A patented oil-based formulation of CoQ₁₀ in the ubiquinone form, with clinically proven enhanced bioavailability.
The Crucial Nature of CoQ\textsubscript{10}

Coenzyme Q\textsubscript{10} (CoQ\textsubscript{10}) is a vitamin-like substance found in virtually all cells of the human body, including the heart, liver, and skeletal muscles, and in most plant and animal cells.

- As an antioxidant, CoQ\textsubscript{10} protects proteins, LDL (“bad”) cholesterol, and mitochondrial DNA from oxidative damage.*

- As a participant in the production of cellular energy, CoQ\textsubscript{10} helps ensure the body’s biggest energy consumers — the heart and the brain — are well fed.*

Thanks to these two crucial functions, CoQ\textsubscript{10} helps maintain blood pressure already within normal limits,\textsuperscript{1} supports the integrity of the heart muscle,\textsuperscript{2} increases circulation to the heart,\textsuperscript{3} improves exercise capacity,\textsuperscript{4, 5} and supports a normal heart rhythm.\textsuperscript{6} Additionally, it may protect against mild memory problems associated with aging.\textsuperscript{7, 8}

Of course, none of these benefits can be realized if CoQ\textsubscript{10} isn’t absorbed — and research indicates that the body takes up only a small fraction of traditional powder-based (crystalline) CoQ\textsubscript{10}.

The CoQ\textsubscript{10} Absorption Dilemma

CoQ\textsubscript{10} is highly lipophilic (fat-loving) and in its powdered crystalline form is practically insoluble in water. This makes the absorption of typical CoQ\textsubscript{10} supplements:

- **Poor:** Less than 1% of orally administered CoQ\textsubscript{10} permeates the aqueous environment of the gastro-intestinal tract into the blood.\textsuperscript{9}

- **Highly variable:** Some individuals absorb considerably less CoQ\textsubscript{10} than others.

- **Strongly dependent on stomach contents:** Foods rich in fat enhance absorption.

Making matters worse, CoQ\textsubscript{10} is a large molecule, contributing to its poor absorption. Plus, when CoQ\textsubscript{10} is produced commercially, crystals are formed that melt when they reach 118°F or 48°C. Upon cooling, CoQ\textsubscript{10} recrystallizes, which frequently results in even larger crystals — and further lowers CoQ\textsubscript{10} bioavailability.

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The Suspension Solution: CoQsol®

CoQsol® from Soft Gel Technologies is a patented, oil-based formulation of CoQ10 in the ubiquinone form with clinically proven enhanced absorption. How is this enhanced absorption achieved?

The answer is simple, and you may have learned it in high school chemistry: **Like dissolves like.** Because CoQ10 is lipophilic, the scientists who developed CoQsol encapsulated CoQ10 in an oil-based formulation to give it partial solubility, while adding specific antioxidants to stop recrystallization, thus enhancing its absorption.

CoQsol®: Ingredients

**Ubiquinone CoQ$_{10}$ Provides Multiple Health Benefits**

CoQ$_{10}$ functions as a carrier to transfer electrons across the membrane of the mitochondria — the energy-producing “factories” within cells — to drive production of adenosine triphosphate (ATP), or cellular energy.* Heart muscles have the greatest concentration of mitochondria — 5,000 per cell — which is one reason why CoQ$_{10}$ is so important for cardiovascular function. 

In its reduced form, ubiquinol, CoQ$_{10}$ acts as an antioxidant to protect proteins, LDL (“bad”) cholesterol, and mitochondrial DNA from oxidative damage.* Research has shown that CoQ$_{10}$ supplementation exerts a sparing effect on vitamin E in healthy subjects, helping to maintain its antioxidant state. It also reduces levels of lipid peroxidation — and thus supports cardiovascular health.*

Several factors can deplete CoQ$_{10}$ levels in the body:

- Aging
- Certain medications, such as statin drugs
- Certain disease states

**Rice Bran Oil Allows for Lymphatic Absorption**

CoQ$_{10}$ crystalline powder does not dissolve completely in the lipid portion of the small intestine. The solution? Add fat. Not just any fat, however. Rice bran oil naturally contains gamma oryzanol, a plant sterol with lipid-like solubility. As a result, it enables the CoQ$_{10}$ in CoQsol® to be absorbed through the lymphatic system as a fat.*

**Tocopherols and Carotenoids Prevent Recrystallization**

A form of vitamin E, tocopherols enhance the biological function of CoQ$_{10}$* which in turn helps maintain the antioxidant state of vitamin E.* Carotenoids are antioxidant phytonutrients that give orange vegetables like carrots and sweet potatoes their characteristic hue. Both tocopherols and carotenoids interfere with the recrystallization of CoQ$_{10}$ allowing for better absorption.*

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CoQSol® Has Enhanced Bioavailability Compared with CoQ₁₀ Crystalline Powder

In a randomized placebo-controlled study, 36 volunteers aged 22 to 58, with normal CoQ₁₀ levels and no previous history of CoQ₁₀ supplementation, were divided into three groups: CoQ₁₀ crystalline powder (in a two-piece hard shell capsule), CoQsol® (as a hermetically sealed softgel), or a placebo.

In the first phase of the study, researchers determined steady state blood levels of CoQ₁₀ by measuring fasting blood levels one week before supplementation began and again on days 0, 15, 30, and 45 (15 days after the end of supplementation). In the second phase of the study, peak absorption rate was determined by measuring fasting blood levels of CoQ₁₀ before and five hours after taking a single 30-mg dose of the nutrient.

Phase I: Steady State Basal Blood CoQ₁₀ Levels Over 30 Days of Supplementation

- **2.2 x Higher Steady State Levels:** After 30 days, blood CoQ₁₀ levels of the CoQ₁₀ crystalline powder group rose by 76% (0.85 µg/ml to 1.5 µg/ml) whereas those of the CoQsol® group rose by 165% (0.85 µg/ml to 2.26 µg/ml) — meaning CoQsol® boosts blood levels of CoQ₁₀ 2.2 times better than CoQ₁₀ crystalline powder.

- **2 Weeks to Near-Peak Levels:** CoQ₁₀ levels approached peak plasma levels after two weeks and then rose more slowly for another two weeks.

- **On-Going Supplementation Needed:** Once supplementation ceased, plasma CoQ₁₀ levels dropped back to baseline levels after two weeks, indicating the need for on-going supplementation.
Phase II: Peak Absorption Rate 5 Hours After Ingestion

- **2.5x Higher Peak Absorption:** CoQ₁₀ levels of the CoQ₁₀ crystalline powder group increased 0.19 µg/ml (average absorption of 3.4 µg/ml), whereas those of the CoQsol® group increased 0.48 µg/ml (average absorption of 9.3 µg/ml) — meaning a single dose of CoQsol® increased blood CoQ₁₀ levels 2.5 times more than CoQ₁₀ crystalline powder.

- **2.6x Higher Total CoQ₁₀ Absorption:** After five hours, the CoQ₁₀ crystalline powder group had absorbed just 693 µg/ml CoQ₁₀, while the CoQsol® group had absorbed an impressive 1,813 µg/ml — 2.6 times more.

Better Absorption Means Increased Energy

When the subjects’ CoQ₁₀ levels rose, the practical results of supplementation were clear:

- The **placebo group** experienced **no change in energy**.

- Only **30% in the CoQ₁₀ crystalline powder group** felt such an increase.

- Yet a full **83% of subjects in the CoQsol® group noticed an increase in energy.**

That’s not surprising, because CoQ₁₀ feeds the mitochondria — tiny energy producers within cells.*

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Who Should Take CoQsol®?

CoQsol® is the perfect nutritional supplement for anyone who:

- **Is Under 40**
  With age, people produce less CoQ10 and become less efficient at converting ubiquinone (the form of CoQ10 featured in CoQsol®) to ubiquinol (the form used by the body to neutralize free radicals and create energy in the form of ATP). However, those who are young and healthy can easily make this conversion. Therefore, taking ubiquinol may be an unnecessary expense for this population.

- **Needs a boost in energy***
  One of the primary benefits of CoQ10 is to increase energy production.* In a randomized placebo-controlled study, 83% of subjects taking CoQsol® noticed an increase in energy, compared to just 30% of those taking CoQ10 crystalline powder.*

- **Is Taking Statins**
  Certain medications, such as statin drugs, and certain disease states can deplete CoQ10 levels in the body. Supplementation can restore CoQ10 stores to normal levels (at least 0.8 µm/ml).

- **Wishes to strengthen cardiovascular or brain health***
  Because of its role in energy production, CoQ10 supports the functioning of organs with a high demand for energy, such as the heart and brain.* The heart muscle in particular is in constant need of a ready supply of energy to efficiently pump blood throughout the body. In fact, the majority of cardiac tissue is abundant in mitochondria requiring ample and consistent levels of CoQ10 for proper functioning.*

- **Is looking for a non-dietary way to increase CoQ10 levels**
  Most people don’t eat enough foods containing CoQ10 — such as fatty fish, organ meats, and whole grains — to raise blood levels of the nutrient. In fact, the average dietary intake of CoQ10 is only 3-5 mg a day, much lower than what’s needed to have any effect on CoQ10 concentrations.10 CoQsol® has been clinically proven to achieve significantly higher plasma concentrations of CoQ10 compared with CoQ10 crystalline powder.

**CoQsol® Delivery Systems**

CoQsol® is an off-the-shelf formulation available in five different potencies—10 mg, 30 mg, 60 mg, 100 mg and 200 mg softgels. As an oil-based suspension of CoQ10 clinically demonstrated to provide superior absorption, CoQsol® is the ubiquinone CoQ10 of choice for discriminating manufacturers.

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CoQsol® is a multi-ingredient soft gelatin CoQ10 formulation, which delivers powerful antioxidants vital to human health. This unique, synergistic blend of CoQ10, natural vitamin E, Pro-vitamin A from natural beta-carotene, and rice bran oil is clinically proven to provide superior absorption.* It may also replenish CoQ10 levels depleted by statin drugs.* Known as the “biochemical spark,” CoQ10 is a widely–studied nutrient that assists in normal heart function and promotes efficient cellular energy production.*

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CoQsol® Highlights
Available exclusively from Soft Gel Technologies, CoQsol® is a patented oil-based formulation of CoQ_{10} with clinically demonstrated enhanced absorption.

Why CoQsol®?

- **Several factors can deplete CoQ_{10}**. Research shows that aging, certain medications such as statin drugs, and certain disease states can deplete CoQ_{10} levels in the body. Therefore, for many people, supplementation is indicated to replenish CoQ_{10} stores to normal levels.

- **CoQ_{10} in powder (crystalline) form is difficult to absorb**. Because of its highly lipophilic (fat-loving) structure, CoQ_{10} is practically insoluble in water, making its absorption poor, highly variable, and strongly dependent on stomach contents. Plus, the CoQ_{10} molecule is large in size, contributing to its poor absorption, and when heated and re-cooled, even larger crystals are created.

- **Suspending CoQ_{10} in rice bran oil improves its bioavailability**. Rice bran oil contains gamma oryzanol, a plant sterol with lipid-like solubility. As a result, it enables the CoQ_{10} to be absorbed through the lymphatic system as a fat.*

- **Adding tocopherols and carotenoids prevents recrystallization**. Both tocopherols and carotenoids interfere with the recrystallization of CoQ_{10}, allowing for better absorption.*

- **CoQsol® has clinically proven enhanced bioavailability**. A randomized placebo-controlled human clinical trial found that compared to CoQ_{10} crystalline powder, CoQsol® achieved:
  - 2.2x higher steady state blood levels of CoQ_{10} after 30 days (60 mg/per day)
  - 2.5 higher peak absorption rate 5 hours after ingestion of a single dose (30 mg)
  - 2.6x higher total CoQ_{10} absorbed 5 hours after ingestion of a single dose (30 mg)

- **CoQsol® Increases Energy**. A full 83% of subjects in the human clinical trial who were taking CoQsol® noticed an increase in their energy levels, as opposed to 30% taking powdered CoQ_{10} and no change for those taking placebo.*

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