



# International Institute of Nutritional Research

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Special Research Report #4 Volume 1

## *Restoring Your Vision*

*Vision Loss Can Be Prevented and  
Damaged Vision Can Be Restored Naturally!*

Serious problems with the eyes, which, impairs and even destroys vision, can occur at any age. However they occur far more frequently as people enter their senior years. As a result, such conditions as *cataracts*, *glaucoma*, *macular degeneration*, *retinal detachment*, *retinopathy* and *night blindness* are often referred to as “age related” conditions. Conditions, which are dismissed by conventional medicine as being a natural part of growing older, and something you just have to learn to put up with as you age.

**“Instead of losing your vision as you age, you can actually improve your vision as you age ! “**

**“Don’t accept vision loss as an unavoidable part of aging. *It simply is not true!*”**

There are two errors found within the conventional medical concept that these conditions are just a part of growing older, and that there is nothing that can be done to correct them.

**First, these conditions are NOT the result of growing older, they are the end result of the consequences of nutritional inadequacies as they accumulate over the years.**

**Second, there is a great deal that can be done nutritionally to prevent, repair and reverse these conditions, even in old age.**

Modern scientific research in universities, hospitals, clinics and laboratories all over the world have made major breakthroughs within the past decade with regard to understanding the cause of these acquired vision problems, and the nutritional approach to solving them. The “World’s Greatest Vision Formula” is totally based upon those scientific discoveries.

### 3 Major Sources of Vision Loss

It turns out that virtually all of the major vision problems are the result of one or more of three basic health complications - **arteriosclerosis**, **free radical damage**, and **elevated levels of sugar and insulin in the blood**. All of which are the result of the accumulative effects of a life long improper diet and nutritional deficiencies. Following is a brief look at how those three health complications have a negative impact on the eyes.

**1. Arteriosclerosis** – This is a condition where the walls of the arteries thicken and become inelastic as a result of an improper balance of the right fats, proteins and carbohydrates in the diet over a long period of time. This improper

nutritional balance causes an accumulation in the blood stream of chemicals and free radicals that damage the inside of the arterial wall resulting in scarring and thickening and the accumulation of cholesterol laden plaque.

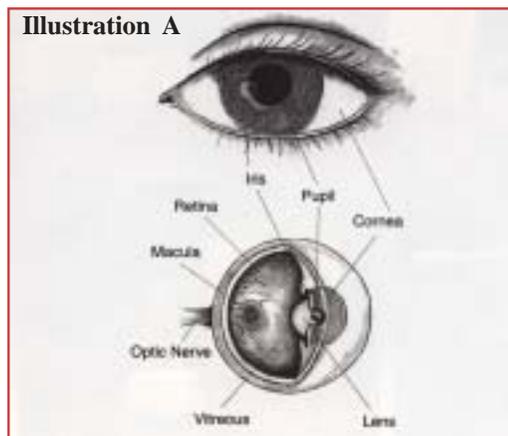
As arterial walls thicken, the opening within them narrows and this impairs and restricts the flow of blood through them. This in turn reduces the availability of vital and essential nutrients and oxygen to the cells and tissues of the body.

The eye is a highly specialized organ whose oxygen and nutrition requirements are supplied by a network of very tiny arterial capillaries. The fact that they are so tiny means they are among the first tissues to experience restriction and impairment of blood circulation through them. This reduction of circulation and loss of oxygen and nutrition to the tissues of the eye is thus occurring many years before the more obvious signs of arteriosclerosis appear, such as high blood pressure.

The reduction of oxygen and nutrition to the eye, beginning with nutritional deficiencies and imbalances and the early and undetected stages of arteriosclerosis, continues over many years, and results in a gradual accumulation of damage to the cells and tissues of the eye. This eventually manifests itself as cataracts, glaucoma, retinopathy, retinal detachment, or macular degeneration.

Obviously, the first step in overcoming these problems is to provide nutrients, which will open up the tiny capillaries and allow the flow of needed oxygen and nutrition to reach the damaged cells and tissues of the eye. In addition, the special nutrients required by the cells and tissues of the eye must now be supplied in abundant amounts to repair the damage and restore the vision to normal.

**2. Free Radical Damage** – Science has now clearly established that one of the most destructive processes to our cells and tissues occurs when a *free radical*, which is a partial molecule that is charged with an unpaired electron, releases that electron charge into healthy tissue.



The release of this “free” electron causes severe damage to any molecule it comes in contact with, rendering it unusable for cell structure or function, and often sets off a chain reaction that creates even more free radicals and their damage.

The greatest number of free radicals are actually created within our own body as a result of normal metabolic processes. When we are young and have a healthy diet, we create a rather wide range of biochemical substances within our body, which are capable of neutralizing these free radicals as fast as they occur and thus prevent any serious damage from occurring. As a result, in youth we do not age, and in early adulthood when this process is still quite effective we age very slowly.

However, with a modern diet composed of refined and processed foods loaded with chemical additives that are all free radicals themselves, we consume free radicals faster than our body can deal with them. To make matters worse, these same refined and processed foods are woefully lacking in the nutrient factors which allow our body to create the biochemical substances with which to neutralize the free radicals we are now consuming, or the ones we are producing. Thus as the years pass, we fall further and further behind and the free radical damage to our body accumulates faster and faster.

Most authorities on aging now believe that this accelerated free radical damage is the leading cause of virtually all health problems that increase in frequency as we age. Some scientists who study aging even go so far to say that what we call aging is in reality merely the accumulative effects of free radical damage.

Nowhere is this free radical damage more destructive than in our eyes. In addition to the damage from free radicals occurring within the eye itself, we are also faced with free radical damage coming from powerful rays of the sun. This free radical damage to the eye from exposure to the ultra violet rays of the sun is accumulative, and thus becomes more and more evident as we age. Yet, if we had the right kind of nutrition through the years, we would supply and produce enough free radical neutralizers to totally offset the free radicals produced in our body and by the rays of the sun.

**3. Elevated Blood Levels of Sugar and Insulin** – In addition to the fact that the modern supermarket diet of refined and processed foods is high in free radicals and low in vitamins, minerals, essential fatty and amino acids, as well as enzymes - *it is also extremely high in simple refined sugar in all of its many forms and disguises.*

**From about 15 pounds per person per year in the early 1800’s, the consumption of sugar is now well over 150 pounds per year!**

This is far beyond the capacity of a body developed to live on a diet of only sugars as found naturally in our food. As a result, the pancreas is forced to produce ever-higher levels of insulin in an attempt to remove this excessive amount of sugar from the blood.

As the years go by, the cells of the body become less and less responsive to the ever-increasing level of insulin in the blood. This causes the blood sugar to rise. In the beginning as the blood sugar level starts to rise ever so slightly, the pancreas produces more insulin in order to overcome the cells increasing resistance to it. Over time, the cells become less and less responsive to the insulin, as a result the blood sugar and then the insulin both rise to destructive levels. When the amount of insulin in the blood is excessive, it begins to enter into very undesirable chemical combinations and reactions with other substances in the blood.



In addition, due to the ineffectiveness of the insulin, the sugar in the blood is maintained at above normal levels for many hours of each day. The result is that the sugar begins to combine with a variety of protein substances in the blood. These substances are called *Advanced Glycation End-products* (AGE’s), and they cause everything from an increased rate of skin wrinkling and hardening of the arteries to cataracts.

Eventually the blood sugar rises to such elevated levels that the individual becomes one more member of the rising epidemic of those whose improper diet causes adult onset (Type II) diabetes.

Adult onset diabetics were quite rare just 60 years ago, now they make up over 94% of all diabetics. This condition results in higher levels of blood fats, further clogging of the fine capillaries of the eye, more free radicals, and the development of cataracts, macular degeneration, retinopathy, and glaucoma, all of which can quickly lead to blindness.

### **Now For The Good News!**

Even if you are a senior citizen or a teen ager, and an improper diet over the years has lead to the health problems described here, and this has already resulted in one or more of the major eye conditions; **with proper nutrition, you can stop the condition in its tracks, provide repair to damaged cells and tissues, and in most instances, even reverse the condition and restore your eyesight.**

Obviously, the first thing you need to do is change your diet, mainly by eliminating refined foods, especially all sources of sugar from your diet. Next you must also eliminate all vegetable fats such as vegetable shortening, margarine, and vegetable oils from your diet. They are one of the major sources of free radicals.

For food preparation, replace these sources of fat with butter, lard, coconut and olive oil. Just as the prepared and processed foods are a major hidden source of sugar in your diet, it is also the source of hidden and undesirable vegetable fats. So these prepared and processed foods must also get out of your diet if you want to preserve and regain your vision.

Because of the large daily quantities required, it is beyond the scope of any vision formula to include the following three nutrient sources in the amounts needed each day: **flaxseed (linseed) oil, fish oil, and vitamin C**. Yet they are vitally important to the health of your entire body, and especially your eyes and vascular system. To have great health and perfect vision, you must get adequate amounts of these three nutrient sources in your diet every day.

**Flaxseed (Linseed) Oil** - Virtually all Americans are woefully unbalanced with regard to their intake of the fatty acids. They consume large amounts of saturated fats, which are great as far as they go, however, for good health the saturated fats **MUST** be balanced by a daily intake of the "essential" fatty acids.

The reason they are called "essential" fatty acids is because it is essential they are supplied in the diet each day because our body cannot create them from the other foods we eat.

Now even though the essential fatty acids ARE found in unsaturated oils, do NOT confuse them with the polyunsaturated vegetable oils, which are a horrible source of free radicals, because they are NOT one and the same.

The **ONLY** safe source of a perfect balance of the essential fatty acids (*which are linolenic [Omega 3] and linoleic [Omega 6] fatty acids*) is from **FRESH RAW UNREFINED UNFILTERED FLAX SEED (LINSEED) OIL**. NO other vegetable or seed oil contains the Omega 3 fatty acid you need for a healthy heart and excellent vision.

You need from 1 to 2 tablespoons of this oil per day. For best results put this oil in a blender with 6 ounces of low fat cottage cheese and a teaspoon of raw honey and blend well. This can be mixed in salads as a dressing or with other foods. This oil may not be available locally where you live and you may have to use the capsule forms, just be sure it is raw and unfiltered (high lignan) flax seed oil. Take 6 to 8 capsules daily while eating 4 to 6 ounces of low fat cottage cheese.

Doing this daily will go a long way toward preventing and reversing arteriosclerosis and cancer, as well as creating good vision. (1.)

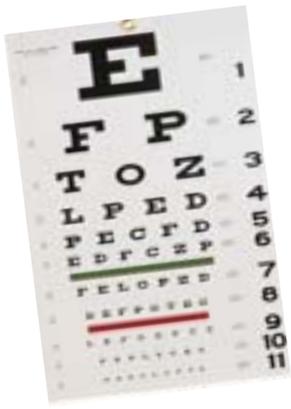
**Fish Oil** - The other source of fatty acid you need is the oil derived from cold water ocean fish that has a good balance of the Omega 3 fatty acids, Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA). You don't want the EPA, to be in a greater than 2 to 1 ratio to the DHA. Do NOT use cod liver oil. Taking 4 to 6 capsules daily of the oil derived from cold water ocean going fish (oil from ocean swimming salmon is excellent) will help prevent arteriosclerosis and cancer, and will help to create good vision. (2.)

In addition to the brain, the macula has a very high DHA content and those who had a high intake of DHA were well protected from the development of what is known as Age Related Macular Degeneration. A 2001 study at Harvard University Medical School by Dr. Eunyoung Cho and colleagues, found that those individuals with the lowest intake of the Omega 3 fatty acids in their diet were found to have the highest occurrence of macular degeneration in those over the age of 50. (3., 4., 5.) Consider supplementing daily with #3010 Marine Lipids available from Vitality as a good source of EPA and DHA in the proper ratios.

**Vitamin C** - The eye, especially the lens, requires large amounts of vitamin C. A healthy lens has 25 times as much vitamin C within it, as does the blood serum. (6.)

The adrenal glands, when responding to stress, have the greatest demand for vitamin C of any tissue of the body. Unless individuals facing any kind of consistent stress (physical, mental or emotional) are taking about 3 grams of vitamin C per day, the adrenal glands keep the blood level of vitamin C so low the lens of the eye may be deprived of an adequate supply to provide protection. This is especially so if some degree of arteriosclerosis or diabetes is also present. Research has shown that cataracts develop when the level of vitamin C in the lens drops below normal. (7.) Taking 2 grams of vitamin C per day as the multi-mineral ascorbate Ascorba-Min or Ascorba-Gram is an excellent way to assure the lens of the eye an adequate supply of vitamin C, even in times of stress.

1. Fischer L., William; (2000) Agora Health Books, Baltimore, MD, How To Fight Cancer And Win, pp117-124
2. Ibid, pp 108-115
3. Chow E, et al; (2001) American Journal of Nutrition; 73: pp 209-218
4. Bazan, N. G.; (1989) Progressive Clinical And Biol. Research; 312: pp 95-112
5. Smith, W., et al; (2000) Archives of Ophthalmology; 118(3): pp 401-404
6. Life Enhancement Magazine (2001) P.O. Box 751390, Petaluma, CA; April, pp 25
7. Packer, Lester & Coleman, Carol; (1999) The Antioxidant Miracle; John Wiley & Sons, NY, NY; pp 91



## A SCIENTIFICALLY BASED VISION FORMULA

As we have already pointed out, the biggest reasons for the increasing loss of vision that is associated with growing older, is the steady reduction of blood flow to the eyes as the blood vessels lose their flexibility and become lined with plaque and the platelets and red blood cells become stiff and sticky, clogging up the tiny capillaries to, and within, the eyes. This leads to a loss of oxygen and nutrition required by the cells and tissues of the eyes.

Clearly no vision formula is going to be effective unless it can make a major contribution toward solving the loss of adequate blood circulation to, and in the eyes. If it fails to do that, no matter how many nutrients it contains that will benefit the eyes, they will never get there to do their job. Which is one of the reasons why so many nutritional vision formulas are ineffective, they simply fail to address this problem.

**This formula begins by increasing the blood circulation to the eye as its top priority.** In this way, we make sure that the powerful vision protecting and improving nutrients in this formula will actually reach the cells and tissues of the eye where they are needed. The following two nutrients are miracle workers when it comes to doing this.

### VINPOCETINE –

Vinpocetine is a derivative of an extract originally obtained from the seeds of the periwinkle, a ground cover plant commonly used in many American landscapes.

This nutrient is so new you may not yet be familiar with it, and yet vinpocetine is one of the most important nutrient factors ever discovered to prevent and reverse many of the serious health problems related to aging. The reason it is so important is because it is an extremely powerful nutrient at opening up the tiny arterial capillaries found in the brain, ears, penis and eyes. All tissues, which suffer from loss of oxygen and nutrients as a result of reduced blood flow due to age related arteriosclerosis.

The tiny arterial capillaries of the eye are so small they cannot be seen by the naked eye. They can only be viewed through a microscope. (*see illustration A on page 2*) They are only large enough to allow red blood cells to pass through them one by one in single file. In some instances they are so small that the red blood cells must actually *bend* to fit the curved shape of these micro capillaries.

Without the proper nutrients, red blood cells lose their flexibility and become so stiff they cannot bend enough to pass through the micro capillaries of the eye. In addition, without the proper nutrition being supplied to these micro capillaries, they too become rigid and inflexible making it even more impossible for the red blood cells to pass through them.

As the red blood cells become stuck in these micro capillaries, they block the flow of blood to the delicate and sensitive cells and tissues of the eye. Since the red blood cells are unable to deliver their load of oxygen to the cells of the eye, the eyes are now deprived of the essential oxygen to fuel their metabolic life cycle. In addition, the blood serum, which contains the nutrients needed by the cells of the eye, is prevented from reaching them by this same blockage. The result is loss of efficient and effective cell performance in the eye, and greatly increased free radical destruction of the eye tissues and the consequent loss of vision function.

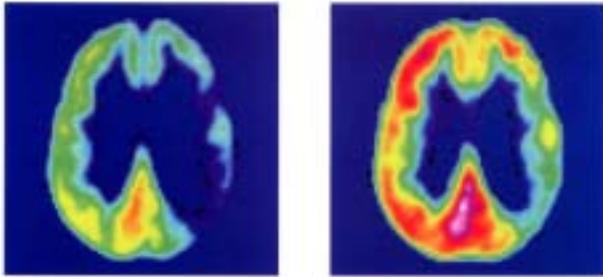
**“Obviously, the first step in overcoming these problems is to provide nutrients, which will open up the tiny capillaries and allow the flow of needed oxygen and nutrition to reach the damaged cells and tissues of the eye.”**

**“In addition, the special nutrients required by the cells and tissues of the eye must now be supplied in abundant amounts to repair the damage and restore the vision to normal.”**

This report has already stressed the great importance of the Omega 3 fatty acids from flaxseed and fish oils to prevent and reverse the stiffness and restriction of these micro capillaries which occurs with increasing frequency among those over the age of 50. However, by the time age related vision problems have begun to be experienced, the blood circulation of the eyes require additional help in order to save and improve the vision. When cataracts have begun to form, or retinopathy is occurring, or the macula is starting to degenerate, or glaucoma is developing, it is absolutely imperative that adequate blood flow within the eye be restored just as quickly as possible.

This is why vinpocetine is so important. The Omega 3 fatty acids go to work to actually correct circulation problems, but it works slowly, taking weeks to months to correct the impaired circulation. On the other hand, while vinpocetine does not provide long-term correction of the problem as does the Omega 3 fatty acids, it does go to work immediately to alleviate the problem. It does this in two ways. One of these is by dilating the restricted blood vessels

of the eye and opening them up so that oxygen rich red blood cells and nutrient rich blood serum can reach the cells and tissues of the eye to promote repair RIGHT NOW!



### **Vinpocetine Makes A Huge Difference!**

Your brain receives blood flow through many tiny capillaries very similar to your eyes.

The pictures above are an actual PET scan of an actual brain before and after a single dose of Vinpocetine. \*

Notice how much circulation has increased in the after photo on the right!

If you are wondering, yes the daily and regular supplementation of #1003 Vision would provide tremendous benefits for improved memory and thinking, improved vision, faster healing and reduced male impotence due to the increased blood flow.

*\*Guylas, B. Muller Gartner, H. Positron Emission Tomography, 291-306 (1998)*

Laboratory research conducted by Dr. M. Hagiwara and associates found that when the vinpocetine molecule entered the smooth muscle cells which make up the arterial blood vessel walls, it immediately and dramatically improved the metabolism of what is known as cyclic nucleotides, this allowed the smooth muscles to relax, thus dilating the arterial blood vessels, allowing a substantial increase in blood flow. (8.)

In another research project, Dr. H. Schmid-Schonebein and team found that when blood platelets and red blood cells had lost their flexibility, and were sticky with a high rate of adhesiveness, which then resulted in clumping and clotting. By exposing them to molecules of vinpocetine their flexibility was quickly restored and the sticky adhesiveness disappeared. When measured, it was found that the flow of these platelets and red blood cells through micro vessels had improved dramatically. (9.)

The presence of vinpocetine in this formula greatly increases the amount of the vision improving nutrients found in this formula that will reach the cells of the eye, and greatly increases the speed with which they will be delivered and go to work.

8. Hagiwara, M., et al; (1984) Effects of vinpocetine on nucleotide metabolism in vascular smooth muscle; —33: pp 453-457

9. Schmid-Schonbein, H., et al; (1998) Drug Development Research; 14: pp 205-211

### **GINKGO BILOBA –**

One of the most resilient trees in the world, resisting high levels of toxicity and even ground zero atomic radiation in Hiroshima, and one of the most ancient trees known in terms of growing continuously, virtually unchanged for 200 million years, is the Ginkgo Biloba tree. Because of this it is also known as a “living fossil”. Clearly such remarkable survival ability indicates it must be endowed with some very unusual and very useful biochemistry.

Scientists studying this tree attribute much of its astounding resiliency to the presence of biochemical compounds known as *flavone ginkgolides* and *terpines*.

Standardized extracts of the leaves of the ginkgo tree yielding 24% flavone ginkgolides and 6% terpenes have been used in scientific and medical studies, which have demonstrated it has the ability to increase the flow of blood through the blood vessels. What is of particular interest is the fact that it increases blood flow to the greatest degree where the blood flow has the greatest degree of restriction. (10.)

The fact that ginkgo extract works most effectively to increase blood flow through the restricted micro blood vessels has caused scientists to study it with regard to conditions which result from the restricted blood flow that is associated with aging. Among these are *Parkinson's* and *Alzheimer's disease*, *erectile dysfunction* as well as *hearing loss* and *impaired vision*. In each case, the use of ginkgo extract brought improvement.

A double blind, randomized, placebo controlled, crossover research project (the gold standard of research) conducted by Luciano Quaranta, M.D. and associates at the University of Brescia, Brescia, Italy using standardized ginkgo biloba extract was performed involving 27 patients with Normal Tension Glaucoma. The average age for the 27 subjects was 74. The results were reported at the fall meeting of the American Academy of Ophthalmology in the year 2000.

Normal tension glaucoma is a condition in which there is a progressive deterioration of the optic nerve. Without treatment, the condition deteriorates progressing steadily toward blindness. Those who were on placebo experienced the normal progressive loss of their field of vision.

However, it was reported that among those receiving the ginkgo extract, none experienced a further loss of vision and in 33% there was an actual and “highly significant” improvement in their visual field. The average improvement as

measured by the Corrected Pattern Standard Deviation test showed that deviation from normal declined from 10.45 to 7.87. This was a rather shocking result since it demonstrated as much effectiveness as the best in drug therapy, but without the side effects of the drugs.

It was found that these benefits held, even after an 8 week washout period when the subjects received no ginkgo extract. The researchers found these benefits were the result of increased blood flow to the eyes and the optic nerve, which was brought about by the extract promoting increased flexibility in red blood cells and platelets, a reduction in their adhesiveness, antioxidant properties and free radical scavenging ability, as well as increasing nerve tolerance for anoxia, and providing a beneficial effect on neurotransmitters. (11.)

In the professional journal, Ophthalmology Times, for the year 2000, Robert Ritch, M.D., editor of The Glaucoma Angle published a 3 part Review Article that cited over 50 published scientific research studies of Standardized Ginkgo Biloba Extract which had demonstrated its remarkable ability to provide increased blood flow, reduced lipid oxidation, free radical protection, improved nerve function, and enhanced neurotransmitter function. All of which are important factors to provide improvement to vision, and protection against, as well as reversal of glaucoma. (12.)

#### **Ginkgo Biloba Study Results <sup>11</sup>**

- **Stopped vision loss in *all* participants!**
- **33% experienced “*highly significant*” improvements to their vision!**
- **Benefits lasted even after 8 weeks of *no* ginkgo supplementation!**

This formula provides Standardized Ginkgo Biloba extract at therapeutic levels found to be effective in protecting and improving vision. As used in this formula in combination with vinpocetine, the blood circulation to and in the eye, and to the optic nerve, will be substantially improved. Thus allowing for the delivery of all the oxygen and nutrients of this formula, which are so vital for the protection and repair of the eyes and the restoration of vision to a much higher level of acuity, even in the elderly.

10. Closter, F.; (1988) Presse Med.; September 25, 15(31) pp 1529-1538

11. Quaranta, L. & Guttman, Cheryl; (2001) Ophthalmology Times; March 25

12. Ritch, Robert; (2000) Ophthalmology Times; April 1

## **LUTEIN**

This is an exciting nutrient recently discovered through scientific research to be of critical importance to the lens, retina and macula of the eye. It is a member of the giant family of over 600 biologically active carotene pigments. The best known of which is beta-carotene. They are chemically related to vitamin A, even though they perform functions that are well beyond the capability of the vitamin.

Lutein along with its as yet poorly understood close associate Zeaxanthin, is found in many fruits, vegetables and flowers providing them with a yellow orange pigmentation and in spinach where it is hidden by the green of chlorophyll.

**The center of the retina, where the greatest vision sensitivity is located has long been known to be a pigment rich area. It was not known until recently that most of this pigment is made up of lutein and to a lesser extent its companion zeaxanthin.**

It is now known that lutein is a very effective anti-oxidant which protects the cells and tissues in which it is embedded from the harmful oxidant reactions by the metabolic processes of the eye as well as from those generated by the ultraviolet rays of sun light. (13.)

Those WITHOUT sufficient lutein and zeaxanthin in their diet experience a gradual thinning of the protective pigment layer, which covers the macula. The macula is the point at which the optic nerve plugs into the retina. As this layer thins, more and more free radical damage occurs to the macula, resulting in what is called “macular degeneration”. Once this process begins, a person can go from 20/20 vision to total blindness in less than 3 years.

The first part of this tragedy is that it is totally preventable with a healthy blood supply to the eye and a sufficient amount of lutein in the diet. The second part of this tragedy is that people do not notice the gradual vision loss of macular degeneration until severe and IRREVERSIBLE damage has occurred. **Once the nerve tissue of the macula has died, it is dead and nothing can be done to restore it.** When you realize that macular degeneration is the leading cause of blindness in those over the age of 60, diagnosed in 11 million Americans each year, you can see that preventing and halting this problem is vitally important to the well being of your future vision. (14.)

A study of almost 900 senior citizens, about one third of which already had what is known as ARMD (Age Related Macular Degeneration - the macula is where the optic nerve plugs into the retina - the degeneration of which causes blindness), was published in the Journal of the American Medical Association. The researchers compared the nutritional in-

take of those with ARMD to those who did not have the condition. They found those who did not have ARMD had an intake of the carotenoids that was 43% greater than those who had the condition. They further concluded that it was the lutein and zeaxanthin in their diet, which provided the protection against the development of macular degeneration. Those who had the lowest dietary intake of lutein had the highest occurrence of ARMD. (15.)

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The Journal of the American Optometric Association reported the results of a study with 16 people who had retinal degeneration resulting in a significant loss of visual acuity and a reduced size of the visual field. For 6 months they were given daily supplements of lutein and the status of their condition was evaluated. There was a significant improvement in the acuity and field size of vision in 12 of the 16 subjects. Those who had blue eyes, or had taken vitamin A or beta-carotene prior to the start of the study had the greatest improvement. (16.)

In addition to its important role in protecting the retina and macula at the back of the eye, lutein is also found protecting the front of the eye, with significant amounts found in the lens. Here lutein's ability to prevent the free radical damage caused by the ultraviolet rays of the sun protects the lens from developing cataracts.

British researchers studied the dietary intake of over 50,000 registered nurses, age 45 and older, covering an 8 year period, to determine if there was a relationship between certain elements of the diet and the development of cataracts. The results were published in the British Medical Journal and it revealed that those with the lowest intake of lutein in their diet had the highest incidence of cataract formation, and those with the highest intake of lutein had the very lowest incidence of cataracts. (17.)

In addition to Lutein's protection of the retina, macula and lens of the eye, Dr. James H. Dwyer and associates at UCLA Medical Center studied 480 middle-aged men and women over an 18 month period tracking the relationship of their blood levels of lutein to the thickness of their arterial walls. The thicker the arterial wall, the higher the degree of arteriosclerosis, and the greater is the loss of blood flow to the cells and tissues, and this of course, includes the eyes.

Dr. Dwyer's research group found that those people who had the lowest blood level of lutein had the thickest arterial

walls (greatest arteriosclerosis), which became even thicker over the 18 month study period. On the other hand, those with the highest blood level of lutein had the thinnest arterial walls and showed no thickening of the walls over the 18 months of the study (no development of arteriosclerosis). Thus an adequate intake of lutein not only protects the eyes directly, it also assures an adequate blood supply of oxygen and nutrients to the eyes. (18.)

Since most people do not eat enough lutein rich fruits and vegetables, it is important that this key nutrient is provided through supplements to maintain protective levels for the eye. The problem is, almost none of the vision formulas on the market contain enough lutein and zeaxanthin to provide protection. This formula provides enough lutein to protect and repair the eye, and it contains the highest amount of lutein of any vision formula we are aware of.

**“The first part of this tragedy is that it is totally preventable with a healthy blood supply to the eye and a sufficient amount of lutein in the diet. The second part of this tragedy is that people do not notice the gradual vision loss of macular degeneration until severe and IRREVERSABLE damage has occurred. Once the nerve tissue of the macula has died, it is dead and nothing can be done to restore it.”**

13. Annussek, Greg.; (2001) Gale Encyclopedia of Alternative Medicine; findarticles.com

14. Kahn, Sherry; (2002) Great Life Magazine; 11050 Santa Monica Blvd., Los Angeles, CA: January, pp 35

15. Sheldon, J. M., et al; (1994) Journal American Medical Association; 272(18) pp 1413-1420

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17. Annussek, Greg; Op Cit

18. Dwyer, James H., et al; (2001) Circulation; 103:2 pp 922-927

## LYCOPENE -

Another important member of the carotene family is Lycopene, which is found in the red fruits and vegetables, the richest source being the tomato. Recent research has shown that none of the carotenes is well absorbed from raw fruits and vegetables. They are most available from cooked foods. For this reason, tomato paste, which is a cooked concentration of the red pulp of the tomato, is the richest known food source of lycopene.

Like all carotenes, lycopene is related to vitamin A, and thus is oil based. For this reason it is only well absorbed from the intestines when it is in the presence of oil and fat. Thus supplements such as this one, which contains any of the carotenoids, whether it is beta- carotene, lutein or lycopene must be taken WITH meals containing fats or oils in order for good absorption of the nutrients to take place.

Research studies which have examined the relationship of the diets of men as compared to their body stores of lycopene, this has shown that those with the highest intake of foods high in tomato paste combined with fats and oils, have the highest amount of lycopene in their tissues. As a result, these men also had the least amount of arteriosclerosis, cancer of the prostate and pancreas, and the lowest incidence of macular degeneration.

At this point, most of the research has concentrated on the protective benefits of lycopene for the male prostate gland and the lining of the blood vessels. However, there is a growing body of evidence, based on a significant amount of lycopene being found in the pancreas, adrenal glands and the eye, to indicate that it also provides protection to these tissues as well. (19, 20.)

Unfortunately too few Americans eat a large enough amount of foods rich in tomato paste and oils to be able to absorb and maintain enough lycopene to provide their tissues with protection. Dr. Omer Kucuk of the Karmanos Cancer Institute in Detroit, Michigan took men who had very low tissue levels of lycopene, and had developed serious prostate cancer, and gave them supplements of lycopene. He wanted to know two things. One: if the supplements of lycopene would be absorbed into the body and make up for a long-term dietary deficiency. Two: even if the lycopene supplements were absorbed would they at this very late stage in the cancer, have a positive effect.

Thirty three men were enrolled in the study, all of which were already scheduled for prostate surgery. Half were given a placebo, and half were given lycopene supplements.

The results were amazing. Even though the men took the supplements for only a short time, all those receiving lycopene ended up with smaller tumors than those who had received the placebo. In addition, the marker for the growth rate of their tumor known as a PSA count dropped by 20%. Meanwhile the PSA of those on placebo went up. Some of those receiving the lycopene actually had their tumor shrink, this did not occur to any of the men on placebo. This study clearly demonstrated that lycopene supplements were effectively absorbed and were biologically protective to the cells and tissues of the body. (21.)

To determine whether or not lycopene has a protective action in the lens against cataract formation, researchers in Israel took rats that have a genetic inability to process galactose, a metabolite of milk sugar. In these rats, as in humans with this problem, they all develop cataracts due to a very high level of oxidation in the lens. However when the rats were fed supplements of lycopene there was a sharp reduction in all aspects of cataract formation. **This led Dr. A. Polack to**

**conclude that the “natural antioxidant” effects of lycopene are protective against the formation of cataracts. (22.)**

Lycopene, like lutein is a powerful free radical scavenger, and its presence in the retina no doubt provides protection to the retina and macula from free radical damage. In addition, as we pointed out earlier, if the nutrition cannot reach the eye due to restricted arterial capillaries of the eye, no supplement or diet will be of great value. The British Medical Journal reported the results of a study of men over the age of 50, measuring the blood level of their lycopene and their level of arteriosclerosis. This study found there was a direct correlation between high levels of lycopene and a very low incidence of arteriosclerosis. Those with the lowest level of lycopene had severe arteriosclerosis. (23.)

Which is another key reason lycopene is included in this formula, because research has shown that higher amounts of lycopene in the arteries is associated with an increase in blood flow. Increased blood flow of the eye means better oxygenation, improved nutritional status and reduced free radical damage and faster repair and return of normal vision.

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## **QUERCETIN –**

This nutrient is a member of the flavonoid family and is classified as a flavonol. It is a powerful antioxidant, and neutralizes the harmful effects of oxygen free radicals, which create very dangerous substances in our body known as *Reactive Oxygen Species*, referred to as ROS.

A large study of thousands of people in the Netherlands revealed that those who had the highest intake of flavonols, and especially quercetin, had the lowest amount of heart disease. Heart disease is associated with high amounts of oxidized LDL cholesterol and ROS damage to the blood vessels. Quercetin circulating in the blood prevents both.

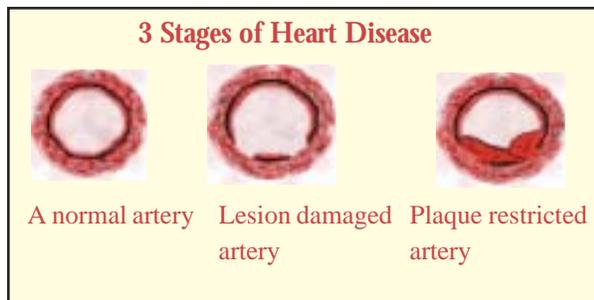
**When ROS occurs in the eye, especially in the lens, retina and macula, they are major contributors to the generation of cataracts, and macular degeneration. The presence of quercetin circulating in the blood vessels of the eye is protective against the ROS damage to the eye. (24.)**

Another one of the wonderful benefits of quercetin is that it has the remarkable ability to promote the repair of damaged DNA and aid in its restoration to normal. Damaged DNA of the lens and retina occurs as the result of free

radical activity and exposure to the harmful ultra violet rays of the sun. The presence of quercetin circulating in the eye also helps to promote the repair of this DNA damage. (25.)

Those with diabetes are in great danger of developing cataracts and retinopathy because their high blood sugar content increases the activity of an enzyme known as *aldose reductase*. The increased action of this enzyme results in the build-up of a sugar known as sorbitol, in both the lens and retina. High levels of sorbitol in the lens, is a major contributor to the formation of cataracts. Its buildup in the retina results in retinopathy.

The tragedy is, most people with high blood sugar don't even know it yet, because they have not yet been diagnosed as an adult onset diabetic. Nevertheless, sorbitol is building up in the lens and retina of their eye just as it is for the already diagnosed diabetic. Fortunately, when there is an adequate amount of the flavanol quercetin in the blood, it inhibits the high blood sugar from increasing the activity of the enzyme aldose reductase, and this prevents the build up of sorbitol in the retina and lens, which would otherwise lead to retinopathy and cataract formation. (26, 27.)



The presence of quercetin in this formula thus helps protect the eyes from reduced blood circulation, damage by Reactive Oxygen Species and other free radicals, blocks the formation of cataract promoting sorbitol in the lens, and helps promote the repair of damaged DNA in the retina, macula and lens.

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## **BILBERRY EXTRACT—**

Bilberry is the name given to the European version of the blueberry plant (*Vaccinium myrtillus*). During World War II bombardiers flying at night were having difficulty seeing their targets. Old Wives Tales of Europe were told to them that eating bilberrys would improve their night vision. After eating large amounts of these berries daily, the bombardiers said they experienced a significant improvement in their vision.

For over 30 years after this, modern medicine dismissed all of this as just the working of the imagination of airmen who desperately needed to have better vision. This was because in scientific tests in which bilberry supplements were given to healthy young men with perfect vision, there was no improvement in their visual acuity or their night vision, even after several weeks of receiving the supplements. (28.) This led to the false conclusion that bilberry had no value for eye problems.

However, during the 1970's scientists began to discover that many chemicals found in vegetables, fruits and berries were biologically beneficial to human cells and tissues. Thus it was that in 1981 a few scientists began to take a serious look at the bilberry. They learned that it contained what are known as *anthocyanosides*. These are dark purple pigments, which like quercetin, are a flavanoid with potent and active antioxidant and free radical scavenging properties. (29.)

As early as 1981, Drs. A. Scharrer and M. Ober of Germany where using extracts of the bilberry with a content of 24% anthocyanosides to treat people with diabetic retinopathy with significant success. (30.)

In 1983 Dr. P.L. Orsucci and associates reported that they too had obtained significant benefit using a 24% anthocyanoside extract of bilberry to treat diabetic retinopathy. (31.) By 1986 researchers had discovered that the anthocyanosides of bilberry were "a pharmacologically potent natural product in the bovine retina". (32.) This discovery of the pharmacological effect of bilberry on the retina provided the scientific explanation of why it had worked so well to clinically treat retinopathy.

Also in 1986 other scientists found the anthocyanosides of bilberry were effective at improving blood flow in the capillaries, thus reducing vascular hypertension. (33.) The following year Dr. M. Perossini and team found in a double blind placebo controlled clinical trial that 24% anthocyanoside extracts of bilberry were effective in treating "diabetic and hypertensive retinopathy" (34.)

In 1989 Dr. G. Bravetti completed a research project in which he was able to demonstrate that the use of 24% anthocyanosides from bilberry in combination with vitamin E was able to prevent the development of senile cataracts in a group of elderly people when compared to a similar group who did not receive these nutrients. (35.)

This formula contains bilberry extract containing 24% anthocyanosides, which has been demonstrated in the scientific and clinical medical trials cited above to be effective in reducing and protecting against the harmful effects of extreme hypertension, diabetes, and aging on the retina and lens of the eye. In these trials, this resulted in improved night

vision, greater visual acuity, and improved clarity of the lens, and it is used here to aid in the repair of the vision of those afflicted with such health problems.

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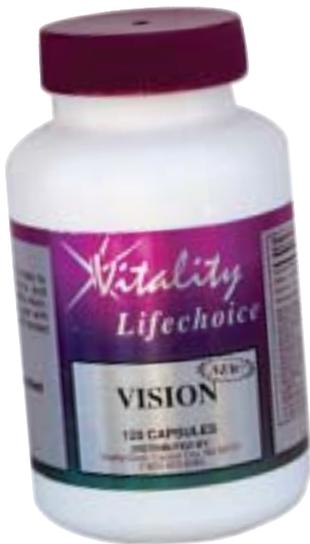
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