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Austin Quan Yin Newsletter

Special Interest Articles:

- Magnesium and heart failure
- Anxiety and fatty acids
- Heart failure
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- Physical activity and back pain
- Fatty acids and learning

Doodling and Memory

People who doodle during meetings are often accused of not paying attention. Recent research appeared in the journal *Applied Cognitive Psychology* (published online February 27, 2009), shows that they may actually retain more of what was said than non-doodlers.

The subjects were asked to listen to a two and a half minute long telephone recording that contained eight names of people who were to attend a party. Half of the subjects were asked to doodle while listening to the recording, and half did not. The group doing the doodling retained 29% more information than the non-doodling group.

Lead researcher, Professor Jackie Andrade, of the School of Psychology at the University of Plymouth, believes that doodling helps to curtail daydreaming. Performing a simple task, while listening to something boring, helps to keep people from being distracted and stay more focused on the task at hand.

Iodine and Child Development

Research appearing in the *Journal of Pediatrics* (epublished ahead of print April 12, 2011) looked at the relationship between maternal thyroid function, iodine levels and child development. The level of free thyroxine in the mothers of the children in the study was measured during the first trimester of pregnancy. The 86 children involved in the study were evaluated using the Bayley Scale of Infant Development at 12, 18 and 24 months of age. Researchers found that there was a relationship between the mothers' free thyroxine levels and the children's psychomotor development at ages 18 months and 24 months. The children of mothers in the bottom 25th percentile of free thyroxine levels tended to be more developmentally delayed than the children of mothers with higher thyroxine levels. The authors of the study saw these findings as showing a need for iodine supplementation before conception and during pregnancy and lactation.

Magnesium and Heart Failure

The survival rate was higher in the magnesium group (75.7% compared to 51.6% in the placebo group). Also, symptoms improved in 38.5% of the patients receiving magnesium.

Research that appeared in the *American Heart Journal* (June 1993;125:1645-1649) looked at the effect intravenous magnesium sulfate had on patients with congestive heart failure. Magnesium was given intravenously to patients with congestive heart failure, arrhythmia (irregular heart beats) and with serum magnesium levels lower than 2.0 mg/dl. The patients all had at least 10 premature ventricular depolarizations (also called PVC or premature ventricular contraction, a type of irregular heart beat) per hour as determined by a six hour ambulatory electrocardiograph reading. There was a significant decrease in premature ventricular depolarizations from treatment with magnesium.

Another study that appeared in the *Journal of the American College of Cardiology* (1990;16 (4):827-831) found 19% of a sampling of 199 patients with congestive heart failure had low serum magnesium. Considering that serum magnesium is a poor way to determine deficiency, it would be interesting to see what RBC magnesium levels were in this group of patients.

Patients with congestive heart failure seem to benefit from magnesium supplementation. A double-blind, placebo-controlled study appeared in the *International Journal of Cardiology* (2009; 134(1): 145-7) that involved 79 patients with severe congestive heart failure. The subjects were randomly selected to receive either magnesium orotate or a placebo for one year. The survival rate was higher in the magnesium group (75.7% compared to 51.6% in the placebo group). Also, symptoms improved in 38.5% of the patients receiving magnesium. In 56.3% of the placebo group symptoms became more severe.

Drugs that are used by heart patients may deplete magnesium. Research appearing in *Magnesium Bulletin* (1994;16(3):98-100) demonstrated that treatment with ACE inhibitors deplete magnesium.

Anxiety and Fatty Acids

Research appearing in the *Journal of Clinical Psychopharmacology* (2006; 26(6): 661-665) looked at the effect omega-3 fatty acids on anxiety. Twenty-four subjects with a history of substance abuse and anxiety disorders participated in this small, double-blind, placebo-controlled study. Over a period of three months the subjects were given either a placebo or a supplement containing EPA and DHA. The group receiving the supplementation progressively scored lower on questionnaires evaluating anxiety. The group receiving the placebo enjoyed no such decline.

Heart Failure

Heart failure exists when the heart cannot pump enough blood to meet the body's needs. There are 4.8 million cases of heart failure in the United States, with an estimated 400,000 new cases being reported each year (according to the National Heart, Lung and Blood Institute).

Causes of heart failure include diabetes, high blood pressure and coronary artery disease. There may be an additional cause--prescription medication, especially the drugs we use to lower cholesterol and the drugs we use to treat heart failure.
Cholesterol lowering drugs work by inhibiting the enzyme 3-hydroxy-3-methyl-glutaryl-CoA (HMG-CoA) reductase. They prevent the production of mevalonate from HMG-CoA. The body converts mevalonate to cholesterol and a variety of other products. One of the things that melvalonate produces is Coenzyme Q 10; thus these drugs ultimately prevent the production of coenzyme Q 10. Patients taking these drugs commonly experience exercise intolerance, myalgia and myoglobinuria. Studies show that these drugs have the potential to cause myopathies (problems with muscle) and rhabdomyolysis (destruction of muscle) with renal failure. The FDA has warned about liver failure in conjunction with these drugs. These serious side effects occur in 1% of the population taking the drugs.

The heart contains high levels of coenzyme Q 10 and these levels are found to be lower in people suffering from congestive heart failure. According to an article appearing in *The Lancet* (1998;352(Suppl. 1):39-41) notes that the incidence of heart failure has dramatically increased in the last three or four decades. The prevalence of heart failure has increased by 70% between 1990 and 2000. This corresponds with the increase in the use of statins.

Drugs that are used by heart patients may also deplete magnesium. Research appearing in *Magnesium Bulletin* (1994;16(3):98-100) demonstrated that treatment with ACE inhibitors deplete magnesium. Patients with congestive heart failure seem to benefit from magnesium supplementation. A double-blind, placebo-controlled study appearing in the *International Journal of Cardiology* (2009; 134(1): 145-7) involved 79 patients with severe congestive heart failure. The subjects were randomly selected to receive either magnesium orotate or a placebo for one year. The survival rate was higher in the magnesium group (75.7% compared to 51.6% in the placebo group). Also, symptoms improved in 38.5% of the patients receiving magnesium. In 56.3% of the placebo group symptoms became more severe. Patients on the diuretic furosemide (sold under the brand name Lasix) tend to be deficient in both magnesium and thiamin. Nutrients, like thiamin, magesium and CoQ10 may help to prevent heart failure because they can offset the nutrient depletion caused by some drugs.

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Are You Ready for Cold and Flu Season?

You have already heard about washing your hands, getting plenty of rest, vitamin C and Echinacea, but there are some other things you can do that may not be as familiar. These include:

• ***Probiotics:*** A double-blind, placebo-controlled study appearing in the journal *Pediatrics* (2009; 124(2): e172-9) analyzed at the effect of supplementation on immune response in a group of children between the ages of three and five. The 110 subjects were given either a placebo, Lactobacillus acidophilus NCFM (a single probiotic), or a combination of probiotics. Taking the probiotics provided the test group with a 53% lower incidence of fever (for the single strain) and 73% reduction for the group taking the combination probiotic. Probiotics also reduced other cold and flu symptoms including coughing and runny nose. The group taking the supplement also missed fewer days from day care, 32% fewer days missed for those taking the single strain and 28% fewer days missed for the combination product. Antibiotic use was also less; 68% less in the single strain group and 84% less in the combination group, when compared to controls. These are significant reductions and the authors concluded that daily probiotic supplementation for 6 months (fall/winter) was an effective way to reduce fever and other cold symptoms, and could lower antibiotic use and reduce the number of school days missed.

• ***Eat breakfast:*** In a study involving 100 subjects, illness was correlated to dietary habits. The subjects kept a diary for 10 weeks; in it they recorded any problems with memory and attention as well as any illness. Subjects who had more than one illness during the study were less likely to eat breakfast and more likely to drink alcohol. Those who developed more than one illness also tended to have negative, stressful events over the preceding year.

• ***Vitamin D:*** Seldom thought of as an immune vitamin, some scientists think that part of the reason for flu season is the short days—less sunlight and vitamin D.

• ***Watch your diet:*** Diet is very important. Sugar and refined flour products stress the immune system. Similarly, hydrogenated oils and deep-fried foods should be avoided. Fresh, brightly colored produce will help to boost your immune system. Fresh produce is high in vitamin C. The bright color in plant foods is from carotenes and bioflavonoids. These are powerful antioxidants that will help to protect your cells. The carotenes are precursors to vitamin A.

Get your stress levels under control: Stress really puts a strain on the immune system and can increase your chances of getting sick. Reports from the University of Florida and the University of Iowa, published in the *Journal of Psychosomatic Medicine* (May, 2001). According to the article, those who reported having a lot of pain and stress were more likely to become sick that those who claimed to have only a little pain and stress. It is reasonable to expect that other stressful events may hamper immune function.

The idea behind vaccines is to confer immunity to a specific virus. Why not take additional steps to improve general immunity. We hear that half of Europe died during the Bubonic Plague in the 14th century. That means that the other half didn't die—better immunity. We use language like, "I caught a cold," or "I caught the flu". It makes it sound like the virus has moves like LeBron James. It fakes left, spins right and slam dunks into you. But we know that even in a pandemic, not everyone gets sick. So you want to enhance your immune system as much as possible.

Thiamin and Congestive Heart Failure

Patients on the diuretic furosemide (sold under the brand name Lasix) tend to be deficient in thiamin. A study appearing in *The American Journal of Medicine* (1991;151-155) measured thiamin status in 23 patients with congestive heart failure, and who were taking furosemide. A high thiamin pyrophosphate effect, which indicates thiamin deficiency, was found in 21 of the 23 subjects. Thiamin deficiency was only found in two out of 16 controls. This result was confirmed by other research appearing in the *Journal of the American College of Cardiology* (2006; 47: 354-61), which found that 33% of 100 hospitalized patients with congestive heart failure were thiamin deficient. Only 12% of healthy controls were found to be thiamin deficient.

Beriberi is the disease of thiamin deficiency. Wet beriberi affects the cardiovascular system and is characterized by an enlarged heart, and congestive heart failure. There is some research that indicates supplementation with thiamin may be of benefit to patients with congestive heart failure.

A study appearing in *The American Journal of Medicine* (May 1995;98:485-490)looked at 30 patients with severe congestive heart failure who were also taking furosemide. In the double-blind study, the patients were given either IV thiamin (200 milligrams per day) or a placebo. The thiamin group experienced improvement in left ventricular ejection fraction--increasing by 22% in 27 patients who completed the full seven-week therapy. The authors of the study concluded that thiamin supplementation would be a beneficial addition to conventional therapy for congestive heart failure.

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Physical Activity and Back Pain

We hear a lot about core strengthening and the importance of doing specific low back exercises to help prevent back pain. It turns out that general physical activity may be just as beneficial.

A study published in the *American Journal of Public Health* (2005; 95(10): 1817-24), looked at 681 subjects with low back pain. The researchers found that recreation involving physical activity, like participating in sports, had a positive effect on back pain. The more a subject participated in sports, the less likely it was to have back pain. Specific back exercises actually did not perform as well as general physical activity.

"Education is what remains after one has forgotten everything he learned in school."

Einstein

Fatty Acids and Learning

We grew up hearing that fish was "brain food". It turns out that the omega-3 fatty acids found in fish may be very beneficial to the brain. Taking omega-3 fatty acids may have a beneficial effect on cognition, mood, learning, child development and even ADHD.

Research that appeared in the *Journal of Child Health Care* (e-published ahead of print Aug 9, 2011 doi: 10.1177/1367493511403953) measured omega-3 fatty acid levels in children with ADHD and in children with ADHD coupled with a learning disability.

Researchers found that children with learning difficulties tended to have lower DHA (an omega-3 fatty acid) levels than children without a learning difficulties. Students with high levels of DHA (measured in the red blood cells) tended to have less anxiety and better word recall than children with higher levels of omega-6 fatty acids. High omega-3 fatty acid levels also correlated with better reading and spelling ability.

Other research looked at the omega-3 fatty acid levels of 96 boys between the ages of six and 12 and the relationship between learning and behavior. The study appeared in *Psychology and Behavior* (1996;59(4-5):915-920). It found a relationship between low omega-3 fatty acid levels and problems with learning, behavior, and with health problems in general. Interestingly, more colds and antibiotic use was noted in children with low omega-6 fatty acid levels.