

THE BETTER HEALTH NEWS

D-RIBOSE AND HEART HEALTH

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Improving the energy production of the heart muscle cells is one way to address congestive heart failure. In heart failure, the heart is literally energy starved. Ribose is a five carbon sugar that is part of the ATP molecule (adenosine triphosphate). According to an article in *Progressive Cardiovascular Nursing* (2009 Jun;24(2):59-60), taking ribose may be one way to increase the energy production of the heart cells.

Animal studies have shown the value of D-ribose to heart function, according to a study that appeared in *Science* (1983 Apr 1;220(4592):81-2). Another study, that appeared in *Cell Physiology and Biochemistry* (2009;24(3-4):211-8. Epub 2009 Aug 3) found that rats given an IV infusion of D-ribose (200 mg/kg/h) one day prior to the induction of a myocardial infarction had a smaller area of infarction and better left ventricle function, as compared to the control group. Another study with rats that appeared in *Progressive Cardiovascular Nursing* (2009 Jun;24(2):59-60) found that ribose normalized depressed heart function in rats.

There have been other small clinical trials demonstrating the benefits of D-ribose. Research that appeared in the *European Journal of Heart Failure* (2003 Oct;5 (5):615-9) found that ribose supplementation improves ischemic threshold and enhances diastolic function in congestive heart failure. The small study showed improvement to patients' quality of life and improvement of cardiac function with ribose supplementation. Another small study that was published in the *International Journal of Cardiology* (2009 Sep 11;137(1):79-80. Epub 2008 Jul 31) looked at 16 patients with class III or class IV heart failure. They were given five grams of ribose three times each day. At the end of eight weeks, all patients had a significant improvement in ventilatory parameters at anaerobic threshold, along with a 44% Weber class improvement. Ribose improved the ventilatory exercise status in advanced heart failure patients as well.

BEYOND CHOLESTEROL: ENSURING HEART HEALTH

Atherosclerosis is a disease process that entails the buildup of cholesterol, fatty substances, calcium and other substances in the lining of the artery. The term is derived from two Greek words, athero, which means "paste" and sclerosis, which means hardening.

The medical approach to preventing atherosclerosis has centered around whether or not blockages are present and in keeping cholesterol down. The main weapon in the doctor's arsenal is the statin, or cholesterol lowering drug. It turns out that chemically lowering cholesterol is a woefully inadequate approach to preventing atherosclerosis and heart disease.

For one thing, statins do not do that much to prevent heart disease. In one study, which lasted over three years, 2% of the subjects taking a statin had a heart attack and 3% of the subjects in the placebo group had a heart attack. This means that 100 people have to take the drug for three years to prevent a single heart attack.

Omega-3 fatty acids perform much better than these drugs for preventing heart attacks.

The other issue about cholesterol lowering drugs is the side effects, which can be life-threatening. The most common side effect 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.

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, and many become slightly anemic. There are supplements that you can take to minimize the muscle damage done by statins. These include:

- **Coenzyme Q₁₀:** Also called CoQ₁₀, it is necessary for energy production in the cell, and it is normally produced by cells. Statins block the production of CoQ₁₀. Studies have linked low CoQ₁₀ levels to heart failure.
- **Carnitine:** Low carnitine levels are also linked to heart failure.
- **Gamma and Delta tocopherol:** Vitamin E complex is made up of substances called tocopherols. Gamma and delta tocopherol are part of the vitamin E complex. The one that people are most familiar with is alpha tocopherol; gamma tocopherol is absorbed best when in the presence of low dose alpha tocopherol.
- **Omega-3 fatty acids:** These actually have a better track record for helping to prevent heart attacks than statins do.

Statin work by suppressing an enzyme called HMG CoA reductase, which is

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responsible for making cholesterol. Blocking that enzyme also interferes with the production of CoQ₁₀, and the loss of CoQ₁₀ 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 ratio that the drugs have.

Red yeast rice should be taken in the evening

Pantethene also works on the HMG CoA reductase enzyme

Plant sterols

Tocotrinols 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 occurs 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. Consider using **Bio Doph-7 Plus**

Sesame oil can reduce LDL (continued on page 4)

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HEART HEALTH (CONTINUED FROM PAGE 3)

Most of us believe that if cholesterol is low, our HDL (so called "good" cholesterol) is high and our LDL (so called "bad" cholesterol) is low, we are safe from atherosclerosis and heart disease. There may be more to it than that. The likelihood of cholesterol causing plaque is related to the size and number of the particles. Doctors can now order cholesterol panels that include the size and number of cholesterol particles.

Statin (cholesterol lowering) medication does nothing to decrease particle size and number. It turns out that omega-3 fatty acids help to reduce the size and number of particles. This is why they outperform statins in reducing the chance for a heart attack.

While it is common for doctors to test cholesterol, triglycerides, HDL and LDL, it is rare for them to test for CRP. CRP stands for C-reactive protein, and is a measure of inflammation. The two largest risk factors for atherosclerosis are inflammation and the size (and number) of the cholesterol particles. If you want to really know if someone is at risk for atherosclerosis (and the possibility of heart attack or stroke), you need to test the particle size and number when you test for cholesterol. You also need to determine the CRP level.

Therapy: Combining Medical and Natural Therapies

Diet: Monounsaturated fatty acids (like in olive oil) reduce the atherogenicity of cholesterol. The Mediterranean Diet is a good choice. You need to eat lots of fresh produce (full of antioxidants to

help lower CRP). Avoid white sugar, white flour and trans fats (all of which increase CRP and inflammation). You should be doing light exercise as well.

Supplements that may help:

- **Omega-3 fatty acids:** Reduce the particle size and cholesterol number, and lower the chance of heart attack. They also serve to reduce inflammation.
- **Resveratrol and NAC:** Reduce the tendency for plaque to form in the arteries.
- **Coenzyme Q₁₀:** Needs to be replaced if it is being depleted by statin therapy, but regardless CoQ₁₀ can be cardio-protective.
- **Carnitine:** Needs to be replaced if it is being depleted by statin therapy.
- **D-ribose:** Helps to offset muscle wasting.
- **Niacin:** Helps lower LDL.
- **Red Yeast Rice:** Works on the same enzyme that the statin medications do, and helps lower cholesterol.
- **Pantathene:** Works on the same enzyme that statins do, without the side effects.
- **EGCG:** Green tea extract, helps lower CRP and reduce inflammation.
- **Gamma tocopherol:** Antioxidant, helps protect cells from inflammation.
- **Plant sterols:** Aids in lowering LDL.

Obviously this is something you need to discuss with your physician. Do not attempt to self-treat.

The best and most beautiful things in the world cannot be seen or even touched - they must be felt with the heart.

Helen Keller

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TESTOSTERONE AND THE HEART

An animal study, appearing in the journal, *Circulation*, (2007; 116(21): 2427-34) indicates that physiologic testosterone injections may decrease arterial plaquing. The study involved 33 feminized mice (mice with a nonfunctional androgen receptor and low circulating levels of testosterone). It was found that physiologic doses of testosterone increased HDL production and reduced fatty streak formation on arterial walls. In a study published in *Atherosclerosis* (1996;121:35-43), testosterone injections were given to men with low testosterone. The injections were found to help in lowering total cholesterol and LDL cholesterol. Interestingly, the injections did not affect HDL levels. In other research, HDL levels were lowered with testosterone injections. The study appeared in the *International Journal of Andrology* (1995;18:237-242), but the volunteers were healthy, and had normal testosterone levels.

Other research appearing in *Hypertension Research* (2007 Nov;30[11]:1029-34) looked at testosterone levels in 187 men, and compared the hormone levels to the health of the vascular

endothelium (lining). Elasticity of the blood vessel lining was evaluated using ultrasound. Low testosterone levels correlated with poor vessel elasticity, and the association held true regardless of age, blood pressure, weight, cholesterol levels or other cardiac risk factors.

Testosterone seems to benefit men with heart failure. A double-blind, placebo controlled study appearing in the *European Heart Journal* (2006; 27 (1): 57-64) looked at the relationship between testosterone and heart failure. In the year long, double-blind, placebo controlled study, 76 men with moderate to severe heart failure were randomized to receive either a testosterone patch or a placebo. At the end of the 12 months, 35% of the subjects receiving the testosterone improved by one NYHA class. Overall, the testosterone improved the ability to exercise and the quality of life. Another double-blind, placebo controlled study appearing in *Heart* (2004;90:446-447), found that testosterone injections improved walking distance in congestive heart failure patients.