

## Special Interest Articles:

- D-Ribose
- L-carnitine and male fertility
- Cholesterol medication
- Heart failure
- Liver failure
- Milk thistle
- CoQ10 and surgery

## Testosterone and Alzheimer's disease

Alzheimer's disease is characterized by amyloid protein plaques that form in the brain of the afflicted. Testosterone may have a protective effect. An animal study appeared in the *Proceedings of the National Academy of Sciences USA* (February 1, 2000;97:1202-1205), that looked at the effect testosterone may have on the development of Alzheimer's disease. Nerve

cells from mice and rats produced a harmless form of beta-amyloid protein when in the presence of testosterone. The protein produced in the presence of testosterone is a precursor protein (is turned to other products by the body). Some consider the precursor to actually be beneficial to the health of the nervous system.

## Acetaminophen and Liver Damage

ALT stands for alanine aminotransferase; it is a substance that is released into the blood when liver cells are damaged. Serum ALT levels will give you an idea if there is any liver cell damage occurring. A randomized, single-blind, placebo-controlled, 5-treatment, parallel-group, inpatient, diet-controlled (meals provided), longitudinal study of 145 healthy adults, appearing in the *Journal of the American Medical Association* (Vol. 296

No. 1, July 5, 2006) indicated that acetaminophen use, even a recommended doses, causes liver damage. The subjects were given either four grams of acetaminophen (the maximum recommended daily dose) or a placebo for 14 days. The use of the acetaminophen increased ALT levels to nearly five times normal in 19% of the participants. No such increases were noted in the placebo group.

## D-Ribose

---

*In 1973 Heinz Gerd Zimmer conducted research at the University of Munich and found that D-Ribose helped energy-starved hearts recover from ischemia.*

D-Ribose is a naturally occurring monosaccharide, which was once thought to be important only as a structural component of DNA and RNA. Research has shown it to be valuable for energy production in cells. In 1973 Heinz Gerd Zimmer conducted research at the University of Munich and found that D-Ribose helped energy-starved hearts recover from ischemia. Subsequent research went on to show that D-Ribose was the limiting element in energy recovery in ischemic tissue and that it was necessary for energy production in the cell.

D-Ribose improves ventilatory efficiency in patients with heart failure. Ventilatory efficiency is an important predictor of survival and disease progression in patients with congestive heart failure. As stated, D-Ribose plays a vital role in cellular energy production, so it is reasonable to assume that it can improve function in patients with congestive heart failure (CHF).

A research report presented at the American College of Cardiology's Annual Scientific Session in 2005 indicates that D-Ribose can improve ventilatory efficiency in class II and Class III CHF patients. Over a period of eight weeks, 15 CHF patients were given the supplement. The patients showed significant improvement in ventilatory efficiency, oxygen uptake efficiency and myocardial performance. Mark A. Munger, Pharm D., Professor of Pharmacotherapy and Associate Dean of the College of Pharmacy at the University of Utah stated, "Beyond the previously known benefits of ribose in enhancing myocardial energy levels and improving diastolic function parameters following ischemia, the study demonstrated a benefit in ventilatory efficiency, one of the most powerful predictors of survival in congestive heart failure patients."

## L-Carnitine and Male Fertility

Researchers in China performed a meta analysis of nine randomized, controlled clinical studies, looking at the possible effect L-carnitine (LC) and L-acetyl-carnitine (LAC) may have on male fertility. The study, published in the *Asia Pacific Journal of Clinical Nutrition* (2007; 16 Suppl: 383-90), found that supplementation with LC or LAC improved pregnancy rate, and sperm motility.

There even seems to be some evidence to support the idea that Acetyl-L-carnitine and Propionyl-L-carnitine (PLC) may be of some benefit to men with erectile dysfunction. A placebo controlled study, published in the journal *Urology* (2005; 66(5): 1080-5) found that PLC and ALC improve the effects of sildenafil (erectile dysfunction drug) on patients with erectile dysfunction.

---

## Improve Your Health if You Take Cholesterol Medication

The most common side effect of statin (cholesterol lowering) medication is muscle pain. It can make exercise difficult (just what you want in a heart patient--curtailed activity because of pain). The muscle pain can become severe; this is a condition known as rhabdomyolysis. Rhabdomyolysis can lead to liver damage, kidney failure and even death. Other side effects of statins include liver damage, and digestive problems

### If You Take Statins, Certain Nutrients Help Reduce the Damage

People who are on statins can get muscle pain. **Muscle pain is a serious side effect and your doctor should be contacted IMMEDIATELY if you experience it while taking statins.** Patients who take these drugs long term tend to lose muscle mass. Many are slightly anemic. There are supplements that you can take to minimize the muscle damage done by statins. These include:

**Coenzyme Q<sub>10</sub>:** it is necessary for energy production in the cell, and it is normally produced by cells. Statins block the production of CoQ<sub>10</sub>. Studies have linked low CoQ<sub>10</sub> levels to heart failure.

**Carnitine:** Low carnitine levels are also linked to heart failure.

**Omega-3 fatty acids:** These actually have a better track record for helping to prevent heart attacks than statins do.

Statins work by suppressing an enzyme called HMG CoA reductase, which is responsible for making cholesterol. Blocking that enzyme also interferes with the production of CoQ<sub>10</sub>, and the loss of CoQ<sub>10</sub> may be responsible for the destruction of muscle associated with these drugs.

Fortunately there are natural substances that interfere with the action of HMG CoA reductase, and these substances do not have the associated muscle destruction that the drugs have.

**Red yeast rice** should be taken in the evening, but can be taken throughout the day.

**Pantethene** also works on the HMG CoA reductase enzyme

**Plant sterols** have been shown to reduce the intestinal absorption of carbohydrate.

**Tocotrienols** are a part of the vitamin E complex. Vitamin E is made up of four tocopherols (alpha, beta, gamma, delta) and four tocotrienols (alpha, beta, gamma, delta). Tocotrienols can be found in certain vegetable oils, wheat germ, barley, saw palmetto, and certain types of nuts and grains. This variant of vitamin E only occur at very low levels in nature. Take at night, at least 12 hours after taking gamma tocopherol.

**Probiotics** have actually been shown to reduce LDL ("bad" cholesterol)

**Sesame oil** can reduce LDL

---

*Statins work by suppressing an enzyme called HMG CoA reductase, which is responsible for making cholesterol. Blocking that enzyme also interferes with the production of CoQ<sub>10</sub>.*

## Heart Failure

Heart failure exists when the heart cannot pump enough blood to meet the body's needs. It develops over time as the heart's ability to pump grows weaker. In some cases the heart cannot fill with enough blood; in other cases the heart lacks the force to pump blood to the rest of the body. It is a very common condition, with 4.8 million cases 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 used to lower cholesterol and the or to treat heart failure.

Most cholesterol-lowering drugs work by inhibiting the enzyme methylglutaryl coenzyme A (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 products of the mevalonate pathway is Coenzyme Q10; so these drugs ultimately prevent the production of coenzyme Q10. Patients taking these drugs commonly experience exercise intolerance, muscle pain and myoglobin in the urine. Studies show that these drugs have the potential to cause muscle pain and muscle cell destruction as well as kidney failure. The FDA has warned about liver failure in conjunction with these drugs. These more serious side effects occur in about 1% of the population taking the drugs.

The heart contains high levels of coenzyme Q10 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) 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 cholesterol medication. Supplementing with coenzyme Q10 may be a good idea.

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. Patients with congestive heart failure seem to benefit from magnesium supplementation, as indicated by a double-blind, placebo-controlled study appearing in the *International Journal of Cardiology* (2009; 134(1): 145-7), involving 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, while in 56.3% of the placebo group symptoms became more severe.

## Liver Failure and Gluten Sensitivity

In a study published in the journal *Gastroenterology* (April 2002;122:881-888), describes case histories of four patients with liver disease who also had celiac disease (gluten allergy). Gluten free diets reversed the liver dysfunction in these cases (one patient did not adhere to a gluten-free diet and the disease progressed until he needed a liver transplant). Two of the patients who managed to stay on the gluten-free diet, maintained good liver function. The researchers then looked at the prevalence of celiac disease in patients awaiting liver

transplant and found that 4% of 185 patients had celiac disease.

Celiac disease is characterized by gluten insensitivity; it damages the small intestine and interferes with nutrient absorption. Symptoms often include abdominal pain, gas, fatigue, and diarrhea. It is associated with other immune system disorders—including autoimmune hepatitis. The authors of this study believe that celiac disease should be investigated for all cases of autoimmune hepatitis or any hepatitis of unknown origin.

---

*Celiac disease is characterized by gluten insensitivity; it damages the small intestine and interferes with nutrient absorption. Symptoms often include abdominal pain, gas, fatigue, and diarrhea.*

## Milk Thistle and Lung Cancer

Flavonoids are plant pigments that act as antioxidants, protecting the plant from the oxidative stress of photosynthesis. They act as antioxidants for humans who eat the plants as well. Silibinin is a flavonoid found in milk thistle. Flavonoids from milk thistle, like silibinin and silymarin have been shown to protect the liver from alcohol, drugs and poisons and to promote healing and recovery in the liver. Silibinin has even shown to be of some value in protecting against liver cancer, according to a study appearing in the *World Journal of Gastroenterology* (2007 Oct 28;13(40):5299-305). Research, appearing in the *Journal of the National*

*Cancer Institute* (2006 Jun 21;98(12):846-55), shows that silibinin may inhibit lung cancer as well.

The researchers injected mice with an substance that causes cancer. The mice were then divided into groups and given varying amounts of silibinin in their diets. After 18 weeks mice receiving silibinin had 38% fewer tumors than those that did not receive the flavonoid. At the end of 29 weeks, the supplemented mice had 70% fewer tumors than the controls.

[The key to longevity:] Keep breathing—  
Sophie Tucker,  
newspaper  
reports, Jan 13,  
1964

## CoQ10 and Heart 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 shorter hospital stays, fewer reperfusion arrhythmias, less need for blood product (and less mediastinal drainage) and less myocardial dysfunction as compared to the control group.

In 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 as compared to the control group. In short, CoQ10 protected the heart from oxidative stress.

CoQ10 is one product that you want to buy from a trusted source. It is expensive, and bargain brands may not have the amount of active product claimed on the label.

