http://cardigen.com/about-the-doctor.html

Dr. William Judy

One of the world's leading medical researchers, discusses how a wondrous super-immunizing co-enzyme called UBIQUINONE, (who's discovery has been extensively reported on by our nation's most prestigious medical schools and the U. S. Govt. Natl. Institute of Health), has been demonstrated in a series of clinical studies to help immunize patients against heart disease, high blood pressure, strokes and excess cholesterol—and not only help reverse any damage to the heart that may have already occurred—but actually help rejuvenate it to such an extent, that the hearts of people in their 50's, 60's, 70's and even 80's enjoy cardiogram readings as normal as the hearts of young men and women in their early 20's! What this discovery means is that for the first time in the history of the human race every man, woman and child now has the opportunity to achieve a normal, healthy lifespan of as much as 100 years or even longer...in perfect, youthful health...free of all of the cardiac-related diseases, pain and suffering normally associated with growing older. It also means that this new wonder-formula has been authorized for release to the public...medical science provides you with the maximum immunizing power you need to enjoy extra added years to your life plus together with a sensible diet and lifestyle program to give you years that are filled with more energy, more stamina, more get up and go than even your own children or grandchildren possess today!

**MILESTONES IN HEART HEALTH**

**1967**

At The University of Wisconsin, Dr. Frederick Crane's discovery of ubiquinone in heart

**1967**

At The University of Wisconsin, Dr. Frederick Crane's discovery of ubiquinone in heart

**1972**

Dr. William Judy begins long-term human studies on ubiquinone's ability to strengthen and revitalize the heart and cardiovascular system.

**1978**

**Dr. Peter Mitchell wins a Nobel Prize** for describing how ubiquinone carries electrons through the cells to "charge" the heart and other parts of the body with the "spark of life".

**1986**

Dr. Karl **Folkers** receives science's coveted Priestly Award for his work on ubiquinone in the body when taken as a supplement.

**1990**

Dr. **Folkers** receives the President's Award for Science in recognition of the value of his ongoing research in ubiquinone and its positive effect on the heart and other parts of the body.

Today Dr. William **Judy**, widely recognized in the medical community as the **"father of ubiquinone absorption research"**, develops an advanced ubiquinone formula for total cardio-rejuvenation. This formula – called Cardigen – delivers 500% more ubiquinone to the heart than any powder, tablet or capsule!

I don't want to frighten you, but your heart is under attack--- again! For it 300% increase in heart failure that has been linked to today's popular cholesterol lowering drugs. Now some of the highly touted prescription pain killers have been taken off the market because research shows that people who have taken these drugs are twice as likely to suffer a heart attack or stroke!

And that's just the tip of the ice berg

According to the Drug-Induced Depletion Handbook, there 88 different drugs which strip your body of ubiquinone- the vital heart-energizing co-factor. With this latest news is just one more reason why important natural ubiquinone supplement like Cardigen is so important consider making Cardigen part of your daily health regiment today.

http://www.calcompnutrition.com/william-judy.html

### Director of Research of the Southeastern Institute of Biomedical Research.

### Education

- B.S., Anatomy and Physiology, University of Kentucky
- M.S., Physiology and Biophysics, University of Kentucky Medical School
- Ph.D. Physiology and Biophysics, West Virginia Medical School

### Member of:

- American Physiological Society
- American Lung Association
- American Hypertension Association
- American Association for the Advancement of Science

Dr. Judy has researched Ubiquinone and used it with patients for over 35 years, since shortly after it was first identified by Frederick Crane in 1957. He was one of the first researchers to run longterm clinical trials, spanning 5 years or longer, on hundreds of cardiac patients—many of whom had been "left to die" by the medical establishment. Over the past two decades, Dr. Judy has traveled the world, lecturing physicians and scientists in Italy, Switzerland, Germany, Sweden, India and Japan. He's written 24 articles that have been published in prestigious medical journals. He's served as an aerospace scientist with the National Aeronautics and Space Administration (NASA). And he's developed some of the world's most sophisticated nutrient absorption testing techniques at the Southeastern Institute of Biomedical Research.

http://www.webmed.ch/q10_spezifische_themen/ergebnisse_q10_forschung/prostata_krebs.htm

## *PSA-Wert und Größe der Prostata wird positiv beeinflußt*

# XIII

W. V. Judy et al. - Southeastern Institute of Biomedical Research u. Institute for

Biomedical Research, The University of Texas - berichteten über bemerkenswerte Erfolge bei der Behandlung von Prostata-Krebs mit Q10. Bei einer Dosis von 600 mg/Tag verringerte sich bei 10 von 14 Patienten die Größe der Drüse und die PSA (Prostata-spezifisches Antigen = Tumormarker)-Werte reduzierten sich. Die Lymphozyten-Zahl erreichte eine normale Höhe. **Nach 360 Behandlungstagen waren die PSA-Werte um 73,6 Prozent und die Größe der Prostata um 48,4% reduziert.** Die 4 Patienten, die auf die Therapie nicht ansprachen, waren die ältesten Patienten mit dem weitesten Fortschritt der Krankheit, Metastasen im umliegenden Gewebe und den Knochen. Nebenwirkungen wurden bei den Patienten nicht beobachtet. Die bekannte Stimulation durch Q10 von IgG (Immunglobulin G - einem neutralisierenden Antikörper, der die Phagozytose fördert) und T-Lymphozyten und der mögliche positive Effekt auf zytotoxische T-Zellen sind der wahrscheinliche Mechanismus des Rückgangs der Erkrankung.

http://www.pws.org.au/coq10.html

COENZYME Q10 IN CHILDREN WITH PREADER-WILLI SYNDROME
The Mitochondrial-CoQ10 PWS Connection?
Paper by William V. Judy. Ph.D. Janet S. Judy, RN

COENZYME Q10 (Ubiquinone)
Coenzyme Q10 (CoQ10) is a relatively new molecule in science. It was discovered in 1957 at the Enzyme Research Center at the University of Wisconsin It was isolated from beef heart mitochondria by Fredrick Crane It was soon found to be in alI cell membranes and all cell organelle membranes, in all species in the animal and plant kingdoms, In man, it is produced in all cells in the first two decades of life and decreases gradually thereafter. It is in most of the food that we eat especially meat protein and dark green leafy vegetables. It is found in beans, peas, and large nuts, but not in small grains. Formula and milk have no CoQ10, but do have the nutritional substrates required for CoQ10 synthesis. Processing and cooking foods reduces the CoQ10 content.

C0Q10 has five known functions in the body:
1. Responsible for 95% of the energy produced in the body.
2. Potent intracellular antioxidant.
3. Prevents atherosclerosis
4. Prevents abnormal protein synthesis and thus age related degenerative diseases.
5. Stabilizes all cell membranes.

Its role in energy synthesis was part of a Nobel Prize awarded in 1978 to Sir Peter Mitchell.

Note: CoQ10 is a large molecule, soluble only in lipids, thus poorly absorbed in the body. The new Iiquid CoQ10 softgel form is the form currently being used in Dr Judy's Study. There are some powder forms in Australia that are believed to be very effective. It is best to go to a Naturopath to determine which brand they recommend as there are some brands that do not have the best quality control and will not be as effective.

MITOCHONDRIA-ENERGY PRODUCING ORGANELLES FOUND IN ALL LIVING CELLS
Energy is strictly a mitochondrial function. Mitochondria are found in all Iiving cells. They are small bean-shaped structures with outer and inner membranes. Five percent of the total body energy is produced In the breakdown of food substances to NADH, which occurs in the

outer membrane of the mitochondria. The inner membrane is the location for Complexes I, II, and III in the synthesis of energy. The remaining ninety-five percent of energy is produced here in the presence of oxygen. This occurs when NADH (from the outer membrane) is converted to energy (ATP) through electron transfer. CoQ10 and Cytochrome C are the mediators for electron transfer through Complex II and III. Of these three intermediates (NADH, CoQ10, and Cytochrome C), CoQ10 is the only one found to be deficient in patients with low energy syndromes, including PWS.

Multiple genetic and non-genetic mitochondrial disorders have been described. In many of these clinical conditions, low CoQ10 content has been found in the body. Deficiencies of CoQ10 result in reduced energy synthesis. Under these conditions, the mitochondria show morphological changes in size, shape and location. They dry up to raisin-like organelles and are found clumped together rather than being distributed evenly throughout the cell. This results in clinical conditions that effect infants, children, and adults. Included in these are PWS, muscular dystrophy, multiple sclerosis, Huntington's Chorea, chronic fatigue syndrome, Parkinson's disease, hyperthyroid disease, heart failure, some forms of cancer, and effects of excessive drug therapy with certain pharmaceuticals.

DNA is found in all mitochondria. It is responsible for reproduction of mitochondria, which occurs under conditions of increased cell activity such as exercise and training. Trained individuals have higher numbers and greater distributions of mitochondria in skeletal muscle compared to non-trained individuals. Under conditions of muscle dysfunction (such as hypotonia and atrophy) the mitochondria have been shown to be abnormal and non-functional. In the case of CoQ10 deficiencies, this is known to occur in adults when blood levels are reduced to 0.55ug/ml or less. CoQ10 supplementation in individuals with known deficiencies significantly increases mitochondrial energy synthesis and results in an improved clinical condition and quality of life.

LOW ENERGY SYNDROME

Low energy syndromes have been linked to poor nutrition, digestive disorders, endocrine disorders, Vitamin B deficiencies, mitochondrial dysfunction, age and CoQ10 deficiency. CoQ10 deficiency occurs with age. This is probably due to two things, either a dietary deficiency in the substrates required to make CoQ10 or an overall dysfunction of the biochemical mechanisms responsible for CoQ10 synthesis. It is uncommon for children and young adults to be deficient in CoQ10. In infants with PWS, there appears to be an inability of the body to produce and/or utilize CoQ10. Without adequate CoQ10, energy synthesis in the inner membrane of the mitochondria is limited. Thus, in children with PWS who have CoQ10 deficiency and normal mitochondria, CoQ10 supplementation should enhance energy synthesis and therefore metabolic activity in all body systems. If the mitochondrial mechanism is undeveloped or nonfunctional, then CoQ10 supplementation may have limited effects unless the mitochondrial function can be revived.

We have one example of the benefits of CoQ10 supplementation in a child with PWS who has both a chromosome 15 abnormality and a Complex II and II involvement. This child, for the first six months of life, did not cry nor move and was fed via a NG tube. Within three days of starting CoQ10 supplementation, the child began to develop sucking reflexes and move arms, hands, legs, and feet. With continued CoQ10 supplementation, crawling, standing and walking occurred between eight and twelve months. Today after three years of CoQ10 supplementation, in the absence of any nutritional, hormonal or drug intervention this child has normal physical and mental development. Speech patterns, physical skills, and cognitive functions are in the normal range for the age level.

## THE MITOCHONDRIA-LOW ENERGY-CoQ10 STORY

Energy is required for all the body systems to function, including the synthesis of the steroids, hormones, enzymes, and coenzymes required for muscle energetics, physical and mental growth, and development of sex characteristics. Without energy, the caloric content of food cannot be converted to useful energy and thus stored as fat and hunger persists. Hence it may be possible that multiple symptoms of PWS are related to an endogenous CoQ10 deficiency or to abnormal mitochondrial complexes in the energy synthesis mechanism. Some of the symptoms include: muscle hypotonia, low metabolic rate, hypothermia, poor growth pattern, mental retardation and delayed speech development, hypogonadism, hypopigmentation, osteoporosis, hyperphagia, obesity, and diabetes (Type II).

To date, we know much more about PWS than we did three decades ago. Most of this is in the field of genetics. No specific biochemical marker (hormone or enzyme) has been found until recently. No widely accepted treatment for this condition has been formulated except for the use of growth hormone to stimulate growth and calorie restriction to prevent obesity. Recently, we have found below normal plasma CoQ10 levels in a majority (75%) of children with PWS tested between the ages of two months and six years. Whether this is a result of the genetic abnormality or is a separate entity causing the low energy characteristics in these children is unknown. The symptoms of PWS certainly point to a CoQ10 deficiency and thus an abnormal mitochondrial energy synthesis mechanism.

The statement "use it or lose it" pertains to the mitochondria. Without adequate numbers of functioning mitochondria or CoQ10, energy synthesis is significantly reduced. Even slight deficiencies of plasma CoQ10 can result in mitochondrial dysfunction because six to eight times more molecules of CoQ10 are required than Cytochrome C and fifty times more than NADH dehydrogenase. When mitochondria are not stimulated by a sufficient amount of CoQ10, they shrivel, migrate and clump in one area of the cell. This renders the mitochondria virtually useless. This can happen even in the presence of adequate CoQ10 when such is not properly utilized Mitochondria can be rejuvenated by a combined therapy of exercise and increasing plasma CoQ10 levels above normal.

In only one child who has had CoQ10 supplementation for an extended interval can possible answers for others be given to the mitochondria-low energy story. So, is CoQ10 one of the keys required to unlock the unknown management possibilities of PWS? To date, this is also unknown. One positive example is not adequate proof. For this reason, SIBR, Inc. has proposed to the Prader-Willi Syndrome Association (USA), secured funding, and established the first PWS-CoQ10 study program. Today we have only questions, tomorrow let's hope we have some answers.

---

WILLIAM V. JUDY & SIBR, Inc.
Dr. Judy is founder and president of the Southeastern Institute of Biomedical Research (SIBR) in Bradenton, Florida. SIBR is a contract research center for the pharmaceutical and natural products industries.

Dr Judy received his Ph.D. in Physiology and Biophysics from West Virginia University Medical Center in 1971. His training and work has been in the central and peripheral nervous systems and control mechanisms in bioenergetics, temperature regulation, and cardiovascular function. He was an aerospace scientist with NASA-MSC and conducted In-flight

cardiovascular and thermal regulatory experiments. He has served as an Associate Professor in Physiology and Biophysics at Indiana University Medical Center for 15 years. His introduction to CoQ10 occurred in 1960 as a graduate student at University of Kentucky Medical School. In the early 1970's, Dr. Karl Folkers of the University of Texas at Austin asked him to become involved in CoQ10 research in patients with low energy syndrome. He has published many works on CoQ10, Congestive Heart Failure, Chronic Fatigue Syndrome, and bioenergetics. His involvement in mitochondrial energy synthesis started in 1973. Currently, Dr Judy, via SIBR, has started a CoQ10-PWS study. This effort was stimulated by the results and information gained during three years CoQ10 supplementation in one PWS child with a dual diagnosis that involves both chromosome 15 and mitochondria complex II and III. The new PWS CoQ10 program is the second step in Dr. Judy's efforts to investigate the probable connection between mitochondria, low energy, and CoQ10.