the conference include Bernard Eskin, MD, a professor of obstetrics, gynecology and psychiatry and adjunct professor of pharmacology at Drexel University College of Medicine in Philadelphia. Dr. Eskin will explain "The Role of Iodine in Breast Disease Estrogen Receptors and Genomics." William Shevin MD, DHT, a practicing physician in Woodstock, Connecticut, also will share with conference attendees his fascinating clinical experience with iodine. Jorge D. Flechas, MD, who pioneered iodine testing, will share the data obtained using iodine testing procedures in patients with various clinical conditions and discuss case studies of patients with fibrocystic breast disease, thyroid nodules, ovarian cysts, and thyroid goiter.

Registration fee for the conference is \$495 before September 1 and \$550 after September 1. Registration includes a reception, luncheons, admission to all lectures and discussions and symposium materials. The conference will be held at the exclusive Coronado Island Marriot Resort in San Diego, California overlooking the San Diego bay. This resort location will transport you to a world of complete tranquility and European elegance with convenient access to San Diego's historic gas lamp quarter via water taxi or ferry. Special room rates are available for attendees. For information or to register, please call 1-800-340-2832.

Sponsored by an educational grant from Complementary Prescriptions

Customer Corner Supplement Index

From pages 9-11

Product	Code
5-HTP	CP5765
Advanced Inflammation Control ...	CP1625
AndroAmp.....	CP7200
Beta Glucan.....	CP5044
BioDIM.....	CP8081
BioPro™.....	CP9601
Calcium AEP	CP7461
Carnosine	CP4115
CeaseFire®	CP7072
Culturelle®	CP9182
DHEA.....	CP6361
EpiCor®.....	CP1490
Ethyl EPA™	CP3331
Extension B-Plex.....	CP2119
Folic Acid	CP1141
Food Allergy Test.....	CP98401
Forskolin Extract.....	CP5881
GABA	CP4301
HepatoGen™	CP1600
I3C	CP6041
ImmunoMax.....	CP1471
Inflammation Control	CP1525
IP6	CP1351
Lipoic Acid	CP3455
L-Glutamine	CP4211
L-Theanine.....	CP8481
MaleBalance™ Cream.....	CP2102
Natto 3X	CP6252
Nattokinase Plus.....	CP6251
Natural Libido Enhancer	CP1225
Niacinamide	CP1061
Nordic Naturals ProOmega.....	CP9529
Optimum 6	CP3310
Oral ChelatoRx.....	CP1820
Organic Acid Test Kit.....	CP9843
Poly-MVA®	CP9127
ProstaCol®	CP1620
Resveratrol	CP5512
Turmeric Extract	CP5102
UniZyme™	CP1630
Vitamin B12	CP1180

Antioxidant Supplements May Improve Health of Chemotherapy Patients

A new review of the medical literature has found that antioxidant supplements may help improve cancer survival rates, tumor response, and the patient's ability to tolerate chemotherapy.

The reviewers found 19 trials that met all evaluation criteria, such as the use of randomized trials with a control group and the reporting of tumor response and survival data. The trials included a total of 1,554 participants. Antioxidants evaluated were glutathione (7 trials), melatonin (4 trials), vitamin A (2 trials), an antioxidant mixture (2 trials), vitamin C (1 trial), N-acetyl cysteine (1 trial), vitamin E (1 trial) and ellagic acid (1 trial). Subjects of most studies had advanced or relapsed disease.

After examining the data, the researchers determined that cancer subjects taking antioxidants had similar or better survival rates than the control subjects. Furthermore, none of the trials supported the theory that antioxidant supplements diminish the effectiveness of chemotherapy.

Of the 17 trials that assessed chemotherapy toxicities, including diarrhea, weight loss, nerve damage and low blood counts, 15 concluded that the antioxidant group suffered similar or lower rates of these side effects than the control group.

According to the reviewers, a reduction in side effects may stop patients from having to reduce their chemotherapy dosing, interrupt scheduled treatments, or abandon treatment altogether. Consequently, antioxidants' ability to reduce these side effects may have a favorable effect on treatment outcomes.

Debate has existed over whether cancer patients should take antioxidants due to the possibility that they will cancel out the effects of some chemotherapy drugs. Many have claimed that antioxidants scavenge the reactive oxygen species integral to the activity of certain chemotherapy drugs, thereby diminishing treatment efficacy. However, the researchers of the

current review believe that the results indicate there is no scientific support for the objection to using antioxidants during chemotherapy, especially since it appears that these supplements may help decrease the side effects of chemotherapy.

Reference:

Block KI, Koch AC, Mead MN, Tothy PK, Newman RA, Gyllenhaal C. Cancer Treatment Reviews (Elsevier). Impact of antioxidant supplementation on chemotherapeutic efficacy: A systematic review of the evidence from randomized controlled trials. Published online 28 March 2007.

Ginseng and Ginkgo at Recommended Doses Do Not Impair Drug Absorption

Daily use of ginseng or ginkgo biloba supplements at the recommended doses—or the combination of both supplements—are unlikely to alter the way the majority of prescription or over-the-counter drugs are absorbed, distributed, metabolized, and eliminated by the body, researchers reported at the Experimental Biology 2007 conference.

The researchers recruited 72 healthy, non-smoking adults (31 men and 41 women, ages 20 to 59) who were not taking any prescription drugs or dietary supplements. The participants were given a "cocktail" of five drugs, each drug in the cocktail chosen because it provides a measure of the activity of a key drug metabolism pathway. Taken together, the five drugs in the cocktail provide measurements of the pathways that determine the metabolism, absorption, distribution and elimination of more than 90 percent of prescription drugs. The scientists then measured the presence of these drugs or their metabolites in each subject's blood and urine in order to establish a baseline for how each individual absorbed and metabolized the different prescription drugs in the absence of herbal supplements.

The 72 individuals next were randomly assigned to one of four groups. For four weeks, the first group received a ginseng supplement and a placebo; the second received ginkgo biloba and a placebo; the third received both ginseng and ginkgo

biloba supplements; and the fourth received placebos in place of both supplements. The prescription drug cocktail was again administered. Then blood and urine samples were taken in order to determine the absorption and metabolism of these drugs in the presence of either or both of the herbal supplements.

In determining how subjects' bodies absorbed or metabolized any of the five prescription drugs, the researchers found no significant differences in how any of the five prescription drugs were absorbed or metabolized between those who received one, both, or none of the ginseng and ginkgo biloba supplements. This suggests that neither ginseng nor ginkgo biloba will affect the absorption or metabolism of the majority of prescription or over-the-counter drugs.

Reference:

Reed G, et al. Experimental Biology 2007 conference, Washington, D.C. May 1, 2007.

Green Tea Enhances Blood Vessel Function, Reduces Sun Damage to Skin

Green tea extract reverses vascular dysfunction in patients with coronary artery disease, a new human study has found, while another new review of the medical literature indicates green tea can inhibit solar ultraviolet-B (UVB)-induced skin tumor development in mice.

In the first study, researchers sought an explanation for why previous research has shown that the green tea component epigallocatechin gallate (EGCG) can support the health of the heart. In the double blind, placebo-controlled, crossover design trial, the researchers studied 42 subjects randomly assigned to receive either an EGCG supplement or a placebo. Before the subjects crossed-over to the other intervention, they underwent a one-week washout where they consumed neither the placebo nor the EGCG.

Researchers then measured brachial artery flow-mediated dilation (FMD) in the arm, which is an indicator of how

well blood is flowing through vessels. The researchers measured flow-mediated dilation through a vascular ultrasound at baseline, again two hours after subjects received an initial dose of EGCG (300 mg) or placebo, and after two weeks of supplementation with EGCG (two 150 mg doses per day) or a placebo.

Supplementation with the green tea extract improved flow-mediated dilation from 7.1 to 8.6 percent two hours after the initial 300-milligram dose. In addition, blood levels of EGCG correlated with improved vascular function. Placebo treatment had no significant effect.

The study authors concluded, "EGCG acutely improves endothelial function in humans with coronary artery disease, and may account for a portion of the beneficial effects of flavonoid-rich food on endothelial function."

The other recent study on green tea, a review of the medical literature, investigated whether epigallocatechin gallate (EGCG) can support the health of sun-exposed skin. Scientists searched the medical literature for studies that investigated the photoprotective efficacy of green tea polyphenols against ultraviolet-induced carcinogenesis known as photocarcinogenesis. The reviewers concluded that oral administration of green tea polyphenols in drinking water or the topical application of EGCG prevents UVB-induced skin tumor development in mice. The researchers also concluded that the mechanism of action behind green tea's effects includes the ability to initiate DNA repair and the ability to inhibit the suppressed immunity that occurs after excessive exposure to sunlight. In addition, green tea inhibits angiogenesis, the development of new blood vessels that feed cancer cells.

According to the reviewers, "New mechanistic information strongly supports and explains the chemopreventive activity of green tea polyphenols against photocarcinogenesis."

References:

Widlansky ME, Hamburg NM, Anter E, Holbrook M, Kahn DF, Elliott JG, Keaney JF Jr, Vita JA. Acute EGCG

Supplementation Reverses Endothelial Dysfunction in Patients with Coronary Artery Disease. *J Am Coll Nutr.* 2007 Apr;26(2):95-102.

Suchitra Kativar, Craig A Elmetts, Santosh K Katiyar. Green tea and skin cancer: photoimmunology, angiogenesis and DNA repair. *The Journal of Nutritional Biochemistry.* 2007 May;18(5):287-296.

Vitamin D and Calcium May Support Premenopausal Breast Health

Researchers have found that vitamin D and calcium from dietary plus supplemental sources may reduce the risk of breast cancer in premenopausal women.

Researchers evaluated total calcium and vitamin D intake in relation to breast cancer incidence among 10,578 premenopausal and 20,909 postmenopausal women 45 years or older who were free of cancer and cardiovascular disease at baseline in the Women's Health Study. Baseline dietary intake was assessed by a food frequency questionnaire.

During an average of 10 years of follow-up, 276 premenopausal and 743 postmenopausal women had a confirmed diagnosis of incident invasive breast cancer. Higher intakes of total calcium and vitamin D were associated with a lower risk of premenopausal breast cancer. Among the pre-menopausal women, higher intakes of calcium and vitamin D were associated with a 39 and 35 percent lower risk of breast cancer respectively, compared to the lowest intakes. Women who developed large or poorly differentiated breast tumors tended to have a lower intake of vitamin D and calcium. By contrast, intakes of both nutrients were not inversely associated with the risk of breast cancer among postmenopausal women.

The researchers wrote, "Findings from this study suggest that higher intakes of calcium and vitamin D may be associated with a lower risk of developing premenopausal breast cancer. The likely apparent protection in premenopausal women may be more pronounced for more aggressive breast tumors."

Reference:

Lin J, Manson JE, Lee IM, Cook NR, Buring JE, Zhang SM. Intakes of calcium and vitamin D and breast

cancer risk in women. *Arch Intern Med.* 2007 May 28;167(10):1050-9.

Diabetes Drug Avandia May Increase Heart Attack Risk

A new report indicates that taking the diabetes drug Avandia may increase the risk of heart attacks and the risk of death from heart disease.

Researchers analyzed short-term clinical studies comparing Avandia to other diabetes treatments. The data showed that Avandia increases heart attack risk by 43 percent and increases risk of death from heart disease by 64 percent.

The overall risk was a small one. Among the 15,560 Avandia patients included in the studies, there were 86 heart attacks and 39 deaths, compared with 72 heart attacks and 22 deaths among the 12,283 patients not taking Avandia. However, in susceptible patients, the researchers said Avandia therapy may be capable of triggering heart attacks or death from cardiovascular causes even after relatively short-term exposure.

The report, to be published in *The New England Journal of Medicine*, has been criticized by the drug's maker, GlaxoSmithKline, as being flawed. They have submitted their own studies to the FDA, one of which showed about a 30 percent increase in heart risk to patients taking Avandia and another study that showed no increased heart risk in patients taking the drug.

However, the results of *The New England Journal of Medicine* report have caused some researchers to question the validity of treating patients with Avandia since one of the goals of lowering blood sugar is to prevent the increased risk of cardiovascular disease that occurs in diabetes patients.

Reference:

Nissen SE and Wolski K. *The New England Journal of Medicine*, early release, May 21, 2007.

Individuals who want to support healthy blood sugar levels can try GluControl™, which includes a number of nutrients helpful in glycemic control, including goat's rue, cinnamon extract and bitter melon.

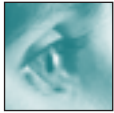
Vitamin Research News

Complementary Prescriptions™ Edition

JULY 2007

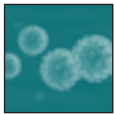
Vol. 21, Number 7

\$79.00/Year U.S. (\$89.00/Year International)



Bilberry and Black Currants:

Vision-Supporting Nutrients Enhance Heart Health, Build Immunity and Protect Against Damage from Computer Use



Lactobacillus Rhamnosus GG:

Powerful Probiotic Strengthens Digestion and Immunity



Multiple Sclerosis:

Natural Strategies to Enhance Quality of Life

Customer Corner

- Benign Prostatic Hypertrophy
- ADD
- COPD and Emphysema
- Valley Fever, Sinus Infections
- Ulcerative Colitis
- Cancer, Heart Medications
- Meralgia Parasthetica
- Schizophrenia, Depression
- Lupus and 5-HTP
- Anti-Coagulants
- Rheumatoid Arthritis
- Performance Enhancement



Proton-Pump Inhibitors:

Strategies to Protect Against Potential Bone-Destroying Effects



From the Library

Neptune Krill Oil™ Part III: Its Effects on Premenstrual Syndrome, Painful Periods, H. Pylori and Skin Health

Nutrition Review

- Antioxidant Supplements May Improve Health of Chemotherapy Patients
- Ginseng and Ginkgo at Recommended Doses Do Not Impair Drug Absorption
- Green Tea Enhances Blood Vessel Function, Reduces Sun Damage to Skin
- Vitamin D and Calcium May Support Premenopausal Breast Health
- Diabetes Drug Avandia May Increase Heart Attack Risk

Printed in the U.S.A.



4610 Arrowhead Drive, Carson City, NV 89706

PRSR STD
U.S. POSTAGE
PAID
PERMIT #625
RENO, NV