



The Awesome Foursome: 4 Nutrients Needed For a Healthy Heart

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The Awesome Foursome: Nutrients for a Healthy Heart

Cardiologist Dr. Stephen Sinatra has labels four nutrients – magnesium, coenzyme Q10, L-carnitine, and D-ribose – ‘the awesome foursome’ due to patient results linked to these nutrients.

These four nutrients are involved in the production of adenosine triphosphate (i.e. cellular energy). Adenosine triphosphate (ATP) is produced in the mitochondria of every cell. An ATP deficiency is linked to numerous health conditions, such as diabetes, Parkinson’s, cancer, heart failure, Alzheimer’s, and stroke.

These four nutrients can help boost the body’s production of ATP.

Magnesium

Magnesium is not a mineral that tops discussions very often; however, magnesium is critical to over 300 bodily functions. Magnesium maintains normal muscle and nerve function, helps regulate blood sugar levels, promotes normal blood pressure and heart rhythm, maintains bone strength, and supports a healthy immune system.

Many people consume a diet low in magnesium receiving less than two-thirds of the recommended dietary allowance. Good magnesium sources include whole grains, spinach, broccoli, squash, beans, popcorn, nuts, pork, and seeds. Fair sources of magnesium include dairy products, chocolate, and meats.

A magnesium deficiency takes a long time to develop. Magnesium deficiency symptoms include irregular heartbeat, weakness, fatigue, numbness, muscle pain, disorientation, and seizures. Conditions related to increased risk for magnesium deficiency include alcoholism, poorly controlled diabetes, intestinal disorders (Crohn’s disease), and intake of certain medications

(diuretics). Sup-optimal levels of magnesium intake have been linked with diabetes, hypertension, osteoporosis, and pregnancy discomfort.

Diabetes – When someone has type II diabetes they are making adequate insulin levels. The problem with type II diabetes is that the cells do not recognize the insulin. When cells do not recognize insulin they do not let sugar from the blood enter the cell and blood sugar levels remain elevated. This leads to sugar spilling over into the urine, organ damage, and other complications. Magnesium is a factor in this because it's the "key" that opens the door for insulin to get into the cell. If magnesium levels are low there are no keys to open the door and insulin is unable to do its job resulting in continued high blood sugar levels. When diabetes is poorly controlled the loss of magnesium in the urine is even greater.

Hypertension – Blood levels of potassium, calcium, and magnesium are closely connected and all influence blood pressure. Studies have linked low magnesium levels with elevated blood pressure. As an aside, if you have ever been told to eat a banana by your doctor, you should also increase your magnesium intake. FYI - Bananas are not the best source of potassium – potatoes are!

Osteoporosis – Magnesium is a major component of the matrix (middle) of bones. Low magnesium levels cause fragile bones that are less flexible and have a slower recovery rate if injured.

Pregnancy – Adequate levels of magnesium are related to decreased leg cramps during pregnancy. A magnesium deficiency is also a risk factor for gestational diabetes.

Recommended Dietary Allowances (RDA) for Magnesium:

Men 350 mg per day

Women 280 mg

Pregnancy 300 mg

Lactation 355 mg first 6 months; 340 mg next 6 months

You do NOT want to take megadoses of magnesium – more is not better in this case. You just want enough to meet the RDA. If you feel your intake of magnesium from foods is low, taking a basic multivitamin is a simple way to ensure you meet your needs. Read the multivitamin label carefully because not all multivitamins include magnesium. Always check with your doctor before altering your medications or supplements.

Coenzyme Q10

The benefits of Coenzyme Q10 (CoQ10) have been known since the 1970's. Unfortunately, many doctors do not routinely recommend CoQ10 to their heart patients. If you've never heard of CoQ10, I'm going to explain what it is, how it works, signs of deficiency, and the benefits of increasing your CoQ10 intake.

CoQ10 is a fat-soluble vitamin and powerful antioxidant. CoQ10 not only fuels energy production, but it removes many free radicals from circulation. Free radicals lead to the oxidation of LDL and the subsequent chain of events that result in arterial plaque formation and narrowed arteries.

How CoQ10 works

The powerhouse of your cells is the mitochondria. The mitochondria convert the foods you eat into energy your body can use. The form of energy the body uses is called ATP. ATP is produced within the mitochondria by taking needed electrons from foods. CoQ10 is responsible for carrying the electrons back and forth between enzymes in the production of ATP.

If that was a little too much science for you, let me make it much simpler.

Without CoQ10 your cells can not produce energy for your body to function, including the heart muscle. The heart uses an enormous amount of energy to function and maintain blood circulation 24/7.

Numerous studies have shown patients with heart disease to have a CoQ10 deficiency. Individuals suffering from cardiomyopathy or heart failure appear to have the greatest deficiencies. Improvements have been seen when individuals suffering from cardiomyopathy or heart failure receive supplemental CoQ10. Benefits of supplementing CoQ10 are seen in individuals experiencing angina, coronary artery disease, post-operative heart surgery, and heart attack recovery.

CoQ10 is especially beneficial if you have narrowed arteries and reduced blood flow to the heart. CoQ10 uses what little oxygen and nutrients the heart receives to increase production of ATP and boost the hearts energy levels.

The physician's routinely using CoQ10 as part of their treatment plan for heart patients often refer to CoQ10 as "the miracle supplement" due to the drastic improvements to patient heart function.

CoQ10 Deficiency

Symptoms associated with a CoQ10 deficiency develop gradually over time, so it's very easy to miss the signs.

Symptoms include: aches and pains, fatigue, sore muscles, weakness, malaise, and shortness of breath

Our bodies are designed for CoQ10 to be formed from a variety of vitamins, minerals, and amino acids. If your intake of vitamin C, B-12, B-6, pantothenic acid, and various other minerals and nutrients is deficient, the production of CoQ10 is compromised. Conditions and medications, such as hyperthyroidism, antidepressants, gum disease, and advanced age will also cause lower than adequate levels of CoQ10.

Benefits of CoQ10

- Prevent heart disease
- Slows the aging process
- Lowers blood pressure
- Boosts energy
- Increases strength
- Builds up the immune system
- Improves the nervous system
- Protects against gum disease
- Counteracts negative side effects of some cholesterol medications

Consult your MD to determine if supplementing CoQ10 is the right treatment option for your situation.

L-Carnitine

This is probably a supplement you've never heard of, but when supplemented along with coenzyme Q10 substantial benefits have been seen in individuals with heart disease.

What is L-Carnitine?

L-carnitine is a compound produced by the liver and kidneys from the biosynthesis of the amino acids lysine and methionine. To form L-carnitine you also need adequate levels of vitamin C, B6, niacin, and iron.

How L-Carnitine Works

The powerhouse of your cells is the mitochondria and produces the energy your heart needs to function. L-carnitine is responsible for transporting fatty acids to the mitochondria for energy production. The heart typically gets 60% of its energy from fat sources. If this process is slowed due to a lack of L-carnitine heart function is affected, especially compounding problems for individuals with heart disease. Those with moderate to severe atherosclerosis (hardening of the arteries due to inflammation and cholesterol deposits) and congestive heart failure are most affected by a deficiency of L-carnitine. To make matters worse, damaged heart tissue has a hard time "holding on" to L-carnitine resulting in a deficiency.

When to supplement L-Carnitine

If you remember back to the information I shared on Coenzyme Q10, Coenzyme Q10 directly affects energy production in the mitochondria. When Coenzyme Q10 levels are low, cells are unable to produce energy, meaning the heart lacks the fuel it needs to pump blood.

About 85% of individuals with heart disease respond positively to coenzyme Q10 supplementation and significant improvements to their heart health. However, ~10-15% do not see any improvements from the addition of coenzyme Q10. Researchers have learned the "missing link" for these individuals is L-carnitine. The combination of L-carnitine with Coenzyme Q10 is needed for some individuals to experience the additional energy boost and improved heart function.

Signs of improvements many individuals see from a combination of L-carnitine and Coenzyme Q10 include better color, easier breathing, and less difficulty with exertion activities.

Easier Explanation

Let me see if I can make all of this easier to understand. In order for the heart to pump blood it needs fuel. This fuel is produced in the mitochondria of your cells. The heart's preferred energy source is fatty acids. Coenzyme Q10 is needed for the production of ATP (fuel) within the mitochondria. L-carnitine is needed for the transport of fatty acids to the mitochondria. Most people with heart disease are deficient of coenzyme Q10 and benefit from supplementation. Some individuals with heart disease are also deficient in L-carnitine and will only see improvements if Coenzyme Q10 and L-carnitine are supplemented together.

L-Carnitine Deficiency

Even though your body can produce L-carnitine deficiencies do occur. A deficiency can be caused by aging, vegetarian diets, diet deficient in iron, diets low in the vitamins B6, niacin, and vitamin C, liver disease, kidney disease, and certain medications (such as anti-convulsant drugs). As I mentioned above, a damaged heart also promotes an L-carnitine deficiency.

Combined supplementation of L-Carnitine and coenzyme Q10 have improved many cardiovascular situations:

1. Angina
2. Congestive Heart Failure
3. Renal insufficiency
4. Arrhythmia
5. Hyperlipidemia (high cholesterol, high LDL cholesterol, high triglycerides)
6. Leg Cramps

L-Carnitine Sources

Mutton, lamb, beef (red meat), pork

L-Carnitine Supplements

There are two forms of L-carnitine available at health food stores – fumarate and tartrate. So far, L-carnitine tartrate has been found to be more efficient for individuals with heart disease. New forms of L-carnitine are being researched and may become available, also.

A leading cardiologist – Dr. Stephen T. Sinatra – recommends supplementing 250 mg to 750 mg of L-carnitine daily for prevention.

While there are no known side effects from supplementing L-carnitine, always consult your physician regarding any and all supplements you currently take and/or would like to supplement.

D-Ribose

D-ribose is a simple sugar molecular that is a derivative of ATP and involved in the production of cellular energy.

D-Ribose Production

Every cell in the human body slowly produces d-ribose. Liver, fat tissue, and adrenal glands produce the highest levels to meet the production needs of hormones and fatty acids. Heart, brain, nerve, and skeletal muscle only make enough d-ribose to manage day-to-day needs during a normal state of health.

The body is not able to produce high levels of d-ribose quickly when under levels of stress, such as oxygen and blood deficiency connected to heart disease. Any time oxygen or blood flow is compromised the body tissues are not able to produce adequate levels of d-ribose, which leads to a depletion of cellular energy.

D-Ribose Deficiency

Characteristics of individuals at increased risk for a d-ribose deficiency include men and women over the age of 45 showing early signs of cardiac dysfunction, statin drug users, women with mitral valve prolapse, and individuals with high blood pressure and/or heart disease.

D-Ribose Benefits

Animal studies show that coronary artery disease can reduce ATP levels in the heart up to 50%. Even after blood flow and oxygen are restored it may take a healthy heart up to 10 days to replenish cellular energy levels and restore cardiac function. Studies that provided d-ribose supplementation during the recovery process restored energy and cardiac diastolic function within 2 days.

Studies have also shown individuals with coronary artery disease significantly improve symptoms and treadmill time within one week of being treated with D-ribose.

D-Ribose Sources

Red meat contains the highest levels of D-ribose, especially veal. However, the level of D-ribose available from dietary sources is not enough to have an impact if you live with heart disease.

Three Step Process

Determining whether or not you need to supplement D-ribose often requires a 3 step process. Start by supplementing coenzyme Q10. For 85% of heart patients this resolves symptoms of fatigue, weakness, etc. For the 10-15% that do not show improvements add L-carnitine. This may be the missing link. Then again out of the 10-15% a small percent will not show improvements, so this is where D-ribose is added.

Consult your physician to determine if supplementing D-ribose is the right treatment option for your situation and how much you need to supplement.

Heart Health Made Easy: Master the Basics to Lower Blood Pressure and Cholesterol for a Longer, Healthier Life



Easy to understand, practical take action guide takes you step by step to lower cholesterol and blood pressure naturally.

If you're newly diagnosed with high cholesterol and/or blood pressure, you are unsure of the next step, you are tired of searching for the answers, and you want everything you need to know in one convenient easy to follow guide then this is the program for you!

<http://lisanelsonrd.com/behearthealthy.html>

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<http://www.lisanelsonrd.com/minidietmakeover.html>

Lisa Nelson RD

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Lisa Nelson RD is passionate about helping you lower cholesterol, control high blood pressure, and lose weight, so you can live the life you want and enjoy your family for years to come. My passion for health comes from my own family history of heart disease, so I don't dispense "trendy" treatments; I 'practice what I teach' in my own daily life. Because my own health is the foundation of my expertise, you can trust that I will make it truly possible for you to see dramatic changes in your health, without crazy fads or impossibly difficult techniques.

Lisa is the founder and owner of HeartHealthMadeEasy.com, which offers support, education, and guidance as you achieve your heart health and weight loss goals. Receive regular heart health and weight loss tips from dietitian Lisa Nelson when you subscribe to [The Heart of Health](#) and the free special report "How to Make Heart Healthy Changes into Habits".

Working with Lisa is One of the Best Moves I Could Have Made!

"I found Lisa's website on the internet and decided to take a gamble and sign-up for a Mini Diet Makeover. The whole time my wife thought it was a bad idea and I knew she was just waiting to say "I told you so!", but I went ahead and finalized the purchase - one of the best moves I could have made! Lisa has been a GODSEND.

I have to say that I am very impressed with Lisa. She is very knowledgeable and a true professional. Lisa sincerely thinks that she can help me and I believe that also. With my willingness to change and her expertise I think I can lose those thirty pounds and hopefully more before my next trip to the cardiologist office. I'm down 20 pounds and if I continue like this I will be close to my thirty pound goal!" ~ David Craig, Retired, Madison, NC

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