

What can high-coenzyme Q foods do for you?

coenzyme Q

- Restore the power of your vitamin E
- Help prevent cardiovascular disease
- Stabilize blood sugar

What events and lifestyle factors can indicate a need for more high-coenzyme Q foods?

- Heart problems like angina, arrhythmia, or high blood pressure
- Problems with the gums
- Stomach ulcers
- High blood sugar

Sources of coenzyme Q include: [fish](#), organ meats (like [liver](#), heart, or kidney), and the germ portion of whole grains.

Description

What is coenzyme Q?

This fascinating nutrient could not be more important to our health, especially the health of our heart and blood vessels. Its chemical structure was discovered in 1957, and since that time, nearly 5,000 research studies on coenzyme Q have been published.

In many living creatures, the same chemical pathways that make [vitamin E](#), [vitamin K](#), and folic acid also make coenzyme Q. While the human body cannot make these other vitamins, it appears that it can make coenzyme Q (using metabolic pathways called the *skikimate* and *chorismate pathways*).

Coenzyme Q is also called *ubiquinone*, and is often designated as coenzyme Q10. This number "10" following its name refers to a specific part of its chemical structure (called its isoprene tail).

How it Functions

What is the function of coenzyme Q?

Energy Production

Coenzyme Q lies at the heart of our cells' energy producing process. Special organelles (tiny organs) inside our cells, called *mitochondria*, take fat and other substances and convert them into usable energy. This process always requires coenzyme Q. In some cells, like heart cells, this energy conversion process can be the difference between life and death - and so can the activity of coenzyme Q.

Cell Protection

Coenzyme Q is a well-established antioxidant used by the body to protect cells from oxygen damage. The exact mechanism for this protective effect is not clear. Nevertheless, up to 95% less damage to cell membranes has been demonstrated following supplementation with coenzyme Q.

The antioxidant protection that can be supplied by coenzyme Q has prompted clinicians to use this nutrient in a wide variety of heart-related conditions in which the heart muscle needs special protection from oxygen damage. These conditions include arrhythmia, angina, heart attack, mitral valve prolapse, high blood pressure, coronary artery disease, [atherosclerosis](#), and congestive heart failure.

Deficiency Symptoms

What are deficiency symptoms for coenzyme Q?

Deficiency symptoms for coenzyme Q are not well-studied. However, deficiency of this nutrient has been clearly associated with a variety of heart problems including arrhythmia, angina, and high blood pressure. Problems in regulating blood sugar have also been linked to coenzyme Q deficiency, as have problems with the *gingiva* (the medical term for the gum), and stomach ulcers.

Toxicity Symptoms

What are toxicity symptoms for coenzyme Q?

Like deficiency symptoms, toxicity symptoms for coenzyme Q are inadequately researched. In a study of 5,143 patients taking 30 milligrams of coenzyme Q per day, less than 1% of all patients complained of stomach discomfort, nausea, diarrhea, or appetite problems as a result of the supplementation.

Some textbooks list 800-1,000 milligrams per day as the possible starting point for toxicity, but this starting point has yet to be carefully tested in clinical studies. From food sources alone, it would be impossible to obtain these hundred-milligram level doses.

Impact of Cooking, Storage and Processing

How do cooking, storage or processing affect coenzyme Q?

There is no research available about the impact of cooking, storage or processing on this nutrient.

Factors that Affect Function

What factors might contribute to a deficiency of coenzyme Q?

A wide variety of heart-related problems increase risk of coenzyme Q deficiency. These problems include arrhythmia, angina, heart attack, mitral valve prolapse, high blood pressure, coronary artery disease, [atherosclerosis](#), and congestive heart failure. Problems with the gums (gingiva) and stomach ulcers can also signal deficiency of this nutrient.

Drug-Nutrient Interactions

What medications affect coenzyme Q?

The cholesterol-lowering statin drugs - including lovastatin (Mevacor TM), pravastatin, and simvastatin - all lower levels of coenzyme Q in the blood. This reduction of coenzyme Q supplies is ironic since these cholesterol-lowering drugs are given to decrease risk of heart disease.

In at least one study, reduction of coenzyme Q in the blood following the use of these medications has been shown to be greater than reduction of blood cholesterol. For this reason, many healthcare practitioners routinely supplement with coenzyme Q when patients are prescribed these cholesterol-lowering drugs.

Beta blockers are a class of prescription drugs that have widely been used in treatment of high blood pressure. Side effects from these drugs are common. Supplementation with coenzyme Q has been shown to dramatically reduce many of these adverse side

effects.

Nutrient Interactions

How do other nutrients interact with coenzyme Q?

Coenzyme Q plays a critical role in maintaining our supply of [vitamin E](#). When vitamin E gets "used up" in the performance of its duty as an antioxidant protector of our cell membranes, coenzyme Q can "recharge" it, and restore its antioxidant capability.

Health Conditions

What health conditions require special emphasis on coenzyme Q?

Coenzyme Q may play a role in the prevention and/or treatment of the following health conditions:

- Most heart-related conditions, including arrhythmia, angina, heart attack, mitral valve prolapse, high blood pressure, coronary artery disease, [atherosclerosis](#), and congestive heart failure
- Breast cancer
- [Diabetes](#)
- HIV+/AIDS
- Infertility
- Muscular dystrophy
- Periodontal diseases (problems with the gums/gingival)
- Stomach ulcer (also called gastric ulcer)

Form in Dietary Supplements

What forms of coenzyme Q are found in dietary supplements?

Coenzyme Q is usually found under this exact same name in nutritional supplements. This name is almost always synonymous with the names "CoQ," "Coenzyme Q10," and "CoQ10." The chemical name for coenzyme Q - "ubiquinone" - may also be found on a supplement label or ingredient list.

Coenzyme Q supplements usually contain between 5-100 milligrams of the nutrient. Doses to treat heart-related conditions usually begin at approximately 30 milligrams per

day and work upward to about 100 milligrams. Dose levels above 10 milligrams per day would almost never be attainable through diet alone.

Food Sources

Introduction to Nutrient Rating System Chart

The following chart shows the World's Healthiest Foods that are either excellent, very good or good sources of this nutrient. Next to each food name you will find the following information: the serving size of the food; the number of calories in one serving; DV% (percent daily value) of the nutrient contained in one serving (similar to other information presented in the website, this DV is calculated for 25-50 year old healthy woman); the nutrient density rating; and the food's World's Healthiest Foods Rating. Underneath the chart is a table that summarizes how the ratings were devised. Read detailed information on our [Nutrient Rating System](#).

Food Source Analysis not Available for this Nutrient

Public Health Recommendations

What are current public health recommendations for coenzyme Q?

There are currently no public health recommendations for coenzyme Q.

References

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