Coenzyme Q10 Helps Lower Blood Pressure

Are you one of the 50 million Americans who might benefit?

Hypertension - or high blood pressure, as it is more commonly known - affects over 50 million adults in the United States.1 Because of the strain that this condition places on the heart muscle, it's one of the most significant risk factors for cardiovascular disease. This constitutes a major health crisis, since heart disease is the number one cause of death in the U.S., resulting in nearly one million deaths each year.

Indeed, cardiovascular disease is reaching epidemic proportions in our nation. This trend is particularly disturbing because the disease is largely preventable. Many lifestyle choices influence whether or not you will develop heart disease, so you can take an active role in decreasing your risk. Controllable risk factors include smoking, high cholesterol levels, excess weight, high stress, insufficient exercise, and poor diet - and high blood pressure. Prominent among the uncontrollable risk factors - until we have gene therapy to counteract an inherited predisposition - is a family history of cardiovascular disease. Although a healthy lifestyle can go a long way toward helping you realize your goal of good cardiovascular health, nutritional supplements such as coenzyme Q10 can make it all the easier.

Hypertension Is Controllable

Of the controllable risk factors, high blood pressure deserves special focus, since it affects so many individuals. Fortunately, it is highly controllable. First of all, if you are overweight, shedding a few pounds may help to lower your blood pressure, since your heart will not have to work as hard to distribute blood to all your tissues. Second, a moderate amount of exercise may also help you reduce your blood pressure to a healthier range. Remember that your heart, like the rest of the muscles in your body, needs exercise in order to be strong and healthy, thus decreasing the risk of heart disease. Third, a variety of medications to treat high blood pressure (antihypertensives) are available by prescription.

Coenzyme Q10: A Natural Alternative to Drugs?

Although prescription medications are not appropriate for many people because of their high cost and unacceptable side effects, such as headache, diarrhea, abnormal stools, increased heart rate, and palpitations, these drugs can help to reduce blood pressure. Dietary supplements, however, though not necessarily replacements for pharmaceuticals, are much more affordable and offer healthy, viable alternatives that may achieve similar benefits without the side effects.
If you aren't keen on pursuing a solely pharmaceutical approach for maintaining healthy blood pressure but still feel that you need more help than you can achieve through a healthy diet and moderate exercise, you'll be interested to know that a specific dietary supplement, coenzyme Q₁₀ (sometimes abbreviated CoQ₁₀), has been demonstrated to lower blood pressure in several human clinical trials. The most recent of these, a randomized, double-blind, placebo-controlled study, was conducted in 2001 by researchers at the Department of Veterans Affairs Medical Center in Boise, Idaho, who succinctly concluded that ". . . CoQ₁₀ may be safely offered to hypertensive patients as an alternative treatment option."²

**What Is Coenzyme Q₁₀ and How Does It Work?**

Coenzyme Q₁₀ was first identified in the mid-1950s as a molecule essential to energy production in cells, where it is found in the mitochondria - the "powerhouses" of the cell. The molecule is a required cofactor (coenzyme) composed of a quinone group (Q) and 10 isoprenyl units - hence the name coenzyme Q₁₀. This essential molecule is also called *ubiquinone* (ubiquitous quinone) because it is found in all cells throughout the body. Whatever you call it, you've got to have it to produce ATP (the energy-storage molecule that every cell in your body requires).

But why is coenzyme Q₁₀ especially beneficial in treating diseases of the cardiovascular system? It turns out that heart-muscle cells (cardiac myocytes) have an exceedingly high metabolic demand because they never cease moving, constantly contracting to force blood from the heart into the arteries. The omnipresent coenzyme Q₁₀ is thought to enhance the myocytes' ability to generate ATP, thereby allowing plenty of energy to be produced to meet their metabolic needs.

In addition, coenzyme Q₁₀ operates as a powerful antioxidant and consequently is crucial in inactivating free radicals that may cause cardiovascular damage. Along with such compounds as glutathione, vitamin C, vitamin E, and lipoic acid, coenzyme Q₁₀ contributes to the antioxidant network that the body relies on to limit damage from free radicals. Coenzyme Q₁₀ also improves membrane fluidity, a factor that decreases blood viscosity and thus may play an important role in decreasing hypertension.³

**Coenzyme Q₁₀ Lowers Blood Pressure**

Results from the Boise, Idaho, study demonstrate that coenzyme Q₁₀ supplementation reduces *isolated systolic hypertension* (ISH), the condition in which systolic blood pressure (the top number) is greater than 140 mm Hg (millimeters of mercury), while diastolic blood pressure (the bottom number) remains below 90 mm Hg.² This type of high blood pressure is very common in the elderly; in fact, two-thirds of all hypertensive patients over the age of 65 have ISH.

Forty-one men and 35 women, all with systolic blood pressure between 150 and 170 mm Hg and diastolic blood pressure below 90 mm Hg, enrolled in the study. (Nine additional patients with normal blood pressure - average 138/79 - participated as controls.) Each patient was randomly assigned to either the treatment group (60 mg of coenzyme Q₁₀ with 150 IU of vitamin E twice a day - an amount of vitamin E that has no effect on blood pressure) or to the placebo group (150 IU of vitamin E twice a day). Each treatment lasted for 12 weeks, and each patient's blood pressure was monitored twice weekly.

At the end of the 12-week coenzyme Q₁₀ treatment, an impressive 55% of the patients were found to be
responders. The average reduction in the patients' systolic blood pressure was 25.9 mm Hg, with no detectable change in diastolic blood pressure. As with any study, some of the patients did not have significant drops in their systolic blood pressure.

For the 55% of the ISH patients classified as responders, the potential benefit for improved heart function is promising. For example, a separate study revealed that, in ISH patients over the age of 60, a reduction of systolic blood pressure by 20 mm Hg had obvious health benefits and significantly reduced the incidence of stroke, heart failure, and mortality. This suggests that the responders in the Boise trial, who averaged a decrease of 25.97 mm Hg in systolic blood pressure following coenzyme Q₁₀ supplementation, are likely to enjoy appreciable improvements in their cardiovascular health.

**Coenzyme Q₁₀ Combats Heart Failure Too**

Coenzyme Q₁₀ may also be helpful in supporting cardiovascular health in its role in reducing the risk of congestive heart failure. This disease is much more prevalent than most people think: It is one of the most common inpatient diagnoses, and one of the most common reasons for hospitalization in older adults. Next to coronary artery disease, hypertension is the most common cause of congestive heart failure, which occurs when the ventricles of the heart are no longer able to fulfill their role adequately as pumps. This leads to congestion of blood in the venous system, and the resulting elevated blood pressure leads to peripheral edema, as cites (fluid in the abdomen), enlarged liver, or fluid in the lungs. A person with early congestive heart failure is often not aware of his predicament, and the first discovery of it may be an enlarged heart on a chest x-ray. As cardiac function worsens, fatigue, exercise intolerance, and difficulty in breathing become apparent, and extra pillows at night may be needed in order to maintain an upright position to avoid shortness of breath. Clearly, this is a very serious disease.

Since the mid-1960s, scientific data have accumulated regarding the use of coenzyme Q₁₀ supplementation for cardiomyopathy, another type of heart failure. The research reports are overwhelmingly positive, indicating coenzyme Q₁₀'s efficacy in improving cardiovascular health in individuals with cardiomyopathy (which, incidentally, may be caused by hypertension). Coenzyme Q₁₀ supplementation may lead to sustained, albeit slow, improvement in heart function in these patients, with a corresponding decrease in fatigue and chest pain.

**Coenzyme Q₁₀ Does Not Share Drugs' Most Common Side Effect**

The most common side effect of most antihypertensive drugs is a condition called orthostatic hypotension. This is a form of low blood pressure that results when the patient stands up from a sitting or prone position and experiences dizziness and possible blackouts. Not uncommonly, the elderly, as well as younger patients, fall and injure themselves. Research has shown that, unlike many antihypertensive drugs, coenzyme Q₁₀ is not associated with orthostatic hypotension.

**Coenzyme Q₁₀ Decreases With Age**

In younger individuals, the body is generally capable of synthesizing a sufficient amount of coenzyme Q₁₀. Recent scientific research suggests, however, that the concentration of coenzyme Q₁₀ in the blood decreases with age. Since this compound is crucial to the production of the energy molecule ATP in the hard-working cells of the heart muscle, this finding may help to explain why a large segment of the older population suffers from cardiovascular disease.

**Coenzyme Q₁₀ for Blood Pressure Health**
Clearly, the clinical benefits of coenzyme Q10 are myriad: it can improve energy production, act as an antioxidant, and stabilize membrane fluidity, decreasing blood viscosity, thereby improving hypertension. If you suffer from cardiovascular ailments or just want to keep your heart function at a healthy level, you may wish to consider supplementing your diet with coenzyme Q10.

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Though the body's production of this vital molecule decreases with age, you don't have to consign yourself to an unhealthy heart. Combined with a low-fat diet and moderate exercise, coenzyme Q10 supplementation can help you reduce your blood pressure and maintain or regain optimal cardiovascular function, without the risk of dangerous side effects.

References