

# The Co – Enzyme Q10 Story

*“The World’s Best Kept Secret In Complementary Medicine”*

## Co-Q10 – A miracle nutrient?

Is there such a thing as a miracle nutrient? Co-enzyme Q10 may be one that comes closer to this description than many of the other nutrients that are considered essential for life.

Oxygen is essential for existence in all life forms. So is water. Vitamins are essential, and so are proteins, carbohydrates, and fats – but not necessarily in that order or in equal amounts. Foods are essential because they supply all the essential nutrients. You could not live for more than a few minutes without oxygen, more than a few days without water, or more than a few weeks without food.

It’s a fact that the body couldn’t survive without Co-enzyme Q10. If the bodies’ level of Co-Q10 starts dropping, so does your general health. Scientists investigating the role of Co-Q10 in human biochemistry have estimated that once the body levels of Co-Q10 become more than 25 percent deficient many disease state start to flourish. These can range from high blood pressure and heart attacks to deficiencies of the immune system and cancer. If the essential levels of Co-Q10 in your body drop much below 75 percent, life can no longer be sustained.

## Co – Enzyme Q10 and the Energy Connection

Q10 is a vital catalyst in the creation of energy that cells need for life. Without Co-Q10 the chain of cellular energy is broken. Without energy life ceases. The analogy of the biological energy system as an internal combustion engine helps to illustrate the role of Co-Q10 at cellular level.

Imagine the V-6 engine in an automobile as an individual human cell. For, in fact every cell is a minute engine pumping out energy for use in the biological functions – whether for playing tennis, solving difficult mental problems, or just keeping the heart pumping while you sleep. In each cell there are sub cellular components called mitochondria. These can be compared to the cylinders in the automobile engine where gasoline is ignited and explodes, resulting in a force that moves the pistons. In turn this energy turns the wheels of the car. In the human machine likewise it is this energy that fuels the entire body.

*Source: The Miracle Co-enzyme by Emile G. Bliznakov M.D and Gerald L. Hunt*

## Statin Drugs and Co – Q10

Statin drugs can help improve the health of a number of ailments but many health professionals recommend that they should not be taken without supplementing with Co-enzyme Q10. Statin users take these drugs to combat and prevent disease but unfortunately many consumers are left uneducated about the potential harmful side-effects of statin drugs.

Statin drugs are one of the most widely used pharmaceutical products in the world that generate their makers billions of dollars annually. They are primarily used to treat ailments such as heart diseases, Alzheimer’s disease, stroke and osteoporosis, but scientific research reveals that statin drugs are extremely effective in lowering total cholesterol and triglycerides.

## Side effects

Unfortunately statin drugs have a down side. When they reduce cholesterol levels they also lower Co-Q10 levels, this occurs due to cholesterol and Co – Q10 sharing the same synthesis pathway. Reduced Co-Q10 levels can cause detrimental health effects.

**In a double blind placebo controlled study there was a decrease of 50-54% of Co-Q10 levels in statin treatment groups.**

According to Peter H. Langsjoen MDm FACC, PA: a pioneer in Co-Q10 research.

*“There is very good evidence that Co-Q10 depletion is associated with impairment in myocardial function.. We first presented and published data in 1990 that patients with idiopathic dilated cardiomyopathy show a drop in blood Co-Q10 level and life threatening decline in heart function when placed on statins. Since the release of statins in 1987 there has been roughly a three fold increase in chronic heart failure in USA.”*

Peter H. Langsjoen MDm FACC, PA further states:

*“All patients taking statins have become depleted in Co-Q10, eventually, those patients who start with relatively low Co-Q10 levels (the elderly and patients with heart failure) begin to manifest signs/symptoms of Co-Q10 deficiency relatively rapidly – in 6 to 12 months. Younger, healthier people who’s only “illness” is non illness “hypercholesterolemia” can tolerate statins for several years before getting into trouble with fatigue, muscle weakness and soreness (usually with normal muscle enzyme CPK tests) and most ominously – heart failure”*

On the 8<sup>th</sup> August 2001, Pharmaceutical company, Bayer, recalled its statin drug, Baycol (cerivastatin) following the deaths of more than 50 people who died from rhabdomyolysis, a condition in which the skeletal muscle degenerates.

According to Public Citizen, Washington DV based consumer advocacy group, rhabdomyolysis has been linked to other statin drugs as well.

## Warning Labels

In their 2001 petition to the US Food and Drug Administration (FDA) to request black box warning labels (strongest labeling caution that can be authorized by the FDA) on all statin drugs, the Public Citizin group stated.

*“While cerivastatin accounted for slightly more than half of the 772 reported cases of rhabdomyolysis between October 1997 and December 2000, 385 cases of rhabdomyolysis and 52 rhabdomyolysis deaths were reported in association with other statins. An additional 29 deaths from rhabdomyolysis in people using statins other than cerivastatin were reported to the FDA prior to October 1997, for a total 81 deaths from rhabdomyolysis caused by statins other than cerivastatin”* the group said.

Similarly, in 2002 Doctor Julian Whitaker, filed two petitions with the FDA requesting that statin drug labels should have medical guidance to inform consumers that when they take statin drugs they should also supplement with Co-Q10.

Just recently the Canadian Authorities have stated that all cholesterol lowering drug advertising must display warnings in regards to the potential dangers of taking these drugs. For example, “Statins lower Co-Enzyme Q10 (Co-Q10) levels and they raise Lipoprotein (a) (Lp (a) blood levels.”

In another study performed by Emile G. Bliznakov, MD veteran Co-Q10 researcher, he stated.

*'I unearthed an important aspect of this story within two statin patents. Two U.S patents were granted to Merck (Pharmaceutical) in 1990 describing a method of counteracting the statin-associated myopathy and potential nerve damage caused by statins. Thus the manufacturer itself implicated the serious side effects of statins and the protective role played by Co-Q10 in preventing these statin side effects. The manufacturer has not disseminated this data for 12 years, which incriminates them seriously'*

Other known side effects associated with the use of statin drugs include muscle inflammation, pain and weakness, fatigue and liver damage.

*"Co-Q10 supplementation is an easy economically feasible remedy to prevent and/or reverse the dangerous Co-Q10 depletion effects of statins. The FDA should therefore act immediately to protect public health against foreseeable patient risks, including heart damage and death, by requiring use in all statin labeling or the warning recommended here."*

### **Healthcare professionals' awareness**

But are doctors, who prescribe statin drugs, aware of the harm they can cause? Bernard Wollschlaeger, MD said.

Are you as the patient told of the possible side effects over the possible benefit? Does your doctor even know? Drug companies have been very successful in promoting their products and the need for lower cholesterol levels. Were cholesterol levels such a topic of concern before statin drugs were invented? Most of the studies on statins have been funded by the drug companies, themselves.

*"The potential adverse side effects of statin drugs is being discussed in scientific literature, but such information is not currently documented in PDR or other drug information databases that are used on a daily basis by physicians and other healthcare professionals. As healthcare professionals, we need to be attentive to potential depletion of essential nutrients in patients taking prescription medication for an extended period of time."*

Statin drugs are obviously bad news if Co-Q10 supplementation is left out of the equation. Statin users need to educate themselves on how statins affect their body because the known side effects are too harmful to be ignored. Co-Q10 helps to promote and maintain overall health due to its energy production and free radical scavenger properties.

Health Care Professionals recommend that Co-Q10 supplementation is vital if taking statin drugs. For those that want to know more information [www.statalert.org](http://www.statalert.org) There are over 1500 sites promoting concern over statin use.

### **Aging and Co-Q10**

*"Adult human body pool of Co-Q10 has been found to be approximately 2 grams and requires replacement of about 0.5 grams/day (500mg) based on its average turnover of about 4 days in various tissues. This must be supplied either by endogenous synthesis or from exogenous sources. Synthesis decreases progressively in humans above the age of 21. Furthermore, the average ubiquinone (Co-Q10) content of the western diet is less than 5mg/day. Thus ubiquinone supplementation appears to be the only way for older people, and certainly the ill, to obtain the major proportion of the 0.5 gram/day needed"*

*"Supplementation by the aged, ill or stressed, can have huge benefits."* States Dr. Ely <http://faculty.washington.edu/ely/turnover.html>

## Ageing

Weight gain, loss of height, muscular weakness, memory difficulties, loss of elasticity in blood vessels and skin, slowing down of hormonal activity and, most significantly cellular damage from unrelenting free radical activity, are all signs of aging.

Many people across generations live an active and energetic life without degenerative diseases. So how can the aging process be outsmarted?

A theory is that free radical oxidative stress is a major activity to blame for accelerating the aging process.

Molecules known as free radicals cause oxidative stress and have the ability to cause a lot of damage if they are not managed correctly.

Clinical studies have revealed that if the Mitochondria, a cells power house which produces energy in the form of ATP, is damaged by free radicals and subsequent DNA deterioration and DNA mutations, the aging process can be accelerated. Therefore we can hypothesize that interventions that prevent the free radical induced mitochondrial damage, can help protect cell DNA and maybe retard the aging process. If sufficient antioxidants are present in cells, free radicals can be neutralized to a certain extent.

Today many average diets lack nutrient potent foods that provide antioxidants to counteract free radical damage. Over time the body will become more vulnerable, cell strength, vitality and membrane deterioration will occur, if adequate precautions don't take place.

There are a number of ways to help prevent oxidative stress induced cell death. For example, exercise can have positive effect on the growth hormone which gradually declines with age.

Supplementation with powerful antioxidants like Co-enzyme Q10, are another method. As we age, go through periods of illness and when we perform strenuous exercise, Co-Q10 levels in the body decline, therefore supplementation of this key nutrient is essential.

Co-Q10 has an amazing ability to support and promote cellular energy at the mitochondria level. It's essential that Co-Q10 is present, because without Co-Q10 the mitochondria can not function. Therefore it also supports the immune system. Scientific studies reveal that people with degenerative heart disease have lower levels of Co-Q10 when compared against health specimens.

*Excerpt from Dr. Stephen T Sinatra's The Co-enzyme Q10 Phenomenon*

## Chronic Heart Failure

Cardiac conditions such as Chronic Heart Failure (CHF) and dilated cardiomyopathy cause the heart muscle to become very weak, preventing it from effectively pumping blood around our body.

Managing these conditions is also an extremely difficult task that cardiologists face. Patients may not be able to tolerate or respond to conventional treatment drugs.

Dr. Sinatra, a clinical cardiologist in the U.S believes that the health of Chronic Heart Failure (CHF) and dilated cardiomyopathy patient's improves when he combines conventional treatments such as diuretics and digitalis with complementary methods like Co-Q10 supplementation.

Four primary health benefits of Co-Q10 for cardiovascular illnesses that Dr. Sinatra highlights are:

- Co-Q10 is a powerful antioxidant
- Supports the cellular mitochondria in the process of ATP energy production
- Stabilises cell membranes
- Reduces platelet size, distribution and stickiness, limiting platelet activity.

The results from a double blind placebo controlled crossover design study performed in 1991 with 80 participants revealed significant improvement in exercise capacity and quality of life when Co-Q10 supplementation was combined with conventional therapies. These results were presented to the American Heart Association.

Diastolic function of the heart requires large amounts of cellular energy in comparison to systolic contraction i.e more energy is required to fill the heart than empty it, therefore Co-Q10 can be regarded as a suitable intervention due to its ability to help produce cellular energy in the form of ATP.

Co-Q10 supplementation in a study involving 109 patients with hypertensive heart disease a diastolic dysfunction resulted in clinical improvement. Elevated blood pressure was reduced, diastolic function improved and there was a decrease in myocardial thickness in 53% of patients.

The heart's myocardium requires more ATP support than other body muscles due to continuously working in an aerobic mode. Any condition that causes a decrease in Co-Q10 stores could cause a corresponding decrease in oxidative phosphorylation of the mitochondrial respiratory chain, thus rendering tissue more susceptible to free radical attack.

*"It's my belief that Co-Q10 should be administered to any patient with cognitive heart failure. This recommendation is also supported by a very recent meta-analysis (a statistical aggregation of eight previously published double blind studies. This analysis demonstrated a statistically significant improvement in ejection fraction and cardiac output, the two major physiological parameters of cardiac output"* states Dr. Sinatra

*Excerpt from Dr. Stephen T Sinatra's The Co-enzyme Q10 Phenomenon*

## **Co-enzyme Q10 and Parkinson's Disease**

### **Study suggests Co-enzyme Q10 slows functional decline in Parkinson's Disease**

Results of the first placebo controlled, multicenter clinical trial of the compound Co-Q10 suggest that it can slow disease progression in patients with early stage Parkinson's disease (PD). While the results must be confirmed in a larger study, they provide hope that this compound may ultimately provide a new way of treating PD.

The phase II study, led by Clifford Shults, M.D, of the University of California, San Diego School of Medicine, looked at a total of 80 PD patients at 10 centers across the country to determine if Co-Q10 is safe and if it can slow the rate of functional decline. The study was funded by the National Institute of Neurological Disorders and Stroke (NINDS) and appears in the October 15, 2002, issue of the Archives of Neurology 1.

*"This trial suggested that Co-enzyme Q10 can slow the rate of the deterioration in Parkinson's disease"* says Dr Shults.

PD is a chronic, progressive neurological disease that affects about 500,000 people in the United States. It results from the loss of brain cells that produce the neurotransmitter dopamine and

causes tremor, stiffness of the limbs and trunk, impaired balance and coordination, and slowing of movements. Patients also sometimes develop other symptoms, including difficulty swallowing, disturbed sleep, and emotional problems. PD usually affects people over the age of 50, but it can affect younger people as well. While levodopa and other drugs can ease the symptoms of PD, none of the current treatments has been shown to slow the course of the disease.

The investigators believe Co-Q10 works by improving the function of mitochondria, the “powerhouse” that produce energy in cells. Co-enzyme Q10 is an important link in the chain of chemical reactions that produces this energy. It also is a potent antioxidant, a chemical that “mops up” potentially harmful chemicals generated during normal metabolism.

The results of this study suggest that doses of Co-enzyme Q10 as high as 1,200 mg/day are safe and may be more effective than lower doses, says Dr. Shults. The findings are consistent with those of a recently published study of patients with early Huntington’s disease (another degenerative neurological disorder) that showed slightly less functional decline in groups that received 600 mg/day of Co-enzyme Q10.

## **Cholesterol**

Good cholesterol is known as HDL cholesterol, they can help to unclog arteries. “Bad” cholesterol is LDL cholesterol because it clogs up vessels. The recommended level for cholesterol is: LDL less than 3.5 mmol/litre; and HDL is more than 1 mmol/litre.

Researches at the Heart Foundation in Sydney, Australia have revealed a relationship between Co-Q10 and circulating levels of low density lipoprotein (LDL’s) Co-Q10 supplementation of 100mg, three times daily for eleven days, resulted in increased resistance to LDL to the peroxidation process. Levels were reduced by 20% from their highest concentrations. Therefore Co-Q10 powerful antioxidant properties help prevent LDL oxidation and the artery blocking process by protecting tissues against free radicals, the formation of oxidized LDL, and by boosting Vitamin E stores, another powerful antioxidant that has a protective effect similar to Co-Q10. This is important due to research indicating excessive lipid peroxidation takes place when there are low antioxidant levels.

## **High Blood Pressure**

High blood pressure is a very common condition that physicians have a very difficult job of treating due to individuals different need i.e medication requirements.

*“Since using Co-Q10 over the past decade I have been able to slowly reduce at least half the medication in my patients. Treating blood pressure with pharmacotherapy is tricky business. It’s a delicate balancing act to juggle optimum blood pressure readings with side effects of medications,”* states Dr Sinatra

Sinatra, a leading U.S based cardiologist. Research performed by Digiesi et al., revealed that the membrane –stabilizing and antioxidant properties of Co-Q10 may help normalize cellular chemistry and promote optimum tone and compliance of the elastic vessel walls, therefore helping to decrease high blood pressure.

Dr. Sinatra use Co-Q10 as a key component in his “natural and effective” program to lower blood pressure which he devised as a results of not being 100 percent satisfied with the health gains of pharmacological drugs due to the side effects such as, loss of sex drive, fatigue and constipation, experienced by his patients. Sinatra’s program is comprised of targeted nutritional supplementation, weight reduction and a healthy Mediterranean style diet program and moderate exercise. Currently there is a lack of investigative trial into the relationship between Co-Q10 and

blood pressure. More double blind studies need to be performed to have a greater understanding of Co-Q10 role.

## **Angina**

Angina is a sensation of burning and pressure in the chest caused by a lack of oxygen delivery to heart tissue, which is usually the result of blockages in the coronary artery.

In Japan, a double blind placebo controlled study performed by D. Kamikawa and associates revealed some interesting findings. 12 patients with stable angina who were treated with Co-Q10 showed a decrease in the frequency of anginal episodes, 54% decrease in the number of time conventional medications were taken and an increase in exercise testing time on the treadmill.

There have also been some other double blind studies revealing similar results:

*"When I treat people with angina, I usually recommend Co-Q10 in a dose range of 90- 180 mg in combination with antianginal agents. Sometimes I use 240-360 mg in patients who have not responded to lower dosages,"* states Dr. Sinatra

Research has also shown that Co-Q10 supplementation in pre-op cardiac patients can help advance the protective benefit. Improvements have been shown in left ventricle myocardial ultrastructure and ischemic reperfusion protection. Reperfusion is when oxygen rich blood is delivered to areas of the heart that previously have had insufficient blood flow.

Excessive supply of this fresh blood/oxygen to starving tissues can cause the collection of harmful by products, which causes stress to rescued tissues resulting in a possible reperfusion "injury". If there is sufficient Co-Q10 supply in these tissues it can assist in making the defence against these harmful by products a lot stronger.

## **Diabetes**

Diabetes is becoming a worldwide epidemic and the incidence is expected to increase in developing countries. To help control diabetes people need to take responsibility for their diet to ensure they are choosing the right foods and supplements to reduce their chances of developing the illness.

In Australia, approximately 7.2% of the population has diabetes, this is an alarming figure and the rate is continuing to rise.

There are two main types of diabetes Insulin Dependent Diabetes Mellitus (IDDM) or Type 1 diabetes, and Non insulin Dependent Diabetes Mellitus (NIDDM) or Type 2 diabetes.

The onset of Type 1 diabetes symptoms is usually at an early age. Due to the pancreas creating little or no insulin in this form of diabetes, insulin is required for proper control of sugar levels. Type 1 diabetics are subject to wide fluctuations in blood sugar and ketone levels in their blood.

Type 2 diabetes usually develops at a slower rate, later on in life. It is frequently seen in adults over 40. The symptoms of Type 2 are less harsh than Type 1. However, one of the negative symptoms associated with Type 2 is steady weight gain. This is a result of Insulin resistance that causes blood glucose to not burn effectively, therefore excess glucose is stored as fat.

## Supplementation

Efficient blood glucose metabolism plays a significant role in the control of diabetes and associated complications. There are various nutrients that diabetics should try and incorporate in their diet. Researches believe that L- Carnitine, Chromium, Vanadium, Magnesium, Vitamin C, Vitamin E and Milk Thistle all help in different ways to prevent the development of diabetes, as well as the powerful antioxidant Co-enzyme Q10.

Clinical research indicates that Co-enzyme Q10, like Vitamin E, has a preservation role in the pancreas. The pancreas' beta cells are prone to free radical oxidative stress which is heightened for diabetics when hypoglycemia and/or hyperinsulinemia are drawn out.

Overproduction of free radicals is a known cause of diabetes as well as vascular problems. Power antioxidants like Co-enzyme Q10 and Vitamin E play a key function in supporting and protecting beta cells of the pancreas from harmful free radicals.

A randomized double blind placebo-controlled trial conducted in 1998 on 62 patients who had a history of hyperinsulinemia during heart attack revealed some interesting results. When compared against placebo participants, the patients who were given Co-enzyme Q10, showed reductions of their fasting insulin by 10.6% reductions of their fasting blood glucose by 19.6% and postprandial glucose readings of 12.6% from base line levels. These findings conclude that treatment with 120mg of Co-enzyme Q10 may improve insulin sensitivity and hypoglycemia.

It's also important diabetics establish a relationship with their doctor or dietician to work out a diet for their specific needs because what works for one person might not work for another.

### FREE ENERGY

Mitochondria have their own distinctive genetic material within their structure's DNA and if the cellular environment is conducive they can replicate. More mitochondria automatically mean more toxic free energy for the cellular energy pool is possible. For mitochondria to increase their potential intra cellular numbers they must be supplied with ample Co-enzyme Q10. More Co-enzyme Q10 supplied to cells equates to more low toxic energy production and as a consequence healthier mitochondria and cellular environments.

For most individuals, particularly accentuated by the ageing factor, Co-enzyme Q10 supplementation can more than double their normal access to low toxic energy output. This lowers the use of sugar/glucose burning and has a consequential reduction in free radical damage to all internal cell structures.

Inefficient energy production within cells can cause approximately ninety percent of all mutative damage to our cell infrastructure. Co-enzyme Q10, if taken daily, will not halt this natural destruction completely, but it will certainly soften the process.

Positive charged free radicals derived from excessive and inefficient lactate production attack and deplete the negative charged hydrogen (life force energy) within our DNA chromosomes and RNA messenger microfilm code present in all cells. This destruction of the DNA-RNA blueprint directly extrapolates to less energy, poorer health, more disease and premature ageing. Once again Co-enzyme Q10 can soften this damage.

## How is “Natural’ Co-enzyme Q10 Produced?

The natural way to produce Co-enzyme Q10 is via the process of fermenting a specific algae culture using the power of the sun. Algae are living creatures and when exposed to sun light they give off oxygen. This fermentation process leaves behind the ideal hydrogen based conditions for Co-enzyme Q10 to be created and stored i.e the suns power increases the hydrogen atoms in the molecular structure of the Co-enzyme Q10, This in turn allows more efficient mitochondrial performance in the production of human energy.

It is important to note that the greater difference the algae can create in hydrogen/oxygen ratios within the Co-enzyme Q10 enzyme, the greater health results we will experience from the Co-enzyme Q10 we consume.

Once the oxygen has almost been eliminated from the algae, the concentrated Co-enzyme Q10 is then extracted from the algae and carefully stored out of sunlight, artificial light or moisture. At this point, lowered oxygen atom levels further enhance the potential energy within the enzyme structure and can increase the shelf life of the product when stored.

By mixing Co-enzyme Q10 with oil or gel it puts back moisture and therefore puts back oxygen. Co-enzyme Q10 and oxygen should only come together when they’re in the cell mitochondria. Until they meet, oxygen is protected in the blood stream by red corpuscles and hydrogen is protected in the molecular structure of Co-enzyme Q10. This is why oil/gel based Co-Q10 is not as effective when subjected to heart rate testing.

When we ingest Co-Q10 into our body cells mitochondria, hydrogen and oxygen swiftly move towards one another. The force in which they collide creates a pure non-toxic energy source and the by product water: this process is called the Aerobic System.

*“We have tested the majority of global brands and they have failed miserably when subjected to the scrutiny of ergometric testing (treadmill). How I wish more practitioners would realize that not all Co-Q10s are the same”* Dr. Arthur Echano, Nutritional Medicine Specialist, Sydney.

Other methods of producing Co-Q10 include chemical extraction from tobacco leaves or laboratory mixed vitamins, minerals and amino acids, giving you a lifeless, synthetically derived enzyme product. These production processes are cheaper and do not have the same results as the natural process.

*“I trailed it (Naturally Fermented Co-Q10) on myself and my staff; it stimulated detoxification in the body so I knew that at a cellular level it was helping clean the body. I knew it was having an effect because I could see an obvious outcome”* said Dr. Reza Samvat.

## What A Doctor Has To Say About Q10

Coenzyme Q10: Miracle Nutrient of the New Millennium

Arthur M. Echano, MD, ND,MACEM

## What is Coenzyme Q10?

CoQ10 (ubidecaronene, Ubiquinone, Ubiquinone-50) is a vitamin-like substance (quinones) that is found in every cell of the human body. It is necessary in energy production in the 70-100 trillion

body cells. It helps the enzyme system in the powerhouse of the cell (mitochondria) to release non-toxic, efficient energy.

Thinking of these cells as tiny engines, CoQ10 provides the “spark” in the human bio-energy system. Without CoQ10 then, no energy can be produced by the mitochondria. Hence, life won't exist.

### **1. Have research studies been done with CoQ10?**

For a brief history, in 1957, CoQ10 was discovered in the U.S by Dr. Frederick Crane and his coworkers at the University of Wisconsin. A year later, its chemical structure was reported by Dr. Karl Folkers and his group at Merck Laboratories. Since then, Dr. Folkers has continued this pioneering research on CoQ10. In 1961, Dr. Peter D. Mitchell of the University of Edinburgh released his hypothesis on how CoQ10 works. For his significant contribution, he was awarded the 1978 Nobel Prize for chemistry.

Although discovered in the U.S, the Japanese were the ones who showed considerable interest in subsequent CoQ10 research. From 1963, Japanese scientists and medical doctors have done numerous scientific studies on this remarkable healing nutrient. No wonder then that Japan is the best source of A-1 grade CoQ10.

### **2. What are the health benefits of CoQ10**

This is a brief summary of the possible uses of CoQ10 based on scientific studies:

#### **Aging and Life Extension**

- a) Retards the aging process, functions as an antioxidant and has life extension potential.

#### **Cardiovascular System**

- a) Stabilizes heart beat in arrhythmic patients, prevents atherosclerosis, prevents the oxidation of LDL cholesterol.
- b) Normalizes blood pressure in hypertensives, vastly improves the condition of persons with cardiomyopathy and assists the heart to function normally in the presence of blood clots.
- c) Improves the heart's ability to survive and produce energy in hypoxic (low oxygen) situations: high altitudes, clogged arteries, blood clots, high fat blood level, angina.
- d) Reduces the viscosity of blood in persons with ischaemic heart disease.
- e) CoQ10 deficiency is observed in cardiovascular patients.
- f) 91% of heart attack victims improve within 30 days from initial attack with CoQ10!

#### **Cells**

- a) CoQ10 is found in almost every cell of the body.

#### **Digestive System**

- a) Alleviates peptic ulcer, protects the lining of the stomach and facilitates the elimination of *Candida albicans*.

#### **Excretory System**

- a) CoQ10 concentrates in the kidneys

#### **Immune System**

- a) Increases the life expectancy of patients with cancer of the breast, lung, larynx, pancreas and prostate.
- b) Doubles the body's immune function and protective levels of antibodies.
- c) Increases the body's resistance to viruses, alleviates allergies and asthma.

- d) HIV positive persons with low CoQ10 levels progress more rapidly to full blown AIDS than those with optimal CoQ10 levels.

### **Metabolism**

- a) Improves athletic performance by increasing the bodys production of energy via Adenosine triphosphate (ATP), involved in the conversion of carbohydrates into energy both in sedentary and athletic persons.
- b) Part of the electron transport system, increases stamina and alleviates the impaired aerobic function that is associated with fatigue.
- c) Increases oxygen supply to the mitochondria and prevents the accumulation of excess ketones (ketosis).
- d) Prevents the LDL peroxidation by free radicals and alleviates obesity by reducing weight where deficiency of CoQ10 exists. Obese people are often deficient in CoQ10.
- e) Alleviates diabetes mellitus. Many of the complications of diabetes are exacerbated in CoQ10 deficiency.
- f) Concentrates in the liver.

### **Musculoskeletal System**

- a) Dramatically halts the progress of periodontal disease (gingivitis) and can totally heal the damage already done including the regrowth of previously atrophied tissue.
- b) Counteracts the immune system tissue degradation that occurs in gingivitis.
- c) Concentrates in and is involved in the movement of muscles. Supplementary CoQ10 reduces the extent of damage caused to the muscles by intensive exercise and athletic performance.
- d) Alleviates muscular dystrophy. Muscular dystrophy patients are usually deficient in CoQ10.

### **Nervous System**

- a) Helps prevent nerve damage that leads to Parkinson's and Alzheimer's.
- b) Alleviates multiple sclerosis and schizophrenia.

### **CoQ10 Enhances the Function of these Substances**

- a) Hormones: CoQ10 facilitates insulin production by the pancreas.
- b) Immune System Chemicals: CoQ10 significantly increases the body's production of IgG antibodies.
- c) Krebs Cycle Chemicals: CoQ10 facilitates mitochondrial ATP production.
- d) Drugs: Improves the effectiveness of beta blockers, reduces the toxic side effects of Doxorubicin and increases the potency of Doxorubicin in its ability to kill cancer cells by 200%.
- e) Vitamins: Helps to regenerate Vitamin E.

### **3. If CoQ10 is vital to life, how come it is not a "household name" yet?**

When Dr. Folkers gave his acceptance speech in 1987 after receiving the prestigious Priestley Medal of the American Chemical Society for his research on CoQ10 and other nutrients, he made a comment that although CoQ10 works and is safe, the reason behind its obscurity is promotional or marketing in nature. In short, being considered as a food supplement and therefore non-patentable, not many pharmaceutical companies were interested in the commercial distribution of this wonderful nutrient.

### **4. Are medical doctors aware that such a supplement (CoQ10) with enormous potential health benefits exists?**

Sad to say, even medical doctors are not familiar with CoQ10. According to Dr. Peter Langsjoen, M.D., *"The answer to this question is found in the fields of politics and marketing and not in the fields of science or medicine. The controversy surrounding CoQ10 likewise is political and*

*economic, as the previous 30 years of research on CoQ10 have been remarkably consistent and free of major controversy.*

*Although it is not the first time that a fundamental and clinically important discovery has come about without the backing of a pharmaceutical company, it is the first such discovery to so radically alter how physicians must view disease. While the pharmaceutical industry does a good job at physician education on their new products, the distributors of CoQ10 are not as effective as this."*

## **5. Are all CoQ10 the same?**

Unfortunately not. With the vast scientific experience of the Japanese in CoQ10, a good source of pharmaceutical grade CoQ10 is from Japan. Worldwide there are only a few companies that can manufacture A-1 grade CoQ10. The purity of the raw material is an important consideration as far as quality is concerned.

Properly sourced CoQ10 (Japan) and an efficient delivery system like phosphates (which increases its absorbability many times over oil based CoQ10) are the keys to a superior quality finished product. According to a newsletter released by Vitamin Research Products, Inc. of USA, "if a product (CoQ10) is being sold at a price that's seems to be too good to be true, it probably is"

## **6. What is special about CoQ10 from Japan?**

There are basically two types of CoQ10 according to source. The more common form is synthetic. The other type is natural CoQ10, derived from fermented algae. While the chemical configuration of both the synthetic and the natural forms of CoQ10 are similar, the effects are not. Why So?

Yeast-algae-derived natural CoQ10 has more hydrogen proton power (from the sun) making it capable of carrying more negative electrons. These extra electrons are available to be donated to unstable oxygen molecules known as oxidants or free radicals. Potential free radical damage is neutralized by these extra electrons and cellular integrity is preserved. As a consequence there can be a slowing down of the aging process.

The best way to test the effectiveness of CoQ10 is through performance. After all, it is efficient cellular energy production resulting in less free radicals or oxidants produced that will prevent potential cellular oxidation stress and free radical damage. And this non toxic, efficient energy production may become evident during ergometry. A person's performance in ergometric testing when subjected to a programmed exercise or physical stress can give us a clue as to mitochondrial function or dysfunction. Which of course is related to CoQ10 sufficiency or deficiency?

## **7. Who should take CoQ10 and what is the right dose?**

Considering the dual role of CoQ10 as an energy carrier and an antioxidant, and with the numerous environmentally derived oxidants (free radicals) that deplete our antioxidant reserves, every adult and those with specific health problems mentioned above should think of CoQ10 supplementation.

Being fat soluble, it is poorly absorbed in the gut, so it should be taken WITH or AFTER meals! For preventative measures, the usual dose is 10-30 milligrams per day. To correct CoQ10 deficiency, experts suggest from 60-200 milligrams daily. As absorption rate differs from one person to another, finding the right dose is a challenge. The normal blood (serum) CoQ10 is 0.32-0.88 micrograms per milliliter.

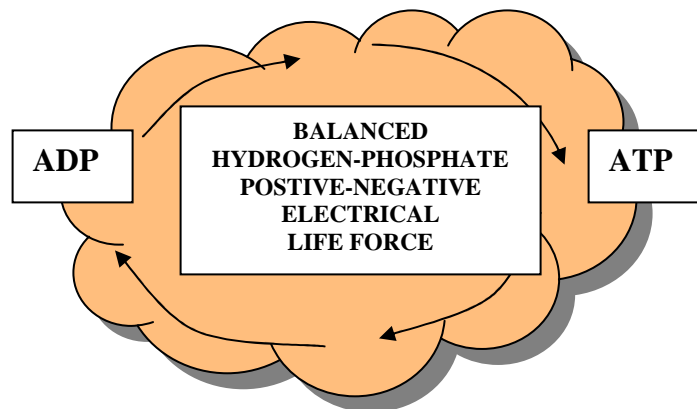
## **8. Is CoQ10 safe?**

Purified CoQ10 is a very safe dietary supplement. The only reported side effects after a megadose of CoQ10 are gut related, like nausea. It takes several weeks of regular daily intake before health benefits may be observed. Drug interactions are minimal if any

## Maximum energy efficiency

Co-enzyme Q10 promotes maximum energy efficiency within cell mitochondria. The quality of naturally fermented Co-enzyme Q10 can be measured by the energy value of the negative charge within the hydrogen atoms of the Co-enzyme Q10. If you mitochondria are working efficiently, the cell tends to work efficiently, then the organ/muscle that the cell is residing in tends to work efficiently – the flow on effect is good health!!

## ADP – ATP SHUTTLE OF LIFE



*Phosphate atoms shuttle hydrogen atoms backwards or forwards on demand within the minuscule turbo gap located in the mitochondrial inner membrane walls and with the help of oxygen, produce a balanced positive-negative charge to power the mitochondria. This is our LIFE FORCE.*

### BUYERS BEWARE\*\*\*\*\*

In today's market it is common to see many companies selling products for discounted prices. It is the job of the consumer to question the quality of the product. For example, when buying Co-Q10 it is important to look at the dose of Co-Q10 per capsule you are receiving.

The price of one Co-Q10 may seem cheaper than the other due to containing less Co-Q10 per capsule and/or being made out of synthetic Co-Q10, which is cheaper to manufacture than the naturally fermented version which is praised by health care professionals as the 'most effective' and "highest quality source" of Co-Q10.

Synthetic or semi synthetic derived Co-Q10 is commonly produced by either chemical extraction from tobacco leaves or laboratory mixed vitamins, minerals and amino acids. The naturally fermented version is an algae derived version that allows the sun's power to increase the hydrogen atoms in the molecular structure of the Co-Q10.

## Reviewing The Scientific Facts About Co-Q10

1. Co-Q10 is a vital component in the production of energy and has a major role in free radical control.
2. Our bodies do not product enough Co-Q10.
3. We cannot get enough Co-Q10 from our food.
4. Leading to an ever increasing decline in the Co-Q10 levels in our system.
5. Co-Q10 is located in areas of high physiological activity.

If Co-Q10 is needed for the production of energy and this energy is vital for our major organs to function we believe that it could be concluded that as Co-Q10 levels decline so to does the function of that organ. If the function of the organ is in decline our health would also be in decline. This relates to the majority of the information and studies conducted on Co-Q10 that indicates that a deficiency of Co-Q10 is found to be a part of the majority of major illness.

*Co-Q10 can assist in slowing the process of ageing, preventing a break down of our major organs which can lead to major illness and to keep our energy levels. **Who should be taking Co-Q10? -EVERYONE!***

### Further Research on Co-Q10

Statinalert.org

<http://www.statinalert.org/>

The Omnivore (Statin/Co-Q10)

[http://www.theomnivore.com/statin\\_pagehtml](http://www.theomnivore.com/statin_pagehtml)

The International Q10 Association

[http://www.drugintel.com/drugs/statins/international\\_coenzyme\\_q10\\_assoc.htm](http://www.drugintel.com/drugs/statins/international_coenzyme_q10_assoc.htm)

The Linus Pauling Institute

<http://www.lpi.oregonstate.edu/infocener/othernuts/coq10/>

Nutrient Stew Co-Q10 Studies (Chronic Fatigue etc.)

<http://www.chfpatients.com/stew/coq10.htm>

Important Information about Co-Q10

<http://www.home.tampabay.rr.com/lymecfs/coq10.htm>

A Review of Essential Functions and Clinical Trials

[http://www.healingedge.net/briefs\\_coq10.html](http://www.healingedge.net/briefs_coq10.html)

Co-Enzyme Q10 – The Wonder Nutrient

[http://www.yourhealthbase.com/coenzymre\\_Q10/healthprofessional](http://www.yourhealthbase.com/coenzymre_Q10/healthprofessional)

National Institute of Cancer

<http://www.nci.nih.gov/cancertopics/pdq/cam/coenzymeQ10/healthprofessional>

Co-Q10 – Share the Wealth

[http://www.newmediaexplorer.org/chris/2003/08/13/ccoenzyme\\_q10.htm](http://www.newmediaexplorer.org/chris/2003/08/13/ccoenzyme_q10.htm)