

Secret Five

Nutraceuticals

## **Introduction**

“Nutraceuticals can be broadly defined as components of foods or dietary supplements that have a medicinal or therapeutic effect. In general, nutraceuticals are taken in amounts higher than what can be obtained from a regular diet”.

Arthur Roberts M.D.

The term nutraceuticals in fact includes a broad array of nutritional supplements, vitamins, minerals, herbals and botanicals.

Until the early 20<sup>th</sup> century physicians and healers were trained in botany and relied heavily on botanical medicines.

This began to change in the early 1900's when pharmaceutical companies began to synthesize drugs from chemical compounds. Over the next decades drug formulas were standardized, tested and patented. Pharmaceuticals are covered by the Food and Drug Administration (FDA) and must comply with many stringent requirements.

In the US nutraceuticals are marketed as food supplements, rather than drugs, and are thus not subject to the same controls.

In 1994 Congress passed the Dietary Supplement and Health Education Act (DSHEA) which does give the FDA the power to:-

- (1) Stop any company from selling a dietary supplement that is toxic and unsanitary.

- (2) Stop the sale of a dietary supplement that has false or unsubstantiated claims.
- (3) Take action against dietary supplements that pose “a significant unreasonable risk of illness or injury.”
- (4) Stop any company making a claim that a product cures or treats a disease.
- (5) Stop a new dietary ingredient from being marketed if FDA does not receive enough safety data in advance.
- (6) Requires a dietary supplement to meet strict manufacturing requirements (Good Manufacturing Practices), including potency, cleanliness and stability.

In addition, the Federal Trade Commission (FTC) has the power to enforce laws outlawing “unfair or deceptive acts or practices to ensure consumers get accurate information about dietary supplements so they can make informed decisions about these products”.

In the U.S., the profit motive, often dictates the direction scientific research will take. Nutraceuticals, unlike pharmaceuticals, are derived from natural products that cannot be patented. This greatly reduces any financial incentive for a pharmaceutical company.

The bulk of nutraceutical research is being carried out abroad, led by Germany. Infact about 70% of German doctors prescribe from about 600 different botanical medicines.

The renewed interest in nutraceuticals is part of the redefining of health that is presently occurring. More and more consumers have noticed the benefits of these natural remedies free of the side effects experienced from many pharmaceuticals.

In my own practice in internal medicine over the past 20 years I have had countless patients benefit from these nutraceuticals. I am a firm believer in using nutraceuticals as a first line therapy and look to pharmaceuticals if lifestyle changes and nutraceuticals are not effective.

I encourage every client to take a good general multivitamin and multimineral. These should be combined with an antioxidant cocktail taken each morning and evening. (Core Nutraceuticals)

If a client is suffering from a certain chronic condition like cardiovascular disease or memory impairment then additional nutraceuticals need to be given to improve the specific condition affecting the client. (Target Nutraceuticals)

We have two levels of core nutraceuticals and a number of target nutraceuticals. Such as:

- brain
- heart
- joint
- detoxification
- sex/libido
- weight loss & energy
- vision
- cholesterol
- immunity
- liver and kidney
- prostate

For those readers interested in more information on these products you are encouraged to visit our website [Eternity Medicine.com](http://EternityMedicine.com).

At this time I would like to give three simple examples of how nutraceuticals can be value to you.

First, a single natural substance, like Carnosine, may well be the answer to preventing cataracts. Second, how a number of nutraceuticals can enhance memory and brain health. Third, I want to convey how important it is to take anti-oxidant supplements to enhance your longevity program.

(1) **CARNOSINE AND CATARACTS**

Although carnosine (also known as L-carnosine) has been known for about a century, its antiaging properties have only been extensively studied during the past few years. A recent literature review revealed over 780 published studies on carnosine, mainly by Russian and Japanese researchers. However, more widespread interest in this natural non-toxic product has only recently been fuelled by dramatic Australian and British discoveries about its anti-aging actions.

High concentrations of carnosine are present in long-lived cells (such as in neuronal tissues). The concentration of carnosine in muscles correlates with maximum lifespan, a fact that makes it a promising bio-marker of aging. It is high in actively contracting muscles and low in cases of muscular disease such as Duchennes's muscular dystrophy. Its concentration in mammalian muscles possibly decreases with age, a fact which strengthens the case for supplementation.

In cases of cataract in animals, carnosine concentration in the lens was found to be low. The lower the concentration of carnosine, the higher the severity of cataract. Rabbits fed on a high cholesterol diet, were found to be well protected against arteriosclerosis and cataract, if given carnosine supplements. In another experiment, dogs were also found to be protected against cataract if given carnosine supplements. Recent Russian studies on

humans with a particular form of carnosine show that it can indeed reverse the effects of age-related cataract.

### **Antioxidant Properties**

Carnosine is widely believed to be an antioxidant which stabilizes and protects the cell membrane. Specifically, as a water-soluble free radical scavenger it prevents lipid peroxidation within the cell membrane. It is thought to be a natural counterpart to lipid-soluble antioxidants such as vitamin E. Maybe it is not a coincidence that carnosine increases vitamin E levels in rats.

Many antioxidants are aimed at preventing free radicals from entering the tissues, but have no effect after this first line of defense is broken. Carnosine is not only effective in prevention, but it is also active after FR react to form other dangerous compounds. So, it protects the tissues from these damaging 'second-wave' chemicals. For example, a highly reactive lipid peroxidation end-product called malondialdehyde (MDA)- a deleterious product of a free radical reaction-is blocked by carnosine. MDA, if left uncontrolled, can cause damage to lipids, enzymes and DNA, and plays a part in the process of arteriosclerosis, joint inflammation, cataract formation and aging in general. Carnosine, by reacting and inactivating MDA, sacrifices itself in order to protect the amino acids on the protein molecule.

### **Other Benefits**

Carnosine plays a part in neurotransmission, it is a heavy metal binder (chelates ionic metals) and modulates enzymatic activities. Other actions, include:

1. Anti-neoplastic properties, which make it a potentially beneficial agent for use in cancer prevention.
2. Immune booster (it stimulates maturation of immunocompetent cells), and reduces inflammation.
3. Wound healing properties and protection against radiation damage (both preventing damage and reversing the post radiation syndrome). Laboratory animals treated with carnosine were found to have faster and better wound healing rate compared to controls. This has potential applications for treating burns, wounds following surgery, or during nutritional preparation for surgery.
4. A reduction of gastric ulceration (particularly when the ulcer is related to stress), both by preventing the formation of the ulcer and by healing it (carnosine increases the formation of granulation tissue). It does not affect acid secretion.

### **Glycosylation**

Perhaps, the most important action of carnosine is its anti-glycosylation effect. One of the cardinal processes of aging, apart from free-radical damage, is the process of glycosylation (or glycation). During normal, everyday metabolism, sugar aldehydes may react with the amino acids on the protein molecule.

The result is the formation of AGE's (Advanced Glycosylation End-products). These are abnormal cross-linked, oxidised products which are thought to cause extensive damage to the organism. Carnosine blocks this deleterious reaction, protecting against cross-linking of proteins to DNA molecules, and the formation of other abnormal proteins, all of which are fundamental features of the aging process.

In experiments, treatment with carnosine was also found to reduce or completely prevent cell damage caused by beta amyloid, the substance found in the brain of Alzheimer's disease patients.

### **Use on Humans**

After dozens of reports about carnosine's antiaging actions in laboratory experiments, the next logical step was to start using it on humans, specifically for antiaging purposes. Carnosine supplements have been used in the past by body-builders, athletes and others, but its use has been confined mainly for improving muscular fatigue, and not for longevity.

Recently, eye drops containing carnosine have been developed and used by Russian researchers. The drops were found to be effective in treating human corneal erosions and other corneal diseases. For example, carnosine drops accelerate the healing of ulcers in herpes and bacterial infections of the eye.

During a preliminary experiment designed specifically for antiaging, Dr Kyriazis used L-carnosine supplements (50 mg daily) on 20 healthy human volunteers, aged 40 – 75 years, for a period of 1-4 months. No side effects were reported. Five users noticed significant improvement in their facial appearance (firmer facial muscles), muscular stamina and general well-being. Five others reported possible benefits, for example better sleep patterns, improved clarity of thought and increased libido. The rest did not report any noticeable effects. This is not surprising because supplementation with carnosine is not expected to show any significant noticeable benefits in a short time, but it should be used as an insurance against deleterious effects of the aging process.

## **Cataract**

Very recently the Russians have developed a unique form of carnosine called n-alpha acetylcarnosine.

A 1% solution of this form was placed into eye-drops and dropped twice daily into each eye of 49 patients suffering from cataract.

Their results after 6 months show 41.5% of eyes with a significant improvement; 27% showed a general improvement and the remainder showed a gradual improvement.

After 12 months of treatment 88.9% showed significant improvement and follow up studies at 24 months showed that the beneficial effects were sustainable.

Most importantly of all, no serious side effects were noted during the period. The main complaint was an initial sensation of heat which disappeared with continued use of treatment.

This revelation could lead to the first reliable non-surgical treatment for age-related cataract and indicates to us that this particular form of carnosine is breaking existing cross-links as well as inhibiting them.

## **Conclusion**

Where do we go from here? Further experiments are in progress, aimed at examining more widely the effects of carnosine on human aging. Those who want to be at the forefront of innovative antiaging medicine should be taking carnosine now.

It is expected that carnosine supplementation will become much more widespread during the next five years, making carnosine as popular as vitamin E is today.

Note: Carnosine eyedrops are available from eternity Medicine.com.

## (2) **Brain Nutraceuticals**

### (1) **Basic Brain Nutrients**

- Multivitamin and multimineral Core Nutraceutical

The B vitamins B1, B2, B3, B5, B6, B12, biotin, choline and inositol are important. Calcium, magnesium, copper, zinc, manganese and selenium are also vital for a healthy brain.

### (2) **Target Brain Nutrients**

#### (i) **Omega 3 Fatty Acids**

Good sources include fatty fish (salmon, tuna, herring) and flaxseed oil. DHA (docosahexonoic acid) is the primary F.A. of grey matter. Another naturally occurring F.A. in the brain and in all cell membranes is PS (phosphatidylserine) an important memory enhancer.

Recommended Dose: DHA 100 mg per day.

#### (ii) **Phosphatidyl Serine (PS)**

Within our bodies, PS is most concentrated in the internal layer of the membranes of brain cells. Not only does the membrane act as a structural support, defining the extension of the cell in all its directions; but also, more important, it is directly and actively involved in conducting information across the synaptic gap from one cell to another.

Dr. Parriskid, the internationally recognized cell biologist who works closely with Lucas Meyer, the manufacturer of almost the entire world's supply of Phosphatidyl Serine calls it the "Single best means for conserving memory and other higher brain functions". Dr. Cook, one of the leading researchers in Age-Associated Memory Impairment (AAMI) states Phosphatidyl Serine is by far the best of all drugs and nutritional supplements we have ever tested for Age-Associated Memory Impairment."

Phosphatidyl Serine helps transfer electrical signals between neurons at both the sending and receiving ends.

Small amounts of Phosphatidyl Serine do exist in common foods like fish, rice, and soy products and green leafy vegetables. The problem is that it's difficult to get enough Phosphatidyl Serine through our food to jump-start the aging cells in our brain.

Recommended dose: 100mg 3x per day with meals

(iii) **Acetyl – L – Carnitine (ALC)**

Of all the amino acids ALC has been shown to have an essential role in the transport of F.A. into the cell.

Recommended Dose: 500 mg on empty stomach per day.

### Other Amino Acids

Besides ALC, tyrosine, phenylalanine and tryptophan others include:-

- (a) Glutamine is the major precursor to GABA, the calming neurotransmitter
- (b) Methionine helps clear the brain of toxins
- (c) Arginine converts to spermine important for memories. Also good for weight loss and libido.

- (iv) **DMAE (Dimethylamino ethanol)** is concentrated in some sea-foods like sardines. It aids in the production of acetylcholine. A deficit of acetylcholine is possibly, the most common cause of age – related cognition impairment. Restoring this to proper levels is very easy. All you have to do is ingest the specific nutrients acetyl choline is made from. The most important of these is choline which is present in high amounts in lecithin. The type of choline your brain needs most is phosphatidyl choline.

Recommended Dose: 10,000 mg lecithin/day.

Vitamin C & B5 (pantothenic acid) help transform lecithin into acetylcholine.

- (v) **Norepinephrine & Dopamine**

Norepinephrine is important for happiness. Dopamine helps improve mood, burn fat, increase sex drive, enhance immunity and longevity. The primary building blocks for both neurotransmitters are the a.a. tyrosine & phenylalanine.

Recommended Dose: 1,000 mg Tyrosine (on empty stomach)/day.

1,000 mg Phenylalanine/day.

(vi) **Serotonin**

Your brain's major "contentment" chemical. Until several years ago millions of people took tryptophan which is converted into serotonin. Due to poor production methods it was taken off the market. (It can be taken by prescription.)

Carbohydrate consumption stimulates serotonin. Carbohydrate addiction, in many cases, may be due to the increased serotonin and the emotional contentment it brings.

Recommended Dose: L Tryptophan 500-1000mg/day.

(vii) **Ginseng**

Ginseng is an adaptogen – a compound that helps the body adapt to physical and psychological stress. Its most important role is to decrease the release of cortisol.

Recommended Dose: 750 – 1500 mg/day

(viii) **Anti oxidants**

Anti oxidants represent the best weapon against toxic free radicals. They include the following:-

## **Glutathione**

Is a naturally occurring a.a.. The best way to produce sufficient glutathione is to supplement the diet with n-acetyl cysteine (NAC), selenium and lipoic acid.

Recommended Dose:    NAC            500 mg empty stomach  
   Alpha-Lipoic acid 100 mg with food  
   Selenium    200 mcg \*

(\* DO NOT EXCEED THIS AMOUNT)

## **POLYPHENOLS**

Excellent dietary sources include red wine, green tea, berries, soy beans and dark vegetables. Grape seed extract & pine bark extract (pycnogenol) are excellent. Herbs such as bilberry, ginko & milk thistle are also good sources.

Recommended Dose:    120 mg pycnogenol /day  
   120 mg grape seed extract /day

## **Tocopherols & Tocotrienols**

Vitamin E is an important fat soluble anti oxidant.

Recommended Dose:    200-400 I.U. tocopherol and gamma  
   tocopherol/day  
   50 mg tocotrienol /day

## **Coenzyme Q10**

This substance plays a major role in cellular energy production.

Recommended Dose:    120 mg daily (with meal)

### **S-Adonosyl Methionine (S A M)**

This is essential to detoxify cell membranes and produce neurotransmitters. It is also important to produce glutathione.

Recommended Dose: 200 mg (with meal) / day

### **Ginko Biloba**

Can open blood flow, decrease clumping of blood, increases cellular glucose that can improve dizziness depression and memory.

Recommended Dose: 60 mg standardized Ginko Biloba / day  
(with meal)

### **Vitamin C**

A well known anti oxidant.

Recommended Dose: 3,000 mg/day

### (ix) **GI Health**

The gastro intestinal tract performs three important roles in maintaining the brain – immune communication:-

- (i) The brain depends on the GI tract to assimilate and deliver the vital nutrients which are the building blocks of the neurotransmitters.
- (ii) The brain requires the GI tract to remove toxins which could damage the brain.
- (iii) Optimim brain health rests on the GI tracts ability to properly regulate the immune system.



### **Nucleotides**

A healthy brain – gut – immune system requires nucleotides as the acids modify the type of intestinal bacteria.

Recommended Dose: 1-2 gm Nucleotides / day.

### (3) **Anti-oxidants**

It is largely due to Dr Packer that we now stand at the threshold of a new understanding of how anti-oxidants can affect the quality and length of human life. There are startling new discoveries on the role of antioxidants and free radicals in the prevention and treatment of many chronic and degenerative diseases – including heart disease, cancer, arthritis and cataracts. Infact Packer opens his book with “suppose that I told you there was a pill that would keep your heart strong, your mind sharp and your body youthful well into your seventies, eighties, nineties and even beyond? Suppose that I told you there was a pill that could extend your life and improve your sex life? Suppose I told you there was a pill that could prevent cancer? How about a pill that could keep your skin supple and wrinkle free?”

These pills are readily available but you are probably not taking them correctly. Recently scientists have discovered that there is a dynamic interplay among certain key anti-oxidants – Dr Packer calls this – “the antioxidant network”.

Although there are hundreds of different anti-oxidants only 5 appear to be network antioxidants:-

- (1) Vitamin C
- (2) Vitamin E
- (3) Lipoic acid
- (4) Glutathione
- (5) Coenzyme Q10.

Vitamin C and E are not produced by the body and must be obtained from our diet. The others, although produced by the body, decline with age. This is why we must supplement them all. What makes these network antioxidants so special is that they can greatly enhance the power of one another.

The key to preventing disease and enhancing longevity is to maintain the right level and combination of antioxidants. Lipoic acid is the most versatile and powerful antioxidant in the network and greatly enhances the power of all the other antioxidants in the body. Dr Packer believes that more than 70% of Americans will die prematurely from diseases related to deficiencies of the antioxidant network.

The Packer lab has also discovered that certain substances that are not antioxidants can also enhance the effectiveness of certain antioxidants. These include members of the Flavanoid Family, a group of several thousand phytonutrients. There are fifty common flavonoids compounds

found primarily in fruits, vegetables and certain beverages like green tea and red wine. Selenium also strengthens the network antioxidants.

Some of the longevity effects of antioxidants include:-

- (1) antioxidants can rejuvenate an aging immune system
- (2) antioxidants can turn off 'bad' genes
- (3) antioxidants can improve concentration and reverse age related memory loss
- (4) antioxidants can relieve arthritis and other inflammatory conditions
- (5) antioxidants can support cardiovascular function
- (6) antioxidants can reverse age spots and protect against skin cancer
- (7) antioxidants can protect you against prostate and other cancers.

## **Oxidation**

The body requires oxygen for metabolism. Without oxygen we cannot make energy. Yet the production of energy has a downside and that is it also produces free radicals. The key to good health is to maintain the right balance between antioxidants and free radicals. This is what the body's antioxidant defense system does. What makes the network antioxidants so special is that they can "recycle or regenerate", one another after they have quenched a free radicle, vastly extending their anti-oxidant power. As Dr Packer states "the primary job of the antioxidant network is to prevent antioxidants from being lost through oxidation. As one network antioxidant

saves the other, the cycle continues; ensuring the body will maintain the right antioxidant balance”.

Bruce Ames, a well known antioxidant scientist, estimates the number of oxidative hits daily to DNA per human cell is about 10,000. If you multiply this times the trillions of cells in the body this is a big problem. Supplements with antioxidants are essential for longevity because if free radicals are not quickly trapped they can cause a great deal of trouble.

To understand the process of oxidation think about the leftovers you can wrap up after a meal. One of the reasons wrapping helps is that it keeps oxygen from attacking the leftovers. Food chemists had long recognized that certain vitamins were good food preservatives and began to call them antioxidants. It did not initially occur to anyone that the same process occurring to the leftover food was occurring in our own body.

What has become known as the Free Radical Theory of Aging was first proposed by Dr Denham Harman in 1954 at Berkely while he was doing research on the effects of radiation on humans. What makes radiation so dangerous is that it produces the hydroxyl radical, the most deadly free radical known. Dr Denham noticed that mild radiation poisoning produced symptoms that were similar to premature aging and hypothesized that in aging, free radicals are responsible for producing the same effects except over a longer period of time. Antioxidants help protect us from radiation exposure and the diseases of aging.

As regards network antioxidants :-

<b>NETWORK ANTI-OXIDANTS</b>	
<b>Fat Soluble</b>	<b>Water Soluble</b>

Vitamin E		Vitamin C
Coenzyme Q10		Glutathione
Protects fatty part of Cell membrane		Protects watery part of Cell membrane
Lipoic acid is unique and can function in both zones regenerating fat and water soluble antioxidants.		

As we age the levels of antioxidants fall and the network antioxidants become over-whelmed by the gradually increasing toxic load on the body. Interestingly humans and elephants have the highest concentration of antioxidants and the longest life spans while rats and rodents have low levels and the shortest life spans.

## **The Antioxidant Network**

The following presents a summary of the network antioxidants modified from 'The Antioxidant Miracle' by Dr Packer.

### (1) **Lipoic acid**

- Lipoic acid protects against three common age associated diseases: stroke, heart disease and cataracts.
- Lipoic acid strengthens memory and prevents brain aging.
- Lipoic acid boosts the entire antioxidant network.
- Lipoic acid can prevent and relieve the complications of diabetes.
- Lipoic acid turns off bad genes that accelerate age and cancer.
- Lipoic acid can reverse mushroom poisoning of the liver.
- Lipoic acid has been useful in treating liver disease like hepatitis C.
- Lipoic acid reduces “advanced glycation end products” (AGE) and helps skin.
- Lipoic acid strengthens the immune system.
- Lipoic acid prevents the replication of HIV in cultured human cells.
- Lipoic acid protects against radiation poisoning.

**RDA:** None

**AMOUNT:** 50 mg a.m. and 50 mg p.m.

**SOURCES:** Synthesized by body but levels fall off with age.

Present in small amounts in potatoes, spinach and red meat.

### **A Note For Smokers**

Smoking probably shortens your life by about 8 years. The best advice is to quit. Dr Packer believes it might be possible to reduce the diseases associated with cigarette smoke by bolstering the network

antioxidants especially lipoic acid. Gamma tocopherol (vitamin E) also appears to be protective for smokers.

(2) **Vitamin E**

- Vitamin E can improve stamina and performance of exercise.
- Vitamin E reverses the age related 'slump' in immune function.
- Vitamin E protects your brain from aging.
- Vitamin E reduces your risk of stroke and heart disease
- Vitamin E protects your skin from u-v and ozone.
- Vitamin E relieves arthritis and other inflammatory diseases.
- Vitamin E reduces the risk of prostate cancer in men
- Vitamin E reduces the risk of breast cancer in women
- Vitamin E helps save your vision by preventing cataracts.

**RDA:** 30 IU

**AMOUNT:** 200-400mg of mixed tocopherols and tocotrienols

**SOURCES:** Raw vegetable oil, nuts, nut butter, rice bran oil, barley and green leafy vegetables.

**A Note for Living Better Longer**

In studies on human cells we have great evidence that Vitamin E can prevent aging at the cellular level which is where aging begins. Long before we see the more visible signs of grey hair and wrinkles subtle changes are occurring in cells. One of the tell-tale signs of aging is the accumulation of the pigment 'lipofuscin' especially in the brain and heart. Vitamin E will prevent cells from aging and the development of lipofuscin in cultured human cells.

(3) **Vitamin C**

- Vitamin C protects you from heart disease.
- Vitamin C protects you from cancer.
- Vitamin C protects sperm from free radical damage.
- Vitamin C regenerates Vitamin E.
- Vitamin C boosts the immune system.
- Vitamin C reduces the length and severity of colds.
- Vitamin C keeps skin young and supple.
- Vitamin C and E prevent the oxidation of lipoproteins.
- Vitamin C protects against cataracts.

**RDA:** 60 mg: (100 mg smokers)

**AMOUNT:** 250 mg am 250 mg pm.

**SOURCES:** Abundant in many fruits and vegetables including red peppers, broccoli, cranberries, cabbage, potatoes, tomatoes and citrus fruit.

**An Evolutionary Note:**

Humans are one of the few animals that don't produce vitamin C. Some scientists believe that the loss of the necessary enzyme about 45,000 years ago was a mistake. The average foraging gorilla will consume about 5,000 mg vitamin C per day. While if a rat was a 70 kg man it would make about 5,000 mg per day perhaps 5,000 mg is closer to an optimal dose for humans.

(4) **Coenzyme Q10**

- Coenzyme Q10 regenerates Vitamin E in the network.
- Coenzyme Q10 can prevent and treat heart diseases.
- Coenzyme Q10 may help prevent Alzheimers disease.
- Coenzyme Q10 may help prevent Parkinsons disease.
- Coenzyme Q10 may help treat breast cancer.
- Coenzyme Q10 can help treat gum disease.
- Coenzyme Q10 can help infertility.

**RDA:** None

**AMOUNT:** 30 mg (50mg Heart Disease)

**SOURCES:** Synthesized by the body also found in sea food and organ meats.

### **A Historical Note**

Coenzyme Q10 was first discovered by Prof Fred Crane at the University of Wisconsin in 1957. Renowned physician Karl Folkers who was the first to identify the structures of Vitamin B6 and B12 isolated Coenzyme Q10 from beef hearts in 1958 while working at Merck, Sharpe and Dohme. Although recognizing its importance he was unable to continue its research as natural substances cannot be patented and thus have little financial incentive to persue. Merck sold the technology to produce Coenzyme Q10 to the Japanese who in 1965 were the first to treat congestive heart disease patients with Coenzyme Q10.

Fortunately Dr Folkers continued his research at the University of Texas and was the first to suggest that the age related decline in Coenzyme Q10 was a contributing factor in many age related diseases including heart disease, cancer and Alzheimers. He reasoned that since energy is so

important to the function of virtually every cell in the body it is impossible for any body system to run well if it is not getting adequate fuel.

Cardiologists like Dr Stephen Sinatra have used coenzyme Q10 for more than 17 years in thousands of patients without only side effects.

(5) **Glutathione**

- Glutathione is important for longevity.
- Glutathione recycles vitamin C.
- Glutathione can be boosted by lipoic acid.
- Glutathione detoxifies drugs and toxins.
- Glutathione is important for healthy liver function.
- Glutathione boosts immunity.
- Glutathione help in storage and transport of amino acids.
- Glutathione can help turn off the inflammatory response.

**RDA:** None

**AMOUNT:** 100 mg lipoic acid daily

**SOURCES:** Abundant in fruits, vegetables and freshly cooked meats.

**A Note on the Master Antioxidant**

Glutathione is the cells primary antioxidant and is found in the watery portion of the cell. Glutathione is produced in the cells from three amino acids – cysteine, glutamic acid and glycine.

Glutathione is the only network anti-oxidant that Dr Packer does not recommend supplementing due to the fact that it is broken down and no one knows how much glutathione actually passes through the intestines into the

cells. Lipoic acid will boost glutathione levels in target tissues where it is needed.

It is important to remember that other substances like the flavonoids, ginkgo biloba and pycnogenol can also boost the network antioxidants as can selenium. Carotenoids is another family of phytonutrients which also helps boost the antioxidant network.

By adding antioxidants to our wellness and longevity program, they help us as the Greeks used to say “ To die as young as possible as old as possible”. Here then is a summary of the Plan that we recommend to our clients:-

<b>The Basic Antioxidant Cocktail</b>	
<b>Your A.M. Supplement Regimen</b>	<b>Your P.M. Supplement Regimen</b>
<p><b>The Vitamin E Family</b></p> <p>(1) 100 mg tocotrienols (1) 200 mg mixed tocopherols</p> <p><b>Co Q10</b></p> <p>(1) 30 mg Co Q10</p> <p><b>Lipoic Acid</b></p> <p>(1) 50 mg lipoic acid</p> <p><b>Vitamin C</b></p> <p>(1) 250 mg ester vitamin C</p> <p><b>Folic Acid</b></p> <p>(1) 400 mcg folic acid</p> <p><b>Biotin</b></p> <p>(1) 300 mcg biotin</p> <p><b>Vitamin B6</b></p> <p>(1) 2 mg vitamin B6</p>	<p><b>The Vitamin E Family</b></p> <p>(1) 200 mg natural alpha tocopherol</p> <p><b>Lipoic Acid</b></p> <p>(1) 50 mg lipoic acid</p> <p><b>Vitamin C</b></p> <p>(1) 250 mg ester C</p> <p><b>Ginkgo Biloba</b></p> <p>(1) 30 mg ginkgo</p> <p><b>Selenium</b></p> <p>(1) 200 mcg selenium</p>

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**Note:** Most of these anti-oxidants are provided in Eternity Medicine am and pm Core Nutraceutical packs.

**REFERENCES SECRET FIVE:**

1. Hipkiss A. Carnosine, a protective, antiaging peptide? *Int J Biochem cell Biol*, 1998, 30; 863-868.
2. Quin PJ, Boldyrev AA, Formaziuk VE. Carnosine: its properties, functions and potential therapeutic applications. *Mol Aspects Med*, 1992, 13(5); 379-444.
3. Tamba M, et al. Hydroxyl radical scavenging by carnosine and Cu(ii)-carnosine complexes. *Int J Radiat Biol*, 1999 75(9); 1177-1188.
4. Hipkiss A, et al. Protective effects of carnosine against MDA-induced toxicity towards cultured rat brain endothelial cells. *Neuroscience Letters*, 1997, 135-138.
5. Hipkiss A et al. Protective effects of carnosine against protective modification mediated by malondialdehyde and hypochlorite. *Bioch Biophys acta* 1998, 1380;46-54
6. Roberts PR, Black KW, Santamauro JT. Dietary peptides improve wound healing following surgery. *Nutrition*, 1998, 14(3); 266-269.
7. Mc Farland GA, Holliday R. Further evidence for the rejuvenating effects of the dipetide L-carnosine on cultured human diploid fibroblast. *Exp Gerontol* 1999 34(1); 35-45.
8. Hipkiss A, Chana H. Carnosine protects proteins against methylglyoxal-mediated modifications. *Biochem Biophys Res Comm* 1998, 248 (1); 28-32.
9. Preston J et al. Toxic effects of B-amyloid on immortalized rat brain endothelial cell: protection by carnosine, homocarnosine and B-alanine. *Neuroscience letters* 1998, 242; 105-108.
10. Maichuk IuF, Formaziuk VE, Sergienko VI. Development of carnosine eye drops and assessing their efficiency in corneal diseases. *Vestn Oftalmol* 1997, 113(6); 27-31.
11. Kyriazis M, British Logevity Society, Northampton 1999, Data on file.
12. Babizhayev M, Yermakova V N, Deyev A I, Seguin M C, "Imidazole containing peptidomimetic NACA as a potent drug for

the medicinal treatment of age-related cataract in humans.”  
Journal of anti-aging Medicine, V3 NI, 200, Mary Ann Liebert.

13. Botanical Influences on Illness.  
Werbach Murray Third Line Press 1994
14. The Book of Vitamin Therapy  
Harold Rosenberg M.D. Berkley Windover Books 1974
  
15. Nutraceuticals  
Arthur Roberts M.D. a Perigee Book 2001.
16. The Memory Cure  
Thomas Crook PhD. Pocket books 1999.
17. The Antioxidant Miracle  
Lester Packer PhD. John Wiley & Sons 1999.
18. The Sinatra Health Report  
Stephen Sinatra M.D. Phillips Health M.D. 2000.