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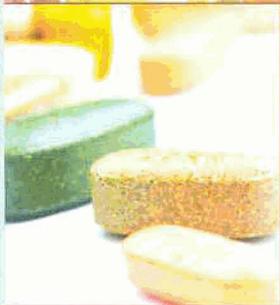
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Ribose: Restoring Energy

BY RAJIV LEVENTHAL

Ribose is a simple, five-carbon sugar that is the backbone of RNA, nucleotides, DNA and especially ATP (adenosine triphosphate), the principal metabolic source of energy, particularly cardiac energy. Ribose is used to improve athletic performance and the ability to exercise by boosting muscle energy. It has shown great efficacy in aiding recovery from strenuous exercise, relieving soreness and cramping and addressing cardiac stress. In looking at energy production, it helps to look at the "energy molecules" such as ATP, NADH and FADH. These represent the energy currency in the body, and are like the paper that money is printed on.

According to endfatigue.com, Chronic Fatigue Syndrome and Fibromyalgia Syndrome (CFS/FMS) cause the body to dump other key energy molecules like acetyl-L-carnitine. It was then found that the body did the same with ribose, making it hard to get furnaces working again even after the other problems were treated.

Jacob Teitelbaum, MD, author of *From Fatigued to Fantastic*, recently published a study involving CFS/FMS patients who were given ribose. The results showed an average 44.7 percent increase in energy after only three weeks (improvement began at 12 days) and an average overall improvement in quality of life of 30 percent. Two thirds of the CFS/FMS patients felt they had improved (usually, a 10 percent improvement for a single nutrient is considered

excellent). A 44.7 percent increase left Teitelbaum and others amazed, leading him to recommend ribose for all of his CFS/FMS patients, for athletes and any one with pain, fatigue or heart problems. Ribose recently became available (over the counter) to physicians, and is one of the few natural products actually starting with physicians and then moving out into health food stores, Teitelbaum said.

Clinical and scientific research has repeatedly shown that giving ribose to energy-deficient hearts and muscles stimulates energy recovery. One important study involved healthy athletes participating in high-intensity, endurance exercise over the course of one week. After exercise, the energy level in the athlete's muscle was reduced by almost 30 percent. Giving 10g ribose per day for three days following exercise restored muscle energy levels to normal, while treatment with placebo provided virtually no effect. This study clearly showed that ribose stimulated the energy recovery pathways in the body, helping the muscle rebuild its energy supply quickly and completely. Even after three days of rest, muscle that was not treated with ribose remained energy starved and fatigued.

Further, decades of research have shown that ribose has a profound effect on heart function in patients with congestive heart failure, coronary artery disease and cardiomyopathy (disease of the heart muscle). Using ribose to restore the energy level in the heart allows it to



Test Your Knowledge of Ribose

- Ribose is mainly used to improve _____.**
a.) memory
b.) stomach pains
c.) athletic performance and exercise
d.) none of the above
- Jacob Teitelbaum and others recently published a study involving CFS/FMS patients who were given ribose. The results showed _____.**
a.) a significant increase in energy for those who were given ribose
b.) an increase in fatigue for those who were given ribose
c.) an increase in energy for those who were given a placebo
d.) no change in energy levels for all patients
- Giving ribose to energy-deficient hearts and muscles _____.**
a.) allows the heart to circulate more blood
b.) stimulates energy recovery
c.) allows the heart to pump more normally
d.) all of the above
- A study done in Germany on congestive heart failure found that patients were more tolerant to exercise when they were on ribose.**
a.) True
b.) False

ANSWERS: 1.) c 2.) c 3.) d 4.) a

fully relax, fill and empty completely to circulate blood to the outer reaches of the body. Circulating more blood means muscles in the arms and legs, and the tissues of the brain get the oxygen they need to function normally. This result was made evident in several important studies in patients with congestive heart failure and angina.

In one study conducted at the University of Bonn in Germany, patients with congestive heart failure were treated with either 10g ribose or a sugar placebo every day for three weeks. They were then tested for heart function, exercise toler-

ance (a measure of fatigue) and quality of life using a questionnaire designed for this purpose. In this study, ribose therapy had a significant effect on all measures of diastolic heart function, showing that increased energy in the heart allowed the heart to relax, fill and pump more normally. Patients in the study were also much more tolerant to exercise when they were on ribose, and, through their responses to the questionnaire, showed they had a higher quality of life as a result. **VR**

References:

- Endfatigue.com
- *From Fatigued to Fantastic*

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