

# Coenzyme Q10

## Truth, Ubiquinol Hype and Healing

By Dr. Zoltan P. Rona, M.D., M.Sc.

Coenzyme Q10 (ubiquinone or ubiquinol) is a fat soluble, vitamin – like substance synthesized and found in virtually all cells of the human body, especially the heart, kidneys and liver. It is most often connected to Dr. Karl Folkers, often referred to as the “father of Co-Q10”, who published a great deal of research on this molecule since 1958. Co-Q10 is made from acetyl CoA of which pantothenic acid (vitamin B5) is a precursor.

The best sources of Co-Q10 in the diet are from organ meats taken from beef, pork and chicken. The best vegetarian sources are broccoli, spinach, soybean oil and palm oil. Supplement manufacturers make Co-Q10 from mainly yeast and bacterial fermentation.

### Properties

Co-Q10's most well known biological property is its antioxidant action. Oxidation (a loss of electrons) is the damaging result of external stressors such as radiation, pollution, heavy metal toxicity, alcohol, drugs, infection and aging. Co-Q10 can protect the body from the adverse effects of oxidation by inactivating damaging molecules known as free radicals.

Co-Q10 also converts oxidized vitamins like vitamin C and E back into their reduced (gain of electrons) form so that they can perform their vital functions as antioxidants in the body.

Co-Q10 is a membrane stabilizer for all cells, preventing breaches in the lining of all cells, including platelets.

Co-Q10 helps create energy in all cells by helping to generate ATP (adenosine triphosphate), needed for mitochondrial enzymatic reactions commonly referred to in biochemistry as the “electron transfer chain”.

### Preventive And Therapeutic Applications

#### Cardiovascular Disease

Research indicates that Co-Q10's most important application is in the prevention and treatment of any and all cardiovascular problems. Its basic mechanism of action occurs in the mitochondria of the heart cell and vascular endothelial cells to reverse oxidative stress otherwise known as free radical damage. It protects LDL (the “bad”) cholesterol from becoming oxidized and damaging to the blood vessels.

Studies indicate that Co-Q10 in a dose of 100 mg twice daily for a period of two weeks can lower blood pressure an average of 20 points within 12 weeks. It may therefore be an important way of controlling mildly elevated blood pressure.

#### Cardiac Drug Protection

Statin drugs are used to lower blood levels of cholesterol. Unfortunately, they also deplete the body of Co-Q10. This produces painful muscle damage that can often be at least partially offset by Co-Q10 supplements. I usually recommend at least 200 mg of Co-Q10 to anyone on any cardiac drug simply because it just makes the drugs work better with fewer side effects.

Beta-blockers, commonly used for angina, high blood pressure and arrhythmias can also deplete body stores of Co-Q10. Supplementation of 100 - 200 mg daily is warranted.

Scan this code with a QR reader app on your smartphone to learn more about TriStar Co-Q10



## Cancer

Several small studies seem to indicate that Co-Q10 can help with cancer, especially breast cancer. While not a proven cure, doses of 400 mg or more a day have been used with success in curtailing the spread of breast cancer.

Co-Q10 also has a place in therapy for people who are being given chemotherapeutic drugs because supplementing Co-Q10 at the same time will help prevent damage to the heart caused by the drugs.

## Diabetes

Co-Q10 supplementation can reduce insulin requirements in diabetics. Taking high doses of Co-Q10 may induce hypoglycemic reactions in some diabetics. Prescription medications used for diabetes such as glyburide can reduce the body stores of Co-Q10, so supplementation is warranted.

## Parkinson's Disease

Co-Q10 can protect brain cells from oxidative stress. Recent studies have shown that Co-Q10 can improve symptoms in Parkinson's disease at dosages of 1200 mg a day.

There is research that is currently being conducted for the use of Co-Q10 in the treatment of Alzheimer's disease, Huntington's chorea and muscular dystrophy.

## Migraines

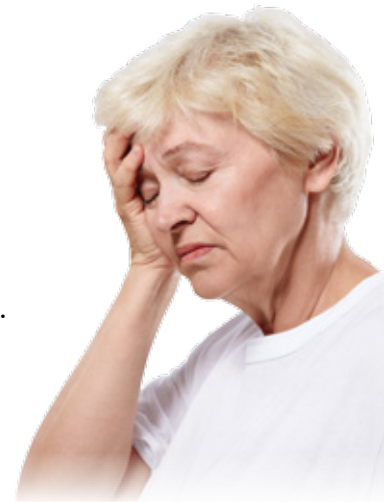
Studies done in 2004 showed that the occurrence of migraine headaches can be reduced by 50% with a daily dose of Co-Q10 of 100 mg daily over a period of 3 months.

## Chronic Fatigue Syndrome (CFS)

CFS victims can benefit from daily doses of 200 mg of Co-Q10 over a period of 3 months. Most people who suffer from any degree of fatigue will benefit far earlier than that.

## Periodontal Disease

Gum disease caused by bacterial damage can be improved dramatically with Co-Q10 supplementation of at least 200 mg daily.



## The Ubiquinol Hype

You may have read literature from several sources that Co-Q10 is best taken as a supplement in the ubiquinol form instead of the ubiquinone form because the former has a higher absorption rate and produces higher blood levels than the ubiquinone form. Both forms are fat-soluble so this is not an issue. Unfortunately, ubiquinol is at least four times more expensive and no research documenting its benefits over the ubiquinone form has ever been done in humans. The research to date on the purported benefits of ubiquinol has only been done in rats.

Aside from that, the truth is that the body easily converts ubiquinone into ubiquinol, regardless of the absorption rate. Ubiquinone is the more stable compound and the body tends to use it every bit as much as ubiquinol, freely converting back and forth between the two forms as needed. Each form has specific tasks in its oxidant – antioxidant properties.

It is therefore preferable to purchase ubiquinone as the form of Co-Q10 for all its uses. Ignore the hype and buy the cheaper form of Co-Q10 (ubiquinone). For further information on this issue, see Co-Q10 Facts and Fabrications ([http://www.zmc-usa.com/docs/CoQ10\\_Facts\\_or\\_Fabrications.pdf](http://www.zmc-usa.com/docs/CoQ10_Facts_or_Fabrications.pdf)).

## How To Supplement With Co-Q10

Co-Q10 is best taken in divided doses (ideally two to four times daily) with food. It is compatible with all supplements and side effects are virtually unknown. There is a caution to be noted in people who use anti-coagulant medications because Co-Q10 can make those medications more potent. Check with your doctor if you take any blood thinning prescription drugs.

## Side Effects Of Co-Q10

Aside from longevity, documented side effects of Co-Q10 in doses ranging from 30 - 1200 mg a day are minor and include some stomach upsets, appetite suppression, nausea and diarrhea in very sensitive individuals. Taking Co-Q10 late during the day might induce insomnia in some individuals due to its energy enhancing effects.

*Dr. Zoltan P. Rona practises Complementary Medicine in Toronto and is the medical editor of "The Encyclopedia of Natural Healing." He has also published several Canadian best-selling books, including "Return to The Joy of Health" and "Vitamin D - The Sunshine Vitamin." For more of his articles, see [www.mydoctor.ca/drzoltanrona](http://www.mydoctor.ca/drzoltanrona)*

**To order this book by Dr. Rona  
visit [www.amazon.com](http://www.amazon.com) or contact  
High Level Wellness 905-764-9300**



## REFERENCES

- Rosenfeldt FL, Pepe S, Linnane A, Nagley P, Rowland M, Ou R, Marasco S, Lyon W, Esmore D. "Improved outcomes in coronary artery bypass graft surgery with preoperative coenzyme Q10: a randomized, double-blind, placebo controlled trial." (In: "Coenzyme Q10 protects the aging heart against stress: studies in rats, human tissues, and patients."). Ann N Y Acad Sci 2002 Apr; 959: 355-9.
- Singh RB, Wander GS, Rastogi A, Shukla PK, Mittal A, Sharma JP, Mehrotra SK, Kapoor R, Chopra RK. "Randomized, double-blind placebo-controlled trial of coenzyme Q10 in patients with acute myocardial infarction." Cardiovasc Drugs Ther. 1998 Sep; 12(4): 347-53.
- Lockwood K, Moesgaard S, Hanioka T, Folkers K. "Apparent partial remission of breast cancer in 'high risk' patients supplemented with nutritional antioxidants, essential fatty acids and coenzyme Q10." Mol Aspects Med. 1994; 15 Suppl: s231-40.
- Okuma K, Furuta I, Ota K. "Protective effect of coenzyme Q10 in cardiotoxicity induced by adriamycin." Gan To Kagaku Ryoho. 1984 Mar; 11(3): 502-8.
- Burke BE, Neuenschwander R, Olson RD. "Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension." South Med J. 2001 Nov; 94(11): 1112-7.
- Sacher HL, Sacher ML, Landau SW, Kersten R, Dooley F, Sacher A, Sacher M, Dietrick K, Ichkhan K. "The clinical and hemodynamic effects of coenzyme Q10 in congestive cardiomyopathy." Am J Ther. 1997 Feb-Mar; 4(2-3): 66-72.
- Shults CW, Oakes D, Kiebertz K, Beal MF, Haas R, Plumb S, Juncos JL, Nutt J, Shoulson I, Carter J, Kompoliti K, Perlmutter JS, Reich S, Stern M, Watts RL, Kurlan R, Molho E, Harrison M, Lew M. "Effects of Coenzyme Q10 in Early Parkinson Disease: Evidence of Slowing of the Functional Decline." Arch Neurol. 2002 Oct; 59(10): 1541-50.
- Rosenfeldt FL, Pepe S, Linnane A, Nagley P, Rowland M, Ou R, Marasco S, Lyon W, Esmore D. "Improved outcomes in coronary artery bypass graft surgery with preoperative coenzyme Q10: a randomized, double-blind, placebo controlled trial." (In: "Coenzyme Q10 protects the aging heart against stress: studies in rats, human tissues, and patients."). Ann N Y Acad Sci 2002 Apr; 959: 355-9; discussion 463-5.
- Munkholm H, Hansen HH, Rasmussen K. "Coenzyme Q10 treatment in serious heart failure." Biofactors 1999; 9(2-4): 285-9.
- Miyake Y, Shouzu A, Nishikawa M, Yonemoto T, Shimizu H, Omoto S, Hayakawa T, Inada M. "Effect of treatment with 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors on serum coenzyme Q10 in diabetic patients." Arzneimittelforschung 1999 Apr; 49(4): 324-9.
- Thibault A, Samid D, Tompkins AC, Figg WD, Cooper MR, Hohl RJ, Trepel J, Liang B, Patronas N, Venzon DJ, Reed E, Myers CE. "Phase I study of lovastatin, an inhibitor of the mevalonate pathway, in patients with cancer." Clin Cancer Res 1996 Mar; 2(3): 483-91.
- Folkers K, Simonsen R. "Two successful double-blind trials with coenzyme Q10 (vitamin Q10) on muscular dystrophies and neurogenic atrophies." Biochim Biophys Acta 1995 May 24; 1271(1): 281-6.
- Folkers K, Vadhanavikit S, Mortensen SA. Biochemical rationale and myocardial tissue data on the effective therapy of cardiomyopathy with coenzyme Q10. Proc Natl Acad Sci U S A 1985;82:901-4.
- Shults CW, Flint Beal M, Song D, Fontaine D. Pilot trial of high dosages of coenzyme Q10 in patients with Parkinson's disease. Exp Neurol. 2004;188:491-4.
- Crane F L. Biochemical functions of coenzyme Q10 J Am Coll Nutr 2001;20:591-8.
- Nohl H, Kozlov AV, Stanick K, Gille L. The multiple functions of coenzyme Q. Bioorg Chem 2001;29:1-13.
- Fuke C, Krikorian SA, Couris RR. Coenzyme Q10: A review of essential functions and clinical trials. US Pharmacist 2000;25:1-12.
- Bliznakov EG, Chopra RK, Bhagavan HN. Coenzyme Q10 and neoplasia: Overview of experimental and clinical evidence. In: Phytopharmaceuticals in Cancer Chemoprevention, Eds. Bagchi D, Preuss HG, CRC Press, Boca Raton, 2004;599-622.
- Beal MF, Shults CW. Effects of Coenzyme Q10 in Huntington's disease and early Parkinson's disease. Biofactors. 2003;18:153-6.
- Beal MF. Mitochondrial dysfunction and oxidative damage in Alzheimer's and Parkinson's diseases and coenzyme Q10 as a potential treatment. J Bioenerg Biomembr. 2004;36:381-6.
- Effects of coenzyme Q10 in early Parkinson Disease. Arch Neurol 2002;59:1541-50.
- Miles MV, Horn P, Miles L, Tang P, Steele P, DeGraw, T. Bioequivalence of coenzyme Q10 from over the counter supplements. Nutr Res 2002;22:919-29.
- Judy, William, Ph.D. Coenzyme Q10 Facts and Fabrications. [http://www.zmc-usa.com/docs/Co-Q10\\_Facts\\_or\\_Fabrications.pdf](http://www.zmc-usa.com/docs/Co-Q10_Facts_or_Fabrications.pdf)



★ Purity ★ Potency ★ Freshness

# Give your heart a helping hand



Formulated by Zoltan P. Rona MD, MSc

- Superior antioxidant
- Heart health aid
- Control high blood pressure
- Cholesterol reduction aid
- Anti-aging properties
- Help improve circulation

