

REPORT

CoQ10 Reduces Heart Failure Deaths

By Cynthia Rackov

The symptoms of advanced **heart failure** are debilitating.

Any kind of exertion results in rapid onset of fatigue and shortness of breath. Even simple tasks like washing the dishes or walking a block can leave you exhausted.

Today's **heart-failure** patients are prescribed multiple **drugs** that yield important benefits. Yet as their heart deteriorates, they are often restricted to a bed, couch, or wheelchair.

Americans are living longer and surviving early-life cardiac events via improvements in prevention and treatment. These include **stenting** procedures to open blocked **coronary arteries**, along with greater use of **blood tests** to identify risk factors before acute **heart attack** manifests.

As a result of these advances, people who would have succumbed to heart disease in mid-life face an epidemic of **heart failure** in their later years. The consequences include physical and mental impairment, decreased quality of life, and premature death.¹⁻⁶

Enormous strides have been made in delaying the onset of heart disease, but more than **prescription drugs** are needed for humans who now live longer.

Recent studies are confirming proper use of **coenzyme Q10** (or **CoQ10**) as a potential game-changer.

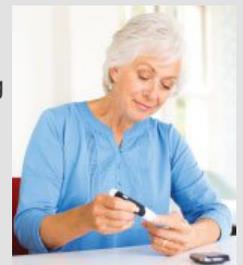
These clinical trials show that CoQ10 supplements can work with conventional medications to *restore* the heart's natural pumping ability.

This report provides a review of compelling human studies that are increasingly being recognized by forward-thinking cardiologists.

WHAT YOU NEED TO KNOW

CoQ10 Improves Heart Failure

- Heart failure—the inability of the heart to pump enough blood to meet the body's needs—is a growing epidemic in America and around the world.
- Coronary artery disease, diabetes, high blood pressure, being overweight, and having had a heart attack all increase your risk of heart failure.²⁵⁻²⁷
- A natural approach is now available for those with, or at high risk for, heart failure.
- Proper supplementation with CoQ10 has been shown to improve functional parameters of heart failure, reduce complications such as heart arrhythmias, and produce no significant side effects.
- Everyone at risk for this common, age-related condition should consider adding a highly absorbable form of CoQ10 to their health-promotion and disease-prevention regimens.



Clinical Trials: CoQ10 Reduces Heart Failure



Advanced heart failure patients do not live normal lives.

Their limbs swell as fluid accumulates, unable to be pumped back to the heart and excreted by the kidneys.

Fluid can accumulate in the abdominal cavity as well, leaving them bloated, physically heavy, and at risk for infection.

Quality of life drops abysmally as heart failure progresses, leading to increased stress on patients and their caregivers.

Heart failure can lead to other cardiovascular conditions, including stroke, blood clots, and heart arrhythmias. In heart-failure

patients, the most common of these arrhythmias is **atrial fibrillation**, which can exacerbate existing heart failure.⁷⁻⁹

One-half of all heart-failure patients die within five years of diagnosis.¹⁰

It has been known for more than a decade that people with heart failure regularly have markedly lower levels of the energy-essential nutrient CoQ10 in their blood.

To add insult to the age-related decline in CoQ10 synthesis in the body, many congestive heart failure patients are prescribed **statin** drugs that lower CoQ10 levels even more.^{11,12}

Indeed, in one large study of older adults with heart failure, subjects with CoQ10 levels below a cut-point were **twice** as likely to die compared to those with levels above that value.¹²

NEW YORK HEART ASSOCIATION (NYHA) FUNCTIONAL CLASSIFICATION³²

HEART FAILURE CLASS	PATIENT SYMPTOMS
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.
Class IV (Severe)	Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

The New York Heart Association (NYHA) Functional Classification system has become the standard for measuring symptoms that affect functioning related to heart failure.³²

Two-Year CoQ10 Trial

CoQ10 deficiency deprives the heart of a critical factor in its energy supply, and can be a key contributor to the impaired pumping function we identify as heart failure.¹³ This is because mitochondria in the heart (and everywhere else in the body) rely on CoQ10 for energy production.¹⁴

Seeking an effective therapy, an international group of cardiologists and cardiac surgeons set out to determine if long-term supplementation with CoQ10 could produce improvements in patients with heart failure. The researchers designed a randomized, controlled, double-blinded multicenter trial.¹⁵

They enrolled 420 people with moderate-to-severe heart failure, assigning them randomly to receive either placebo or CoQ10, **100 mg** three times daily for two years, in addition to their standard drug therapy.

By the end of the study, **26%** of placebo recipients had reached the primary long-term endpoint, i.e. development of a major adverse cardiovascular event (e.g., heart attack, stroke, death).

But among subjects receiving the CoQ10 supplement, only **15%** reached that endpoint, a significant decrease that translated into a **50% reduction** in the risk of those adverse events.¹⁵

In addition, supplemented subjects had a lower death rate from both cardiovascular (**9% vs. 16%**) and all causes (**10% vs. 18%**), as well as a significantly lower incidence of hospital stays for heart failure.

Supplemented subjects also showed a significant rate of improvement in their scores on the *New York Heart Association's* four-point scale of heart failure severity after two years.¹⁵

Taken together, the results of this study show that CoQ10 treatment of patients with chronic heart failure is safe, improves symptoms, and reduces major adverse cardiovascular events—a tremendous stride forward in improving outcomes in the many millions of heart failure sufferers.¹⁵

“Heart failure” occurs when the heart’s ability to pump blood is insufficient to meet the body’s needs for nutrients and oxygen.¹

This does **not** mean that the heart has stopped beating, but it is a serious condition that can lead to many complications, and when severe enough, to death.

Here are some statistics about heart failure in the United States:¹

- Heart failure affects about **5.7 million** adults in the United States.¹⁰
- In 2009, one in 9 deaths included heart failure as contributing cause.¹⁰
- One-half of all heart-failure patients die within 5 years of diagnosis.¹⁰
- An estimated **\$30.7 billion** is spent each year as a result of heart failure to cover the costs of health-care services, medications, and missed days of work.¹
- Heart-failure rates vary by geography, with the highest incidence in a broad band across the South and Southern Midwest.¹



Supporting Studies

Several other human studies have shown significant benefits of CoQ10 supplementation in heart-failure victims.

For example, CoQ10 can improve the contractility (squeeze) exerted by the heart in patients with mild-to-moderate heart failure (those in NYHA Classes II and III).¹⁶ This was shown in a study using a **300 mg** daily dose for just four weeks, compared with placebo.¹⁶

Supplementation not only boosted serum CoQ10 levels by a factor of three, but also improved a measure of heart wall thickening during contraction by up to **15.6%**.

The amount of blood pumped out of the heart with each beat increased by **15%** in supplemented subjects, accompanied by a **21%** decrease in volume at the end of the beat. These are favorable measures of the heart’s overall efficiency at pumping blood out to the body.

No side effects were observed in this study, nor in a follow up study of similar design.^{16,17}

In the follow-up study, in addition to improvements in contractility (squeeze) and pumping capacity, CoQ10 supplementation at the same dose improved **endothelial function**, which is an essential measure of the health of the delicate lining of arteries.¹⁷

Another study looked at the use of CoQ10 in heart failure patients who have developed a heart arrhythmia called **atrial fibrillation**, in which the heart’s upper chambers tremble rapidly but cannot push blood effectively into the larger, pumping ventricles.¹⁸

People with heart failure frequently develop atrial fibrillation that can lead to heart failure, making it vital to treat either condition to prevent the other.^{19,20}

In this study, patients with known heart failure received either standard drug therapy only (control group), or standard drug therapy plus CoQ10, and were monitored for the development of **atrial fibrillation**.¹⁸

While over **22%** of subjects in the control group suffered atrial fibrillation episodes after 12 months of treatment, just **6.3%** of CoQ10 recipients had the arrhythmia, demonstrating a significant reduction of **atrial fibrillation** in these heart-failure patients.

WHAT RISK FACTORS DRIVE IT?

A number of diseases, as well as lifestyle factors that contribute to cardiovascular disease generally, add to the risk for developing heart failure, these include:

- Coronary heart disease and coronary artery disease, two terms that are often used interchangeably, is a narrowing of the arteries resulting from a buildup of plaque. This can eventually lead to a heart attack.²⁸
- High blood pressure overtaxes the heart, causing the heart walls to thicken and enlarge, eventually making it inefficient at pumping blood.²⁹
- Diabetes can damage the heart muscle even when there is no other heart disease present, a condition known as diabetic cardiomyopathy.³⁰
- Obstructive sleep apnea, in which the upper airway is partially or completely obstructed during sleep, increases pressure in the heart, raises blood pressure, increases heart rate, lowers blood oxygen levels, and increases free radicals and inflammation.³¹



Many lifestyle factors also contribute to the risk of heart failure, including:¹

- Smoking tobacco
- A diet rich in fat, cholesterol, and sodium
- Obesity
- A sedentary lifestyle

Most Potent Form of CoQ10

One other study deserves mention in this context, because it relates to the best form of CoQ10 for people with or at risk for heart failure.

The authors of this study stated that people with severe (NYHA class IV) heart failure often fail to attain proper CoQ10 blood levels, despite doses of standard CoQ10 in the **ubiquinone** form of up to **900 mg/day**.²¹

This situation is attributable to the intestinal swelling that occurs in severe heart failure, which makes it difficult for the gut to absorb CoQ10.

In this study, overseen by renowned cardiologist Peter Langsjoen, MD, patients with advanced heart failure who had inadequate CoQ10 blood levels on an average **450 mg/day** dose of **ubiquinone** were switched to an average of **580 mg/day** of the **ubiquinol** form. Ubiquinol is known to have greater absorption.^{21,22}

This change resulted in a marked *increase* in plasma blood levels of CoQ10, to **6.5 µg/mL** from **1.6 µg/mL**, as well as significant improvements in pumping capacity and clinical status (from NYHA Class IV to Class II).

This study highlights the importance of the **ubiquinol** form of CoQ10.

For otherwise healthy individuals, **100 mg** daily doses of **ubiquinol** taken with a fatty meal markedly boost CoQ10 plasma levels. For heart-failure patients, however, Dr. Langsjoen suggests starting off with **600 mg/day** of **ubiquinol** to boost tissue concentrations of CoQ10. Heart failure patients can then maintain optimal CoQ10 serum levels with about **400 mg/day** of ubiquinol taken with a fatty meal.

WHAT ARE THE SIGNS AND SYMPTOMS OF HEART FAILURE?

Heart failure can progress for years without signs or symptoms, so that it is not detected until the heart's ability to pump blood to the rest of the body is diminished. This is what makes it one of the most insidious and dangerous conditions we encounter.

When they do develop, signs and symptoms arise directly from the heart's inability to pump enough blood to various parts of the body. These may include :¹

- Shortness of breath during normal daily activities
- Trouble breathing when lying down
- Weight gain with swelling of the feet, ankles, legs, or abdomen as a result of accumulation of fluid in the tissues
- Generally feeling tired and weak

In general, the sooner a diagnosis of heart failure is made, the sooner appropriate treatment can be initiated, aimed at boosting the heart muscle's "squeeze" and improving blood flow throughout the body.

In more severe cases, and especially when symptoms impair function, a wide variety of medications may be added to enhance heart muscle contractility, and reduce resistance to blood flow.

There is, however, no single drug today that can cure or entirely resolve heart failure, making prevention a clear priority.

Summary

Heart-failure rates in the United States have reached epidemic proportions.

The primary underlying cause is **aging**, accompanied by years of poorly factors including calcification of valves, atrial fibrillation and/or a previous heart attack.²³

Mainstream medicine treats heart failure with a wide range of partially effective, but important prescription drugs.

Controlled clinical trials demonstrate that proper daily supplementation with CoQ10, a nutrient involved in providing energy to heart muscle cells, can mitigate symptoms and improve cardiac function in **heart failure** victims.

CoQ10 strengthens the heart muscle, boosts its capacity to pump blood throughout the body to nourish tissues, while reducing risk of **atrial fibrillation**.

While CoQ10 is naturally produced in the human body, tissue levels fall with age.²⁴ Statin drugs further deplete CoQ10 levels.

Supplementation with **ubiquinol**, the form of CoQ10 that provides greater **absorption**, may help prevent or ameliorate signs and symptoms of heart failure, and reduce the severity of the condition, potentially improving quality of life for millions of Americans and their family members.

If you have any questions on the scientific content of this article, please call a Life Extension® Wellness Specialist at 1-866-864-3027.

References

1. Available at: https://www.cdc.gov/dhdsdp/data_statistics/fact_sheets/fs_heart_failure.htm. Accessed September 28, 2017.
2. Wang TC, Huang JL, Ho WC, et al. Effects of a supportive educational nursing care programme on fatigue and quality of life in patients with heart failure: a randomised controlled trial. *Eur J Cardiovasc Nurs*. 2016;15(2):157-67.
3. Nieminen MS, Dickstein K, Fonseca C, et al. The patient perspective: Quality of life in advanced heart failure with frequent hospitalisations. *Int J Cardiol*. 2015;191:256-64.
4. Cohen MB, Mather PJ. A review of the association between congestive heart failure and cognitive impairment. *Am J Geriatr Cardiol*. 2007;16(3):171-4.
5. Kamalesh M, Nair G. Disproportionate increase in prevalence of diabetes among patients with congestive heart failure due to systolic dysfunction. *Int J Cardiol*. 2005;99(1):125-7.
6. Cygankiewicz I, Zareba W, de Luna AB. Prognostic value of Holter monitoring in congestive heart failure. *Cardiol J*. 2008;15(4):313-23.
7. Available at: http://www.heart.org/HEARTORG/Conditions/Arrhythmia/AboutArrhythmia/What-is-Atrial-Fibrillation-AFib-or-AF_UCM_423748_Article.jsp#.Wa8Ho7KGMkl. Accessed September 28, 2017.
8. Available at: <https://medlineplus.gov/atrialfibrillation.html>. Accessed September 28, 2017.
9. Watson RD, Gibbs CR, Lip GY. ABC of heart failure. Clinical features and complications. *Bmj*. 2000;320(7229):236-9.
10. Mozaffarian D, Benjamin EJ, Go AS, et al. Heart Disease and Stroke Statistics-2016 Update: A Report From the American Heart Association. *Circulation*. 2016;133(4):e38-360.
11. Ashton E, Windebank E, Skiba M, et al. Why did high-dose rosuvastatin not improve cardiac remodeling in chronic heart

- failure? Mechanistic insights from the UNIVERSE study. *Int J Cardiol*. 2011;146(3):404-7.
2. Molyneux SL, Florkowski CM, George PM, et al. Coenzyme Q10: an independent predictor of mortality in chronic heart failure. *J Am Coll Cardiol*. 2008;52(18):1435-41.
 3. Jankowski J, Korzeniowska K, Cieslewicz A, et al. Coenzyme Q10 - A new player in the treatment of heart failure? *Pharmacol Rep*. 2016;68(5):1015-9.
 4. Sharma A, Fonarow GC, Butler J, et al. Coenzyme Q10 and Heart Failure: A State-of-the-Art Review. *Circ Heart Fail*. 2016;9(4):e002639.
 5. Mortensen SA, Rosenfeldt F, Kumar A, et al. The effect of coenzyme Q10 on morbidity and mortality in chronic heart failure: results from Q-SYMBIO: a randomized double-blind trial. *JACC Heart Fail*. 2014;2(6):641-9.
 6. Belardinelli R, Mucaj A, Lacalaprice F, et al. Coenzyme Q10 improves contractility of dysfunctional myocardium in chronic heart failure. *Biofactors*. 2005;25(1-4):137-45.
 7. Belardinelli R, Mucaj A, Lacalaprice F, et al. Coenzyme Q10 and exercise training in chronic heart failure. *Eur Heart J*. 2006;27(22):2675-81.
 8. Zhao Q, Kebbati AH, Zhang Y, et al. Effect of coenzyme Q10 on the incidence of atrial fibrillation in patients with heart failure. *J Investig Med*. 2015;63(5):735-9.
 9. Thihalolipavan S, Morin DP. Atrial fibrillation and congestive heart failure. *Heart Fail Clin*. 2014;10(2):305-18.
 10. Lubitz SA, Benjamin EJ, Ellinor PT. Atrial fibrillation in congestive heart failure. *Heart Fail Clin*. 2010;6(2):187-200.
 11. Langsjoen PH, Langsjoen AM. Supplemental ubiquinol in patients with advanced congestive heart failure. *Biofactors*. 2008;32(1-4):119-28.
 12. Langsjoen PH, Langsjoen AM. Comparison study of plasma coenzyme Q10 levels in healthy subjects supplemented with ubiquinol versus ubiquinone. *Clin Pharmacol Drug Dev*. 2014;3(1):13-7.
 13. Available at: <https://www.nlm.nih.gov/health/health-topics/topics/hf/causes>. Accessed September 28, 2017.
 14. Available at: <http://pi.oregonstate.edu/mic/dietary-factors/coenzyme-Q10>. Accessed September 28, 2017.
 15. Available at: http://www.heart.org/HEARTORG/Conditions/HeartFailure/CausesAndRisksForHeartFailure/Causes-and-Risks-for-Heart-Failure_UCM_002046_Article.jsp#.WbAKfLKGMkl. Accessed September 28, 2017.
 16. Available at: <https://www.nlm.nih.gov/health/health-topics/topics/hf/atrisk>. Accessed September 28, 2017.
 17. Available at: <https://www.nlm.nih.gov/health/health-topics/topics/hf>. Accessed September 28, 2017.
 18. Available at: http://www.heart.org/HEARTORG/Conditions/More/MyHeartandStrokeNews/Coronary-Artery-Disease---Coronary-Heart-Disease_UCM_436416_Article.jsp#.WbAambKGMkl. Accessed September 28, 2017.
 19. Available at: http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/LearnHowHBPHarmsYourHealth/How-High-Blood-Pressure-Can-Lead-to-Heart-Failure_UCM_490534_Article.jsp#.WbAaZrKGMkl. Accessed September 28, 2017.
 20. Available at: <https://www.uptodate.com/contents/heart-failure-in-diabetes-mellitus>. Accessed September 28, 2017.
 21. Javaheri S, Javaheri S, Javaheri A. Sleep apnea, heart failure, and pulmonary hypertension. *Curr Heart Fail Rep*. 2013;10(4):315-20.
 22. The Criteria Committee of the New York Heart Association. *Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Great Vessels*. 9th ed ed. Boston, Mass: Little, Brown & Co; 1994.

**These statements have not been evaluated by the Food and Drug Administration.
These products are not intended to diagnose, treat, cure, or prevent any disease.**

Life Extension does not provide medical advice, diagnosis or treatment. The information provided on this site is for informational purposes only and is not intended as a substitute for advice from your physician or other health care professional or any information contained on or in any product label or packaging. You should not use the information on this site for diagnosis or treatment of any health problem or for prescription of any medication or other treatment. You should consult with a healthcare professional before starting any diet, exercise or supplementation program, before taking any medication, or if you have or suspect you might have a health problem. You should not stop taking any medication without first consulting your physician.

All Contents Copyright ©2019 Life Extension® All rights reserved