

Coenzyme Q-10

URL of this page: <http://www.nlm.nih.gov/medlineplus/druginfo/natural/938.html>

What is it?

Coenzyme Q-10 (CoQ-10) is a vitamin-like substance found throughout the body, but especially in the heart, liver, kidney, and pancreas. It is eaten in small amounts in meats and seafood. Coenzyme Q-10 can also be made in a laboratory. It is used as medicine.

Many people use coenzyme Q-10 for treating heart and blood vessel conditions such as congestive heart failure (CHF), chest pain (angina), high blood pressure, and heart problems linked to certain cancer drugs. It is also used for diabetes, gum disease (both taken by mouth and applied directly to the gums), breast cancer, Huntington's disease, Parkinson's disease, muscular dystrophy, increasing exercise tolerance, chronic fatigue syndrome (CFS), and Lyme disease. Some people think coenzyme Q-10 will treat hair loss related to taking warfarin (Coumadin), a medication used to slow blood clotting.

Some people also think coenzyme Q-10 might help increase energy. This is because coenzyme Q-10 has a role in producing ATP, a molecule in body cells that functions like a rechargeable battery in the transfer of energy. Coenzyme Q-10 been tried for treating inherited or acquired disorders that limit energy production in the cells of the body (mitochondrial disorders), and for improving exercise performance.

Some people have also used coenzyme Q-10 for strengthening the immune systems of people with HIV/AIDS, male infertility, migraine headache, and counteracting muscle pain sometimes caused by a group of cholesterol-lowering medications called "statins."

Coenzyme Q-10 has even been tried for increasing life span. This idea got started because coenzyme Q-10 levels are highest in the first 20 years of life. By age 80, coenzyme-Q10 levels can be lower than they were at birth. Some people thought that restoring high levels of coenzyme-Q10 late in life might cause people to live longer. The idea works in bacteria, but not in lab rats. More research is needed to see if this works in people.

It's not only time that uses up the body's store of coenzyme Q-10. Smoking does, too.

Coenzyme Q-10 was first identified in 1957. The "Q-10" refers to the chemical make-up of the substance. These days coenzyme Q-10 is used by millions of people in Japan for heart disease, especially congestive heart failure. Coenzyme Q-10 is also used extensively in Europe and Russia. Most of the coenzyme Q-10 used in the US and Canada is supplied by Japanese companies. Coenzyme Q-10 is manufactured by fermenting beets and sugar cane with special strains of yeast.

How effective is it?

Natural Medicines Comprehensive Database rates effectiveness based on scientific evidence according to the following scale: Effective, Likely Effective, Possibly Effective, Possibly Ineffective, Likely Ineffective, Ineffective, and Insufficient Evidence to Rate.

The effectiveness ratings for **COENZYME Q-10** are as follows:

Likely effective for...

- **Coenzyme Q-10 deficiency.** This is a very rare condition. The symptoms include weakness, fatigue, and seizures.
- **Inherited or acquired disorders that limit energy production in the cells of the body (mitochondrial disorders).** Improvement in symptoms is slow. Some people have to take coenzyme Q-10 for six months to get the most benefit.

Possibly effective for...

- **Congestive heart failure (CHF).** There is no evidence that taking coenzyme Q-10 alone can help heart failure. But there is some evidence (though controversial) that it might be helpful when taken in combination with other heart failure medications and treatments.
- **Decreasing the risk of additional heart problems in people who have had a recent heart attack (myocardial infarction, MI).** When started within 72 hours of MI and taken for one year, coenzyme Q-10 appears to significantly lower the risk of heart-related events including non-fatal MI.
- **Huntington's disease (a rare genetic neurological disorder).** Ubiquinol, an altered form of coenzyme Q-10, has been granted "Orphan Drug Status" by the Federal Food and Drug Administration (FDA). This gives the maker of Ubiquinol some financial incentives to study its effectiveness for Huntington's, a condition that is so rare (affecting less than 200,000 individuals) that pharmaceutical companies might not otherwise invest in developing a drug for it. However, taking coenzyme Q-10 by mouth in doses of 600 mg per day or less doesn't seem to be effective for slowing the progression of Huntington's disease.
- **Preventing blood vessel complications caused by heart bypass surgery.** There is some evidence that taking coenzyme Q-10 by mouth for a week before surgery might help to reduce blood vessel damage. But not all research agrees with this finding.
- **High blood pressure (hypertension).** Taking coenzyme Q-10 by itself or along with other medications for treating high blood pressure seems to help lower blood pressure even more.
- **Preventing migraine headache.** Taking coenzyme Q-10 by mouth seems to help prevent migraine headaches. Studies show it can decrease the frequency of headaches by about 30% and the number of days with headache-related nausea by about 45% in adults. Taking coenzyme Q-10 also appears to reduce migraine frequency in children who have low levels of coenzyme Q-10. It can take up to 3 months for significant benefit. Unfortunately, coenzyme Q-10 doesn't seem to be effective in treating migraines, once they have developed.
- **Parkinson's disease.** Some research shows that taking coenzyme Q-10 supplements might slow decline in people with early Parkinson's disease. But taking a coenzyme Q-10 supplement in people with mid-stage Parkinson's disease does not seem to improve symptoms.
- **Improving the immune system of people with HIV/AIDS.**
- **Muscular dystrophy, an inherited disorder involving muscle wasting.** Taking coenzyme Q-10 by mouth seems to improve physical performance in some patients with muscular dystrophy.

Possibly ineffective for...

- **High cholesterol.** Taking coenzyme Q-10 does not seem to decrease high cholesterol or triglycerides.

Likely ineffective for...

- **Improving athletic performance.**
- **Dental (periodontal) disease, when applied directly to the teeth and gums.** However, there is some early evidence that coenzyme Q-10 taken by mouth might be helpful in treating periodontal disease, but more evidence is needed.

Insufficient evidence to rate effectiveness for...

- **Cyclic vomiting syndrome.** Some preliminary research suggests that taking coenzyme Q-10 might work as well as prescription medications used for cyclic vomiting syndrome.

- **Diabetes.** There is conflicting research about the effectiveness of coenzyme Q-10 for diabetes. Some research shows that taking coenzyme Q-10 might lower blood sugar levels. But other research has found no benefit.
- **Breast cancer.** There is preliminary evidence that taking coenzyme Q-10 by mouth might be helpful in advanced breast cancer, along with surgery and conventional treatment plus other antioxidants and omega-3 and omega-6 fatty acids.
- **Male infertility.** There is some evidence that coenzyme Q-10 treatment can improve the movement and density of sperm in men with certain types of infertility.
- **Chest pain (angina).** Some early research suggests that taking coenzyme Q-10 by mouth might improve exercise tolerance in patients with angina.
- **Fibromyalgia.** There is some preliminary research that suggests taking coenzyme Q-10 along with ginkgo might increase a feeling of wellness and perception of overall health and reduced pain.
- **A heart condition called hypertrophic cardiomyopathy.** Taking coenzyme Q-10 by mouth seems to decrease the thickness of the heart wall, and decrease symptoms of shortness of breath and fatigue.
- **A muscle condition called “statin-induced myopathy.”** Statins, a class of drugs used to lower cholesterol, can sometimes cause muscle pain. There is some evidence that taking coenzyme Q-10 might reduce this pain, but not all evidence has been positive.
- **Prevention of pre-eclampsia.** Pre-eclampsia is a condition that some women get during pregnancy. Some research shows that women who are at risk for developing this condition have a lower chance of getting it if that take coenzyme Q-10 from week 20 of pregnancy until the baby is delivered.
- **Hair loss related to use of the warfarin, a “blood thinning” drug.**
- **Fatigue.**
- **Lyme disease.**
- **Other conditions.**

More evidence is needed to rate coenzyme Q-10 for these uses.

How does it work?

Coenzyme Q-10 is an important vitamin-like substance required for the proper function of many organs and chemical reactions in the body. It helps provide energy to cells. Coenzyme Q-10 also seems to have antioxidant activity. People with certain diseases, such as congestive heart failure, high blood pressure, periodontal disease, Parkinson’s disease, certain muscular diseases, and AIDS, might have lower levels of coenzyme Q-10.

Are there safety concerns?

Coenzyme Q-10 is **LIKELY SAFE** for most adults when taken by mouth or when applied directly to the gums. While most people tolerate coenzyme Q-10 well, it can cause some mild side effects including stomach upset, loss of appetite, nausea, vomiting, and diarrhea. It can cause allergic skin rashes in some people. It also might lower blood pressure, so check your blood pressure carefully if you have very low blood pressure. Dividing the total daily dose by taking smaller amounts two or three times a day instead of a large amount all at once can help reduce side effects.

Coenzyme Q-10 is **POSSIBLY SAFE** for children. But coenzyme Q-10 should not be used in children without medical supervision.

Special precautions & warnings:

Pregnancy and breast-feeding: Not enough is known about the use of coenzyme Q-10 during pregnancy and breast-feeding. Stay on the safe side and avoid use.

High blood pressure or low blood pressure: Coenzyme Q-10 might lower blood pressure. It can increase the effects of medications used to lower blood pressure. Discuss your use of coenzyme Q-10 with your healthcare provider if you have

blood pressure problems.

Surgery: Coenzyme Q-10 might interfere with blood pressure control during and after surgery. Stop using coenzyme Q-10 at least two weeks before a scheduled surgery.

Are there interactions with medications?

Moderate

Be cautious with this combination.

Medications for cancer (Chemotherapy)

Coenzyme Q-10 is an antioxidant. There is some concern that antioxidants might decrease the effectiveness of some medications used for cancers. But it is too soon to know if the interaction occurs.

Medications for high blood pressure (Antihypertensive drugs)

Coenzyme Q-10 seems to decrease blood pressure. Taking coenzyme Q-10 along with medications for high blood pressure might cause your blood pressure to go too low.

Some medications for high blood pressure include captopril (Capoten), enalapril (Vasotec), losartan (Cozaar), valsartan (Diovan), diltiazem (Cardizem), Amlodipine (Norvasc), hydrochlorothiazide (HydroDIURIL), furosemide (Lasix), and many others.

Warfarin (Coumadin)

Warfarin (Coumadin) is used to slow blood clotting while coenzyme Q-10 might increase blood clotting. By helping the blood clot, coenzyme Q-10 might decrease the effectiveness of warfarin (Coumadin) and increase the risk of dangerous clots. Be sure to have your blood checked regularly. The dose of your warfarin (Coumadin) might need to be changed.

Are there interactions with herbs and supplements?

Red yeast

Red yeast might reduce coenzyme Q-10 levels.

Are there interactions with foods?

There are no known interactions with foods.

What dose is used?

The following doses have been studied in scientific research:

BY MOUTH:

- For known coenzyme Q-10 deficiency: 150 mg daily.
- For mitochondrial disorders (mitochondrial encephalomyopathies): 150-160 mg, or 2 mg/kg/day. In some cases, doses may be gradually increased to 3000 mg per day.
- For heart failure in adults: 100 mg per day divided into 2 or 3 doses.
- For reducing the risk of future cardiac events in patients with recent myocardial infarction: 120 mg daily in 2 divided doses.
- For high blood pressure: 120-200 mg per day divided into 2 doses.

- For isolated systolic hypertension: 60 mg twice daily.
- For preventing migraine headache: 100 mg three times daily. A dose of 1-3 mg/kg has also been used in pediatric and adolescent patients.
- For Parkinson's disease: 300 mg, 600 mg, 1200 mg, and 2400 mg per day in 3-4 divided doses.
- For HIV/AIDS: 200 mg per day.
- For infertility in men: 200-300 mg per day.
- For muscular dystrophy: 100 mg per day.
- For pre-eclampsia: 100 mg twice daily starting at week 20 of pregnancy until delivery.

Dividing the total daily dose by taking smaller amounts two or three times a day instead of a large amount all at once can help reduce side effects.

Other names

Co Q10, Co Q-10, Coenzima Q-10, Co-Enzyme 10, Coenzyme Q 10, Coenzyme Q10, Co-Enzyme Q10, Co-Enzyme Q-10, Co-Q 10, CoQ10, Co-Q10, CoQ-10, Ubidecarenone, Ubidecarénone, Ubiquinone-10.

Methodology

To learn more about how this article was written, please see the *Natural Medicines Comprehensive Database* methodology (<http://www.nlm.nih.gov/medlineplus/druginfo/natural/methodology.html>).

References

To see all references for the Coenzyme Q-10 page, please go to <http://www.nlm.nih.gov/medlineplus/druginfo/natural/938.html>.

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