June, 2010
Volume 2, Issue 6

Austin Quan Yin Newsletter

The Better Health News

Special Interest Articles:

- CoQ10 and athletes
- CoQ10 and cardiac surgery
- Nutrition and frailty
- Mercury amalgams
- Dysmenorrhea
- Pain medication and healing
- CoQ10 and asthma

Fatty Acids and Memory

Docosahexaenoic acid (DHA) is an essential fatty acid that is found in fish oil. Research appearing in *Alzheimer's & Dementia* (2010 Apr 29; [Epub ahead of print]) looked at the effect DHA supplementation had on memory. The subjects of the double-blind, placebo-controlled study were 485 patients over the age of 55 with age-related cognitive decline (ARCD). Other than the memory problem, the subjects were healthy. They were randomly divided into two groups and for 24 weeks they were given either a placebo or 900 mg of DHA per day. The group receiving the supplementation scored better on tests evaluating visual spatial learning, episodic memory and verbal recognition.

There is other research that supports the value of DHA supplementation for memory. A study that appeared in *Neuroscience Research* (Volume 56, Issue 2, October 2006, Pages 159-164) found that supplementing amnesia patients with DHA and arachidonic acid improved scores on tests evaluating memory and attention. A double-blind, placebo-controlled study involving 49 women between the ages of 60 and 80 appeared in *Nutritional Neuroscience* (2008; 11(2): 75-83). It found that supplementing with a combination of DHA and lutein may improve cognition.

Carotenoids and Allergies

Carotenoids are oil-soluble plant pigments that act as antioxidants. They can be converted to vitamin A by the body. The best known carotenoid is beta carotene. A cross-sectional study, appearing in *Public Health Nutrition* (2006; 9(4): 472-9) looked at the relationship between carotenoid levels and allergic rhinitis in 547 adults. The blood level of six carotenoids (alpha-carotene, beta-carotene, lycopene, lutein/zeaxanthin, canthaxanthin, and cryptoxanthin) were measured. In addition, vitamin C, alpha-tocopherol, and gamma-tocopherol were measured. High levels of carotenoids were associated with a lower incidence of allergic rhinitis. No such relationship existed for the vitamin C and the tocopherols. Carotenoids are found in fresh produce, so eating plenty of fresh produce may be beneficial to allergy sufferers.

CoQ10 and Athletes

A trend for increased time to exhaustion was observed following 2 weeks of CoQ10 supplementation.

A study appearing in the *British Journal of Nutrition* (2008, 100: 903-9097) looked at coenzyme Q10 supplementation and muscle damage after intense exercise. This was a double-blind, placebo controlled study involving 18 athletes who were given either 300 mg of CoQ10 or a placebo for 20 days. During the course of the study they exercised intensely for 5 1/2 hours each day for six days. Blood tests to indicate the level of muscle damage were taken (myoglobin, and creatine kinase). The muscle-damage indicators increased in both groups, but were significantly lower in the group receiving the supplement.

Another double-blind, placebo-controlled study, appearing in the *Journal of the International Society of Sports Nutrition* (2008; 5(1): 8) looked at CoQ10 supplementation and athletic performance. The participants of the study were 22 trained and 19 untrained subjects. An hour before a series of exercise tests they were randomly given either a placebo or 200 mg of Coenzyme Q10. Blood samples and muscle biopsies were taken before and after exercise. The subjects were then given either a placebo or 100 mg of Coenzyme Q10 twice each day for a period of two weeks. At the end of the period they performed the same exercises and were tested in the same way. A trend for increased time to exhaustion was observed following 2 weeks of CoQ10 supplementation.

CoQ10 and Cardiac Surgery

Bypass surgery produces oxidative stress, so it stands to reason that supplementing with antioxidants may improve surgical outcomes. Taking CoQ10 may be beneficial to coronary bypass patients, according to research appearing in the *Journal of Cardiothoracic and Vascular Anesthesia* (2008 Dec;22(6):832-9). The subjects of the study were scheduled for CABG surgery. The 30 patients were randomly assigned to receive either a placebo or between 150 - 180 mg of CoQ10 per day for seven to ten days prior to the surgery. The group receiving the supplement had fewer complications and better outcome overall, including shorter hospital stays, fewer reperfusion arrhythmias, less need for blood product (and less mediastinal drainage) and less myocardial dysfunction than the control group.

Other research appearing in the *Journal of Thoracic and Cardiovascular Surgery* (January 2005;129(1):25-32) 62 coronary bypass surgery patients received 300 mg/day of CoQ10 for two weeks before surgery. Another group of 59 subjects received a placebo. In the group receiving the supplement, mitochondrial respiration was more efficient and mitochondrial tissue from the supplement group recovered from hypoxia more quickly than it did for the control group. In short, CoQ10 protected from oxidative stress.

Nutrients and Frailty in the Elderly

Higher levels of micronutrients (vitamins and minerals) in an elderly individual means less of a chance of becoming frail. Frailty is defined by having at least two of the following criteria: low muscle strength, feeling of exhaustion, low walking speed, and reduced physical activity. A prospective, population-based study appeared in the *Journal of Gerontology: Medical Science* (2006 ; 61(6): 594-9); it looked at micronutrient concentration in 766 women over the age of 64 (data gathered from Women's Health and Aging Study I, a population-based study of moderately to severely disabled community-dwelling women in Baltimore, Maryland) . The levels of vitamins A, D, E, B_6, and B_{12}, carotenoids, folate, zinc, and selenium were measured in the plasma at the beginning of the study. Frailty status was determined at the beginning of the study and during three yearly follow-up visits. After adjusting for other factors, it was found with the lowest levels of carotenoids, alpha-tocopherol or 25-hydorxy vitamin D had a marked increase in the risk of becoming frail. Deficiencies in more nutrients also correlated with more frailty.

Similarly, low intake of nutrients was associated with an increased chance of becoming frail, according to research appearing in the *Journal of Gerontology: Medical Science* (2006 ; 61(6): 589-93). Data was gathered from InCHIANTI (Invecchiare in Chianti, aging in the Chianti area) study. Information about nutrient intake was obtained from the European Prospective Investigation into Cancer and nutrition (EPIC) questionnaire. Low protein intake and low caloric intake (less than 21 kcal/kg) was associated with frailty. Low intake of vitamins D, E, C or folic acid were also associated with frailty. Low intake of three or more vitamins was also associated with frailty. These studies demonstrate that nutrient deficiency and low intake of protein, calories and nutrients are associated with frailty.

Other research that appeared in the *Journal of the American Medical Association* (January 23, 2008 Volume 299, Issue 3, Pages 308-315) measured nutrients in older individuals and found that low levels of vitamin E were associated with physical decline. The researchers looked at 698 individuals living in Tuscany, averaging 73.7 years of age. A baseline examination was given and the individuals were followed for three years. The Short Physical Performance Battery includes three objective tests for physical function and was used to measure physical performance. The researchers found two things related to physical decline: low vitamin E (alpha-tocopherol) levels among people aged between 70 and 80, and being older than 81.

... low intake of nutrients was associated with an increased chance of becoming frail, according to research appearing in the Journal of Gerontology: Medical Science.

Mercury Amalgams

Mercury fillings have been around since around 1890. In the early 1900s, German chemist, Alfred Stock warned of mercury toxicity from the fillings. So the mercury fillings and the controversy surrounding them are not new. Mercury fillings contain 50 parts mercury, 35 parts silver and 10 parts tin, copper and zinc. In spite of the propensity of the dental profession to call amalgam fillings "silver", more than 50% of the material in them is mercury, which is toxic.

The American Dental Association has long held the belief that amalgam fillings became inert after a few days and were safe. Currently the ADA recognizes that there is some absorption from amalgam fillings, but they are still safe. The FDA recommends not placing mercury fillings in children under the age of six. The FDA has produced a lengthy report (posted on its website) that discusses the amount of mercury absorbed from fillings, the effects of mercury toxicity and methods of testing. The report cites a study performed at the University of Tubingen Health Clinic, involving 20,000 subjects with mercury fillings. On average the amount of mercury found in saliva was 11.6 mcg/L; gum chewing could triple that figure. Also, those subjects with multiple fillings tended to have higher levels. Some subjects had extremely high levels, with 1% having more than 200 mcg/L and 10% having more than 100 mcg/L.

According to research appearing in the *Journal of Dental Research* (1992;71(AADR Abstracts);284/1424) found that polishing fillings increased the mercury released from the fillings. A filling with a surface area of 25 square millimeters released over 3x more mercury vapor after being polished.

A study appearing in the *Archives of Environmental Health* (May/June, 1996;51(3):234-241) evaluated the amount of mercury in blood, hair and breast milk in 30 Swedish women six weeks after giving birth. Researchers found that the amount of inorganic mercury in the blood and breast milk correlated with the number of mercury fillings. The exposure of infants to mercury from breast milk was found to be about half of the tolerable daily intake for adults recommended by the World Health Organization.

Research appearing in *Biological Trace Element Research* (1997;56:143-152) looked at mercury absorption from amalgams in pregnant sheep. Three ewes were given 12 mercury amalgams, containing radioactive mercury, while three other ewes (not given amalgam fillings) acted as controls. The lambs born of the ewes with the fillings had mercury (which was found primarily in the liver). Breast feeding provided the newborn lambs with additional mercury, found primarily in the kidney. Mercury crosses the placenta and into the fetus. Mercury also crosses into the breast milk.

Cadavers were examined in research appearing in the *Journal of Prosthetic Dentistry* (1987;58(6):704-707) to find the relationship between the number of amalgam fillings and the presence of mercury in nerve tissue. The data showed a positive correlation between the number of fillings and the amount of mercury found in brain tissue.

There is a relationship between mercury fillings and the absorption of mercury into the body. Also, the amount absorbed seems to vary between patients, but there is a correlation between the number of fillings and the amount of mercury absorbed.

Dysmenorrhea and Omega-3 Fatty Acids

Dysmenorrhea is severe pain associated with the menstrual cycle. Dysmenorrhea is considered to be primary when there is no other pathology affecting the reproductive system. It is considered secondary if it is due to pathology, like endometriosis. The pain in primary dysmeorrhea is believed to be caused by the uterus contracting and from lack of oxygen in the area. Pain is usually perceived as cramps, but may be a dull, constant ache. Symptoms usually begin shortly before or during menses (bleeding), and may include nausea, diarrhea, frequent urination, depression or mood swings, or breast tenderness. There are some natural approaches that are helpful to women who suffer from PMS or dysmenorrhea.

A study appearing in the American *Journal of Obstetrics and Gynecology* (April, 1996;174(4):1335-8) looked at the effect omega-3 fatty acid supplementation had on dysmenorrhea. The 42 subjects, adolescent girls suffering with dysmenorrhea, were divided into two groups. For two months the first group was given 1,080 mg of eicosapentaenoic acid (EPA) and 720 mg of docosahexaenoic acid (DHA) and 1.5 mg of vitamin E per day, followed by 2 months of receiving a placebo. After receiving the placebo for two months, the first group received supplementation for an additional two months. A second group was given a placebo for the first two months, supplementation the second two months, and placebo for the final two months. As measured by the Cox Menstrual Symptom Scale, both groups experienced a reduction in symptoms after two months of supplementation with omega-3 fatty acids.

Dysmenorrhea is severe pain associated with the menstrual cycle. Dysmenorrhea is considered to be primary when there is no other pathology affecting the reproductive system.

Pain Medication and Healing

One of the great misconceptions that people have about taking NSAIDS (non-steroidal anti-inflammatory drugs-common pain killers like ibuprofen , aspirin or naproxin) is that they somehow help to heal an injury by bringing inflammation under control. Actually, the opposite is true. The drugs actually interfere with the repair of muscle, cartilage and possibly bone.

Research published in the *American Journal of Physiology, Endocrinology and Metabolism* (Vol. 282, Issue 3, E551-E556, March 2002) looked at the effect the commonly used pain relievers (acetaminophen and ibuprofen) had on protein synthesis (repair) and soreness after intense exercise (note: acetaminophen is not classified as an NSAID because it does not address inflammation). It found that the two drugs may suppress protein synthesis (repair).

Happiness is nothing more than good health and a bad memory.—*Albert Schweitzer*

Asthma and CoQ10

Approximately 20 million Americans have asthma, nine million of them are under the age of 181. More than 70% of the people with asthma also suffer from allergies; with 10 million of the patients have asthma specifically because of their allergies. The number of asthma patients has been growing. The prevalence of asthma increased by 75% between 1980 and 1994, with an increase of 160% in children under the age of five. In 2003, there were 12.7 million physician office visits and 1.2 million outpatient department visits due to asthma. There were 1.9 million asthma-related visits to emergency departments in 2002. There are approximately 5,000 deaths from asthma annually. Direct health care costs for asthma in the United States total more than $11.5 billion annually; indirect costs (lost productivity) add another $4.6 billion for a total of $16.1 billion.The relationship between supplementation with a combination of CoQ10, vitamin C and alpha tocopherol and asthma symptoms was examined in an open, crossover, randomized study that was published in *Biofactors* (2005; 25(1-4): 235-40). The subjects of the study were 41 patients, between the ages of 25 and 50, with bronchial asthma. For the first four months of the study, one group received supplementation with antioxidants (vitamins E and C) and CoQ10, as well at their standard asthmatic therapy. The second group received standard asthmatic therapy alone. During the second four months of the study, the therapies were reversed for the two groups. The control group received the supplements and the original supplement group received only standard asthma therapy.