

**“Although physicians, as part of their training, are taught that the dosage of a drug that is prescribed for the patient must be very carefully determined and controlled, they seem to have difficulty in remembering that the same principle applies to the vitamins.” — Linus Pauling**

## Chapter 7

### The Pauling Therapy

Cardiologists have been kept in the dark regarding the vitamin C connection to heart disease. Most cardiovascular drugs are compensating for low vitamin C intake. There are cardiovascular drugs that exacerbate heart conditions. In my opinion, for the best patient response the doctor would be well advised to replace as many standard heart medications as possible with the following vitamin C and lysine protocol.

*NOTE: Linus Pauling specifically recommended high, generally equal oral doses of vitamin C and the amino acid lysine between 5,000 and 6,000 mg in his Unified Theory lecture (available on video). Anything less, by definition, is not the Linus Pauling Therapy.*

The extended protocol includes advice given by Linus Pauling in his 1986 book, *How To Live Longer and Feel Better*. The other recommendations account for variables such as a poor diet, advancing age, and/or the use of the prescription drugs commonly given to heart patients. I have attempted to present the additional nutritional substances in the order of their importance.

Linus Pauling coined the term *orthomolecular* — right molecules — to stand for vitamins, amino acids, and other

nontoxic molecules which our bodies are familiar with. Orthomolecular nutrients are generally devoid of toxicity and can be safely taken in much larger amounts than *toximolecular* prescription drugs.

Note that trace minerals are only orthomolecular in trace amounts and, unlike vitamins, may become toxic at higher dosages.

### ***The Basic Orthomolecular Recommendations for Controlling Heart Disease***

#### ***Linus Pauling Recommendations***

**1. Take 6,000 to 18,000 mg of vitamin C as ascorbic acid daily (*some of the vitamin may be taken as sodium ascorbate*) up to bowel tolerance (6 to 18 g).**

Pauling's therapeutic dosage of vitamin C for those diagnosed with cardiovascular disease is from 6,000 mg up to 18,000 mg (or bowel tolerance). Generally, 3,000 to 6,000 mg of vitamin C is the recommended preventive dosage.

The half-life of vitamin C in the bloodstream is 30 minutes. Linus Pauling advised taking vitamin C throughout the day in divided doses. The Hickey/Roberts Dynamic Flow theory predicts that taking vitamin C every four hours will produce the highest sustained blood concentrations. Take more before bedtime.

Those who have bloating, gas, or diarrhea after taking vitamin C should reduce the dosage of ordinary vitamin C and consider adding a liposomal form of vitamin C such as the *Lypo-Spheric*<sup>TM</sup> vitamin C product available from [livonlabs.com](http://livonlabs.com)

**2. Take 2,000 to 6,000 mg (2 to 6 g) of lysine daily.**

For those diagnosed with cardiovascular disease, Linus Pauling recommended taking 5,000 to 6,000 mg of lysine daily. He recommended supplementing with at least 2,000 mg daily for prevention.

The following excerpt is from the *Unified Theory* lecture. Linus Pauling relates the story of his invention of the Pauling therapy for cardiovascular disease, which was to add lysine to vitamin C. Dr. Pauling explains what happened in the case of the first person to try the therapy, a distinguished anonymous scientist who had asked Pauling for advice. The scientist was on disability, in pain, and generally unable to do work or exercise despite taking 5,000 mg of vitamin C daily. He asked Linus what else he might recommend for his cardiovascular disease, and Dr. Pauling recounts his own response as follows:

I didn't have to tell him that lysine is an essential amino acid and you have to get around a gram a day to be in good health, and you get it in your foods, because he is one of the most distinguished biochemists in the United States, recipient of the National Medal of Science in the United States. So he said, "How much shall I take?" I thought, "What do I know?" I know that people get a gram or two in their food depending upon how much meat and fish they eat, that it's essential, that they have to get around one gram. It hasn't any known toxicity in animals or human beings. I said, "5 grams, 5 grams of lysine per day." He thanked me.

A couple of months later he telephoned me and said, "It's almost miraculous! I started taking a gram a day and 2 grams and so on. Within a month after I had reached 5 grams a day of lysine in addition to my 5 grams of vitamin C, I could walk two miles without any nitroglycerin tablets or without any pain in the chest." He said he had cut

down the amount of heart medicine in half. "It's almost miraculous," he said.

Another couple of months went by and he telephoned me and said, "I was feeling so good the other day that I cut down a big tree in our yard and was chopping it up for wood, and I was also painting the house, and I got chest pains," this despite his 5 grams of vitamin C and lysine. So he said that he "went up to 6 grams of lysine and 6 grams of vitamin C and told me, "Now I am continuing chopping down, chopping up the tree and painting the house." And now a couple of years later he is still in fine health. — **Linus Pauling [Transcribed from his 1993 Linus Pauling *Unified Theory* Lecture]**

**3. Follow Linus Pauling's general heart and cardiovascular nutritional recommendations as provided in his 1986 book, *How to Live Longer and Feel Better*.**

*In addition to 6,000 to 18,000 mg of vitamin C, Linus Pauling advised:*

**Vitamin E** - 800 IU (to 3,200 IU)

**Vitamin A** - 20,000 to 40,000 IU

**Super B-Complex** - one or two

**Daily multiple vitamin/mineral supplement**

**Eat less sugar**

**Drink plenty of water**

***Matthias Rath Recommendations***

**4. Take 250 to 2,000 mg of the amino acid proline daily.**

This nutrient is an addition to the original Linus Pauling protocol. Dr. Rath specifically recommends the amino acid proline because of its strong Lp(a) binding inhibitor properties

*in vitro* (in test tube experiments). There is anecdotal evidence that proline supplements lower elevated Lp(a) over a period of 6 to 14 months.

It is difficult to suggest an optimum dose for everyone because the healthy body manufactures its own proline, though we probably make less as we age. A few alternative doctors have recommended 2 g (2,000 mg), although the first Pauling therapy formula, Tower's *Heart Technology™*, has produced consistently good results with 400 mg per serving. Two servings daily (800 mg of proline) were shown to lower Lp(a) in a small pilot study.

### ***Additional Enhancements***

Although studies are lacking, there has been some research and considerable anecdotal experience since Pauling and Rath first published their theory. This knowledge has led us to make the following additional recommendations:

#### **5. Take 100 to 300 mg of coenzyme Q10.**

Coenzyme Q10 (CoQ10) is a vital substance required for the production of energy in all cells and plays an important role in maintaining proper heart function. Popular heart medications interfere with the body's own production of CoQ10; thus taking these drugs at high dosages may lead to heart failure. If you are always tired or your muscles ache, take more CoQ10. The human body makes CoQ10 but we lose this capability gradually as we age. Note: Vitamin C and several vitamins may help stimulate your own synthesis of CoQ10.

**6. Eliminate trans fatty acids from the diet and introduce unprocessed Omega-3 and Omega-6 oils.**

Medical doctors often call me after reading one of my articles to ask, “If Linus Pauling was correct in claiming that a chronic vitamin C deficiency causes cardiovascular disease, why then do patients respond so well after we put them on Omega-3 fish oils?” There was no definitive answer to this question until the writings of Mr. Thomas Smith of [healingmatters.com](http://healingmatters.com) provided one.

Mr. Smith is a lay person who was once a Type II diabetic. He reviewed the available scientific literature and used this knowledge to cure his own diabetes in three months. According to Smith’s research, Type II diabetes is a disturbance of the cell membranes which blocks the uptake of glucose from the blood. Because vitamin C shares the same insulin-mediated transport through the membrane, vitamin C faces the same theoretical difficulty entering the cells of diabetics. The addition of Omega-3 fatty acids in place of trans fatty acids in the diet will rectify this disturbance of the cell membrane, according to Smith.

The Pauling therapy will be more effective if the heart patient reduces sugar and simple carbohydrates; eliminates man-made/processed fats such as trans fats and hydrogenated oils; and supplements Omega-3-rich oils such as evening primrose, flaxseed, and certain fish oils, because more vitamin C can enter cells.

*“Research has shown that an Omega-3 Index of 8 to 10 percent reduces a person’s relative risk of death from coronary heart disease by 40 percent, and from sudden cardiac death by 90 percent.”* This benefit probably results from restored insulin-mediated glucose/vitamin C uptake into cells.

Note: Following an Atkins-style, low-carbohydrate diet will eliminate most trans fats because these “poisons” appear mostly in processed carbohydrate foods such as cookies, crackers, snacks, etc. Butter is superior to margarine. Natural saturated fats are superior to any fats or oils processed for longer shelf life.

**7. Eat salt, but only unrefined salt.**

This advice might seem strange, but alternative medical doctor David Brownstein uncovered literature showing that a low-salt diet can cause the body to change its hormonal balance as it attempts to retain sodium. This imbalance leads to a 400-percent chance of heart attack in those with high blood pressure and low sodium intake. Refined (ordinary table salt) is probably poisonous, but unrefined salt such as *Celtic Sea Salt* contains over 80 minerals and can be considered a necessary “health food.”

**8. Supplement with magnesium (150 to 1,500 mg).**

Certain chelated forms of magnesium are better absorbed and you can take less. The heart requires magnesium, and a deficiency should be corrected to maintain a regular heartbeat. Along these same lines, supplemental manganese (Mn) should be reduced (intake should be no more than 2 milligrams). More than 20 mg daily of manganese (Mn) can lead to irregular heartbeat, according to researchers at the United States Department of Agriculture (USDA).

I learned about the problem of manganese toxicity from a male caller who claimed that he had cured a life-long heart arrhythmia. Using the Internet to research his condition, the caller had found and contacted USDA researchers in South Dakota. The USDA scientist told him that the heart has an

equal affinity for both manganese (Mn) and magnesium (Mg) but requires copious amounts of magnesium (Mg) for a regular heartbeat. Too much manganese (Mn) crowds out magnesium uptake and causes an irregular heartbeat.

The USDA scientist noted that 20 mg of manganese (Mn) daily will cause the problem and recommended reducing manganese to 2 mg daily. Furthermore, the researcher said that it can take 60 days for the body to detoxify and rid itself of excess manganese before the heartbeat becomes regular.

The caller found that by studying labels and adding up the manganese in his supplements he was indeed consuming more than 20 mg of manganese. He cut back to 2 milligrams daily and in 60 days, as the USDA researcher had predicted and for the first time that he could remember, his heartbeat became normal.

The caller contacted the USDA researcher in South Dakota to thank him, but for some reason the researcher denied having given him this advice. This man then called me. During the investigation we noticed that the USDA papers that had been posted had been taken down. It seems likely that USDA researchers, like myself, are not supposed to offer medical advice to people or study the effects of nutrients on humans. After one or two years, several new papers appeared at the USDA Web site including a paper with the following abstract: *“Manganese alters mitochondrial integrity in the hearts of swine marginally deficient in magnesium....These results suggest that high Mn, when fed in combination with low Mg, disrupts mitochondrial ultrastructure and is associated with the sudden deaths previously reported.”* USDA Researchers

**9. Eliminate ordinary sugar and refined carbohydrates.**

New research confirms Dr. John Ely's 30-year theory that sugar (glucose) competes with ascorbic acid (vitamin C) for insulin-mediated uptake into cells. Consuming sugar and refined carbohydrates effectively crowds out vitamin C and prevents it from entering cells, even in non-diabetics. Diabetics are especially vulnerable because their elevated blood sugar levels already reduce vitamin C's chances of entering their cells.

**10. Supplement with vitamin K, either the K1 or K2 form (1 to 40 mg K1 or 150 mcg K2).**

A function of vitamin K is to regulate calcium from soft tissues into bones. The prescription blood "thinning" drugs such as Coumadin (warfarin sodium) interfere with vitamin K. These drugs are derived from rat poison and have been proven to cause rapid calcification of soft tissues in animal studies. There is also new evidence that they cause hard arteries in humans.

Unfortunately, these drugs are routinely prescribed. Patients on "rat poison" style blood thinners should avoid vitamin K until they find a nutritionally-oriented physician to help wean them. Blood thinners that may substitute for these prescription drugs include: 2,000 IU of Unique-E (natural vitamin E from A. C. Grace); the amino acid arginine (3,000 mg); grape seed extract; and high dose Omega-3 fish oils.

**11. Avoid supplemental calcium.**

According to author Bill Sardi, Americans generally obtain the organic calcium they require in the diet. According to Dr. Levy, most supplemental calcium is of poor quality. If you

elect to supplement with calcium, you should be sure to supplement with at least the same amount of magnesium.

**12. Add a multivitamin/multi-mineral supplement as insurance.**

**13. Supplement with the amino acids taurine, arginine and carnitine (1 to 3 g).**

All three of these amino acids (or amino acid-like nutrients) in higher dosages benefit muscle and heart function.

**14. Add supplemental vitamin D3, especially in the winter months (2,000 IU).**

Pauling did not recommend supplementing vitamin D partly because of a known toxicity of the synthetic D2 form and partly because sunlight creates vitamin D from cholesterol beneath the skin. However, our skin production of vitamin D is limited to periods of sunlight exposure, and in some latitudes, e.g. north of Atlanta, Georgia, vitamin D is only generated during the summer. Even during the summer months the UV/B light in the sunlight can only stimulate the production of vitamin D between 10:00 a.m. and 2:00 p.m. It is estimated that 20 minutes of sunbathing when the UV/B light can penetrate the atmosphere creates about 8,000 IU of vitamin D. The toxicity issue is avoided by supplementing the D3 form of the vitamin. In addition to its cardiovascular and anti-cancer properties, vitamin D3 also provides significant protection against cold and flu viruses.

**15. Take 3 to 6 mg of melatonin before bed.**

Melatonin is the sleep hormone and one of the most potent antioxidants known to science. A small gland in the brain

known as the pineal gland produces melatonin in the absence of light. Many heart patients on prescription statin drugs have difficulty sleeping. If you are over 40 years of age and have difficulty sleeping, your pineal gland may not be making enough melatonin. Take 3 to 6 mg of melatonin just before bed to improve sleep. Melatonin researchers praise its wide-ranging longevity and cardiovascular and anti-cancer benefits. There are so many benefits attributed to melatonin that the list even exceeds the benefits of vitamin C. Coincidentally, the half-life of melatonin in the blood is 30 minutes. Melatonin, like alpha lipoic acid, is both fat and water soluble. This natural hormone has been found in every cell, both plant and animal, and has no known toxicity.

### ***Pauling Therapy Summary***

#### **Therapeutic**

Vitamin C (6,000 to 18,000 mg)

Lysine (5,000 to 6,000 mg)

#### **Pauling Therapy Enhancements**

Proline (250 to 2,000 mg)

Coenzyme Q10 (100 to 300 mg)

Magnesium (150 to 1,500 mg)

#### **Preventives**

Vitamin C (3,000 to 10,000 mg)

Lysine (2,000 to 4,000 mg)

**Follow Pauling's other heart and cardiovascular recommendations**

Vitamin E - 800 to 3,200 IU  
Vitamin A - 20,000 to 40,000 IU  
Super B-Complex - 1 or 2  
Daily multiple vitamin and mineral  
Drink plenty of water

**Additional Enhancements**

Eliminate trans fatty acids from the diet  
Introduce unprocessed Omega-3 and Omega-6 oils  
Eat salt, but only unrefined salt  
Reduce manganese intake  
Eliminate ordinary sugar and refined carbohydrates  
Supplement with vitamin K  
Avoid supplemental calcium  
Supplement with the amino acids taurine, arginine and carnitine (1 to 3 grams)  
Supplement with vitamin D3 (2,000 IU), especially in the winter months  
Supplement with melatonin (3 to 6 mg) before bedtime