

AntiOxidants– Special Report #12

***AntiOxidants
& Free Radical
Scavenging
Nutrients***

***...What Your Doctor Doesn't
Tell You!***

The Institute Of Nutritional Science

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This Special Report does not intend to diagnose disease, nor to provide specific medical advice. Its intention is solely to inform and to educate. The author intends that readers will use the information presented in this report in cooperation with the advice of a qualified health professional trained in such field.

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Dr. K. Steven Whiting - Biography



Dr. Whiting is an Orthomolecular Nutritionist. His degrees include a Masters in Psychology as well as a Doctorate in Biochemistry earned at International Universities.

Three decades of personal, practical experience in the field of human nutrition have earned him an international reputation, not only in the understanding of the human body and the profound effect that nutrition plays in protecting and preserving the body, but also in the outstanding results that he has consistently achieved while working with clients and patients on a global scale.

Dr. K. Steven Whiting

His commitment and dedication within the nutrition field has led him to extensive research into such chronic conditions as Heart Disease, Arthritis, Diabetes, Osteoporosis and Prostrate problems to name but a few. The result of this research has been pivotal in the development of nutritional protocols for the prevention, management and reversal of these conditions.

Studies he has conducted have led to a totally new system of weight management, based on '*Body Typing*', wherein HOW a persons body handles food is evaluated BEFORE they are put on a weight management program that's customized for them.

More recently, he has focused his attention on the human immune system. His subsequent research into deep viral infections has led to the use of oxygen therapy as well as other potent, all-natural immune boosters for the management of immune-compromised conditions.

Further, his work with AIDS and cancer patients, using meditation, biofeedback and visualization has received worldwide attention.

Dr. Whiting has served both as Consultant and Staff member to many of the leading alternative and complimentary hospitals in Europe and Latin America, where he has had the opportunity of applying his concepts to those individuals who were in most need.

This has resulted in the development of nutritional support protocols for a variety of chronic health challenges.

Through his international affiliations, he remains current on the very latest progressive applications of nutrition for a wide variety of

chronic degenerative disorders, for which orthodox medicine has offered little hope.

In 1991, Dr. Whiting founded *The Institute of Nutritional Science*, an international organization, with offices in London, England, Den Haag, The Netherlands and San Diego, California. The purpose of The Institute is to gather information and conduct research on how natural supplements can prevent, manage or reverse disease conditions.

The Institute publishes *The Journal*, available by subscription, to disperse nutritional information, relevant to disease, in an easy to understand, user-friendly fashion.

As an author, Dr. Whiting has published a series of Self Help booklets and reports on nutrition and its role in preventing, managing and reversing disease. A text- book, entitled *Gaining and Maintaining Total Health*, and *Self Health –Your Complete Guide To Optimal Wellness*, which rapidly became a best seller after its first publication in 1996. He also authored *You Can Be ...Well At Any Age : Your Definitive Guide To Vibrant Health and Longevity*, is the most comprehensive work of its kind, containing over 250 protocols for a wide spectrum of human health challenges. His most recent work, *Healthy Living Made Easy*, is designed for the busy, stressful lifestyles we all live and how to ensure we are still able to hedge our bet against chronic diseases.

Author, Lecturer, Teacher, Product Formulator and Consultant, Dr. Whiting is dedicated to helping others in helping themselves toward a more healthful existence, through a better understanding of the nutritional needs of the body. He is the exclusive formulator of all the nutritional products for Curves Fitness Centers, the largest business of its kind in the world.

He is committed to empowering individuals with the very latest nutritional information, safe in the knowledge that this will serve to enhance both the quality and the quantity of life for everyone in the years ahead.

How Antioxidants & Free Radical Scavenging Nutrients Can Prevent Disease & Extend Your Life

....What Your Doctor Doesn't Tell You!

Introduction

As we march forward through this new century, we carry much baggage with us. During the first quarter of the new millennium, there will be more people over 50 years old than at any time in the history of humanity. With age comes the reality of degenerative disease. Threats of Heart Disease, Cancer, Arthritis, Prostate problems, Osteoporosis and Diabetes loom in the immediate futures of many millions of aging people.

It doesn't have to be that way however. Nutritional science has progressed rapidly in both identifying and managing the causes of these Chronic Degenerative Diseases. Almost without fail, each of these disorders may be linked back to a process called Free Radical Damage within the human body.

This process of Free Radical Damage accelerates with age, poor nutrition, stress, chemical environmental pollutants, drugs and disease itself.

If we examine these causative factors individually, we can see that their presence has not diminished in our lives but rather increased. Stress is still the number one cause of health problems in humans. Our society has done little, if anything, to produce a lifestyle that mitigates stress. The pace of life is such that it almost becomes a contest as to how much stress we can handle without exploding! *(For more information on Stress please consult Special Report # 10, entitled Stress CAN Kill You!)*

The nutrition status of all people in industrialized countries has been declining since the 1940's. With the exception of the fact that many more people are supplementing their diet with vitamin and mineral products, our nutrition obtained from food has continued to worsen.

It is now estimated that 85-90 percent of all the micronutrients once found in food are lost before we finally consume it. Our love affair with sugar and sugar forming foods, the greatest anti-nutrients of all, continues to increase unabated.

Our environment is forced to absorb ever-increasing numbers of complex chemical compounds, infiltrating our soil, food, water and even the air we breathe. Each one of these chemicals takes its toll on our health by poisoning our internal biochemistry and compromising our Immune System.

Despite the advances in modern medicine, the average life span has increased dismally little in the last century. New and powerful drugs, while often assisting in acute situations, become roadblocks to normal biochemistry in the long haul.

Fortunately there is hope. In the last 25 years, we have learned more about how our body chemistry is supposed to function than ever before. Through this unfolding of the amazing world within our bodies, we have been able to identify the common link behind virtually every Chronic Degenerative Disease process affecting the quality and quantity of human life. This common denominator is the Free Radical and its unabated proliferation within the body.

Through the discoveries of new and powerful antioxidants, we are now in a position, as never before, to wage a formidable war against these chemical buzz bombs called Free Radicals. Many of the most powerful weapons against Free Radicals have been discovered in the past decade.

This Special Report is designed to familiarize you with the Antioxidant family and to illustrate to you the powerful ability these substances can exercise upon both your health and your longevity.

By incorporating this information into your daily life through multiple combinations of Antioxidants in supplement form, you too can provide protective insurance to each of the 100 trillion cells in your body.

Through providing this 'insurance' to the healthy cells of the body, you can reduce your risk of developing any one of a dozen Chronic Degenerative Diseases by as much as 90 percent! Further, you can expect to not only live longer as a result of this information, but the years ahead will be much more enjoyable because they will be freer from disease and the other potentially debilitating ravages of old age.

This knowledge is not only within the reach of everyone, but this Special Report will show you how to properly combine many of the most powerful Antioxidants and Free Radical Scavengers into a virtual armada of life defenders, forming a shield of protection around each and every cell of your body.

How Life Begins..... And Ends

Life, your life, began with the fertilization of a single cell. That cell contains chemical encoded information, called genes, which direct the make up of your entire physical body. Those cells divided rapidly, two becoming four, four becoming eight, eight becoming sixteen until a complete form was built containing about 100 trillion individual cells.

Each one of those cells contains the exact same genetic information along a strand of chemical structures called Deoxyribonucleic Acid (DNA). This DNA is responsible for ensuring that when a given cell divides to create a replacement for the dying one that this replacement is EXACTLY like the previous cell.

The basic structure and direction of DNA in the replication of living cells follows a universal pattern that may be seen throughout creation, no matter how large or small.

In fact, no matter where we look, be it through the telescope to the solar system and galaxies beyond or through the microscope to the infinitely small world of molecules and atoms; we find all matter to be governed by the laws of motion through the push and pull of electrical forces.

This is why we see the exact same structure in a solar system with the planets revolving around a central sun as we do in a single atom with the electrons whirling about a central nucleus. When just the right combination of elements combines and is subsequently charged by an electrical spark, the basic building blocks of life, Amino Acids, are formed and this raw electrical spark of energy is transformed into a new type of energy called *life energy* or *bio-electrical energy* by today's terms.

It is this spark of life that has and always will be directing and forever changing physical matter into endless combinations for the service of life. The intelligence of each cell, through the direction of DNA is awesome. Its list of information is so long that if you could unravel the entire DNA in your body and stretch it out, it would reach all the way to the sun and back more than a hundred times!

This seemingly endless amount of information controls more details of your life than you can ever imagine.

Of all the wondrous new revelations coming out of biochemistry today, the most exciting has to be the work of genetics. Just as the last century was the era of physics and medicine, the new century unfolding ahead will have to be focused around genetics.

Since the discovery of the double helix known as DNA in 1953 by Drs. Watson and Crick, we have come to an ever-increasing awareness that we finally have our fingers upon the heartbeat of the physical body. Whether we, as a society, choose to use this knowledge for the betterment of humanity or its regression, will be up to each of us.

One overwhelming fact that has emerged from the flood of knowledge revolving around human genetics is just how fragile this genetic code of life really is. Through thousands of artificial chemicals, we can damage and even permanently alter this priceless genetic code, unleashing disease, suffering and premature death for generations to come.

In fact, many of today's most mysterious and prevalent diseases are now thought to have their origin in genetic mutations. These mutations, are, for the most part, caused by complex chemical structures called Free Radicals. (More about them in a little while.)

Let's return to our discussion of cells and life. Since the monumental discovery by Watson and Crick, there has been a revolution in the biological sciences which has enabled scientists to view life, both around us and within us, in a totally new and fascinating way. Genetically engineered substances, for the good of mankind, such as insulin, human growth hormone, and other compounds used in treating both infectious and degenerative diseases have already accomplished a great deal, and this is just the tip of the iceberg.

It is understandable that such potential, such power, gives rise to concerns over misuse, a very real possibility. Yet with every advance in science, we, as a society, are faced with these issues of morality.

Through genetic engineering, we will see 'sensational headlines', becoming realities. Such concepts as 'The Cure for Cancer', 'The Vaccine for AIDS', and 'The Gene for Alcoholism' will soon be within our reach.

Mysterious and elusive 'autoimmune' disorders will cease to exist once we fully understand the role that our genes play in guiding the cells of our Immune System in distinguishing self from non-self. All this, and more, could become a reality within the next twenty years.

In the meantime, this extensive work into the power and fragility of genetic material has taught us not only the vital importance of protecting it, but also *how* to protect it.

The single greatest enemy to the life of a living cell is the Free Radical. When they attack otherwise healthy organisms, they can alter the DNA structure, mutating millions and millions of cells. Over time this shortens the life span of the organism while interrupting the internal functioning of cells to the point of disease.

It is believed that virtually every Chronic Degenerative Disease currently known has its origin in oxidative Free Radical Damage to living cells. As we age, this process accelerates.

It is vitally important that we understand how the process of Free Radicals interrupts the natural process of healthy cells. Further, we need to understand clearly that the knowledge to prevent the ravages from damage is available today.

Lastly, we must have a guidepost as to how to incorporate this knowledge into our daily lives. When we do so, we will be on the road to both preventing Degenerative Disease and extending the number of years of our life.

This Special Report is designed to meet those objectives in a simple, easy to understand and, more importantly, easy to follow program. One look at the copious references at the end of this work will illustrate the tremendous volume of scientific research available to substantiate our recommendations.

Anyone today who takes dietary supplements for better health is only doing half the job unless they include the full potential that can only come from a balanced team of Antioxidant and Free Radical Scavenging nutrients. Those recommendations are included for your consideration.

Free Radicals: Public Enemy Number One

Oxygen, the most essential 'nutrient' to human life, is a double-edged sword.

No one can live longer than about four minutes without oxygen, making it the most necessary element for life, yet this same oxygen, when mismanaged in the body, rapidly unleashes by-products known as Free Radicals.

Chemically speaking, Free Radicals are atoms or groups of atoms that are highly reactive with other substances due to the fact that they have at least one unpaired electron. This allows them to bond with other compounds and hence, cause damage to a wide variety of tissues in the body.

Free Radicals can attack cells and cell groups, playing a devastating role in virtually every Chronic Degenerative Disease. They are also responsible for premature aging due to a process called cross-linking of cell structures. An example of this process may be seen in the premature aging of skin and the bursting of capillaries under the skin.

Free Radicals can form under a variety of circumstances. Pollution, chemicals, drugs, stress and even aging itself, all produce Free Radicals primarily through the action of oxygen. If these Free Radicals remain within the body long enough, they have the ability to penetrate the outer membrane of living cells and actually change the internal chemistry of the cell. They are like chemical buzz bombs and if left unchecked, can alter the very structure of the DNA of our cells. This occurs because DNA is made up of individual Amino Acids, linked together in specific order.

The strand of genetic material within the nucleus of each cell is responsible for ensuring the exact duplication of cells. When the cell is ready to replace itself, the DNA unzips like a clothes zipper, making two strands. These two strands then serve as templates or blueprints for the assembly of new Amino Acids, which will form along the opposite side, ultimately making a new cell. Because of the blueprint, known as RNA, the Amino Acids can only assemble in one specific sequence, which guarantees that the new cell will be EXACTLY like the one before it.

But suppose something, like a chemical buzz bomb, could enter the sacred regions of the nucleus of the living cell, and chemically alter the DNA sequence. When this DNA splits in preparation for duplication, the new cell will not be assembled exactly like the old parent cell, but rather the Amino Acid sequence will have been altered by the change in the parent DNA. This will produce a new cell that is different from the original.

Once this has occurred, that cell will continue to divide and duplicate itself according to the new genetic code, not the original one. This process is called Genetic Mutation.

While many mutations take place without our knowledge because they cause little or no change within the body, some of these Genetic Mutations can produce devastating results.

It is believed that almost all Cancers, Arthritis, Adult Onset Diabetes, most Heart Disease and dozens of other 'mysterious' diseases have their etiology in genetic mutations. It may be safely said that Free Radical Proliferation within the body is the single greatest cause of disease formation and premature aging in modern man.

Fortunately, our body has a way of controlling or managing Free Radicals. Through the use of specialized nutrients called Antioxidants, the body can prevent the formation of most Free Radicals. Those that skip past are removed from the body by other substances called Free Radical Scavengers.

The scavengers make up the first line of defense against the Free Radical. They are primarily a complex system of enzymes, which are produced in the body in the presence of adequate antioxidant nutrients. Some of these enzymes include Superoxide Dismutase (SOD), Catalase and Glutathione Peroxidase. None of these enzymes can be effectively taken orally since they are broken down in the digestive system.

The right combination of Antioxidants present at the same time, permits the body to manufacture these enzymes in more than adequate supply. Further, some Antioxidants serve to both prevent the formation of Free Radicals as well as have the ability to scavenge those already present.

The second line of defense is the prevention of Free Radical formation altogether. This is accomplished by the presence of antioxidant nutrients such as Vitamin C, Vitamin E, Carotenoids, Zinc, and Selenium. Most people are familiar with the antioxidant properties of these nutrients and they may be found in many dietary supplements sold as antioxidant formulas. While their actions are considerable, especially in specific, targeted areas of the body (i.e. Vitamin E and the heart muscle), there are other, newly discovered, Antioxidants that are up to 100 times more potent.

How much antioxidant supplements do we need? That depends upon the degree of Free Radicals forming in our bodies. This is directly related to several key factors. How much smog, smoke, pesticides, industrial chemicals, inorganic heavy metals, indoor pollution, cigarette smoke, burnt food, hydrogenated fats, vegetable oils, street drugs & pharmaceuticals, aerobic exercise, infection, and stress are consumed in your life? Each of these factors can significantly raise the production of Free Radicals in your internal biochemistry.

For those of you who feel that you are not exposed to any of the above factors you, likely, still need Antioxidant/Free Radical scavenger protection. Why?

Your normal metabolic processes will produce a significant amount of Free Radicals. This becomes more and more of a problem as we age. The more miles we put on the machine called the human body, the less efficiently it operates. This lack of fine tuning causes higher numbers of Free Radicals to form as metabolic by-products.

At no other time in history have we been so vulnerable to Free Radical formation and subsequent DNA damage. There are more toxic, unnatural substances in our environment today than in the last 3,000 years combined.

The atmosphere of our planet has been so compromised through pollution, that harmful radiation from an otherwise life-giving sun, is burning living things and producing Radiation Free Radicals. The food we eat provides so little real nutrition that most all of us are compromising our ability to carry on life function every day.

The water we drink is filled with toxic chemicals. The air we breathe is loaded with synthetic particulate matter unknown just a century ago. All these cause the formation of Free Radicals in our bodies, leading to genetic mutations, which contribute to most diseases.

Once chronic disease is present, regardless of which one, it alters the internal body chemistry, producing ever-increasing amounts of toxins in the body. Those toxins further weigh the body down and prevent it from functioning properly. As the downward spiral continues, more Free Radicals are formed, this time from our own bodily waste by-products, which can no longer be eliminated effectively.

As the body continues to break down often a second or even a third disease condition will develop, a sign that all balance and chemical harmony has been lost within the body.

How can we prevent this fate? Better still is there a way to help the body reverse the ravages of DNA mutation through Free Radical Damage? I believe there is.

In the next section, we will look at the major Antioxidants and Free Radical Scavengers, some you will already be familiar with and others you may never have heard of before now. All of them can make a profound difference in the future quality and quantity of your life ahead.

The Antioxidant Family: Preventing the Problem

In discussing specific Antioxidants and their application to your health and longevity, it might be helpful to discuss, briefly, how Antioxidants protect you.

First of all, Antioxidants, as the name implies, prevent Oxidants or Free Radicals from forming. They also stop specific minerals from oxidation internally. Minerals, which belong to the 'metals' group of nutrients, have the ability and potential of 'rusting' within the body. This 'rusting', depresses the Immune System and we all know what happens after that.

Certain specific Antioxidants, through their Free Radical Scavenging potential, intercept oxidants that have already been formed and prevent their chain reaction from continuing. This is much like the row of dominos, once one has fallen; the rest will follow unless something prevents the reaction.

Lastly, Antioxidants, in combination, have the ability to actually eliminate molecules or cells that have been severely damaged. This means that Antioxidants not only wage the war against oxidative particles and the damage they cause, but then they can clean up the mess afterwards!

The most important antioxidants are Vitamin C, Vitamin E, Carotenoids, Zinc, Selenium, N-acetyl Cysteine, CoQ10, Milk Thistle, Lycopene, Alpha Lipoic Acid, Lutein, Quercetin, Bilberry, and Proanthocyanidins. We will be discussing these along with other supportive antioxidants, so that you may understand the wide reaching benefits that may be derived from incorporating the right combination of them into your daily nutritional program.

It is important to understand that the time-tested concept of totality plays into the use of Antioxidants no differently than it does regarding other nutrients such as vitamins and minerals.

The total effectiveness of Antioxidants taken together in the right combinations is far greater than the sum of the individual parts. In other words, Antioxidants work better together than they do individually.

Work at The Institute of Nutritional Science has led to the combining of many of the major Antioxidant and Free Radical Scavenging nutrients into a synergistic compound, which has, subsequently, proven the concept of ratio to be true. Finding just the right combination, potency and ratio of one nutrient to the other has taken more than a year's worth of work.

Clinical studies have been conducted using these unique compounds in an attempt to fine-tune the formulations, the results, which have been published in The Institute's Monthly Journal.

We can divide the Antioxidants into two groups, those that are commonly recognized and those that are new, potent and aggressive in their actions. Group One makes up what we consider to be the minimal baseline of Antioxidant protection for every human being, regardless of age or physical condition. Group Two represents the 'heavy hitters' and when taken in the right combinations, can provide cellular protection from Free Radicals at levels we could only imagine even five years ago.

Let's take a look at some of these important nutrients from each group and discuss their individual action within the body. At the end of this Special Report we will put them all together and offer protocols for maximum Free Radical protection.

Group One: The Foundation Antioxidants.

Vitamin A.

As an antioxidant, Vitamin A performs several important functions. The most important role of this nutrient is in its ability to protect *and* repair mucous membrane tissue from Free Radicals caused by smoking, chemicals and other pollutants. Since Free Radicals explosively multiply in the presence of all pollutants and the mucous membrane tissues are our first line of defense, it is very important that we protect these tissues and maintain their integrity.

Further, while Vitamin A is doing this all-important job, it is also working to boost your Immune System, something that all of us can use.

(For more information on the Immune System, refer to Special Report #8, entitled Your Immune System – Why It Fails and How To Fix It)

Another concern is damage from various forms of radiation. Studies continually show that both animals and humans, who are ingesting adequate Vitamin A, suffer far less DNA mutation when exposed to radiation.

It is now thought that a common colon condition called Colitis, is caused by Free Radical Damage to the mucous membrane of the intestines. This being the case, Vitamin A is vital in all disorders of both chronic and acute intestinal inflammations.

There is some evidence that Vitamin A exercises anti-cancer effects as well. This would be especially true for those areas where mucous membrane tissue may be found.

One study involving over 300 people who underwent surgery for Lung Cancer, found that the group who took very high amounts of Vitamin A had far fewer new tumors than people who did not use the vitamin.

All of Vitamin A's many benefits have caused me to often say that it is my favorite vitamin.

Beta-Carotene.

This best known of the Carotenoid family, is converted to Vitamin A by the Liver. While this is the primary reason why most people take Beta-Carotene, it is also a powerful Antioxidant in its own right. Beta-Carotene helps prevent Lipid Oxidation, an important factor in Atherosclerosis. In addition to Beta-Carotene, there are many other far more powerful Carotenoids which we will be discussing in Group Two.

Folic Acid and Pantothenic Acid.

These two B-complex nutrients in particular, exercise powerful Antioxidant properties under specific conditions. In any case single B-complex nutrients should never be taken in the absence of the others. To do so causes a rapid and potentially serious deficiency condition.

Vitamin C.

This is probably the most commonly known nutrient of all and certainly, next to Vitamin E, the best known Antioxidant. Vitamin C's many roles as a Free Radical fighter are well documented. When Free Radicals strike a cell, one of the most vulnerable sites are the Mitochondria, the energy producing centers of the cell. When adequate Vitamin C is present in both the intra and extra cellular fluids, it can neutralize Free Radicals before they can penetrate the cell membrane and really do some serious damage.

Other specific sites within the body, which are protected by Vitamin C include the Pancreas, the Lungs and the Prostate Gland, preventing cross linkage of these tissues. This greatly reduces the risk of Cancer in these sites. Further, Vitamin C, along with Glutathione (see Group Two), prevents damage to eye tissue, preventing the formation of Cataracts.

Vitamin C is a coordinator as it were, working together with many other Antioxidants. In fact Vitamin E will work much better when there is adequate Vitamin C present at the same time.

Citrus Bioflavonoids.

A member of the Vitamin C family, the Citrus Bioflavonoids are the best known of a much larger group of flavonoids, many of which have been discovered very recently. More about those in our discussion of Group Two.

For now, suffice it to say that Citrus Bioflavonoids are an absolute must for any Full Spectrum nutritional product. This particular group of Bioflavonoids is responsible for capillary integrity. This means that if you want to avoid Varicose Veins, Broken Capillaries and Capillary Leaking (bruising), you had better be sure to get some Citrus Bioflavonoids on a daily basis.

Ever wonder why people who tend to consume too much alcohol have all those broken red capillaries on their face? The alcohol causes Free Radical, cross linkage of the cells of the capillaries and they subsequently rupture.

Vitamin E. This nutrient has long been associated with heart health. In fact it helps to control and prevent this number one killer of all so-called 'civilized' nations. Ok, so we all know this but how does Vitamin E do it?

The nutrient exercises a powerful antioxidant effect on the fats of the body, including your LDL, or 'bad cholesterol'. LDL Cholesterol and other fats only stick to the artery wall when Free Radical damage has altered the surface of the artery wall and altered the LDL Cholesterol at the same time. By preventing both situations from occurring, Vitamin E can virtually halt the progression of this top killer.

(For more information on Cholesterol, refer to Special Report #7 entitled Cholesterol – What Your Doctor Doesn't Know)

Further, Vitamin E actually helps to lower overall Cholesterol and Triglycerides in the bloodstream. Vitamin E is a natural blood thinner and helps to prevent fats, naturally occurring in the blood, from sticking together.

Other areas where Vitamin E performs antioxidant and healing effects include some forms of Cancer, Neurological disorders, Lung diseases, Immune insufficiency, and Menopausal symptoms.

(For more information on Menopause, see Special Report # 11 entitled Menopause Naturally – What Every Woman Should Know.....for more information on Cancer, see Special Report #1 entitled Preventing and Conquering Cancer)

Selenium. This amazing mineral has many functions within the body. We will confine our discussion here to its antioxidant potential, which primarily revolves around the body's need for Selenium, together with Glutathione, for the production of an enzyme called Glutathione Peroxidase. This enzyme halts the oxidation of fats, so like Vitamin E, it is important in good cardiovascular health.

Further along these lines, Glutathione Peroxidase is essential for the conversion of single Amino Acids into more complex protein structures. One example that comes to mind is within the eye tissue. When eye tissue naturally breaks down and is not sufficiently repaired or replaced, cataracts can form. This deterioration of the protein structure of the lens of the eye can be halted by the presence of Glutathione Peroxidase.

Selenium has anti-cancer factors as well. Studies have shown that proper dosages of Selenium can reduce Lung Cancer by as much as 46 percent, Esophageal Cancers by 67 percent, Colon Cancer by 62 percent and last yet most impressive, Prostate Cancer by 72 percent! *(For more information on Prostate, see Special Report # 13 entitled Secrets to a Healthy Prostate)*

Sulfur. There seems to be much misinformation surrounding this important mineral. Sulfur is found in very high amounts within almost all tissues and it is one of the seven major minerals in the body. Many of you may have heard of the numerous health benefits attributed to garlic and garlic extracts. This is due to the high organic sulfur content, of this plant.

Sulfur may be safely consumed in an organic source, from mineral products derived exclusively from plants. Further, foods like eggs, grains, and some fruits and vegetables all provide high amounts of organic Sulfur.

Zinc. Just as Vitamin A is my favorite vitamin, Zinc has to be my favorite mineral. It has so many functions within the human body that a book could be written on this one nutrient alone. Zinc is the basis of hundreds of enzymes, required by your body for literally thousands of functions.

Many of these enzymes are also Antioxidants in their own right, one example being Superoxide Dismutase (SOD). Still, other enzymes created with Zinc as a basis, are responsible for the production of both DNA and RNA.

Zinc is essential to the proper functioning of the immune response, precisely why it is included in many cough and cold formulations. Zinc levels naturally decline in the body with age, which is why older people, in general, have less of an immune response. This may be remedied through Chelated Zinc supplementation. This valuable mineral should be part of a Full Spectrum approach to good health.

Zinc is important for healthy sexual activity in males, since semen contains the highest concentration of Zinc found anywhere in the body. Zinc is also vital to Diabetics, especially the Type I, Juvenile Onset, because Zinc is a primary constituent of the hormone Insulin, and since they produce very little Insulin, Zinc can frequently enhance this production.

Symptoms of Zinc deficiency include poor appetite, slow healing of wounds, white spots on fingernails, lethargy and loss of sex drive in males.

These former nutrients make up what I consider to be the baseline Antioxidants. These should all be found in any good Full Spectrum dietary supplement. In fact, you should never take these nutrients alone or even in combination with each other unless all the other

essential nutrients are present as well. We must not forget that nutrients are like members of a large orchestra. In order for them to make beautiful music, they must all be present and working together at the same time.

Group Two: The Heavy Hitters for Complete Cell Protection.

We live in a world very much different from even the relatively recent days of our grandparents. In the last 50 years, our environment has changed more than in the last 1000 years combined. The level, number and degree of severity of the poisons in our environment have increased exponentially, exposing all of us to chemical compounds never before found in the physical universe.

What does this mean? Each of those chemical compounds has the potential of altering the state of equilibrium within our body in a variety of ways, firstly, by sheer poisoning.

Most of the substances, if ingested in any quantity, will actually poison the living system of the body. Secondly, and more insidiously, minute amounts of these substances cause Free Radical proliferation internally through the interaction of these substances with oxygen. These Free Radicals attack all sorts of tissue sites, setting the stage for cellular destruction and the advent of Chronic Degenerative Disease. For this reason alone, we all need extra protection from this onslaught of chemical aggression.

Just when the protective Antioxidants, provided in foods from nature, could no longer sufficiently protect us from the tens of thousands of man-made Free Radical sources, science has been able to isolate and concentrate powerful Free Radical fighters heretofore hidden deep within nature's realm. These 'Super Antioxidants' may very well prove to be the weapon we all need to fight off most of the chronic diseases we face today, as well as premature aging and disability.

By adding the right combination of many of these latest antioxidant substances, you too, can beat the ravages of aging and forestall the many factors that compromise the quality of life as we age.

Lycopene.

Who would have guessed that pasta sauces, ketchup and other tomato products could actually reduce your risk of getting certain types of cancers? Within these foods is a substance called

Lycopene, a member of the Carotenoid family. Like Beta-Carotene, Lycopene is an Antioxidant with one small exception, Lycopene is ten times more powerful in protecting against Cancer!

Much of the current research regarding Lycopene and Cancer revolves around Prostate Cancer. It has long been observed that this dreaded cancer occurs with much less frequency in the southern Mediterranean countries such as Italy and Greece. In these countries cooked tomatoes are a dietary staple.

For some reason which we cannot totally explain, when tomatoes are cooked, the process concentrates the percentage of Lycopene, making it one of the few nutrients known which is not damaged by heating.

In a physiological sense, Lycopene is the most prevalent Carotenoid in the human body. One of the most concentrated sites may be found in the male Prostate. It is believed that through the presence of Lycopene, the human body is able to defend itself from specific cancer causing Free Radicals.

Other types of cancer that may be prevented through the presence of Lycopene in adequate amounts include breast, lung and endometrial.

(For more information on Cancer refer to Special Report #1 entitled Preventing and Conquering Cancer)

One of the reasons even people who consume large amounts of tomato products might be deficient in Lycopene is that, like all Carotenoids, it can only be absorbed in the presence of some fat. Therefore, the super low fat diet craze has created a situation where the incredible benefits of all Carotenoids may be greatly diminished due to lack of absorption.

Other benefits from Lycopene include prevention of heart disease. A recent study conducted in Israel, demonstrated that Lycopene greatly increases the resistance of LDL Cholesterol to oxidation. This is important because LDL cholesterol is only harmful when Free Radical oxygen alters the fat structure, oxidizing or literally rusting the fat.

We cannot produce Lycopene within our bodies, which means that we must ingest it from foods and supplements. People who are at specific high risk such as smokers, drinkers and those with a high-risk cancer profile, should be cognizant of getting adequate Lycopene daily.

Once again, like all balance within the human body, Lycopene seems to work much better when combined with other Antioxidants. In fact, one study, which used Beta-Carotene alone failed in demonstrating an anti-cancer benefit. When researchers combined the Beta-Carotene with Lycopene and Tocopherols, the results were amazing.

Quercetin.

According to Robert C Atkins, in his book, ***Dr. Atkins' Vita-Nutrient Solution***, Quercetin deserves the title of 'King of the Flavonoids'. This is because of its ability to affect so many areas of human health.

Quercetin is a 'secret weapon' when it comes to allergies. Millions of people suffer from a variety of allergies. Those with airborne allergies have the worst time, since they cannot escape the cause of their irritation.

Together with Citrus Bioflavonoids, clinical studies have shown that Quercetin is better than most of the leading anti-histamines in regulating the allergic response.

Still other studies are showing consistently that Quercetin has the ability to block the production of a specific enzyme that neutralizes Cortisone, the body's most powerful natural anti-inflammatory. At the Institute, we have tested and are now using Quercetin with great success in many, heretofore, unmanageable allergy sufferers.

(For more information on Allergies, see Special Report #6 entitled Understanding and Controlling Allergies)

As with all the 'heavy hitter' Antioxidants, Quercetin has many applications in the body. It protects us against Heart Disease, the number one cause of death in America and many other countries. Some studies indicate that Quercetin's action upon the cardiovascular system may be equal to, or even greater than, that of natural Vitamin E. In study after study, a high intake of this nutrient has shown a direct correlation between levels of Quercetin and lower risks of cardiovascular disease and stroke.

Quercetin has another amazing ability. It can accelerate the production of specific enzymes that destroy potential carcinogens before they can do their final evil deed and convert healthy cells into cancerous ones.

In foods Quercetin may be found in garlic, onions, cayenne pepper and green tea. This is one reason why these foods have had the reputation of being extra healthy. The problem is that most people do not eat a sufficient amount of these foods to ingest enough protective Quercetin. Supplementation is a logical solution to this problem.

Bilberry. Unless you have dealt with eye problems in the past, you may never have heard of Bilberry. It is a distant relative to the blueberry and the cranberry.

The main benefit derived from Bilberry is its ability to improve circulation and blood vessel health. This seems to apply specifically, although not exclusively, to the eye tissues. The United States military used Bilberry extract back in World War II to improve the night vision of soldiers, especially air pilots. This practice is still in use to this day.

Research relative to blood vessel integrity and eyesight is quite extensive. Studies conducted in Italy have shown that Bilberry can improve circulation to the eyes thereby mitigating such conditions as diabetes-caused glaucoma, day blindness, nearsightedness, and cataract formation. One such study showed that Bilberry, along with Vitamin E, stopped cataract formation in 97 percent of the people who took it.

Another condition, which has eluded many other methods of treatment, is Macular Degeneration. This problem is becoming more and more prevalent due to Free Radical damage to the eye tissues from smoke and other pollutants in the air. Bilberry comes to the rescue once again not only because it increases blood flow and hence oxygen to the eye tissue, but it also prevents oxidative damage on site.

The specific Flavonoids in Bilberry, which are called Anthocyanosides, not only provide eye tissue support but help to limit calcium deposits and blood clots inside of the arteries. Because of the direct benefit exercised upon the vascular system, Bilberry is also very useful in such conditions as leg swelling, varicose veins and even postpartum hemorrhoids.

Lastly, Bilberry helps diminish inflammation, a helpful effect in such conditions as Arthritis and other inflammatory disorders.

Since Bilberry is helpful in improving circulation, it is very good for wound healing. Wounds heal faster and with less infection. Bilberry works together with Collagen to rebuild damaged tissues.

Grape Seed Extract.

This powerful antioxidant and anti-inflammatory is a member of the specific Flavonoid group called the Proanthocyanidins.

While Grape Seed Extract demonstrates specific benefits of its own, its primary contribution to an antioxidant compound would have to be its ability to work together with other Antioxidants, enhancing their potential.

There has been a debate for some time over which members of this group are better than others. The truth is that all Proanthocyanidins, including Cranberries, Pine Bark, or Grape Seeds contribute equally. The only difference might be the concentration. Here at the Institute, we use Grape Seed Extract, since it is about 10 to 15 percent higher in Proanthocyanidin potency than Pine Bark.

The earliest indication that something in the Grape might be of benefit to human health came from the French. Researchers often pondered as to how the French, who consume very rich, high fatty foods, could have such a low incidence of Heart Disease. In fact there is very little problem with elevated, imbalanced Cholesterol anywhere in France.

(For more information of Heart Disease, refer to Special Report #4 entitled Heart Disease – The Real Cause, The Real Answer)

What was special about the French, or their diet, which precluded an epidemic problem in many other areas of the world? ...Red wine!

Now, I realize that many people will question why we are promoting an alcoholic beverage as healthy. Sorry folks, the facts stand as they are. Obviously, if you have a biochemical problem with alcohol, you must avoid even red wine. Otherwise, two glasses of red wine per day lowers the risk of Heart Disease by as much as 10 times more than aspirin! This has been duplicated in no less than 7 major clinical studies.

People often ask if Grape Juice will produce the same effect. The answer is yes but not nearly to the same degree.

The small amount of alcohol in the wine greatly increases the extraction of the Proanthocyanidins from the grape. Further, the alcohol helps to calm the system and relax the arteries.

In just one of the many studies on the benefits of red wine published in the Journal of Epidemiology, researches found that after studying 24,000 middle-aged men, there was a 35 percent reduction in Cardiovascular Disease and a 24 percent reduction in Cancer, when two to three glasses of red wine were ingested on a daily basis.

What about white wine you say? There are certainly Antioxidants present in white wine but not as many as found in the red varieties. Why is this important? Well, Proanthocyanidins are up to fifty times more potent than Vitamin E in their Free Radical scavenging ability.

Some of the specific benefits, which may be derived from grape seed extract, include...

** It has the ability to cross the blood-brain barrier so it can scavenge Free Radicals from within brain tissue.*

** It is highly synergistic with other Antioxidants, such as Vitamins A, C, and E, enhancing their effectiveness.*

** Assists in the prevention of Histamine formation, an important factor for allergy sufferers.*

** Grape Seed extract protects us against radiation from all sources, including the sun, from pesticides in foods and water, and heavy metal poisoning, all of which produce free radicals in the body with great fortitude.*

One final word on Grape Seed Extract and red wine, moderation is the key here. While all the studies have shown a profound benefit from two to three glasses of wine per day, in every case, more was not better.

As alcohol consumption went up, the benefits decreased proportionately. If you cannot moderate your consumption, take your Grape Seed Extract by supplementation.

Coenzyme Q₁₀.

This amazing nutrient is really not a Vitamin, a Mineral or even an Amino Acid, yet it is absolutely essential that we have an adequate supply in order to live safely in our toxic world.

Our bodies can make it in certain amounts, but frequently not sufficient to counter all the abusive substances in our environment.

One of the first observed beneficial effects of Ubiquinone (Co-Q₁₀), was its ability to produce energy. Through this enhanced energy, individual cells of the body were able to live longer. Today we know that Ubiquinone has many other abilities and can protect our body from many very destructive Free Radicals. Further it is a natural immune enhancer.

Some of the specific areas where Co-Q₁₀ has proven helpful include in chronic conditions such as Heart Disease, Diabetes, High Blood Pressure, Obesity and even Cancer.

The many benefits of Co-Q₁₀ are only available to us if we get the right amount of the nutrient needed. It is the feeling of many nutritionists that this level can only be sustained in the body through the use of supplements.

Since Co-Q₁₀ is tied into energy production, it would stand to reason that it would be most helpful to the Heart. No other organ expends so much energy as our heart, which only rests between its beats.

There are at least sixty studies, which support the direct benefits of Co-Q₁₀ on such cardiovascular conditions as Cardiomyopathy, Arrhythmia, Coronary Artery Disease, Congestive Heart Failure, Mitral Valve Prolapse and High Blood Pressure.

One study showed that when potential heart transplant patients were given sufficient Co-Q₁₀, they no longer needed the surgery!

In another study, Co-Q₁₀ was given to many thousands of people suffering from Congestive Heart Failure. The results were far more successful than any of the pharmaceutical approaches currently in use. An amazing 75 percent obtained dramatic improvements in Pulmonary Function, Heart Palpitations and Edema, all with virtually no side effects.

Since we know that almost all drugs only mask the effects of a disease or disorder, often replacing those symptoms with side effects from the drug itself, Co-Q₁₀ is an ideal substance for all cardiovascular concerns. It has no side effects and it has consistently proven to be of greater benefit than any pharmaceutical.

It is not uncommon for people with various Heart Diseases to have at least 25 percent less Co-Q₁₀ than their healthy counterparts.

According to Robert C Atkins, a Holistic Cardiologist, when Co-Q₁₀ levels fall to 25 percent of normal, the heart will stop beating!

Other areas where this wonderful substance comes to our continued rescue is with Diabetes. Co-Q₁₀ has been found to help reduce blood sugar while protecting the heart and vascular system from the ravages of the disease.

(For more information on Diabetes see Special Report #3 entitled How To Control Naturally Diabetes and Hypoglycemia)

Studies have shown that Co-Q₁₀ can reverse most Periodontal disease, the number one cause of tooth loss in people over fifty years of age.

Very recent studies over the last two years have indicated that Co-Q₁₀ can help slow the progression of Parkinson's disease. This is a condition wherein the sufferer loses precious Dopamine in the brain. Co-Q₁₀ was found to greatly slow this loss down.

While this marvelous nutrient can do so much for our well being, absorbing it is not always that easy. Once again, it is a substance that must be taken with some fat. This is another instance where the low fat fanaticism that has swept the country has caused more harm than good.

This is especially true with Heart Disease. We were told to cut all the fat out of our diets and Heart Disease got worse! One reason is that the super low fat diets prevented the uptake of many of the most powerful heart protecting substances, including Co-Q₁₀.

Milk Thistle.

Without a doubt, the most effective of all the herbal detoxifiers has to be Silybum Marianum, or Milk Thistle. This being the case, the organ that would logically, benefit most from such a potential must be the Liver. All the toxins in the body end up in the liver to be processed before excretion. It has been said that the liver is the chemical laboratory of the body, carrying on thousands of functions at any given moment.

When the liver becomes over burdened with toxic build up, it cannot do its job effectively. Silymarin, the active component in the herb, has an amazing ability to protect the liver from oxidative damage as well as boosting its detoxification abilities.

So powerful is Milk Thistle, which in one study it cut the death rate from Cirrhosis by a full 50 percent. Anyone suffering from any form of Hepatitis MUST consider Milk Thistle as part of their treatment and management program.

The Liver depends upon one specific substance in order to fulfill much of its duties. That is Glutathione. This substance protects the Liver from harm while serving as a base for many enzymes needed to protect other cellular structures.

One example is the relationship between Glutathione and cataracts. As the protein structure of the lens of the eye breaks down, new cells cannot be formed without the presence of an enzyme called Glutathione Peroxidase. This enzyme is made from Glutathione. In fact, Glutathione's importance has been recognized by scientists, for over 20 years but the problem has been in raising Glutathione levels in the body.

Supplements of Glutathione are not well absorbed and much of what is ingested orally, is destroyed or broken down in the digestive system. Glutathione supplements are still quite popular but, sadly, are of little benefit to the body.

Milk Thistle, along with our next magic antioxidant N-Acetyl Cysteine, actually produces Glutathione in the liver, raising the levels of this vital substance tremendously.

Milk Thistle must be included in any Full Spectrum antioxidant program for it is one of the few nutrients that can serve both as an antioxidant *and* a Free Radical Scavenger. This makes it of double benefit to us.

Another substance that is manufactured in the body with the help of Milk Thistle is Superoxide Dismutase (SOD). This is another popular antioxidant/enzyme substance, because it controls the Superoxide Free Radical.

Again, the problem has always been the delivery system. We would include Superoxide Dismutase because we knew it was good for us, but we also knew that much of what was ingested orally was also broken down by the digestive process.

Even enteric coated products provided little help. Now we have a way to assist the body in making Superoxide Dismutase in virtually all the quantities necessary and milk thistle is one of the important ingredients in that chemical process.

Alpha Lipoic Acid.

Because of the many functions of ALA and because it can be either water or fat soluble, we often refer to this powerful Free Radical inhibitor as 'the universal antioxidant'. Among the many direct benefits of ALA, one of the most important is its ability to protect the body against the ravages of excess insulin as found in all Hyperinsulinemia conditions, which include most Obesity, Carbohydrate Intolerance, Hypoglycemia and of course, Type II Diabetes.

ALA offers protection against the Free Radicals, mostly from altered vegetable oils, which lead to Atherosclerosis. ALA can help to reduce and regulate Cholesterol levels, exercising a lowering effect on Cholesterol by as much as 40 percent.

Other important functions of ALA include protecting the body against specific types of Cancers and to help detoxify and neutralize the adverse effects of toxic heavy metals, often ingested from chemicals in our environment.

Lutein.

I have recently added this specialized antioxidant to my list of 'essentials', due to the alarming rise in vision related degenerative conditions.

Cataracts, and to a greater extent Macular Degeneration are epidemic. In fact Macular Degeneration is the single greatest cause of blindness today. When the macula of the eye deteriorates, sight is gradually lost.

In a study published in the Journal of the American Medical Association, we first learned back in 1994 that this deterioration was caused by a lack of antioxidant protection to the Macula of the eye, leaving it vulnerable to Free Radical attack by peroxide radicals.

Lutein was shown to almost completely prevent this Free Radical Activity from invading the cells of the Macula, thereby controlling and preventing Macular Degeneration.

N-Acetyl Cysteine.

The most miraculous substance we have saved for last. Of all the Antioxidants, common and rare, this special form of the Amino Acid Cysteine, is the most powerful, exercising more antioxidant potential than virtually all the other known antioxidants combined!

We predict that this nutrient will become one of the biggest buzz words in the field of nutrition over the months and years to come. More and more benefits are being attributed to this amazing substance through clinical studies unfolding almost daily.

If it's so good, why hasn't anybody heard about it? Well, they have. They're just not talking too loudly because it works so well that it could conceivably make many forms of treatment for Chronic Diseases obsolete.

If you were to visit almost any hospital emergency room across the country, you would find they stock N-Acetyl Cysteine (NAC) and use it as an antidote for many kinds of poisoning. The most common usage is against Acetaminophen poisoning, which occurs regularly due to constant over-consumption. (Acetaminophen is the NSAID found in Tylenol and other over the counter pain killers)

Excess Acetaminophen depletes the Liver of Glutathione to the point of liver failure. Large doses of NAC can so rapidly restore the Glutathione levels that it can detoxify an Acetaminophen overdose in a matter of a few hours.

NAC has been used medically to break down lung-clogging mucus in cases of Chronic Bronchitis and other respiratory disorders since the 1960's.

There are several key functions of NAC already identified, with likely, many more to follow as the nutrient is continually studied. Its primary function, along with Milk Thistle, is to raise the Glutathione levels within the Liver, protecting it from the many toxins it has to detoxify and render harmless.

It is well known that Glutathione levels are much lower in people with Cancer, linking a depletion of that nutrient to the Immune System's inability to recognize the foreign cells.

Considering NAC's tremendous Antioxidant power, it would stand to reason that it would be helpful in every Chronic Degenerative Disease since Free Radical Damage, causing an altered biochemistry, is responsible for virtually all chronic conditions.

Recent studies however, show that it is also a powerful weapon against acute infectious attacks such as colds and flu.

In a study conducted at the Institute of Hygiene and Preventive Medicine at the University of Genoa, Italy, Dr. Silvio De Flora administered NAC or a placebo to over 250 subjects.

The conclusion was that while the NAC did not appear to prevent infection from cold or flu pathogens, only 25 percent of the NAC group developed any significant symptoms while 79 percent of the placebo group severe flu symptoms. This means that NAC can reduce the symptoms from colds and flu by a whopping two-thirds!

There are other viruses that seasonally plague us such as Rhino Virus and Coxsackie Virus. The researchers found that NAC was also very effective in dealing with these bugs as well. It seems that NAC is not virus or bacteria specific like many other immune products on the market.

Therefore, NAC can provide a broad-spectrum of protection to ease or even eliminate the annoying symptoms of viral and bacterial related infections. This is especially good news for those in high-risk situations, such as persons with immune compromised disorders and the elderly.

In fact, overall, NAC reduced or prevented virtually all the annoying side effects of Fall and Winter ailments such as Headache, Achiness, Nasal Discharge, Cough and Sore Throat. This pattern of improvement was observed over and over again in study after study.

NAC is a real lifesaver for those with breathing problems. In fact, conventional medicine uses NAC in many of its inhalants to ward off asthma attacks. Other related conditions in which NAC can help include Adult Respiratory Distress Syndrome, and Chronic Obstructive Pulmonary Disease (COPD).

NAC is also a potent heart supplement. Better than any pharmaceutical method, it eliminates the dangers of Lipoprotein(a), which is a by product of Cholesterol metabolism. The presence of Lipoprotein(a) has just recently been recognized as a powerful but independent risk factor for Heart Disease.

NAC lowers high blood pressure due to the relaxing effect it exercises upon the blood vessels, while increasing blood flow to the extremities of the body.

Researchers in Australia have demonstrated that if enough NAC is administered just after a Heart Attack, much more of the heart muscle remains undamaged.

Those suffering from inflammatory bowel conditions such as Irritable Bowel Syndrome, Colitis, Diverticulitis etc., should take heed to the benefits of NAC. As the levels of Glutathione rise in the body, these conditions seem to diminish accordingly.

In discussing the dangers of the low fat diets so popular the last twenty years or so, another problem connected with them is that they produce a deficiency of Sulfur. One of the consequences of a Sulfur deficiency, especially for women, is hair loss. NAC just happens to be one of the best sulfur-containing substances known.

Evidence to show that NAC exercises a profound effect upon the Immune System comes from several studies with patients infected with the Human Immunodeficiency Virus (HIV).

One particular study conducted at Stanford University determined that patients with HIV infections and Acquired Immunodeficiency Syndrome (AIDS), had low levels of Glutathione, and that the declining Glutathione levels were actually a better indication of life expectancy in these patients than was a decrease in CD4 immune cells.

The study tracked the health of over 200 AIDS patients for three years. Some of the participants received mega doses of NAC while others received a placebo for six-week intervals.

Those taking NAC had increased blood levels of Glutathione. After this phase of the study was complete the researchers gave all willing participants NAC supplements for six months. During this time, it was shown that those taking the NAC were more than twice as likely to survive for two years than the subjects who elected not to take the NAC.

All things considered, NAC is the most vital Antioxidant for the new millennium. We will continue to poison our environment, consume diets consisting of dead lifeless foods, subject ourselves to ever-increasing radiation from electronic devices, high frequency signals, and even the sun itself, through the breakdown of the ozone layer.

This being the case, NAC is the only single antioxidant that addresses every major Chronic Disease in our society!

It may further be said that N-Acetyl Cysteine is the universal antioxidant for it activates and increases the potential of all the other Antioxidants.

These powerful ingredients, any one of which could change the course of human cell life, together are an unstoppable combination, providing an unparalleled dual level of protection to all living systems.

Like other, more familiar nutrients such as Vitamins, Minerals and Amino Acids, Antioxidants and Free Radicals are best taken in combination with each other. The total value is much greater than the mere sum of the parts involved.

According to Dr Michael Murray, "extensive research shows that a combination of antioxidants provides greater protection than does taking a high dose of any single antioxidant. Mixtures of antioxidant nutrients appear to work together harmoniously to produce the phenomenon known as synergy, where the whole is greater than the sum of the parts. In other words, when it comes to the benefits of antioxidants, one plus one equals three."

With this in mind, in the next section we will show you how to put all these wonderful health-protecting substances together, in the right ratios, to maximize your benefits.

If you are not taking any supplements whatsoever, we will also be making recommendations for getting the Full Spectrum of nutrients in a convenient, economical manner.

We live in a time where ignoring the problems of the food, water, and the environment around us can be very dangerous indeed. By burying our head in the proverbial sand, we only expose our backside to greater and greater threats from Free Radical proliferation!

This need not be the case. The knowledge and the road to its proper application is available to every man, woman and child alive today. To not take advantage of it is just as surely suicide as pointing the weapon to your head. The only difference is that it's a much slower process.

Maximizing Your Antioxidant Benefits. The Protocols:

Most supplement programs need to be somewhat individualized in order to achieve optimal results. An Antioxidant/Free Radical Scavenging Program is no different.

Full Spectrum nutrition can be quite accurately regulated from person to person by adjusting the dosage according to bodyweight. This is not quite true of the Antioxidants.

Your need for Antioxidants can vary widely from day to day, depending upon your involvement with Free Radical forming factors.

For example, on one day everything may be going along fairly normally, and then the next day you find yourself under inordinate amounts of stress and tension at work. After work you go out and have a few drinks to unwind, increasing your alcohol consumption above your normal level. Your Antioxidant requirements for those two days will be quite different.

Studies conducted here at The Institute, have shown a wide variance of Antioxidant needs, depending upon lifestyle changes, from one day to another. For this reason, establishing a dose range to ensure optimal Free Radical protection takes a bit of work.

We will offer two basic protocols. The first is what the 'average' person, living with 'average' Free Radical factors should follow. The second will be for those who are generally exposed to higher levels of Free Radical forming factors.

If you are predominately in one group over the other, then you will be following that protocol most of the time. If you should occasionally slide from one group to another, you can temporarily alter your intake of nutrients accordingly.

Foundation Protocol

The following represents the minimum antioxidant and free radical scavenging protection that everyone should have on a daily basis.

Vitamin A	10,000 IU
Beta Carotene	10,000 IU
Folic Acid	400 mcg
Pantothenic Acid	200 mg
Vitamin C	1,000 mg
Citrus Bioflavonoids	200 mg
Vitamin E (d-alpha tocopherol)	400 IU
Selenium	100 mcg
Sulfur	100 mcg
Zinc	20 mg
N-Acetyl Cysteine	100-200 mg
Silybum Marianum	50-100 mg
Quercetin	50 mg
Alpha Lipoic Acid	50 mg
Lutein	50 mg
Co-enzyme Q10	10-20 mg
Lycopene (extract)	25-50 mg
Grape Seed Extract	20-30 mg

Higher Risk Protocol

For those individuals who are exposed to higher Free Radical producing factors such as smoking, excess alcohol consumption, pesticides, food additives, auto exhaust, cigarette smoke, radiation, impure water, toxic metals, industrial chemicals, excessive pharmaceuticals or stress, you should consider the following potencies to ensure that adequate cellular protection has been achieved.

Vitamin A	10,000 IU
Beta Carotene	10,000 IU
Folic Acid	600 mcg
Pantothenic Acid	800 mg
Vitamin C	2,000 mg
Citrus Bioflavonoids	400 mg
Vitamin E (d-alpha tocopherol)	400 IU
Selenium	200 mcg
Sulfur	100 mcg
Zinc	40 mg
N-Acetyl Cysteine	200-400 mg

Silybum Marianum	200-300 mg
Quercetin	100 mg
Alpha Lipoic Acid	100 mg
Lutein	100 mg
Co-enzyme Q10	20-50 mg
Lycopene (extract)	50-100 mg
Grape Seed Extract	50-100 mg

This protocol will protect most individuals from many of the ravages of Free Radical proliferation in the body. But like all nutrients and human need, it can vary, sometimes greatly, depending upon circumstances. Persons suffering from Chronic Disease often need much, much higher doses of Antioxidants because the disease process itself is actually producing incredibly high amounts of Free Radicals. Dosages for these individuals must be adjusted accordingly.

The Best Way

The most accurate way to determine your Antioxidant/Free Radical Scavenging Nutrient needs is through a diagnostic test. The Institute is offering a urine test for Free Radicals, which may be self-administered in the comfort of your own home.

The test period is for four weeks, during which time you will need to take your Antioxidants in varying doses. Depending upon the results of the test, we will know whether to raise or lower your Antioxidant intake.

Once we establish a baseline intake, you can easily up the dose during periods wherein you are exposed to greater Free Radical forming factors.

If you are interested in taking this test, you may contact us directly at The Institute.

How Do I Take All These Nutrients?

Admittedly, there are quite a few Antioxidant and Free Radical Scavenging Nutrients and evidence shows that they all work far better when taken together, in concert, in the right ratio, than merely alone.

For this reason, The Institute has assembled several combination formulas to increase convenience while ensuring ratio and potency.

You can take our list to your local health food store and get the recommended potencies in about 5 or 6 products, or you may wish to look at our clinically tested, combination formulas for ease and economics.

Currently our Antioxidant and Free Radical Scavenging Formulas are being distributed by a United States company located in Southern California called Phoenix Nutritionals, contact details are at the end of this Special Report.

Conclusion

Science has unleashed many potentially destructive things upon this planet. We have, through our lust for technology, created a world far different than any our forefathers could have imagined.

Fortunately, science has also revealed many of nature's protective secrets. If we have the foresight and the wisdom to use those secrets, we can protect ourselves from much of the potential damage that surrounds us.

Our knowledge of the human body continues to grow almost daily. With our present vision of human biochemistry, we know that the Free Radical, a by-product mostly of technology, is the major cause of Chronic Degenerative Disease. Through neglecting the very basic premise of life itself, the foundation nutrients, we have set up a scenario that can only lead to self-destruction and premature death.

One thing that sets us humans apart from all other living things is that we have the ability to choose. This is perhaps the greatest proverbial double-edged sword of all times.

We have the ability to choose, and all too often we choose incorrectly. We have traveled so far from a natural way of life that we have lost our internal guidance.

One can choose to care for the body they have been given, or to ignore it and grind it into the dust of the earth long before it's time.

Each one of us must make that choice. It is my sincere hope that the information contained in this Special Report has given you food for thought and that the choices you make bring you a long and healthful life.

Each of the formulas and protocols detailed in this Special Report are available exclusively from Phoenix Nutritionals.

Contact www.PhoenixNutritionals.com or by telephone at

1-800-440-2390

or email Questions@PhoenixNutritionals.com

References

1. Hertog M, et al. Dietary antioxidant flavonoids and risk of coronary heart disease: the Zutphen Elderly Study. *Lancet* 1993; 342: 1007-1011
2. Hertog M and Hollman PCH. Potential health effects of the dietary flavonol quercetin. *Eur J Clin Nutr.* 1996;50: 63-71
3. Agullo G, et al. Quercetin exerts a preferential cytotoxic effect on active dividing colon carcinoma HT29 and Caco-2 cells. *Cancer Letters.* 1994;87: 55-63
4. Singhal R, et al. Quercetin down-regulates signal transduction in human breast carcinoma cells. *Biochemical and Biophysical Research Communications.* 1995 208;1: 425 - 431
5. Hertog M, et al. Antioxidant flavonols and ischemic heart disease in a Welsh population of men: the Caerphilly Study. *Am J Clin Nutr.* 1997; 65: 1489-1494
6. Huk I, et al. Bioflavonoid quercetin scavenges superoxide and increases nitric oxide concentration in ischaemia-reperfusion injury: an experimental study. *British Journal of Surgery* 1998; 85:1080-1085
7. Muldoon MF and Kritchevsky SB. Editorial: Flavonoids and heart disease. *BMJ.* 1996; 312: 458-459
8. Fischer S, Mills G, and Slaga T. Inhibition of mouse skin tumor promotion by several inhibitors of arachidonic acid metabolism. *Carcinogenesis* 1982;3(11):1243-1245
9. Virgili F, Kobuchi H, and Packer L. Procyanidins extracted from pinus Maritima (Pycnogenol()) Scavengers of free radical species and modulators of nitrogen monoxide metabolism in activated murine raw 264.7 macrophages. *Free Rad Biol Med* 1998;24(7/8): 1120-1129
10. Bagchi D, et al. Protective effects of grape seed proanthocyanidins and selected antioxidants against TPA-induced hepatic and brain lipid peroxidation and DNA fragmentation, and peritoneal Macrophage activation in mice. *Gen. Pharmac.* 1998;30(5): 771-776

11. Howard D, et al. Oxidative stress induced by environmental tobacco smoke in the workplace is mitigated by antioxidant supplementation. *Ca Epidem Bio Prev* 1998;7: 981-988
12. Pastori M, et al. Lycopene in association with α -Tocopherol inhibits at physiological concentrations proliferation of prostate carcinoma cells. *Biochemical and Biophysical Research Communications* 1998;250:582-585
13. De Flora S, Grassi C, and Carati L. Attenuation of influenza-like symptomatology and improvement of cell-mediated immunity with long-term N-acetylcysteine treatment. *Eur Respir J.* 1997;10:1535-1541
14. De Vries N, et al. N-Acetyl-L-Cysteine. *Journal of Cellular Biochemistry* 1993;Suppl 17F: 270-277
15. De Flora S, et al. Adducts to nuclear DNA and mitochondrial DNA as biomarkers in chemoprevention. *Principles of Chemoprevention* 1996;139: 291-301
16. Harrison PM, et al. Improved outcome of paracetamol-induced fulminant hepatic failure by late administration of acetylcysteine. *Lancet* 1990;335:1572-1573
17. Ruan E, et al. Glutathione levels in chronic inflammatory disorders of the human colon. *Nutrition Research* 1997; 17(3): 463-473
18. Izzotti A, et al. Chemoprevention of carcinogen-DNA adducts and chronic degenerative diseases. *Cancer Research* 1994 Suppl;54: 1994-1998
19. Millman M, et al. Use of Acetylcysteine in bronchial asthma-another look. *Annals of Allergy* 1985 54: 294-296.
20. De Mattia G, et al. Reduction of oxidative stress by oral N-acetyl-L-cysteine treatment decreases plasma soluble vascular cell adhesion molecule-1 concentrations in non-obese, non-dyslipidaemic, normotensive, patients with non-insulin-dependent diabetes. *Diabetologia* 1998;41:1392-1396.
21. Shutenko Z, et al. Influence of the antioxidant quercetin in vivo on the level of nitric oxide determined by electron paramagnetic resonance in rat brain during global ischemia and reperfusion. *Biochem Pharmacol.* Jan, 1999;57(2):199-208

22. Laplaud PM, et al. Antioxidant action of *Vaccinium myrtillus* [Bilberry] extract on human low density lipoprotein in vitro: initial observations. *Fundam Clin Pharmacol.* 1997;11(1):35-40
23. Harman D. Role of free radicals in mutation, cancer, aging, and the maintenance of life. *Radiation Res.* 1962;16:753-763
24. Bomser J, In vitro anticancer activity of fruit extracts from *Vaccinium* species. *Planta Med.* Jun, 1996;62(3):212-6
25. Flora K, et al. Milk thistle (*Silybum marianum*) for the therapy of liver disease. *Am J Gastroenterol.* Feb, 1998;93(2):139-43
26. Katiyar SK, et al. Protective effects of silymarin against photocarcinogenesis in a mouse skin model. *J Natl Cancer Inst.* Apr 16, 1997;89(8):556-66
27. Basaga H, et al. Free radical scavenging and antioxidant properties of 'silibin' complexes on microsomal lipid peroxidation. *Cell Biochem Funct.* Mar 1997;15(1):27-33
28. Dehmlow C, et al. Scavenging of reactive oxygen species and inhibition of arachidonic acid metabolism by silibin in human cells. *Life Sci.* 1996;58(18):1591-600
29. Matthews RT, et al. Coenzyme Q10 administration increases brain mitochondrial concentrations and exerts neuroprotective effects. *Proc Natl Acad Sci USA.* Jul 1998;95(21):8892-7
30. Aejmelaeus R, et al. Ubiquinol-10 and total peroxy radical trapping capacity of LDL lipoproteins during aging: the effects of Q-10 supplementation. *Mol Aspects Med.* 1997;18 Suppl:S113-20
31. Sinatra ST and DeMarco J. Free radicals, oxidative stress, oxidized low density lipoprotein (LDL), and the heart; antioxidants and other strategies to limit cardiovascular damage. *Conn Med.* Oct, 1995;59(10):579-88
32. Emonet-Piccardi N, et al. Protective effects of antioxidants against UVA-induced DNA damage in human skin fibroblasts in culture. *Free Radic Res.* Oct, 1998;29(4):307-13
33. Bagchi D, et al. Oxygen free radical scavenging abilities of vitamin C and E, and a grape seed proanthocyanidin extract in vitro. *Res Commun Mol Pathol Pharmacol.* Feb, 1997;95(2):179-89

34. Hussain S, et al. Role of metallothionein and other antioxidants in scavenging superoxide radicals and their possible role in neuroprotection. *Neurochem Int.* Aug, 1996;29(2):145-52
35. Lizard G, et al. Glutathione is implied in the control of 7-ketocholesterol-induced apoptosis, which is associated with radical oxygen species. *FASEB J.* Dec, 1998;12(15):1651-63
36. Obrador E, et al. Regulation of tumor cell sensitivity to TNF-induced oxidative stress and cytotoxicity:role of glutathione. *Biofactors.* 1998;8(1-2):23-6
37. Matsumoto K, N-acetylcysteine inhibits IL-1 alpha-induced IL-8 secretion by bronchial epithelial cells. *Respir Med.* Mar, 1998;92(3):512-5
38. Erkkila K, N-acetyl-L-cysteine inhibits apoptosis in human male germ cells in vitro. *J Clin Endocrinol Metab.* Jul, 1998;83(7):2523-31
39. Gillissen A and Nowak D. Characterization of N-acetylcysteine and ambroxol in anti-oxidant therapy. *Respir Med.* Apr, 1998;92(4):609-23
40. Kelly GS. Clinical applications of N-acetylcysteine. *Altern Med Rev.* Apr, 1998;3(2):114-27
41. Murray Michael. 5-HTP: The natural way to overcome depression, obesity, and insomnia. Bantam Books:New York;1998
42. Kohlmeier L, et al. Lycopene and myocardial infarction risk in the EURAMIC Study. *Am J Epidemiol.* Oct, 1997;146(8):618-26
43. Flatt A, et al. Reduced selenium in asthamtic subjects in New Zealand. *Thorax.* 1990;45:95-99
44. Scheef W. Combined Tumor Therapy:Basic Possibilities and Related Adjunctive Therapeutic Methods, 1995, Heinrich Wrba, ed,; Stuttgart:Hippocrates
45. Pastorino U, et al. Adjuvant treatment of stage I lung cancer with high-dose vitamin A. *J Clin Oncol.* Jul 1993;11(7):1204-7
46. Gensini GF, et al. Changes in fatty acid composition of the single platelet phospholipid induced by pantethine treatment. *Int J Clin Pharmacol Res.* 1985;5(5):309-18

47. Redman C, et al. Inhibitory effect of selenomethionine on the growth of three selected human tumor cell lines. *Cancer Lett* Mar 13, 1998;125(1-2):103-10
48. Rodier M, et al. Relationship between serum lipids, platelet membrane fatty acid composition and platelet aggregation in type 2 diabetes mellitus. *Diabete Metab* Nov-Dec, 1993;19(6):560-5
49. Melichar B, et al. Urinary zinc excretion and acute phase response in cancer patients. *Clin Investig* Dec 1994;72(12):1012-4
50. Combs GF, Clark LC, Turnbull BW. Reduction of cancer mortality and incidence by selenium supplementation. *Med Klin* Sep 15 1997;92Suppl(3): 42-5
51. Wood RJ and Zheng JJ. High dietary calcium intakes reduce zinc absorption and balance in humans. *Am J Clin Nutr*. Jun 1997;65(6):1803-9
52. Verhoef P, et al. Homocysteine metabolism and risk of myocardial infarction: relation with vitamins B6, B12, and folate. *Am J Epidemiol* May 1996;143(9):845-59
53. Peretz AM, Neve JD, Famaey JP. Selenium in rheumatic diseases. *Semin Arthritis Rheum* Apr 1991;20(5):305-16
54. Prisco D, et al. Effect of oral treatment with pantethine in platelet and plasma phospholipids in Iia hyperlipoproteinemia. *Angiology* Mar 1987;38(3):241-7
55. Cohen M and Bhagavan HN. Ascorbic acid and gastrointestinal cancer. *J Am Coll Nutr*. Dec 1995;14(6):565-78
56. Kritchevsky SB, et al. Dietary antioxidants and carotid artery wall thickness. The ARIC Study. Atherosclerosis Risk in Communities Study. *Circulation* Oct 15 1995; 92(8):2142-50
57. Stephens NG. Randomized controlled trial of vitamin E in patients with coronary disease: Cambridge Antioxidant Study. *Lancet* Mar 23 1996; 347(9004):781-6
58. Prasad AS, et al. Zinc status and serum testosterone levels of healthy adults. *Nutrition* May 1996;12(5):344-8
59. Paiva SA, et al. Assessment of vitamin A status in chronic obstructive pulmonary disease patients and healthy smokers. *Am J Clin Nutr* Dec 1996;64(6):928-34

60. Honnorat J, et al. Effects of diabetes type and treatment on zinc status in diabetes mellitus. *Biol Trace Elem Res* Jan-Mar 1992;32:311-6
61. Clark LC, et al. Effects of selenium supplementation for cancer prevention in patients with carcinoma of the skin. A randomized controlled trial. Nutritional Prevention of Cancer Study Group. *JAMA* Dec 25 1996; 276(24):1957-63
62. Gomot MJ, et al. Effect of acute zinc deficiency on insulin receptor binding in rat adipocytes. *Biol Trace Elem Res* Jan-Mar 1992;32:331-5
63. Boers GH. Hyperhomocysteinaemia: a newly recognized risk factor for vascular disease. *Neth J Med* Jul 1994;45(1):34-41
64. Solomons NW. Mild human zinc deficiency produces an imbalance between cell-mediated and humoral immunity. *Nutr Rev* Jan 1998;56(1 Pt 1):27-8
65. Beharka A, et al. Vitamin E status and immune function. *Methods Enzymol* 1997;282:247-63
66. Meydani SN, et al. Vitamin E supplementation and in vivo immune response in healthy elderly subjects. A randomized controlled trial. *JAMA* May 7 1997;277(17):1380-6
67. Noroozi M, Angerson WJ, Lean ME. Effects of flavonoids and vitamin C on oxidative DNA damage to human lymphocytes. *Am J Clin Nutr* Jun 1998;67(6):1210-8
68. De Whalley CV, et al. Flavonoids inhibit the oxidative modification of low density lipoproteins by macrophages. *Biochem Pharmacol.* 1990;39(11):1743-1750
69. Bohm F, et al. Beta-carotene with vitamins E and C offers synergistic cell protection against NOx. *FEBS Letters.* 1998;436:387-389
70. De la Fuente M, et al. Immune function in aged women is improved by ingestion of vitamins C and E. *Can J Physiol Pharmacol.* 1998;76:373-380
71. Heinonen OP, et al. Prostate cancer and supplementation with alpha-tocopherol and beta-carotene: incidence and mortality in a controlled trial. *J Natl Cancer Inst.* Mar 1998;18;90(6):440-6

72. Norozi M, et al. Effects of flavonoids and vitamin C on oxidative DNA damage to human lymphocytes. *Am J Clin Nutr.* 1998;67:1210-8

73. Siow RC, et al. Vitamin C protects human arterial smooth muscle cells against atherogenic lipoproteins: effects of antioxidant vitamins C and E on oxidized LDL-induced adaptive increases in cystine transport and glutathione. *Arterioscler Thromb Vasc Biol.* Oct 1998;18(10):1662-70

74. Campbell NR, et al. Effect of cysteine on the survival of mice with transplanted malignant thymoma. *Nature* Sep 13,1974;251:158

75. Bjorksten J. The crosslinkage theory of aging. *J Am Geri Soc* 1968;16(4):408-427