Vitamin Research News

Complementary Prescriptions™ Edition

MAY 2007 | Vol. 21, Number 5 | $79.00/Year U.S. ($89.00/Year International)

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Nutrient Depletion and Prescription Drugs

by Chris D. Meletis, ND

According to the Centers for Disease Control, the number of adults aged 55-64 taking at least one pharmaceutical in the last month rose from 62 percent in 1988-1994 to 73 percent in 1999-2002.[1] The large number of individuals taking pharmaceutics suggests that the potential for drug-nutrient interaction is substantial. The following discussion looks at common medications and the nutrient depletion considerations.

Common Pharmaceuticals that Deplete Nutrients

Hormone Replacement

In the U.S. from 1999 to 2002, approximately 15 million women were taking HRT annually accounting for 90 million prescriptions per year.[2] Oral contraceptive pills (OCP) also contain estrogen/progestin combinations. Research suggests that estrogens significantly deplete several B vitamins. Oral estradiol decreases pyridoxines (vitamin B6) as well as albumin in postmenopausal women.[3] This vitamin B6 deficiency is believed to be associated with a disruption in tryptophan metabolism.[4] Proper tryptophan metabolism is essential for serotonin production, which is essential for proper mood stabilization and contentment in life.

Additional research indicated that oral contraceptives deplete riboflavin (vitamin B2), folic acid, cobalamin (vitamin B12), ascorbic acid (vitamin C), and zinc.[5] Studies indicate a decrease by 40 percent of both folic acid and serum B12 levels with oral

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The Hidden Causes Behind Hormonal Imbalances

by Sherrill Sellman, ND

Millions of women each year seek relief for hormonal issues, including hot flashes, night sweats, hormonal migraines, PMS, ovarian cysts, fibroids, endometriosis, fibrocystic breasts, weight gain, foggy thinking, and heavy bleeding. These symptoms are lumped together into the hormonal imbalance pigeonhole. In the case of menopause, HRT is the conventional cure. For menstruating women, oral contraceptives are most often prescribed.

When resolving hormonal problems, women are led to believe that all that is required is tweaking their hormonal levels or, in the case of oral contraceptives, a complete shutting down of ovarian function. However, hormonal imbalances, rather than merely aberrations of a wayward reproductive system, are, in fact, symptoms of deeper root cause issues.

The Adrenals and Hormones

The adrenals are involved in manufacturing numerous hormones; blood sugar regulation; the regulation of the body's minerals; producing and maintaining the body's energy levels in conjunction with the thyroid; and producing stress-monitoring hormones.

The adrenals, the body's shock absorbers, are the core of the endocrine stress response system. Two of their most important hormones, adrenaline and cortisol, are responsible for the fight-or-flight response.

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Nutrient Depletion

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contraceptive use.[6] Additionally, studies have shown that estrogen supplementation increases magnesium uptake into bone and soft tissue, causing lowered blood magnesium levels. This change leads to calcium and magnesium changes and can lead to an increase in coagulation and thrombosis seen with estrogen supplementation.[7]

Acid Blockers

Proton pump inhibitors (PPI) and histamine-2 receptor antagonists (H2 blockers) are commonly prescribed for treatment of ulcers and gastroesophageal reflux disease (GERD). Lansoprazole, or Prevacid, is a PPI ranking third in top pharmaceutical sales in the U.S. in 2004.[8] Acid blockers have been linked to significant increases in the risk of vitamin B12 deficiency.[9] One small study showed a 53 percent decrease in protein-bound B12 absorption in individuals taking an H2 blocker.[10] Research also indicated that folic acid absorption is decreased with supplementation of H2 blockers and other antacids.[11] Studies have also linked H2 blockers, which decrease gastric acid secretion, with decreased absorption of iron and zinc.[12-13] One study showed a direct correlation between increasing dosage of cimetidine, an H2 blocker, and decreasing dietary non-heme iron absorption ranging from 28-65 percent.[14] Animal studies also have demonstrated that cimetidine significantly decreases intestinal calcium transport.[15] In addition, it also alters vitamin D metabolism by altering the enzyme vitamin D 25-hydroxylase activity.[16] A small study performed with the PPI omeprazole demonstrated that serum levels of beta carotene were decreased with increased gastric pH.[17]

> ***"Aspirin therapy decreases vitamin C absorption."***

Corticosteroids

Corticosteroids are frequently prescribed for anti-inflammatory and immunosuppressant activity. Prednisone and hydrocortisone are often prescribed for various medical conditions such as autoimmune diseases and inflammatory conditions. Corticosteroid treatment has been associated with increased loss of bone mineral density. Studies show that these drugs decrease calcium absorption and increase calcium excretion.[18] Also, a study with individuals with chronic airway obstruction showed long term oral steroid therapy is associated with decreased serum magnesium levels.[19] Steroid medication has also been associated with low potassium in both animal and human studies.[20-21]

Studies in individuals with rheumatoid arthritis (RA) showed serum levels of zinc and copper are two other nutrients that suffer declines after corticosteroid treatment, and urinary excretion of zinc and copper is elevated.[22] Additional studies on patients with RA receiving corticosteroid therapy also demonstrated a decrease in plasma selenium levels.[23] Although the evidence appears incomplete or conflicting, some studies suggest that vitamin C and vitamin D may be affected by corticosteroid therapy.[24-25]

Aspirin

Aspirin is used for antipyretic, analgesic, and anti-inflammatory activity. Recent promotion of aspirin as prophylactic treatment to decrease platelet aggregation to prevent transient ischemic attacks, stroke, and thromboembolism has increased the use of this over-the-counter medication.[26] Treatment with aspirin, or acetyl salicylic acid, affects several nutrients. Multiple studies have shown that aspirin therapy

TABLE 1. Symptoms of Nutrient Deficiency

Thiamine	Beriberi, depression, memory loss, numbness, fatigue
Riboflavin	Cheilosis, glossitis, dermatitis, visual disturbance
Niacin	Pellegra, dermatitis, confusion, diarrhea
Pantothenic acid	Fatigue, numbness and pain in the feet
Pyridoxine	Depression, fatigue, dermatitis, anemia, glucose intolerance
Cobalamin	Anemia, fatigue, poor nerve function, diarrhea
Folate	Anemia, fatigue, cervical dysplasia, diarrhea, gingivitis, depression, irritability, insomnia
Biotin	Alopecia, depression, dermatitis, nausea, anorexia
Vitamin C	Scurvy, decreased immunity, poor wound healing
Calcium	Rickets, osteoporosis, osteomalacia, muscle spasms
Magnesium	Fatigue, irritability, weakness, muscle cramps, insomnia, anorexia, poor nerve conduction
Potassium	Fatigue, irregular heart beat, irritability, confusion, poor nerve conduction
Iron	Anemia, weakness, fatigue, poor immune function
Zinc	Slow wound healing, decreased immunity, loss of taste and smell, alopecia, skin disorders
Selenium	Keshan disease, poor immune function
Coenzyme Q10	Hypertension, fatigue, cardiovascular diseases
Carnitine	Muscle weakness, poor lipid metabolism, failure to thrive in children

Vol. 21 • Number 5 MAY 2007

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TABLE 2. Pharmaceuticals and Nutrient Depletion	
Estrogen/progestins	Riboflavin, pyridoxine, cobalamin, folic acid, ascorbic acid, zinc, magnesium
Statins	CoQ10
Acid Blockers	CoQ10, cobalamin, folic acid, iron, vitamin D, beta carotene, zinc
Corticosteroids	Calcium, magnesium, potassium, zinc, copper selenium, ascorbic acid, vitamin D
Aspirin	Ascorbic acid, iron, folic acid
Anti-Diabetic Drugs	Cobalamin, folic acid, CoQ10
Anticonvulsants	Biotin, thiamine, cobalamin, folic acid, CoQ10, vitamin D, vitamin K, calcium, carnitine
Antihypertensives	Pyridoxine, sodium, CoQ10
Diuretics	Thiamine, pyridoxine, ascorbic acid, potassium, magnesium, calcium, zinc, sodium
Antibiotics	B vitamins, vitamin K, magnesium, calcium, potassium, zinc, iron

decreases vitamin C absorption.[27] Some studies also indicate that increasing aspirin dosage directly correlates to increasing ascorbic acid excretion in the urine.[28] Research also suggests that aspirin therapy causes an increase in gastric blood loss leading to a decrease in total body iron.[29] Evidence also supports that supplementation with aspirin significantly decreases both total and bound serum folate and slightly increases folic acid excretion.[30]

Anti-Diabetic Drugs

According to the American Diabetes Association 2005 statistics, approximately 7 percent of the U.S. population is diabetic. They estimate that 57 percent of adult diabetics take oral medication only and an additional 12 percent take insulin plus oral medication to manage the condition.[31] Metformin, a frequently prescribed biguanide, has been shown to deplete vitamin B12 and folic acid. Studies indicate that long term metformin therapy significantly decreases serum vitamin B12 levels. Additional studies suggest that short term treatment with metformin increases homocysteine levels, and supplementation with B vitamins or folic acid can moderate this response.[32] More specifically, serum folic acid levels have been shown to decrease 7 percent and vitamin B12 levels decrease by 14 percent with metformin therapy in type 2 diabetic individuals.[33] Although limited, research also suggests that treatment with sulfonylureas (e.g. Glipizide Gliclazide glyburide, Glimepiride, etc.) increase the risk of CoQ10 deficiency.[34]

Statin Drugs

The statin drug Lipitor® is one of the top selling pharmaceuticals worldwide and brought in an estimated 12.2 billion dollars in sales to Pfizer in 2005.[35] Statins inhibit the enzyme 3-hydroxy-3-methylglutaryl-coenzyme A (HMGCoA reductase), which decreases cholesterol synthesis by inhibiting the conversion of acetyl CoA to mevalonate. Mevalonate is also necessary in the production of ubiquinone, or coenzyme Q10 (CoQ10). Numerous studies have demonstrated that statin drug therapy significantly decreases plasma levels of CoQ10.[36] CoQ10 is necessary for mitochondrial energy production as well as exhibits potent antioxidant activity.[37] Some researchers suggest that the depletion of COQ10 could account for some side effects associated with statin drugs such as myotoxicity and hepatotoxicity.[38-39]

Antihypertensives

Common antihypertensive medications include beta-adrenergic blockers, calcium channel blockers, angiotensin-converting enzyme (ACE) inhibitors, diuretics, and vasodilators. According to the American Heart Association, an estimated 65 million Americans, almost one in three adults, has high blood pressure.[40] Vasodilators such as hydralazine deplete vitamin B6.[41] Captopril, an ACE inhibitor, has been shown to cause hyponatremia by increasing sodium excretion and may cause hyperkalemia.[42-43] Also, studies with the beta blocker propranolol have shown

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The President's Desk

Moms Fight the FDA

Recently, I was pleased to learn that a fight has begun to try to ban harmful mercury amalgam fillings. The battle is taking place in the United States Court of Appeals for the District of Columbia, where Moms Against Mercury is suing the FDA for having refused, during the last 30 years, to rule on the safety, or danger, of mercury amalgam tooth fillings.

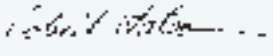
On March 27, lawyers presented their anti-mercury case before three Judges of the U.S. Court of Appeals. Although an official ruling is pending, two of the three Judges appeared skeptical that the Court will consider the merits of the case. Interestingly, however, FDA admitted in its brief, five times, that it doesn't know if mercury fillings are safe or unsafe.

Allowing pregnant women and children to be exposed to a potentially harmful substance is irresponsible. I applaud the efforts of Mothers Against Mercury and will let everyone know how the U.S. Court of Appeals ultimately rules.

Newsletter Undergoes Expansion

I am pleased to announce the expansion of the newsletter to include an additional four pages. Our researchers are constantly combing medical journals and unearthing information we want to share with our readers, and the extra space will give us more opportunity to do so. In addition, we will expand the popular Customers' Corner. The quantity of Dear Doctor letters we receive is so immense that Chris Meletis, N.D. has joined Dr. Dean in responding to your questions. We also will introduce a new department called "From the Library," where we will reprint important articles from past newsletters.

Thank you to all our loyal customers for your support, and I hope you enjoy the expanded newsletter.



Robert Watson
President/CEO

Nutrient Depletion

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that the drug inhibits the CoQ10 enzymes in myocardium.[44]

Diuretics

Diuretics are known for altering certain nutrient levels such as potassium. However, many other nutrients are affected. Thiazide diuretics have been shown to deplete magnesium, sodium, potassium, and zinc. One study found hyponatremia in 13.7 percent and hypokamemia in 8.5 percent with individuals treated with thiazide diuretics.[45] Thiazide diuretics also decrease magnesium in approximately 20 percent of patients.[46] Additionally, research indicates that thiazide diuretics cause significantly decreased serum zinc.[47]

Loop diuretics have been shown to deplete potassium, magnesium, calcium, zinc, pyridoxine, thiamine, and ascorbic acid. One study found that thiamine deficiency was found in 98 percent of congestive heart failure patients receiving 80 mg of furosemide per day and in 57 percent of those receiving 40 mg per day.[48] Ascorbic acid and pyridoxine excretion are also increased with furosemide treatment.[49] Additionally, several studies demonstrate that loop diuretics increase the excretion of sodium, potassium, calcium, magnesium, and chloride.[50]

Conclusion

Drug-induced nutrient depletion can lead to potential further health challenges. Visiting with your health care provider and pharmacist about how to minimize these potential nutritional-deficit side effects is essential. When managing drug therapy, keeping your doctor or other medical professional in the "loop" is critical.

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Iodine's Crucial Role in Health: A Review of an Unforgettable Gathering of Experts

by David Brownstein, MD

With an estimated 95 percent of individuals deficient in iodine, I thought it is important to inform you about a recent conference that spotlighted this essential mineral. The conference, titled "Recent Advances in the Use of Iodine in Medical Practice" was a two-day gathering of many of the leaders in the iodine field recently held in Scottsdale, Arizona.

The information presented on Day 1 of the iodine conference was astonishing. I was amazed that people would come from all over the country to hear about one single nutrient. The question and answer session lasted for more than 2 hours—the longest Q & A session I have ever been involved in. I think the Q and A session was an indication about how high the interest is in iodine.

Numerous speakers at the conference each brought their own unique perspective on the use of iodine. Dr. Guy Abraham, my mentor on iodine, was the lead speaker. Dr. Abraham gave an eloquent presentation on the history of iodine and why it is still so important in the modern-day diet. Dr. Abraham presented new information that higher doses of iodine, between 50-100 mg per day may be necessary to decrease oxidative DNA damage. He also showed us why the low RDA doses of iodine are ineffective and have no anti-cancer effect in the body.

In addition to Dr. Abraham's intriguing presentation, the conference also featured Dr. Jorge Flechas. Dr. Flechas presented his laboratory information that illustrated the widespread deficiency of iodine. He has tested thousands of samples from patients all over the country and found consistently that over 95 percent of people are iodine deficient. In my office, my partners and I have found similar results: more than 95 percent of patients we have tested are severely iodine deficient. In fact, most of my lab tests show people have nearly undetectable iodine levels in their body. My numbers correlate very closely with Dr. Flechas' numbers. At the conference, I presented information on my use of iodine in a clinical setting. I showed the audience that iodine deficiency is real and still occurring today.

Learning more about iodine's role in our health is one of the most important things we can do because iodine deficiency is the underlying problem—or one of the main problems—responsible for the high rate of cancer (particularly breast, lung, prostate and ovary) as well as the high rate of autoimmune disorders we are seeing in this country.

Day 1 of this conference was truly one of the most stimulating days at a medical meeting. It brought to the forefront the very real concern that iodine deficiency is truly a national problem.

Breast Health, Fluoride Toxicity and Iodine

The second day of the iodine conference started with Bernard Eskin, M.D. Dr. Eskin is professor of Obstetrics and Gynecology from Drexel University. He has published more than 100 peer-reviewed papers and studied iodine for nearly 50 years. Dr. Eskin presented a wealth of information on iodine and its relationship to breast cancer. It is well known that iodine deficiency results in goiter or a larger thyroid volume and Dr. Eskin showed research correlating increased thyroid volume in women with breast cancer. He also showed us his own earlier research where iodine concentrated in the ducts of the breast, the area most commonly affected by breast cancer. He also presented newer research showing how iodine is used by the breast. He made it clear iodine deficiency induces the earliest form of malignant changes in the breast—dysplasia. Iodine deficiency also makes existing cancer more aggressive. He presented research that iodine deficiency increases the size of breast tumors, while iodine replacement reduces their size. Iodine was also shown to inhibit tumor proliferation and to modulate the estrogen receptors in the breast and lessen negative estrogen influence on cancer formation and the spread of cancer cells. The presentation was so informative that it made me realize that even someone like myself, who has immersed himself in the study of iodine, still has a lot to learn.

Day 2 of the iodine conference continued with Dr. Donald Miller. Dr. Miller is a professor of surgery at the University of Washington School of Medicine. I became acquainted with Dr. Miller by reading an article in the Journal of the American Association of Physicians and Surgeons (Miller DW. Extrathyroidal Benefits of Iodine. *Journal of American Physicians and Surgeons* 2006;11(4-Winter):106-110). This article was Dr. Miller's review of the benefits of iodine supplementation. I highly recommend this article to anyone interested in more information on iodine. It is available at his website: www.donaldmiller.com.

Dr. Miller presented information on fluoride and its relationship to iodine. He discussed the research calling into question the benefits of water fluoridation and quoted a study from the WHO showing that there is no difference between fluoridated and unfluoridated countries in the tooth decay rate. A huge number of our children (more than 30 percent according to the CDC) are currently being affected by fluoride poisoning, which can manifest as dental fluorosis. He also reviewed the manifestations of fluoride poisoning that include arthritis, osteoporosis, Alzheimer's disease, and an increased risk of cancer.

Next, Dr. Miller reviewed the scope of iodine deficiency and the consequences when we are not obtaining enough of this mineral. He presented information showing iodine functions as a strong antioxidant. Iodine was also shown to induce death in lung cancer cells. Another important part of Dr. Miller's presentation was a com-

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Hormonal Imbalance

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Adrenaline deals primarily with short-term stress while cortisol is produced as a result of both acute and long-term stress.

Prolonged stress, whether as a result of emotional, environmental or physical causes, is disastrous for the adrenals. Initially, it results in chronically elevated cortisol levels, resulting in weight gain (especially around the midsection), blood sugar imbalances, thinning skin, muscle wasting, memory loss, high blood pressure, dizziness, hot flashes, night sweats, excessive facial hair, and other masculinizing tendencies.

Overworked adrenals eventually crash, leading to adrenal exhaustion, where the body is unable to maintain adequate adrenal hormone production. Symptoms of overtaxed adrenals include extreme fatigue (Chronic Fatigue Syndrome), irritability, inability to concentrate, frustration, insomnia, addictions to either sweet or salty foods, allergies, nervousness, depression, anxiety, PMS, sensitivity to cold, diabetes and headaches. Chronic low blood pressure can be a key symptom of adrenal exhaustion.

Since the adrenals contribute to about 35 percent of premenopausal female hormones and almost 50 percent of postmenopausal hormones, compromised adrenal function profoundly affects hormonal balance.

Progesterone is the primary raw material for producing cortisol. When the glands are in overdrive, the body will divert progesterone to the adrenals to support cortisol production. With reduced progesterone, the body may experience estrogen dominance, i.e. PMS, hot flashes, night sweats, migraines, fibroids, heavy bleeding, breast tenderness, weight gain, etc. Excessive cortisol also blocks progesterone receptors, further contributing to low progesterone.[1] These two imbalances are the primary reasons why adrenal exhaustion leads to estrogen dominance.

Restoring adrenal function is a prerequisite for hormonal balance. Nutrients that have special importance to the adrenals are the B vitamins (especially B5), vitamin C, proteins, magnesium, manganese, zinc, potassium, plant enzymes, adaptagenic herbs, adrenal extracts and the amino acids tyrosine and phenylalanine. Rest also helps rebuild the adrenals.

Individuals who suspect adrenal exhaustion can determine whether the body is producing healthy levels of adrenal hormones through proper testing. Cortisol levels can be measured with a saliva test that collects at least four samples over 24 hours.

The Thyroid and Hormones

Overtaxed adrenals can lead to hypothyroidism, which has a direct effect on women's hormonal health. By age 50, one in every twelve women has a significant degree of hypothyroidism. By age 60, it is one woman out of every six.

The thyroid, which regulates metabolism, may turn down its hormonal activity in an attempt to reverse adrenal overdrive. Some symptoms of hypothyroidism include fatigue, weight gain, fibroids, endometriosis, ovarian cysts, heavy bleeding, fibrocystic breast disease, depression, PMS, migraines, lack of concentration, cold hands and feet, menopausal symptoms, miscarriage and infertility.

Birth control pills and estrogen increase thyroid-binding proteins in the bloodstream.[2] This means that thyroid blood test results may be unreliable. Even though they may show normal thyroid hormone levels in the blood, there may be insufficient thyroid hormone in the tissues.

Hypothalamus-Pituitary-Adrenal axis activation due to stress causes decreased production of thyroid-stimulating hormone (TSH), and blocks inactive thyroxin's conversion to the biologically active triiodothyronine. (T3), which has the greatest effect on the body.[3]

Effective natural approaches help in regulating the thyroid. Natural progesterone balances the thyroid-inhibiting effect of estrogen dominance, as does supplementation with thyroid glandular extracts, enzyme therapy, minerals (Iodoral®, selenium and magnesium), vitamins and herbals.

The Candida-Hormone Connection

A serious digestive concern is the yeast-fungal infection known as candidiasis. Approximately 75 percent of women suffer from at least one yeast infection during their lives.[4] This toxic yeast overgrowth is caused by eating large amounts of sugar and/or prolonged or repeated use of antibiotics, birth control pills, estrogen therapy, and cortisone.

Candida produces 79 different toxins known to wreak havoc with the immune system.[5] A long list of potential symptoms associated with candida overgrowth include depression, anxiety attacks, mood swings, lack of concentration, drowsiness, poor memory, headaches, insomnia, fatigue, bloating, constipation, bladder infections, menstrual cramps, vaginal itching, muscle and joint swelling, pain, hypothyroidism, and skin problems.

However, it is rarely understood that candida also contributes to hormonal problems. A candida waste product produces a false estrogen, which tricks the body into thinking it has produced adequate levels, signaling a reduction of its own estrogen.[6] Similar messages can also be sent to the thyroid, reducing thyroxin production and initiating or worsening a hypothyroid problem.

Elevated estrogen levels also increase vaginal candidiasis incidence.[7-8] Estrogen will literally feed candida growth, which is why birth control pills and estrogen replacement therapy put women at a greater risk of developing candida.

The botanicals pau d'arco, grapefruit seed extract, and berberine along with undecylenic acid and sorbic acid can be used along with an anti-candida diet to help rid the body of this harmful fungus/yeast. Probiotics should also be used to help re-establish the beneficial bacterial in the colon.

Conclusion

Most hormonal imbalances are symptomatic of underlying health issues. Maintaining healthy adrenals, thyroid and colon are fundamental to hormonal well being at any age.

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Oral Health and Heart Disease: How Dental Health Affects Cardiovascular Conditions

by Nieske Zabriskie, ND

Surprisingly, one of the most important risk factors for heart disease occurs in an area of the body we don't often connect with cardiovascular health: the mouth. Yet, numerous studies have shown the correlation between poor oral health and heart disease.

Both poor oral health and heart disease are common conditions in America. According to the American Heart Association, 36.3 percent (1 in 2.8) of deaths in 2004 were caused by cardiovascular disease.[1] In elderly populations, poor dental health is also associated with all-cause mortality.[2] The National Health and Nutrition Examination Survey (NHANES) 1999-2002 investigated the oral health of the U.S. population. This study found that 41 percent of children aged 2-11, 50 percent of children aged 12–15 years, and 68 percent of adolescents aged 16–19 years had tooth decay in their primary teeth. Also, the prevalence of decay in adults showed that 87 percent of individuals ages 20-39 and 95 percent ages 40-59 had decay in the coronal surface of the permanent teeth. This study demonstrated another alarming fact: 25 percent of adults over age 60 had lost all of their teeth.[3] Due to the prevalence of these conditions, the correlation between oral health and heart disease is significant as oral health may be a possible avenue of intervention to decrease cardiovascular mortality.

Some researchers have suggested that oral infections may produce inflammatory markers, which could contribute to the pathology of coronary heart disease (CHD). Studies indicate that serum inflammatory markers such as C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and fibrinogen levels are significantly higher in individuals with CHD. CHD patients also have showed an increased prevalence of gingivitis and diseased supporting tissue, less natural teeth, and increased loss of all teeth compared to individuals without CHD.[4]

Chronic periodontitis also is an independent risk factor for coronary artery disease. In fact, studies show that the severity of periodontitis is directly correlated to the severity of the coronary heart disease.[5] Additional research indicated that in individuals with coronary atherosclerotic heart disease (CAD), 84.44 percent had periodontal disease compared to only 22.5 percent in individuals without coronary heart disease. Furthermore, periodontal disease was associated with elevated inflammatory markers and is a higher risk factor for CAD than elevated low-density lipoprotein cholesterol (LDL) and pulse pressure.[6]

Evidence also indicates that cumulative incident tooth loss is significantly related to the prevalence of peripheral artery disease (PAD,) particularly in men with periodontal disease.[7] Additionally, research has shown that periodontal disease is significantly associated with hypertension and risk for myocardial infarction (heart attack) in middle aged individuals. This study further demonstrates that the number of periodontal diseased pockets is significantly associated with hypertension at any age. Also, a low number of natural teeth is correlated with increased risk of myocardial infarction.[8]

Natural Support for Oral Health and Heart Disease

Xylitol

Xylitol is a 5-carbon sugar alcohol found in most fruits and vegetables and can be used as a sugar substitute. Commercially produced xylitol is often extracted from birch and other hardwoods. Most sugars are hydrolyzed by amylase providing a substrate for oral bacteria. These bacteria lower the pH of the saliva and plaque initiating tooth demineralization and decay. Xylitol, unlike most other sugars, has been shown to be beneficial for oral health and decrease dental caries. Xylitol intake has been shown to decrease the amount of plaque and the amount and virulence of the bacteria streptococci mutans in both plaque and saliva.[9]

Streptococci mutans is often transmitted from mothers to their children shortly after birth. Studies have shown that mothers who chew xylitol gum decrease the risk of transmission of these bacteria to their children. In fact, this study demonstrated that at two years of age, only 9.7 percent of children whose mothers began chewing xylitol gum when the children were 3 months of age had streptococci mutans. In children whose mothers were treated with fluoride varnish, a significant 48.5 percent had streptococci mutans.[10] Additionally, researchers have demonstrated that even 5 years after the discontinuation of a xylitol chewing gum study, the children who were in the xylitol group still had 59 percent lower risk of dental caries compared to the group of children not given xylitol gum. Also, this study showed that teeth that erupted within one year of the discontinuation of the study had a long-term decreased risk of dental caries of 93 percent, suggesting that children should chew xylitol gum or consume other forms of xylitol regularly beginning one year prior to permanent dentition eruption.[11]

Because xylitol is a low-glycemic, natural sugar substitute, its incorporation in the diet can also play a role in supporting healthy blood sugar levels. The link between diabetes and an increased risk of heart disease is well-established, indicating that xylitol can improve cardiovascular health on a number of levels.

Vaccinium macrocarpon (Cranberry)

Cranberry is frequently used medicinally to treat urinary tract infections because of its ability to inhibit particular strains of bacteria from adhering to the bladder wall. This evidence led researchers to investigate whether cranberries could also inhibit adhering of plaque bacteria in the mouth. Research indicates that cranberry juice inhibits colonization on the tooth surface by the bacteria streptococci, and thus may decrease the development of dental

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Phytonutrient Protection from Skin Damaging Effects of Ultraviolet Radiation

by Kimberly Pryor

Non-melanoma skin cancer is the most common cancer in humans and is equivalent to the incidence of malignancies in all other organs combined in the U.S.[1] Melanoma, the most deadly form of skin cancer, also takes its toll.

Ultraviolet radiation exerts its damaging effects in part by affecting the immune system in three primary ways. The UVB spectrum inhibits antigen presentation, triggers the release of immunosuppressive cytokines (proteins produced by white blood cells), and elicits DNA damage, a molecular trigger of UV-mediated immunity suppression. Dietary botanicals are of particular interest because they have been shown to inhibit UV-induced immune suppression and photocarcinogenesis (UV-induced skin cancer).[2]

Often, the advice is to stay out of the sun, but ultraviolet light exposure is necessary to our emotional well being and our physical health, thanks to the increased production of vitamin D in sun-exposed skin. It is beneficial, then, to be able to spend time outdoors while simultaneously protecting the skin from ultraviolet damage.

Phytonutrients have been well-researched for their ability to protect against ultraviolet radiation and reduce melanoma risk. Regularly consuming the following nutrients will help the skin build a natural shield against the sun and decrease damage that might normally occur.

Phytonutrient Protection

Grape seed extract, rich in proanthocyanidins, is one of five phytonutrients especially powerful at protecting skin health. In a new study, where the researchers used an animal model of hairless mice to replicate human sun exposure, grape seed extract triggered an improvement in the immune system that led to protection from skin cancer initiation. Researchers supplemented the diet of mice with proanthocyanidins extracted from grape seed then exposed the animals to UVB radiation to induce skin cancer. Compared to unsupplemented control mice, the animals given the grape seed extract experienced a 20 to 35 percent reduction of tumor incidence, a 46 to 65 percent reduction in tumor multiplicity and a 66 to 78 percent reduction in tumor size.[3]

To determine grape seed extract's mechanism of action, the researchers conducted another rodent experiment. In this study, they found that normally UVB radiation caused an increase in the cytokine interleukin-10 (IL-10), a protein produced by white blood cells previously reported to suppress immune function. In animals supplemented with the grape seed extracts, however, the increase in IL-10 was markedly reduced. The grape seed extract also increased the production of IL-12, reported to enhance immune function. Consequently, an increase in immune activity is likely responsible for grape seed's skin-protective effect.[3] These results were confirmed in a human study, where subjects consuming grape seed proanthocyanidins experienced a 13 percent reduced reddening of the skin when exposed to UV radiation.[4]

Silymarin, milk thistle's main component, is another phytonutrient studied extensively for its ability to enhance skin health. SK Katiyar, the same researcher who has extensively studied grape seed extract and other skin-supporting botanicals, investigated silymarin's effects. He and his team of researchers have shown that silymarin inhibits UVB-induced skin cancer in mice. They have also determined that silymarin accomplishes this by modulating UVB radiation's effects on the immune system. Silymarin applied topically reduced the UVB-induced increase of the immunosuppressive cytokine, interleukin (IL)-10, in the skin and lymph nodes and enhanced the levels of the immunostimulatory cytokine, IL-12.[5]

Another group of researchers treated human irradiated skin cells with silymarin and noted a subsequent concentration-dependent reduction of oxidative stress caused by ultraviolet A light. Silymarin application inhibited the depletion of the antioxidant glutathione and inhibited free radical production as well as lipid peroxidation in irradiated cells. Silymarin also prevented UVA-induced DNA damage.[6]

An equally impressive array of evidence supports the use of green tea polyphenols for enhancing the health of sun-exposed skin. Green tea polyphenols suppress the carcinogenic activity of UV radiation and protect against UV-induced sunburn response, UV-induced immunosuppression and photoaging of the skin. Green tea has exerted its protective effects by various cellular, molecular and biochemical mechanisms during both in vitro and in vivo experiments.[7]

In one study, mice were exposed to ultraviolet B light, which resulted in red sunburn lesions of the skin. However, in mice given green tea extract in their drinking water, the intensity of red color and area of lesions were inhibited in a dose-dependent fashion. Green tea extract also inhibited the formation of skin tumors in animals exposed to both UVB radiation and a cancer-promoting agent and substantially decreased the size of the tumors while at the same time decreasing spleen size.[8]

Green tea's mechanism of action is thought to be similar to that of silymarin and grape seed in that it enhances immunity in the skin. Epigallocatechin-3-gallate (EGCG), the major polyphenol of green tea, prevents UVB-induced immunosuppression by inducing the immunostimulating cytokine interleukin-12 (IL-12).[9]

Curcumin, turmeric's main component, is another phytonutrient that can inhibit cell proliferation and induce cell death (apoptosis) in human melanoma cells. One of curcumin's mechanisms of action involves protein-digesting enzymes (proteases) known as caspases essential for apoptosis (programmed cell death). Tumor development occurs when apoptosis fails to transpire, since the body uses apoptosis as a way to weed out unhealthy cells. Caspases

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DMAE and Age Spots

Dear Dr. Meletis,

I want to order *DMAE* for age spots. Will it interfere with Diovan® for blood pressure or *LipiControl*™?

Ms. T.

Dear Ms. T.,

DMAE should be fine with Diovan and/or *LipiControl*. In addition, I routinely tell my patients on Diovan to make sure to add *CoQ10* to support its effects and protect their heart. *CoQ10* should also be taken with *LipiControl*. Additionally, since *CoQ10* is a potent antioxidant it will work in synergy with the *DMAE* for the age spots.

Sincerely,
Chris D. Meletis, ND

Parkinson's and Mercury

Dear Dr. Dean,

I am a 46-year-old male diagnosed with Parkinson's disease 6 years ago. My doctor seems to be convinced my Parkinson's may be aggravated by high mercury levels. Is there any indication that high mercury levels can cause mitochondrial damage? If this is true, are there any studies to suggest that mitochondrial function can be restored to near normal or even normal by eliminating the mercury with supplements (*CoQ10*, etc.)?

Mr. W.

Dear Mr. W.,

I agree with your physician the potential for mitochondrial harm that can result from mercury—and the levels do not need to be "high." I believe that any amount of mercury is highly toxic. Some people are more susceptible to mercury toxicity than others.

As you know, Parkinson's disease is characterized by accelerated mitochondrial dysfunction. There are, however, no clinical studies that one can point to that clearly confirm that enhancing mitochondrial function will mitigate the progression of Parkinson's disease. Nevertheless, I think there are enough studies out there with "pieces of the puzzle" that enable us to guess that enhancing mitochondrial function will, in fact, do just that.

Please see the series of articles on our website regarding mitochondria and aging, which provide justification for our mitochondrial resuscitating formulas, *Mito-Boost® I* and *Mito-Boost II*. These formulas contain virtually every nutrient that has been demonstrated in clinical studies to enhance mitochondrial function, which is known to decline with age.

As you alluded, additional *CoQ10* is required, to supplement *Mito-Boost I* and *II*. To chelate mercury from the body, *DMSA* is usually the agent of choice. I also recommend supplemental *Glutathione* and sublingual *Methylcobalamin* (*Vitamin B12*).

Ward Dean, MD

Weight Loss Surgery

Dear Dr. Meletis,

Since I underwent Bariatric Lap Band Surgery I have lost over 65 pounds and would like to lose another 20. I am 51 years young and have never felt better. I exercise regularly and have even taken up competitive weightlifting. However, my food consumption is down to about 1,000-1,100 calories per day.

I do have a few issues that need to be addressed. Raw fruits and vegetables are hard for me to eat so I'm lacking those basic nutrients and the fiber they provide. My bowel movements are infrequent and sometimes hard. Although I try to eat only the best foods (low-fat protein and whole grains), there are days when I'm sure I'm not eating enough protein or enough minerals. Because of where the band is located on my stomach, I belch and burp quite a bit when I do eat solid foods. Can you recommend a daily supplement regimen? I want to make sure my overall health remains as good as I feel (and look)!

Ms. G.

Dear Ms. G.,

Your health issues are complex due to the surgical intervention. With your exercise and weightlifting, you are making great strides in building your body strength. Yet, in order to maintain the muscle growth, *L-Glutamine*, branched chain amino acids (found in *Amino EDGE*) and proteins are essential to sustain muscle performance. Along with this increased need your potential for decreased *B12*, *Zinc*, *Calcium*, *Iron* and *Vitamin D* is increased. So, working with your doctor and the nutritionist is of paramount importance so that hair loss, skin changes, etc., don't occur.

NanoGreens^{10}™, a green drink mix that contains many fruits and vegetables, and a powdered form of a multivitamin such as *Extend Plus* might be worth considering. A protein drink such as *Opti-Meal* or *Smart Protein* incorporated into a health-promoting diet could prove a nice addition. A *Food Allergy Test* that measures IgG reactions for 96 of the most common foods also can serve as a great tool.

Sincerely,
Chris D. Meletis, ND

Multivitamins, Celiac Disease

Dear Dr. Dean,

What is a good all purpose vitamin? What would be good for celiac disease? I take *Advanced Essential Minerals* and *Vitamin B5*.

Ms. L.

Ms. L.,

All of our multi-nutrient formulas are good "all-purpose vitamins." However, I always recommend that people start with a low-dose formula, such as *Extend One*, or *Extend Core*. This is especially so, in view of your situation with celiac disease.

The most important consideration for celiac disease, of course, is knowing what not to eat. You may also want to try *Lectin Lock*™. As mentioned in our recent article on *Lectin Lock*, elevated levels of serum antibodies to the lectin wheat germ agglutinin were found in celiac children, lending support to the gluten-lectin theory of celiac disease. See reference 10 in the article "Lectins: Their Damaging Role in Intestinal Health, Rheumatoid Arthritis and Weight Loss" available on our website.

Ward Dean, MD

Hepatitis C and Chitosan

Dear Dr. Meletis,

I have been diagnosed with hepatitis C and over the last three months I have been using *HepatoGen*™ along with the new *EpiCor*™ supplements.

I am about 20 pounds overweight, which I understand is not healthy for my liver. I have heard a lot about the

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benefits of taking *Chitosan* capsules before meals to help absorb fat from the diet and thereby help individuals lose weight. Before putting this into my vitamin regimen I want to make sure *Chitosan* won't be destructive or make my liver work overtime. I appreciate your insight.

Mr. K.

Dear Mr. K.,

Chitosan can be helpful. The concern with binders of fat is that they can bind vitamins and minerals that can be helpful for the body. The key is to take *Chitosan* 3-4 hours away from medications and supplements so as not to interfere with therapies. Also, using natural, low-glycemic sugar substitutes like *Xylitol*, healthy fats such as *Coconut Oil* and increasing fiber in the diet can be helpful. I also recommend limiting high-glycemic foods and increasing raw veggies and lightly steamed veggies that are high in antioxidants. Since I don't know which other medicines you may be on, I would recommend checking with your doctor about these suggestions.

Sincerely,
Chris D. Meletis, ND

Autism and Tungsten

Dear Dr. Meletis,

A friend of mine has a 10-year-old autistic child. They tested him for heavy metals and found high levels of tungsten in his system. Could there be any connection with his condition? Can tungsten be removed with oral chelation?

Mr. D.

Dear Mr. D.,

Though tungsten may be contributory to symptoms, it is not an element most commonly associated with this type of challenge. Investigating iodine status relative to bromine would be a consideration. Please see the article "Testing for Iodine Deficiency. Whole Body Levels Crucial for Thyroid and Breast Health" on our website to learn more about bromine. Also, to investigate thyroid performance, I would suggest testing TSH/Free T4 and Free T3 levels. To maintain proper thyroid health, if the tests indicate, I would then recommend *Iodoral*™. In addition, I suggest a home investigation into whether there is a sleep disturbance, including measuring O2 saturation at night.

I often have my patients incorporate essential fatty acids (fish oil), *DMAE* and *Zinc* along with *Magnesium* and *Extension B-Plex*. *DHA Junior Liquid* is a good choice as a source for omega-3 fatty acids for children as it is pleasant tasting.

Hope this helps your friend's son as he and his family visit with his pediatrician.

Sincerely,
Chris D. Meletis, ND

Persistent Cough

Dear Dr. Dean,

I have a client, a male in his mid 40s, with a persistent cough just in the a.m. upon arising from bed. It is continuous for an hour or so. He has had x-rays done on his lungs, and they came out clear, with no infection. Cough medications do not help. Doctors don't know what's wrong. Your help is appreciated.

Ms. H.

Dear Ms. H.,

What is your client's smoking history?

You might try him on some *Iodoral*™. Potassium Iodide is a great mucolytic—i.e., it really helps to liquify the mucus that your client may be trying to cough up. In addition, you may want to have him take our *Food Allergy Test* and try eliminating any offending foods from his diet.

Let me know how he does.

Ward Dean, MD

Behavioral Problems and Asthma

Dear Dr. Dean,

I have a ten-year-old son who exhibits mood swings and is easily angered and frustrated. At school, the teacher complains about him fidgeting and not listening. At home he also has a problem listening when asked to do something. He is impulsive at times and gives up easily.

I took him to a neurologist, but he is not yet diagnosed with ADHD. I think it might be emotional/behavioral. What do you recommend I give him or how can I help him? He also suffers from asthma and allergies.

Ms. S.

Dear Ms. S.,

My first choice in supplements for those with ADHD-type symptoms is *DMAE 100 Plus*, in a dose of one to five capsules per day. I usually recommend starting with the lowest dose, and working up to whatever is effective. Also, supplemental *Magnesium*, as a natural smooth muscle relaxant, may help him to stop fidgeting.

What is he taking for his asthma? I recommend several grams per day of *Bioflavonoid Complex*, as well as *Forskolin* and *N-Acetyl Cysteine* (NAC). Have him take the dosage of *Forskolin* and *NAC* as on the bottle. These supplements can be taken in addition to any asthma medications he is taking, and may enable him to reduce his reliance on the medications.

Finally, I suggest watching his carbohydrate intake. Reactive hypoglycemia could be a cause of his mood swings.

Hope these suggestions are helpful.

Ward Dean, MD

Alzheimer's

Dear Dr. Meletis,

My father, who is 72, was recently diagnosed with Alzheimer's. He is probably at about stage four or five. He has been prescribed Aricept®, and has shown some improvement. Today the doctor also prescribed Namenda®, and I am concerned about possible side effects. I would like to give him *Galantamine*, but I am worried about interaction with the Aricept, since cholinesterase inhibitors are specifically contraindicated. I was also interested in your thoughts about *Resveratrol*, *Turmeric*, and *Green Tea Extract*, as well as any other supplements that could possibly enhance cognitive function or delay progression of the disease.

I am a 20-plus-years customer of your company, and I have enjoyed incredible results with supplements purchased from you. I would like to thank you for providing such excellent products, information, and service to your customers.

Ms. S.

Dear Ms. S.,

Thank you for the kind words about our supplements. I am in agreement that we want to avoid potential interactions with the Aricept. It might be worth visiting with your father's doctor about *DMAE*. You would

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also want to start with very small doses since it feeds into the acetylcholine pathway as a precursor; yet I have had good clinical results with its use.

I like your idea of *Resveratrol*, and I would say that *Acetyl-L-Carnitine* (ALC) would be another consideration. Yet, I would start with either *DMAE* or *ALC* but not both at the same time. Start slowly with his doctor supervising.

Additionally, it is essential that he drinks sufficient water daily, 64 ounces per day unless his doctor is restricting fluids. Also having his total and free testosterone levels measured and TSH and Free T3 would be strong considerations. Furthermore, rule out anemia, making sure his *Vitamin B12* levels are sufficient and that he does not have a homocysteine level above 7.

Sincerely,
Chris D. Meletis, ND

Kawasaki's Disease

Dear Dr. Dean,

I am in Asia and my three-year-old son contracted Kawasaki's disease. He came down with it about three weeks ago now, but I have only today found out what he is suffering from. He is getting better with no treatment so far. I have started him on low dose aspirin today. Should I continue or is it too dangerous, or too late? Also what vitamins should I put him on? He is getting his heart, etc., checked on Tuesday.

Regards,
Mr. N.

Dear Mr. N.,

As you've probably found out, Kawasaki's disease is a poorly understood condition, with no definitive treatment, but with potentially serious long-term adverse consequences.

It looks like an infectious disease, but no causative agent has ever been identified. It also looks like an immune-mediated vasculitis (inflammation of the vascular system), but does not respond well to even powerful corticosteroids. It may resolve spontaneously, without adverse effects, but in a significant percentage of cases, can cause long-term effects, such as coronary artery aneurysms.

Aspirin is a mainstay of conventional therapy. I think you should continue your son on the aspirin. In addition, I recommend *UniZyme*™, for its anti-inflammatory and fibrinolytic effects. Also, you might consider *Turmeric Extract* for its anti-inflammatory and fibrinogen-lowering effects, as well. *Resveratrol* also is a powerful platelet-aggregation inhibitor and anti-atherosclerotic agent.

I'd also make sure he was taking plenty of *Vitamin C* and *Bioflavonoid Complex*, to promote vascular and connective tissue integrity. *Mild Silver Protein* (Liquid Silver) might help, on the chance that Kawasaki's disease is caused by some unidentified microorganism.

Hope these suggestions help.

Ward Dean, MD

Chicken Pox

Dear Dr. Dean,

Are there any natural substances that can be used for chicken pox?

Ms. S.

Dear Ms. S.,

Two suggestions are to use Oral/Topical *Mild Silver Protein* preparation, applied topically to the lesions.

Another suggestion is to use *BHT* dissolved in *Coconut Oil*, applied topically, or *BHT* orally, in a dose of 500 mg per day (for adults). I don't recommend it for use in infants and children, as I have no experience in such use.

Immune system support would also be important. *Beta Glucan* or *EpiCor*™ are two suggestions in this area, and are both safe for children.

Ward Dean, MD

Tendonitis

Dear Dr. Meletis,

I am a 50-year-old, physically active woman. I ride 2 horses about 50 minutes, 6 days per week. I have been experiencing tendonitis in both arms, shoulders and my neck for about 6 months. I am still active, although not without pain. I had read that *Vitamin B6* is good for tendon issues. What would you recommend?

Thank you in advance.

Ms. M.

Dear Ms. M.,

Yes, *B6* can be helpful to support wellness. However, I routinely have patients use a B-complex (such as *Extension B-Plex*) rather than a single B vitamin. If you are not already doing so, incorporating *MSM* and *Glucosamine Sulfate* (both found in *Nutri-Joint*) into your program may be another consideration to support connective tissue health. *UniZyme*™ and *Nutri-Joint Cream* are two other supplements you may want to learn more about.

More important than all of these considerations is looking back upon what changed relative to your riding and life experience that shifted you towards increased inflammation of the tendons.

Not knowing your current medications or health issues, I would recommend visiting with your doctor about these supplement considerations.

Sincerely,
Chris D. Meletis, ND

UTIs in a Quadriplegic

Dear Dr. Dean,

I hope this finds you well. I'm a C5 quadriplegic with a neurogenic bowel/bladder. Chronic urinary tract infections and years of treatment with antibiotics have begun to concern my urologist and me. He now withholds treatment for non-symptomatic UTIs I contract and will only treat me with antibiotics if and when I become symptomatic with fever. What do YOU think about his treatment of my situation? Is this dangerous to my long-term bladder health? Should I seek another solution?

I have tried *D-Mannose* and *ActiBiotic*™. It was my impression that these two work best only upon E-coli-based UTIs, whereas my UTIs are usually *Pseudomonas* or *Klebsiella* based. I thought about using a mixture of one teaspoon MSP (*Mild Silver Protein*) and sterile 500cc DS5W saline or sterile water to irrigate my bladder. What do you think?

Regards,
Mr. S.

Dear Mr. S.,

I recommend that you use 1-2 teaspoons (5-10 cc) of undiluted *Mild Silver Protein* (MSP 400 ppm) as a bladder irrigant. I would not dilute it with the saline. This is an old, tried-and-true practice for bladder/urinary tract infections.

Ward Dean, MD

Cognitive Enhancement: The Fourth Component to Healthy Aging

by Chris D. Meletis, ND

In the January newsletter article, *Five Critical Components to Healthy Aging,* I touched upon the five most important ways individuals can stay healthy throughout their lives. In February, I began a five-part series to address each of these components in more detail and have already addressed the first three components, cardiovascular, bone and joint and blood sugar health. This month, I will discuss cognition.

Unlike conventional physicians, who often specialize in one area of the body, holistic health involves realizing the body as a whole is connected. This same concept applies to cognitive health. Many of the factors I discussed in past installments of this *5 Components* series—such as homocysteine levels, blood sugar control, adequate sleep and stress—also play an important role in retaining optimal memory as we age. Therefore, in this article, I will touch upon each of these factors and their relationship to memory as well as outline an appropriate supplement regimen to enhance cognition.

Memory and Homocysteine

The medical literature has found a link between high homocysteine levels and reduced cognitive function. Furthermore, high homocysteine concentrations have been associated with a greater risk of Alzheimer's disease and dementia. Epidemiological studies have confirmed that elevations in plasma total homocysteine precede the development of dementia and that there is a continuous, inverse relation between plasma homocysteine concentrations and cognitive performance in older persons. High levels of the homocysteine-lowering B-vitamin folate (plasma and dietary) have remained independently protective against a decline in certain measures of memory, leading researchers to conclude that low B vitamin and high homocysteine concentrations predict cognitive decline."[1]

In a recent randomized, double blind, placebo-controlled trial of men and women aged 50-70 years with raised plasma total homocysteine and normal serum vitamin B12 at screening, folic acid produced significant improvements in memory, information processing speed and sensorimotor speed compared to the placebo group.[2]

These results led the researchers to conclude, "Folic acid supplementation for 3 years significantly improved domains of cognitive function that tend to decline with age."

Given the association between homocysteine and cognitive decline and the fact that these B vitamins have been shown to lower homocysteine levels, there is merit to supplementing with each of these vitamins.

Melatonin and Memory

Just like adequate sleep is an important factor in blood sugar control (see *Blood Sugar Control: The Third Component to Healthy Aging*), it is also an important part of cognitive enhancement. Melatonin, the hormone produced by the pineal gland when we are asleep in a dark room, helps the body manufacture serotonin, a hormone involved in mood and relaxation. The medical literature has widely acknowledged a prominent role of serotonin in memory functions.[3] Pineal calcification, a marker of melatonin deficiency, is also known to widely occur in Alzheimer's disease patients, further establishing the link between melatonin and memory.[4] In rodents, melatonin inhibits expressions of proinflammatory factors, which may contribute to improvement of learning and memory function in AD.[5] Melatonin combined with vitamin E also has improved cognitive function in rats with diabetes-induced learning and memory impairment.[6]

Similar improvements have been noted in humans. In a double-blind, placebo-controlled pilot study of 26 healthy elderly subjects who received either 1 mg melatonin or a placebo nightly for 4 weeks, melatonin administration improved cognitive scores along with sleep quality.[7]

The Blood Sugar Link

High blood sugar levels have been implicated in memory impairment in a number of studies. I touched upon blood sugar's role in health in greater detail in the last installment of the *5 Components to Healthy Aging* and outlined a nutritional approach for stabilizing glucose levels. However, blood sugar plays such an important role in cognitive health that I wanted to mention it briefly in this article.

Peptide signals from the pancreatic islets and the gastrointestinal tract influence the regulation of energy homeostasis by the brain, and the brain in turn influences the secretions of both the islets and the gut. Insulin receptors are also densely expressed in the hippocampus, and insulin acts there to facilitate learning and memory. Obesity and/or the consumption of diets high in fat render the brain as well as the body insulin resistant. This is why type 2 diabetes often leads to cognitive impairment and dementia.[8]

In an interesting study of both nondiabetic and diabetic women, the levels of glycosylated hemoglobin (HbA1C), a marker of glucose control, predicted the development of cognitive impairment in the subjects. The higher the HbA1C levels, the greater the likelihood of developing mild cognitive impairment or dementia.[9] This led the researchers to conclude, "Our findings support the hypothesis that glucose dysregulation is a predictor for cognitive impairment."

I recommend that anyone interested in preserving cognitive function follow the nutritional protocol I recommended in *Blood Sugar Control: The Third Component to Healthy Aging.*

Neurodestructive Effects of Stress

Stress and cortisol are known to impair memory retrieval. Cortisol's effects on memory retrieval may be due to glucocorticoid receptors in the hippocampus and prefrontal cortex. In addition, repeated stress in animal models causes brain regions involved in memory and emotions, such as the hippocampus, amygdala, and prefrontal cortex, to undergo structural remodeling with the result that memory is impaired and anxiety and aggression are increased.

Studies have shown that stress can have a very specific effect on various aspects of memory. In 20 healthy young men, psychosocial stress impaired working memory at high work loads, but not at low work loads. High cortisol levels at the time of testing were associated with slow working memory performance at high loads, and with impaired recall of moderately emotional, but not of highly emotional, paragraphs.[10]

Patients who receive high doses of glucocorticoids (i.e. cortisol) also suffer impaired long-term memory functions.[11]

Factors Affecting Cognitive Health
• Homocysteine
• Sleep and Melatonin Production
• Blood Sugar
• Stress
• Age-Related Hormonal Fluctuations
• Oxygen Supply to Brain

Additional Factors

Hormones have an equally important role to play in cognitive health. Androgens and estrogens both influence the brain's ability to retain information.[12] Potential neuroprotective effects of estrogen include lowering beta-amyloid, enhancing cholinergic function, promoting synaptic plasticity and nerve process growth, reducing oxidative stress, and enhancing brain glucose transport.[13] A critical window of time may exist around the menopause when hormone therapy may delay or decrease cognitive changes, so natural hormonal support should begin as soon as possible.

Ensuring the brain receives sufficient oxygen supply is another way to enhance cognitive function. The 100 billion neurons within the human brain require sufficient oxygen to operate efficiently. In fact, the brain at rest weighs a mere 2 percent of the body weight, yet demands 20 percent of the oxygen provided by the heart. Anyone who wakes up tired, is told he or she snores excessively, or stops breathing while asleep should have oxygen levels monitored by a health care provider as sleep apnea affects millions of Americans.

Because all of the factors mentioned above can influence the way our brains process information, I recommend a multi-pronged approach that includes 1) homocysteine-lowering nutrients (folic acid, vitamins B12 and B6 and betaine); 2) a combination of the cortisol-lowering botanicals Relora® and Sensoril™; 3) GluControl™ and the other glucose-regulating nutrients mentioned in the *Third Component to Healthy Aging* article; 4) melatonin; 5) natural hormonal replacement when necessary; and 6) supplementing with the cognitive-enhancing nutrients mentioned below.

Botanical and Nutritional Support

Vinpocetine, huperzine, DMAE and ginkgo are specifically known to support memory enhancement and are an equally important part of a cognitive-enhancing program. Since I first wrote about these nutrients in the initial installment of *The 5 Components of Healthy Aging*, a number of exciting new studies on ginkgo have been published. One new study in a mouse model of Alzheimer's disease found that ginkgo significantly increases cell proliferation in the hippocampus of both young (6 months) and old (22 months) mice and that it stimulates enhanced neurogenesis. It also reduces the deposits of amyloid-beta plaques thought to be responsible for the brain damage seen in Alzheimer's.[14] These effects led the researchers to conclude that ginkgo "has therapeutic potential for the prevention and improved treatment of AD."

In another new double-blind trial of 400 subjects with Alzheimer's disease or vascular dementia, ginkgo improved dementia scores while subjects receiving the placebo experienced a deterioration of scores.[15] According to the researchers, the data adds further evidence on the safety and efficacy of ginkgo "in the treatment of cognitive and non-cognitive symptoms of dementia."

Ginkgo can be used synergistically with natural cognitive enhancers such as huperzine-A, investigated for its ability to significantly improve symptoms of Alzheimer's disease and other forms of dementia,[16-17] and vinpocetine, a constituent of the common periwinkle (Vinca minor). In a 16-week, double-blind, placebo-controlled trial of 203 people with mild to moderate dementia, vinpocetine produced significant benefit in the treated group.[18]

DMAE is another nutrient involved in brain health. DMAE's effects have been studied in behavioral disorders in children. Dr. Leon Oettinger, Jr., found that DMAE accelerated mental processes, improved concentration span, abolished early morning fogginess, relieved lassitude and mild depression and improved IQ.[19]

Conclusion

Taking the proper steps to preserve our cognitive health is one of the most important aspects of a healthy aging program. By controlling blood sugar, homocysteine and stress levels, receiving proper sleep, balancing hormones and supplementing with cognitive-supporting nutrients, our journey for optimal health is certain to be a memorable one.

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Neptune Krill Oil™ Part I: Omega-3s Join Forces with Phospholipids to Support Healthy Cholesterol and Blood Sugar Levels

by Tina Sampalis, MD, PhD

Omega-3 fatty acids are some of the most researched nutrients and are acclaimed for their heart-healthy properties. One of the best sources of omega-3s is an often overlooked, powerful source of these fatty acids known as Neptune Krill Oil™. Derived from Antarctic Krill, a shrimp-like creature inhabiting cold waters of the ocean, Neptune Krill Oil has demonstrated the ability to protect the heart, lower cholesterol, act as an anti-inflammatory, alleviate premenstrual syndrome, improve skin health, and increase well-being. In a three-part series, I will explore these effects of Neptune Krill Oil as well as explain its unique properties.

Phospholipids

The Antarctic krill is an especially hardy inhabitant of the ocean, able to withstand Earth's coldest waters. The Antarctic krill is a rich source of the long-chain omega-3 fatty acids EPA and DHA. However, unlike fish oil, Neptune Krill Oil also contains an abundance of phospholipids that are linked to EPA and DHA. Phospholipids have earned the nickname "Life's Building Blocks" because they are integral to the manufacture of cell membranes. Phospholipids work synergistically with omega-3 fatty acids and antioxidants within the cell membrane to assist in a variety of processes essential to life. Much of the omega-3 fatty acids EPA and DHA found in Neptune Krill Oil are structurally intermingled with phospholipid molecules in the form of phospholipids. This mimics the way these nutrients occur naturally in cell membranes. By weight, Neptune Krill Oil is comprised of at least 30 percent EPA and DHA and 40 percent phospholipids, mostly in the form of phosphatidylcholine. The EPA and DHA in fish oil, on the other hand, are in the form of triglycerides.

Werner et al. demonstrated essential fatty acids in the form of phospholipids were superior to essential fatty acids in the form of triglycerides for significantly decreasing the saturated fatty acid ratios of liver triglycerides.[1]

Powerful Antioxidant

Neptune Krill Oil also contains high levels of an antioxidant carotenoid called astaxanthin.[2] A red-orange pigment found in aquatic animals, astaxanthin is closely related to better-known carotenoids such as beta-carotene and lutein. Studies suggest that astaxanthin can be as or more effective as an antioxidant than vitamin E.[3-4] Like other carotenoids, astaxanthin cannot be synthesized by animals and it therefore must be provided in the diet. Certain marine species, however, such as shrimp, have a limited capacity to convert closely related dietary carotenoids into astaxanthin. The presence of this antioxidant carotenoid in Neptune Krill Oil combines with other antioxidants in the oil (vitamins E and A and a bioflavonoid) to create a natural protection against oxidation of the oil—a property that doesn't exist in ordinary fish oil. This stops the fatty acids from becoming rancid, making the oil stable for a long time, as well as protecting the body against free radical attacks.

Astaxanthin is a highly efficient antioxidant that can quench free radicals known as singlet oxygen and hydroxyl radicals produced as by products of cellular energy production. Astaxanthin protects cell membrane phospholipids against the free radical damage known as peroxidation.[4] In measuring the Oxygen Radical Absorbance Capacity (ORAC) of Neptune Krill Oil, researchers found that NKO was 48 times more effective than fish oil and 34 times more effective than coenzyme Q10. ORAC is a measurement of a compound's ability to block free radicals.

Healthy Cholesterol Levels

One of Neptune Krill Oil's most promising actions is its dual ability to improve lipid levels. Research is emerging that Neptune Krill Oil may be even more effective at improving cholesterol than fish oil.

Recently, researchers undertook a 12-week, double-blind, randomized study to compare the effects of Neptune Krill Oil, high EPA/DHA fish oil and a placebo.[5] Study participants included subjects 25 – 75 years old diagnosed for at least 6 months with mildly high to very high blood cholesterol (193.9-347.9 mg/dL) and triglycerides (203.8-354.4 mg/dL). The researchers divided the 120 subjects into four groups. The first group received 2 to 3 grams Neptune Krill Oil once per day, with the dosage determined by body weight. Another group received 1 to 1.5 grams of Neptune Krill Oil once per day, depending on body weight, during the study and then a maintenance dose of 500 mg per day for 90 days during follow up. A third group received 3 grams per day of fish oil containing 180 mg EPA and 120 mg DHA per gram. A fourth group received a placebo.

The study authors measured blood glucose, cholesterol, triglycerides, low-density lipoprotein (LDL – the "bad" cholesterol), and high-density lipoprotein (HDL the "good" cholesterol). Fasting blood lipids and glucose were measured at baseline and at 30 and 90 days after the study's start. For the group consuming the maintenance dose of Neptune Krill Oil, blood lipids and glucose were measured at 30, 90 and 180 days.

The results showed that Neptune Krill Oil had an impressive effect on cholesterol. After 12 weeks of treatment, patients

receiving 1 or 1.5 grams Neptune Krill Oil per day experienced a 13.4-percent and 13.7-percent reduction in mean total cholesterol, from 236 mg/dL and 231 mg/dL to 204 mg/dL and 199 mg/dL, respectively. Subjects treated with 2 or 3 grams Neptune Krill Oil showed a significant reduction in mean total cholesterol of 18.1 and 18 percent respectively. Levels were reduced from a baseline of 247 mg/dL and 251 mg/dL to 203 mg/ dL and 206 mg/dL, respectively. In comparison, people receiving 3 grams of fish oil had a mean reduction in total cholesterol of 5.9 percent, from a baseline 231 mg/dL to 218 mg/dL. Placebo-treated subjects experienced a 9.1-percent increase in mean total cholesterol, from 222 mg/dL to 242 mg/dL.

Levels of LDL, the "bad" cholesterol, also plummeted in the Neptune Krill Oil group. Neptune Krill Oil at a daily dose of 1 gram, 1.5 grams, 2 grams, or 3 grams caused a significant 32, 36, 37, and 39 percent drop in LDL cholesterol, respectively. Baseline levels were decreased in the Neptune Krill Oil 1-gram per day group from 168 mg/dL to 114 mg/dL, in the 1.5-g/day group from 165 mg/dL to 106 mg/dL, and in the 2- and 3-gram per day groups from 183 mg/dL and 173 mg/dL to 114 mg/dL and 105 mg/dL, respectively. Patients treated daily with 3 grams fish oil did not achieve a significant LDL reduction. In placebo-treated patients, LDL levels rose by 13-percent from 137 mg/dL to 154 mg/ dL.

Neptune Krill Oil's effects extended to HDL, the "good" cholesterol. Researchers noted a rise in HDL cholesterol in subjects taking Neptune Krill Oil. At 1 gram of Neptune Krill Oil per day, HDL levels increased from 57.2 mg/dL to 82.4 mg/dL (a 44 percent rise). Subjects consuming 1.5 grams of Neptune Krill Oil per day experienced a 43 percent increase in HDL from 58.8 mg/dL to 83.9 mg/dL. At 2 grams per day, the subjects experienced a 55 percent increase in HDL from 51 mg/dL to 79.3 mg/dL. Subjects treated with the highest dose (3 grams of Neptune Krill Oil per day) experienced an impressive 59 percent increase in HDL from 64.2 mg/dL to 102.5 mg/dL. Three grams of fish oil also caused a smaller increase in HDL from 56.6 mg/dL to 59.03 mg/dL (a 4.2 percent increase). No significant decrease of HDL was observed within the placebo group, with levels of HDL remaining almost stable.

Although lower doses (1 – 1.5 grams per day) of Neptune Krill Oil resulted in only small, non-significant drops in triglycerides, higher doses (2 and 3 grams) resulted in a significant 27 to 28 percent reduction of triglycerides decreasing from baseline levels of 160.4 mg/dL for the 2 gram group and 152.8 mg/dL for the three gram group to 116.1 mg/dL and 112.3 mg/dL, respectively. Fish oil at 3 grams per day achieved a non-significant 3.2 percent reduction of triglycerides. Inexplicably, the placebo-treated patients also experienced a 9.8 percent decrease in triglycerides.

After the main part of the study was over, patients receiving 1 gram and 1.5 grams per day of Neptune Krill Oil continued for another 12 weeks with a lower maintenance dose of 500 mg Neptune Krill Oil per day. These patients maintained a mean total cholesterol level of 192.5 mg/ dL, a reduction of 19 percent from baseline. In addition, LDL cholesterol declined 44 percent from baseline. A moderate decrease in HDL was seen, from the 36 percent increase at 90 days to 33 percent after 180 days of treatment, which still constituted a significant improvement from baseline. Triglyceride levels also dropped farther from the 12 percent reduction that occurred at 90 days of treatment to 25 percent while on the maintenance dose.

Blood Sugar

The above study also showed another promising effect of Neptune Krill Oil—the ability to lower blood sugar.[5] Patients treated with 1 gram and 1.5 grams of Neptune Krill Oil per day saw a 6.3 percent reduction (from 105 mg/dL to 98 mg/dL) in blood glucose levels. Subjects receiving 2 or 3 grams of Neptune Krill Oil per day experienced a 5.6 percent drop in blood glucose (from 92 mg/dL to 88 mg/dL). A daily dose of 3 grams fish oil reduced blood glucose by 3.3 percent, from 90 mg/dL to 87 mg/ dL. Placebo treatment resulted in a slight increase in blood glucose.

Blood glucose continued to decrease slightly in the subjects who continued on with the follow-up maintenance dose of 500 mg of Neptune Krill Oil.

Conclusion

Neptune Krill Oil combines multiple ingredients with synergistic bioactivity. The exact mechanism of action for Neptune Krill Oil's lipid-lowering effects is not yet entirely clear. However, Neptune Krill Oil's unique profile of omega-3 fatty acids incorporated into phospholipids distinguishes Neptune Krill Oil from other lipid-lowering agents.

Because Neptune Krill Oil is derived from seafood, those with seafood allergies should use NKO with caution, or after suitable allergy testing. Those taking anticoagulant medication, or who suffer from extreme bleeding conditions, should use Neptune Krill Oil only with medical supervision.

Next Month: I will explore Neptune Krill Oil's anti-inflammatory actions, including its ability to lower C-Reactive Protein.

(Editor's Note: Although Neptune Krill Oil's effect on cholesterol appears to be superior to fish oil, high quality fish oil supplements such as Ethyl EPA or Nordic Naturals fish oils, can still be used by individuals searching for an economical way to support heart health. Neptune Krill Oil, on the other hand, is an ideal option for anyone who wants to take omega-3 supplementation to a higher level.)

Tina Sampalis M.D., Ph.D.

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Iodine's Role

Continued from page 5

parison between the iodine intake in the U.S. and Japan. What is the consequence of the Japanese ingesting more than 100 times the iodine as the average American? A lowered rate of breast cancer, a much better life expectancy and a lower infant mortality rate.

Dr. Miller's presentation was a wonderful overview of the benefits of iodine.I thoroughly enjoyed his long discussion on the dangers of adding fluoride to the water supply.

After lunch, Dr. William Shevin spoke on his Clinical Experience with Orthoiodosupplementation. Dr. Shevin started his talk with showing what has happened to the radioactive iodine released from nuclear tests and accidents. He showed that radioactive iodine has penetrated nearly every area of this country from testing done in Nevada. He presented his clinical experience with testing and treating 186 patients. He reported that 71.5 percent showed "unequivocable improvement," 15.6 percent had improvement, while 4.8 percent reported negative reactions and 8.1 percent of his patients noted no change. The three case histories he presented were highly informative. The most interesting part of the case histories (at least to me) was when he showed how he treated a detox reaction from iodine with sea salt. Dr. Shevin reported from the literature that salt was the treatment of choice to treat bromine toxicity from years past. Many people are exposed to bromine through dietary sources. He felt that iodine use in some will trigger a bromine detox reaction that can be managed by using more sea salt in the diet. I have found similar results in my practice. Dr. Shevin also showed a video of his patients' responses to iodine. I found his talk stimulating, and it provided a lot of useful clinical information on iodine supplementation.

Glenn Ozalan, NMD, and Vimal Patel, RPh gave the final lecture. They presented useful information on how to detoxify the body. They also presented their clinical information on the use of iodine as part of a detoxification plan.

I thought the first iodine conference was truly a special event. I learned a tremendous amount and cannot wait until the next conference. Meanwhile, for those of you who were unable to attend, I highly recommend the DVD that recaptures all these fascinating presentations.

Phytonutrient Protection

Continued from page 8

play such an integral role in cell death that they have been called "executioner" proteins. Ultraviolet light is a strong apoptotic trigger that causes caspase-dependent biochemical changes in cells. Therefore, curcumin's ability to influence the activity of caspases is one of the likely explanations why it inhibits melanoma cells.[10]

Another mechanism of action behind curcumin's ability to inhibit melanoma in human cell lines involves its role in inhibiting the expression of Cyclooxygenase-2 (COX-2). Ultraviolet B (UVB) irradiation of skin causes acute inflammation. The COX-2 protein is significantly involved in this acute inflammation that occurs after UVB exposure. Curcumin has been widely studied as a promising anti-inflammatory agent that can inhibit COX-2 expression. When researchers exposed human skin cells to UVB radiation then treated them with curcumin, COX-2 expression was significantly inhibited in the cells treated with the turmeric component.[11]

Red wine and resveratrol can offer additional protection, often working synergistically with the botanicals mentioned above. When researchers gave mice with experimental melanoma red wine and grape seed extract, the red wine stopped the cancer metastasis to the lungs by more than 20 percent, while the grape seed reduced the number of metastatic nodules by more than 26 percent.[12]

Resveratrol also is a potent inducer of apoptosis in human melanoma cells, leading one group of researchers to conclude, "These results suggest that in vivo studies of the effect of resveratrol on melanoma are warranted and that this plant polyphenol might have effectiveness as either a therapeutic or chemopreventive agent against melanoma."[13]

Conclusion

Phytonutrients can minimize skin damage that occurs with ultraviolet radiation exposure. Grape seed extract, green tea polyphenols, silymarin (Milk Thistle), curcumin (turmeric), and red wine/resveratrol all have been shown to prevent or reduce sun damage. Supplementing with a formula that combines all these phytonutrients can synergistically preserve skin health.

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Oral Health

Continued from page 7

plaque.[12] An additional study showed that a component of cranberries decreased coaggregates formed by oral bacteria. This causes a decrease in oral microflora and suggests a possible treatment to improve oral hygiene.[13] In addition, cranberry supplementation has been shown to increase the beneficial high-density lipoprotein cholesterol (HDL.) Low HDL is an independent risk factor for cardiovascular disease.[14] Thus, cranberry intake may have a dual role: increasing both oral health and cardiovascular protection.

Coenzyme Q10 (CoQ10)

CoQ10 is a compound found in virtually every cell in the body. CoQ10 is a potent antioxidant and is required for the synthesis of cellular energy. Supplementation with CoQ10 has been shown to benefit both cardiovascular disease and oral health. Evidence indicates that individuals with periodontal disease have decreased gingival tissue levels of CoQ10 compared to individuals without periodontal disease.[15] Research has shown that topical application of CoQ10 significantly improved periodontitis in adults as the sole treatment as well as adjunctive therapy.[16] CoQ10 has been shown to be helpful for numerous cardiovascular diseases as well, such as hypertension, ischemic heart disease, and congestive heart failure.[17]

Folic Acid

Folic acid is a water-soluble B vitamin required in the diet. According to the National Health and Nutritional Examination Survey (NHANES) 2001-2002, low serum folic acid levels are an independent risk factor for periodontal disease in elderly adults.[18] Additional studies indicate that folate mouthwash significantly improved gingival health in pregnant women.[19] Low folic acid levels are also associated with increased levels of homocysteine, a risk factor for atherosclerosis, stroke, and heart disease.[20]

Conclusion

The association of poor oral health and heart disease is well established and the link between poor oral hygiene and heart disease may be due to an increase in inflammation. Use of xylitol as a sugar substitute as well as supplementation with cranberry, CoQ10, and folic acid can decrease risk factors associated with both poor oral health and heart disease. Therefore, correcting poor oral health issues is a potential avenue to decrease the overwhelming prevalence of cardiovascular disease.

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BHT Powder	CP8001
Bioflavonoid Complex	CP1480
Chitosan	CP7391
Coconut Oil (Organic)	CP3216
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D-Mannose Plus	CP5504
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Vitamin D3	CP3091
Xylitol Unique Sweet® Crystals	CP9303
Zinc Monomethionine	CP7541

Obesity in Men Linked to Testosterone-Lowering Chemical

A new study by University of Rochester researchers has linked exposure to a common chemical found in plastics and soaps to insulin resistance and obesity in men.

Previous studies have found that exposure to phthalates—found in cosmetics, shampoos, soaps, lotions, lubricants, paint, pesticides, plastics and in the coating of some timed-release medicines—may be associated with reproductive problems. More than 75 percent of the United States population is thought to have measurable levels of several phthalates in their urine.

Researchers have theorized that this class of chemicals, as well as other environmental pollutants, may be lowering testosterone levels in men and may be responsible for the substantial declines in testosterone levels and sperm quality that have occurred in the United States and other countries over the last several decades. Animal studies have demonstrated that phthalates lower testosterone levels and recent human data has found that phthalates are associated with poor semen quality in men and subtle changes in the reproductive organs in male children.

Researchers of the current study decided to investigate the effect of this class of chemicals on obesity after noting that low testosterone appears to cause increased abdominal fat and pre-diabetes in men. Consequently, if phthalates cause a decrease in testosterone, they theorized, then it could also play a role in weight gain and insulin resistance. The scientists analyzed urine, blood samples and other data from subjects participating in the National Health and Nutrition Examination Survey, a large, multi-ethnic, cross-sectional sampling of the U.S. population conducted routinely by the Centers for Disease Control and Prevention.

The study authors examined data from 1999 to 2002, the most recent years that phthalates levels were available. Of the adult men participating in NHANES, 1,451 had data on phthalate exposures, obesity and waist circumference. Of these subjects, 651 also had fasting glucose and insulin levels available.

After adjusting for confounding factors, the researchers discovered that there was a definite link between levels of several phthalate metabolites and abdominal obesity. Men who had the highest phthalate levels in their urine had more belly fat and a greater prevalence of insulin resistance compared to subjects with lower levels.

Reference:

University of Rochester Medical Center news release. http://www.urmc.rochester.edu/pr/News/story.cfm?id=1405. Accessed online March 14, 2007.

Men concerned about declining testosterone levels can consider AndroAMP, a blend of botanicals that supports healthy androgen levels.

Dry Eye Syndrome Lowers Quality of Life

A new report in the *American Journal of Ophthalmology* has found that dry eye syndrome, which affects 4.8 million people in the United States, significantly impacts the quality of life of individuals who suffer from this condition.

An estimated 7.8 percent of women and 4.7 percent of men over age 50 experience dry eye syndrome. The condition is characterized by a deficiency in the quantity and/or quality of tears, an unstable tear film, ocular surface damage and symptoms such as ocular irritation, dryness, fatigue, and fluctuating visual disturbances. Dry eye is one of the most frequent reasons patients visit their eye doctors. However, there is little published data on how dry eye syndrome affects quality of life.

In the current study, researchers investigated the effect of dry eye syndrome on several common activities such as reading, driving, computer work, professional work and watching television. They chose subjects who were involved in the Women's Health Study and the Physicians' Health Study, and who had answered three questions related to dry eye syndrome. Nearly 600 subjects also filled out supplementary questionnaires asking how much their everyday activities were limited by symptoms of dry eye. One-third of these subjects met the criteria for dry eye syndrome.

The study findings indicated that compared to individuals who do not have dry eye syndrome, both female and male subjects with dry eyes who do not use artificial tears were three to five times more likely to have problems with activities such as reading, computer use, watching television, professional work and driving during the day or night.

According to the researchers, "DES is associated with a measurable adverse impact on several common and important tasks of daily living, further implicating this condition as an important public health problem deserving increased attention and resources."

Reference:

Miljanovic B, Dana R, Sullivan DA, Schaumberg DA. Impact of dry eye syndrome on vision-related quality of life. Am J Ophthalmol. 2007 Mar;143(3):409-15.

Individuals who want to help lubricate their eyes can supplement with BioTears, a synergistic blend of nutrients that stimulate the natural production of ocular lubricants. In addition, studies have linked thyroid disorders to dry eye syndrome, indicating that an iodine sufficiency test and Iodoral™ supplementation is another option.

Constipation Drug Taken Off Market Due to Serious Health Risks

The makers of Zelnorm®, a drug used to treat constipation, have pulled the drug off the market due to an increased risk of heart attack, angina, stroke and death.

The FDA first approved Zelnorm (generic name tegaserod maleate) in July 2002 for short-term treatment in women with irritable bowel syndrome whose primary symptom was constipation. Two years later, the agency approved the pharmaceutical for the treatment of chronic constipation in men and women under age 65.

The withdrawal from the market occurred after a recent review of 29 studies undertaken by Novartis, the drug's manufacturer, at the request of a Swiss health agency. The review found that 13 out of 11,614 patients taking the drug had a cardiac event, including one death, compared with one case among 7,031 patients who took a placebo.

The FDA is advising patients who take the drug to see their doctor to discuss alternative treatments. The agency has agreed that Novartis can make a new drug application to allow patients with no other treatment options to get Zelnorm.

Reference:

http://www.fda.gov/bbs/topics/NEWS/2007/NEW01597.html.

Anyone who wants to increase his or her regularity can consume Fiber-Rite or EZ Cleanse™. In addition, probiotics such as Culturelle™ and lectin-blocking nutrients found in Lectin Lock™, improve colon health.

Fiber Lowers CRP Levels in Lean Subjects

Researchers have confirmed that diets high in fiber and diets enhanced with fiber supplements can reduce levels of the inflammatory marker C-Reactive Protein in normal weight subjects.

In the randomized, crossover intervention trial, subjects consumed either a high-fiber (30 grams of fiber per day) diet or a fiber-supplemented diet (also 30 grams of fiber per day), after a baseline (normal) diet period of 3 weeks. The mean fiber intake on baseline diets was 11.9 grams per day. The trial included 35 participants (18 lean subjects with normal blood pressure and 17 obese hypertensive individuals) aged 18 to 49 years.

Overall, the mean C-reactive protein (CRP) level changed from 4.4 to 3.8 mg/L (–13.7 percent) in the high-fiber diet group and to 3.6 mg/L (–18.1 percent) in the fiber-supplemented diet group. However, when the researchers broke out the results by normal weight, low hypertension subjects versus obese subjects with high blood pressure the normal weight subjects were the ones who experienced the significant drop in CRP levels. Obese subjects who had high blood pressure did not experience a drop in CRP levels.

According to the researchers, "The results demonstrate that fiber intake of about 30 g/d) from a diet naturally rich in fiber or from a supplement can reduce levels of CRP. Further research is needed to more clearly elucidate the differential effect seen in lean vs obese individuals and whether modification of dietary fiber may be helpful in modulating inflammation and its consequent cardiovascular consequences."

Reference:

King DE, Egan BM, Woolson RF, Mainous AG, Al-Solaiman Y, Jesri A. Effect of a High-Fiber Diet vs a Fiber-Supplemented Diet on C-Reactive Protein Level. Archives of Internal Medicine. March 12, 2007;167(5)502-506.

Anyone who wants to increase his or her fiber intake can consume Detox FiberPlex or Fiber-Rite.

Hawthorne Strengthens Heart Health

Crataegus Extract (Hawthorne) extends the lives of congestive heart failure patients concurrently receiving pharmaceutical treatment for the disease, according to a study presented at the American College of Cardiology's 56th Annual Scientific Session.

In the randomized, double-blind trial of 2,681 patients in Europe, 44 percent of the subjects were classified as NYHA III, a designation given to people who are significantly impaired by their heart condition. The subjects suffered from markedly impaired left ventricular function, which indicated advanced congestive heart failure. In these subjects, the researchers determined the time to first cardiac event, including sudden cardiac death, death due to progressive heart failure, fatal heart attack, non-fatal heart attack or hospitalization due to heart failure.

Subjects were randomized to *Crataegus* extract or a placebo for two years. Patients were already receiving ACE-inhibitors (83 percent), beta-blockers (64 percent), glycosides (57 percent), spironolactone (39 percent) and diuretics (85 percent).

Patients who received the *Crataegus* extract experienced a 20 percent reduction in cardiac-related deaths. Their lives were extended by four months during the first 18 months of the study. Compared to those taking a placebo, there was a lower number of adverse events among the group taking the *Crataegus*, confirming the compound's safety.

Reference:

Holubarsch CJF, Colucci WS, Meinertz T, Gaus W, Tendera M. Crateagus Extract WS 1442 Postpones Cardiac Death in Patients With Congestive Heart Failure Class NYHA II-III: A Randomized, Placebo-Controlled, Double-Blind Trial in 2,681 Patients. Presented March 27, 2007 at the American College of Cardiology's 56th Annual Scientific Session. Presentation Number: 414-5.

Crateagus is found in CardioCare.

DHA Supports Healthy Blood Pressure Levels

Supplementation with low doses of the omega-3 fatty acid DHA (docosahexaenoic acid) reduced diastolic blood pressure and heart rate in healthy men and women, researchers reported in a new study.

Past studies have shown that omega-3 fatty acids intake is associated with a decreased risk of fatal myocardial infarction. However, the reason behind why this effect occurs, and whether it involves a possible effect of DHA on vascular function is unknown, particularly at intakes less than 1 gram per day.

In the new study, a randomized, double-blind, crossover, placebo-controlled trial of 0.7 grams per day of DHA, researchers investigated the effects of this omega-3 fatty acid on vascular function. They also noted its effects on biochemical indices of endothelial (lining of the arteries) dysfunction. The trial included 38 healthy men and women, ages 40 to 65 years. The subjects were given the DHA for three months and the placebo for three months separated by a 4-month washout period.

When subjects consumed the DHA, levels of the fatty acid rose by 58 percent, compared with the placebo. In addition, diastolic blood pressure decreased by 3.3 mm Hg and the heart rate tended to be 2.1 beats per minute lower after DHA treatment than after the placebo period.

"The results indicate," the researchers wrote, "that a moderate increase in the daily intake of DHA to approximately 0.7 grams DHA lowers diastolic BP." These blood-pressure-lowering results of DHA supplementation occurred without any concurrent influence on indices of endothelial function or arterial stiffness in the short term.

Reference:

Theobald HE, Goodall AH, Sattar N, Talbot DC, Chowienczyk PJ, Sanders TA. Low-Dose Docosahexaenoic Acid Lowers Diastolic Blood Pressure in Middle-Aged Men and Women. J Nutr. 2007 Apr;137(4):973-978.

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