

# True Health

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## A More Absorbable, Made In America, Vitamin C Is Here

Getting vitamin C into the metabolism efficiently is a key goal for dietary supplement providers. Vitamin C technology has once again changed for the better and this time it's not a mere gimmick. Starting after the new year, Carotec's popular *Vitamin C Plus* will be made with PureWay-C® an American made product with solid research behind its claims.

The vitamin C story, featured in this issue, is an epic tale of learning and growing. At *True Health* we have kept readers abreast of the story all the way from the discovery of ascorbic acid through the misleading bioflavonoid chapters of the 1950s and 60s to the gimmicky developments in recent decades.

We helped introduce the outstanding work of Dr. Jacques Masquelier and the grape OPC's, which enhance the utility of the ascorbate molecule and provide superior vitamin C supplementation.

PureWay-C® is an entirely new form of vitamin C that has proved in numerous studies to be more absorb-

able and useable by the body than other forms of ascorbic acid products. This is the most important factor in a vitamin C supplement – availability to the metabolism.

Made in America using pharmaceutical grade ascorbic acid as a base, the PureWay-C® form is "fat soluble" because it is biochemically imbued with **lipid metabolites**, which are fatty acids and fatty esters in a proprietary, patent-pending composition.

Research and clinical testing show that the new form enhances "delivery, availability, absorption kinetics, distribution, uptake, concentration and utilization efficacy, while prolonging blood plasma and tissue retention of vitamin C."

For those of you who are more technically minded, this is how it was reported in the technical literature:

*"Comparative research studies in vitro and in humans demonstrate that PureWay-C® is more rapidly absorbed and leads to higher plasma and cellular levels, having faster and more beneficial effects*

*than ascorbic acid, calcium ascorbate, and other popular ascorbate brands. These benefits include better stimulation of neurite outgrowth, increased fibroblast wound healing activities, increased production of the immune system from xenobiotic induced inflammatory mechanisms and greater reduction of plasma levels of C-reactive protein and oxidized LDL, as well as more potent antioxidant and higher free radical scavenging capabilities."*

Dr. Pedro Perez of Mt. Sinai, New York is the innovator of PureWay-C®. Innovation Laboratories, Inc. also of Mt. Sinai is the producer. Among the several studies commissioned by Dr. Perez was a head-to-head comparison with the widely hyped Ester-C®.

There are two generally used standards for measuring free radical/antioxidant scavenging activity of particular compounds. Ester-C® and PureWay-C® were compared using the DPPH and the ORAC methods, the letters designate long chemical jargon phrases that serve chemists but not lay

readers. To illustrate jargon, for example, Ester-C® is calcium ascorbate-calcium theonate-dehydroascorbate.

The lab tests demonstrated that PureWayC® was significantly superior in radical scavenging activity and antioxidant activity in both the DPPH and ORAC method tests.

In another study featuring head-to-head comparison with Ester-C®, researchers analyzed human lymph cells using up-to-date spectrophotometric techniques. This time the cellular absorption rates as well as the antioxidant/free radical scavenging rates significantly favored PureWay-C.®

A third study dealt directly with vitamin C's well-known ability to enhance healing. The novel PureWay-C preparation was again head-to-head with Ester-C.®

Because the ascorbic acid molecule is required by the body to make collagen, Vitamin C is known for healing abilities. Lab tests prove vitamin C can enhance neurite formation and fibroblast adhe-

sion during wound healing. It is also known to reduce white cell hyperactivity or inflammation damage. Compared in a specific *in vitro* laboratory testing study,

PureWay-C® again was significantly superior to Ester-C.® All the studies are published at [www.MedSciMonit.com](http://www.MedSciMonit.com) on the Internet.

# Vitamin C; The Rest of the Story

By Tom Valentine

Learning is a perpetual process, and when it comes to biochemistry, nutrition, metabolism and health we apparently have much more to learn.

The history of our knowledge of vitamin C illustrates this point clearly.

Unlike most other animals the human body cannot synthesize the ascorbic acid molecule, and when this essential "vitamin C" is missing from the diet and a person becomes deficient, the connective tissues of the body fall apart; mucous membranes hemorrhage; cell membranes lose permeability and integrity; the gums swell and bleed; the body loses strength and energy in wholesale fashion due to anemia; the lower leg muscles grow hard and weak – and people die a horrible death due to these classic symptoms of scurvy.

The key to it all is the protein connective tissue known as collagen. Without the ascorbate (ascorbic acid) ion, our body simply cannot produce collagen. How this

evolved, or why the Creator designed it this way, nobody knows. All we know is that we must get vitamin C from our food, or supplement our diet with it for optimum health and healing.

The history of vitamin C discovery and development is fraught with controversy, and controversy continues today between those who follow the "orthomolecular" approach of Dr. Linus Pauling, one of the greatest biochemists in history, and those who demand "natural complexes" as may be found in organic food.

Both sides have valid points and both sides are equally right and wrong. The key to the whole truth of taking vitamin C supplement is biological individuality – as it is in all things dietary.

The latest salvo in the controversy was printed in the December 2007 issue of *Townsend Letter for Doctors*. The author is Owen R. Fonorow of the Vitamin C Foundation and his thesis was first published in 2006. Fonorow claims synthetic ascorbic acid

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is identical to natural ascorbic acid and the “natural” purists are wrong. He also believes the “orthomolecular” approach wherein one takes large amounts of cheap ascorbic acid is the best use of the nutrient. Many testimonials support this approach, which was developed and promoted by Pauling, especially in his 1970 book: *Vitamin C and the Common Cold*.

The evidence has shown that while many people benefit greatly from massive doses of vitamin C, many others do not and in some cases it has shown to be detrimental to the person.

The “natural” approach claims that vitamin C is a complex of molecules and ascorbic acid is only one of them, albeit the key molecule of the complex. These naturalists argue that the vitamin C complex with bioflavonoids as found in food is the real thing – this view was put forth by Dr. Thomas S. Cowan and Sally Fallon in the 2004 book: *The Fourfold Path to Healing*.

As I said earlier, both sides have part of the truth. *True Health* laid it all out years ago, so we’ll do it again.

Since connective tissue is the key to vitamin C the nature of “collagen-nomics” (my word) in the body should be the basis for any argument about how the nutrient is used naturally. The two key proteins of connective tissue are collagen and elastin. And, where do we find collagen and elastin most concentrated? In the vascular system walls is where – thou-

sands and thousands of miles of circulatory system vessels that must maintain integrity and elasticity.

Dr. Jacques Masquelier, whose research revolutionized biological thinking about collagen and elastin in the 1980s published the following in the classic book on OPC – Oligo Proantho Cyanidins:

*“In 1981, Professor Masquelier presented for the first time his coherent theory about the influence of OPC on the essential factors that are determinative for the intactness of the vascular wall: collagen and elastin. These two building blocks of the vascular wall (and all connective tissue) determine its elasticity and permeability. One could say that collagen consists of pairs of intertwining strands of proteins, the polypeptides. The stability of collagen is ascertained by the presence of the so-called cross-links that connect the polypeptide chains. The result is a structure that looks like a ladder that is twisted without end.*

*“OPCs help collagen with the construction of these cross-links and, in this manner, they help to aid in the stability of the connective tissue. Cross-links are often referred to in a negative sense, especially when they are formed in excess under the influence of free radicals. Excess cross-linking suffocates and stiffens the connective tissue...”*

*“OPC enhances the natural renewal and production*

*of collagen, as regulated by the body itself. But OPC cannot perform the job by itself. Ascorbic acid is another vital element in the bio-synthesis of collagen. In fact, decay of collagen due to lack of ascorbic acid produces all the symptoms of scurvy, since scurvy is nothing else than collagen decay...”*

Dr. Masquelier proposes that OPC be called vitamin C2 because it is ascorbic acid’s most powerful and protective co-factor and is the well documented recycling and sparing molecule for active ascorbic acid in the metabolism. OPC is the free-radical quencher in the vitamin C complex.

*True Health* told the entire story long ago. Here it is again:

In 1928, during the early years of biochemistry, researchers worked hard to discover just exactly what the particular “anti-scorbutic or anti-scurvy” nutrient was. Szent-Gyorgyi isolated a substance from adrenal tissue, citrus and cabbage that he called hexuronic acid. Four years later some researchers at the University of Pittsburgh isolated the same substance from citrus juice and called it “vitamin C.” Since it appeared to be the anti-scorbutic substance, it was called *ascorbic acid*.

As often happens in ongoing research, Szent-Gyorgyi serendipitously also discovered certain plant chemicals that appeared to be “co-factors” for vitamin C activity. These plant chemicals are generally known

as flavonoids. When a flavonoid is assimilable into the human metabolism, it may be called a *bioflavonoid*.

What's in a name? Everything and anything – and this becomes quite a colorful story because basic spectral colors – yellow, blue, red – is where the names for our subject plant chemicals derive – it is also the source of tremendous confusion and error. Bear with us.

Szent-Gyorgyi's early work suggested citrin, a bioflavonoid found in lemon rind, was the vital "co-factor" that made vitamin C complete. Today that partially correct belief has grown into a food-factor supplement field with immense nutritional and commercial significance. *Vitamin C with bioflavonoids* products have been hailed as the Holy Grail by health advocates for more than 60 years. During the same time period, the same *vitamin C and bioflavonoids* have been continuously denigrated as worthless by medical experts who cited various research studies to support their disdain.

Were all those people who swore vitamin C supplements helped them merely fooled by a beneficial placebo effect? On the other hand, were all the studies so biased and flawed that they led to little more than controversy?

For example, in the modern editions (1994) of *Dorland's Illustrated Medical Dictionary*, we find this definition: "bioflavonoid – any of the

flavonoids (q.v.) with biological activity in mammals: despite being reported to *decrease capillary fragility*, they have *not* been shown to be essential or to have any medical or nutritional value." (emphasis ours)

How could such a totally twisted and erroneous viewpoint be entered as part of an official definition? It is our job to answer that question and clear up confusion.

Earlier we said it is a "colorful" story. Here's why: There is an entire class of plant chemicals technically grouped together as "phenols" and flavonoids are a family of compounds within that group. Flavon is derived from the Latin word for yellow and oid is a suffix meaning "resembling" A flavonoid therefore resembles something yellow.

A *bio*-flavonoid is one that can be absorbed and metabolized and used by the body. Many flavonoids are nutritionally worthless, hence they cannot be bioflavonoids; others are extremely valuable in human nutrition.

The subject of this essay is the important vitamin-C *co-factor* known as OPC, a cyanidin compound. Cyan derives from the Greek word for dark blue but the actual OPC nutrient is colorless. To make it worse, blue cyanidin flavonoids in plants turn red under certain conditions – leaves of plants turning red in the Fall, for example, is cyanidin reacting to enzymes. Is it any wonder research gets confusing?

The story of how Szent-Gyorgyi first happened upon the important biological function of bioflavonoids has been repeated often. The story is actually the root cause for why many nutritional scientists are convinced that vitamin C *must* be accompanied by synergistic "bioflavonoids" because they say ascorbic acid alone is not as effective. This happens to be part true, but unproved and unexplained until Dr. Masquelier did so.

In the early 1930's, Szent-Gyorgyi was striving to isolate "hexuronic" acid, which is now known as "ascorbic acid" or vitamin C, when it was learned that a patient of an associate had capillary bleeding problems beneath his skin. Thinking that vitamin C might help, they administered some of the *impure* substances – meaning that all the compounds, especially the bioflavonoids were not yet removed from the mix. The bleeding stopped, so the dose of the non-isolated research material was a smashing success. Later, however, when another patient had a similar problem, they administered pure isolated ascorbic acid/vitamin C. This time the substance had no effect. They went back to the original impure material, which was vitamin C with bioflavonoids, and were again successful.

Later, in 1935, Szent-Gyorgyi and his researchers isolated a single yellowish pigment compound from lemons, which was proved to have good

effect on micro-circulatory or capillary health. Szent-Gyorgyi called this compound “citrin” or “vitamin P” because it was able to improve the capillary health of patients with vascular purpura. Still we are told by medical experts today that bioflavonoids are somehow not “essential” and are therefore not called “vitamins.”

History has been relatively kind to Szent-Gyorgyi but he was never satisfied with his acclaimed discovery because he never unraveled the truth about the necessary vitamin C co-factors. Today, they are understood, even though, as we have pointed out, a top medical dictionary still contains the demeaning definition of a bioflavonoid, clearly indicating the medical establishment’s long-standing bias against nutrition.

At *True Health* we find it amazing that the editors of an important medical reference dictionary can be so poorly informed about bioflavonoids. How could these “experts” not know about vitamin C and *bioflavonoids* working synergistically for important, and essential, nutrition? How could they write definitions in the same dictionary for coumarin and catechin, and ignore the fact that both are important *bioflavonoids*? Since this is an up-to-date medical dictionary, how could the editors not have heard the good things being written in the technical literature about the anti-cancer value of the *bioflavonoids* in green tea? How could they not know

wonderful *bioflavonoids* found abundantly in grape seeds, which are the subject of this feature?

The history of the scientific discovery of the bioflavonoid now known widely as OPC is actually quite “historic” because of reference to an early explorer. Among the many early European explorers of our North American continent was the Frenchman Jacques Cartier. In the year 1534, according to references in his ships log, the expedition was falling apart due to scurvy, the scourge of sea voyagers who were deprived of fresh food for long periods of time in those early centuries. Today we know that scurvy is a nutritional deficiency disease, and ascorbic acid is known to be the missing nutrient.

The British are often called “Limeys” because of the limes and other citrus they stored aboard their ships as a means of preventing scurvy. It took the medical profession 400 years to accept that scurvy was a deficiency disease, but the British navy figured out that citrus fruit could be stored aboard ship for the men to eat and would somehow prevent the disease.

However, Cartier and the survivors among his crew were about two hundred years earlier than the “limey” period and these men were saved not by lemons, limes and oranges, but by a pine tree concoction brought to them by the natives.

Pine needles and bark are not known for vitamin C

content, so what food-factors were present to solve the deficiency of those dying Europeans in the winter of 1534?

Enter Professor Jacques Masquelier, a French biochemist who wondered about the chemical nature of the pine tree concoction that saved those early explorers as he was unlocking secrets of plant chemistry – especially the family of bioflavonoids known as catechins.

Masquelier succeeded where others failed – he explored the jungle of plant chemistry and cleared a pathway to sorely needed scientific truth. The medical dictionaries need to catch up.

While working on his doctoral thesis in 1947, Masquelier was asked to investigate the red skin around peanuts; to check for toxicity. Peanut hulls and waste were fed to livestock and toxicity tests were necessary. This chemical research at a drug company led him to isolate a “colorless” flavonoid material now popularly known simply as OPC.

Since the substance he had isolated was non-toxic, one of those “why not?” situations arose. As Masquelier had isolated OPC and had some on hand, when a colleague complained that his pregnant wife suffered from edema, Masquelier suggested they give her this new material. Masquelier believed the “leucocyanidin” as he called it then, had activity similar to Szent-Gyorgyi’s “vitamin P” activity. Since

edema is caused by capillaries and other small vessels losing integrity, the experiment on a pregnant woman was tried. Her edema was cured in 48 hours. This led to intensive research and a patent for a drug that is still on the market in Europe today – Resivit, a drug that improves the permeability of the tiny blood vessels. Since a new commercial product was born, a bountiful source of raw material was needed.

In 1948, after studying the explorer's log books, Masquelier visited along the St. Lawrence waterway in Quebec and examined the forest pines from which the natives had prepared the life-saving remedy. His hunch was right on the money. He discovered the important OPC in a reproduction of the Indian's pine tree remedy – the substance that saved the explorers lives in 1534. Masquelier then spent years developing methods for extracting and processing OPC from the most commercially viable source, grape seeds.

At *True Health* it is our job to straighten out the confusion sown by propaganda and hype. Reluctantly and with controversy over the past 70 years, modern science has verified that vitamin C indeed plays a **major** protective and beneficial role in human health – it is said to be the most important water soluble antioxidant vitamin in our bodies. However, claims for bioflavonoids did not get establishment validation because the claims could not be consistently

demonstrated by researchers. In the 1950's the FDA ruled that medically speaking the **citrus** bioflavonoids were "barely active, if not inactive substances." That early research missed the boat because they did not understand the wide variety of chemical differences in flavonoids.

Masquelier explained the situation as follows:

*"Within the framework of structural biochemistry it is perfectly all right to speak of bioflavonoids as a group of substances. Within the framework of medicine, nutrition and human health, other criteria apply. Here we want to know whether substances are safe, bioavailable and efficacious. The lumping together of different substances under the 'umbrella' of similarity in a different field is simply misleading. In some cases it can even be dangerous. And, in most cases, it serves some commercial interests only.*

*"Although OPC does have a flavane core and may be called a bioflavonoid on the ground of structural chemistry, it most certainly differs from its 'fellow bioflavonoids' on the counts of efficacy, innocuousness and bioavailability. Nevertheless, OPC has been swept under the bioflavonoid carpet by people who didn't care about importance's or who simply gained from altering them. OPC was classified as a bioflavonoid and has suffered the fate of lending credibility to many useless and even toxic*

*members of this group that it did not really belong to. As far as our health is concerned, OPC was lumped together with bioflavonoids on the basis of an assumed identity, while it should have been differentiated from them on the basis of very important differences."*

It took several decades for this new idea to take hold in the biochemical world, but Masquelier's work has now been verified. The proper name for this "bioflavonoid" is *Oligomeric ProanthoCyanidin* (OPC).

Masquelier has earned a place in the biological Hall of Fame alongside Szent-Gyorgi. The class of plant compounds known as OPC has taken its rightful place in the dietary supplement Hall of Fame because of the way these plant chemicals can not only do most of the work of vitamin C, but OPC actually helps recycle both vitamin C and vitamin E after the vitamins have done their duty quenching free radicals.

One may logically ask: "Why do we need ascorbic acid if OPC does so much?" Evidently there is one vital function that appears to belong only to ascorbic acid. Although both OPC and ascorbic acid are absorbed into our cells where they work together in many functions – there is one enzymatic activity apparently reserved for ascorbic acid. The cell cannot synthesize fresh new collagen without ascorbic acid. OPC can boost available ascorbic acid by recycling, but evidently only the ascorbic acid molecule can

participate in this particular enzymatic biosynthesis work.

Obviously we humans need to get ascorbic acid and OPC from our daily diet. Now the question becomes – how much should a person take to supplement the modern diet to make up for the obvious shortfalls. People who eat organically produced, home-prepared foods will not have the same needs as most Americans in our supermarket, fast food, junk food culture.

The dosages of vitamin C have been very controversial. Many people today insist that “massive doses” of ascorbic acid are a good way to combat or ward off disease. The medical establishment and many health advocates disagree.

At *True Health* we disagree primarily because traditional foods humans eat, even those that are organically produced, never provide massive “orthomolecular” doses of ascorbic acid. Instead, nature provides steady, sensible amounts combined with other factors in a variety of natural foods, so we believe supplements should provide modest sensible doses as well.

The idea that one needs to take massive “orthomolecular” doses of vitamin C ranging from 10 grams to 30 grams per day came mostly from the late Nobel Laureate, Linus Pauling, who claimed he took about 18 grams of ascorbic acid daily. He lived to be 93, so one would be tempted to assume his ideas were apparently correct.

Never assume!

Now the story really gets interesting.

First, no one knows the truth about Pauling’s longevity and to credit the alleged massive doses of ascorbic acid is simply to assume too much.

Masquelier dealt with this dosage controversy diplomatically, saying “I am convinced that if Linus Pauling had known about OPC, he would not have prescribed 18 grams of vitamin C, but rather a small amount of vitamin C and a small amount of OPC. Most certainly, I feel that I would have been able to convince him.”

So, what’s the story?

By definition a “vitamin” is something we humans need to absorb from our diets in very small amounts every day.

The notion that humans need to take in many grams of ascorbic acid every day is based upon a premise assumed from evolution theory.

Most biologists today generally accept a “chance” theory of evolution and therefore base many assumptions on mechanisms pertinent to that theory of how life derived on this planet. Fortunately for better scientific premises, a strong movement to the “design” theory of evolution is coming into vogue.

Nevertheless, assumptions made about the nature of ascorbic acid in man have been controversial and confusing until now.

Since “most animals”

with the notable exception of man, other primates, guinea pigs and some bats, produce ascorbic acid as a metabolite in their livers, the substance is not a “vitamin” for them. We humans do not normally synthesize ascorbic acid because of: 1) an evolutionary “genetic fault;” or 2) because we do not have the enzyme L-gulonolactone oxidase in our livers, and thus by design cannot synthesize the metabolite.

Evolutionary biologists “speculate” that this genetic “defect” occurred in some “ancestor of man” about 60 million years ago.

Birds, amphibians, reptiles and fish do not produce ascorbic acid in their livers – they produce it in the kidneys.

So, before this gets even more complex and ridiculous you must know that there has been ongoing debate among the specialists in this sort of thing for decades and the practice of extrapolating animal data and applying it to humans is always speculative at best.

To conclude that the “normal condition” of *not* making vitamin C in the body” (humans and some others) is somehow detrimental because lower animals normally do make it, is a giant leap of illogic. Then to measure the daily bodily output of some animals and try to relate that to the ascorbic acid needs in man based on test tube studies borders on the nonsensical.

Consider this: since cows and other ruminants with

multiple stomachs absorb massive amounts of B-vitamins and we humans absorb very small amounts, should we assume the cows do it better? Of course not. Humans do very well on tiny amounts of all the B-complex taken in daily.

Masquelier has shown that vitamin C with the OPC co-factors works the same optimal way.

Additionally, it is now known that animals producing ascorbic acid at high rates also oxidize it at very high rates. This is not the case in man. In fact those animal bodies that produce large amounts of ascorbic acid actually metabolize it into a substance that has no vitamin C activity at all. The analogy simply does not hold up under scrutiny.

Despite this difference between man and lower animals, Pauling and Dr. Irwin Stone were the two main advocates of massive doses. They based their view on the amount of ascorbic acid some lower animals apparently produced in their livers. An unstressed rat, for example, produced 4900 mg a day and the same animal under stress produced 15,200 mg (15.2 grams). A mouse normally synthesizes about 19 grams (19,000 mg); a rabbit about 16 grams; goat about 13 grams; dog and cat both 2,800 mg.

Pauling speculated that the human requirements of ascorbic acid are between 3 and 9 grams per day.

When other scientists argued that taking so much ascorbate vitamin C per day was a waste of money since "the excess will simply be excreted," Pauling disagreed by claiming the body establishes a "steady state" if the amount is divided into four dosages and taken throughout the day.

Of course Pauling's ideas contributed fuel to the fires of controversy. He was a confident, some say quite arrogant, individual and he relished his international stature as a two-time Nobel winner. So, when he put his name behind vitamin C as a miracle cure for almost everything, he objected to any data that detracted from that position.

Dr. Arthur B. Robinson worked with Pauling for years and he told *True Health* that they had a falling out over research data that suggested massive doses of vitamin C were not always beneficial and could on occasion be harmful. Pauling simply would not allow facts to interfere with his thesis.

Medical doctors, whose forte is diagnosing, complain that persons taking megadoses of ascorbic acid can confuse various tests. For example, it has been shown that megadoses of vitamin C can increase uric acid levels in the urine, possibly interfering with a diagnosis of gout. Megadoses are also able to confuse certain blood sugar readings and lead to misdiagnosis of diabetes. All of these factors have enlarged

the controversy and colored the truth.

Obviously none of the combatants in the vitamin C dosage debates knew anything about the ability of OPC to recycle and enhance vitamin C activity, a fact that makes all the previous points moot. This is why Masquelier believes he would have convinced Pauling that massive doses are unnecessary. Masquelier has proved that optimal benefits for humans are achieved by combining ascorbic acid with OPC, which has the ability to replenish and enhance vitamin C.

There is yet another important point to clear up.

It is said that this vitamin C – OPC complex is the most powerful water-soluble nutrient "*antioxidant*". At *True Health* we have long objected to the term "antioxidant." It is a confusing and erroneous term for a chemical that may control, modify or enhance the proper, life-giving "oxidation" capacity of the oxygen we breathe into our lungs every minute of every day.

In order to better understand the present day claims for "antioxidants," we need to explain our long-standing position that only a robust cell oxidation gives human beings vitality, energy, and longevity. ***Only the robust and proper use of oxygen in the human metabolism gives us good health.*** Why else would the blood stream spend every heartbeat carrying vital oxygen to every part of the body?

Since our view about plentiful oxygen and robust oxidation is true – how can anything that is “anti” oxidant be good for you?

Let’s get down to basics. If we don’t breathe in oxygen, we will die quickly. Oxygen is said to be the greatest “giver and receiver of electrons” among the many elements. It is in this capacity as an electron donor and receiver that oxygen is vital to the biochemistry of life. Electrons provide the electrical energy necessary for life, and metabolism is nothing more than an “electron transport system.” By providing electrons at the right time and in the right place within the metabolism, oxygen stokes the furnace of life and cell respiration is complete and robust.

However, just as fire can be extremely useful to man, it can also get out of control and burn things causing serious damage. The same may be said for the electrons being passed around by all the oxygen and many other compounds pervading our bodies.

In a pristine natural environment, the healthy human will eat well, drink well and breathe well, thereby assuring that his body will be burning oxygen robustly and completely. However, pollute that natural air, water and soil so that unnatural chemicals become common, and the electrons of oxygen can be misdirected in countless ways within the complex human metabolism.

An electron that can cause a “burning” at the wrong place or in the wrong time frame within the dynamic metabolism is called a “free radical.” Whenever an electron gets misdirected and “oxidizes” the wrong biochemistry the body suffers “free radical damage.” For example, it is now believed that hardening of the arteries is primarily caused by free radical damage to tissues creating the conditions for inflammation and a plaque buildup.

When normal oxidation exchanges go awry, they are generally caused by chemicals pervading our environment – auto exhaust, perfumes, pesticides, trans fatty acids, ultra violet radiation, microwaves and so forth.

Additionally, people in our supermarket culture do not take in the ideal nutrients in their daily diets to keep their system in perfect working order – today’s people are largely deficient even in nutrients the body synthesizes such as coenzyme Q-10, alpha lipoic acid and L-carnitine.

And so it has come to pass that “antioxidants” are very much in dietary demand. Science tells us that the two most popular vitamins – vitamin C and vitamin E – serve as valuable antioxidants as part of their nutritional support for the human metabolism. Since water and oil don’t mix, vitamin E works in fats and oils while vitamin C and OPC work in the watery or water-soluble portions of our bodies.

When Masquelier first made his OPC discoveries, the antioxidant theory was not widely accepted nor understood. It wasn’t until the 1980’s, that Masquelier learned about the “exceptional antioxidant” qualities inherent in OPC.

Extracts from plentiful grape seeds are now the prime sources of OPC that Masquelier has used for his extensive analytical, toxicological and biological activity research, including the modern clinical studies verifying the health benefits.

After years of clinical research, the health value of OPC is now widely accepted in France and Italy. In these two countries, noted for an abundance of grapes, grape seed extract is said by the medical establishment to be “indicated” for a number of degenerative human conditions including: the improvement of blood flow for the brain and the heart; modification of the peripheral artery blood flow, especially in the legs; varicose veins; lympho-edema; acrocyanosis (dark discoloration of the skin at the extremities, including the nose) and acroparathesies, which is a tingling effect in the extremities; altered capillary fragility and permeability (bruise easily) which often occurs with diabetics;

Also for improving platelet aggregation and “electrical properties” of blood which helps stop bleeding gums, floaters in the retina, glaucoma, excessive menstrual

bleeding and hemorrhoids; improving skin cells, connective tissue and cartilage problems.

The *free radical scavenging* ability OPC is especially valuable in preventing hardening of the arteries over the entire body.

Today's populace is apparently suffering a lot of free radical damage based upon the ever-growing chronic disease statistics. This means the need for optimal dosages of vitamin C and OPC is more crucial than ever.

Today an excellent dietary supplement combining OPC and ascorbic acid is available. Carotec's Vitamin C Plus.

The upshot of this important nutritional story is that PureWay-C® ascorbic acid and Grape OPC combined appears to offer the final solution to the long-standing vitamin C controversy. This combination enhances robust oxidation processes, recycles the key ingredients, and controls free radical damages without massive doses. It makes good sense for a person to supplement his or her diet with this key family of nutrients using sensible doses. Most people will be able to work out the best regimen for their unique bodies with a little effort and perhaps consultations with those who understand vitamin C and OPC.

## *Masquelier's OPC Sets Standard For Quality*

Trademarked as Masquelier's®, the OPC used in Vitamin C Plus is a biochemical thoroughbred. Labeling a product "grape seed extract" is meaningless and calling a cheap extract OPC when it's not, could even be dangerous. If the label doesn't carry Dr. Masquelier's face it's not the real thing and you have been shortchanged.

Some OPC products contain nothing more than grape seeds that have been pulverized in food processors and turned into dehydrated tea powder.

Many manufacturers use chemical solvents, which are quite different from water and ethanol with technical skill and patented exactness.

Any manufacturer that does not carefully isolate proanthocyanidins and fail to remove large "polymeric" particles and leave only the very tiny "oligomeric" portions does not have the tried and true biochemical material.

There is also a wide variation between grape seeds, and knowing which variety is important. Seed separation, drying and storage is very important – and doing it right is costly.

Cut-rate OPC can be anti-nutritive and may be

dangerous when taken in large amounts.

In the marketplace products claiming OPC must borrow research from the genuine science to support any efficacy, and consumers have no way of knowing the truth. There is as much confusion as there are commercial opportunists. The result is pandemic misinformation.

Beware of the word "bioflavonoids" because the subgroup of flavonoids is an enormous and extremely complex category. Untested extracts may be dangerous to your health rather than beneficial. On the other hand, the highly defined and refined and patented Masquelier's® has been tested by strict European standards like a medicine.

This rigorous testing guarantees that our OPC is 100% bioavailable, non-toxic, nonallergenic, noncarcinogenic, nonmutagenic and will not cause birth defects.

When the dietary supplement industry got wind of OPCs and Dr. Masquelier's science, they engulfed the market under a tidal wave of "grape seed extract" and manufacturers popped up like corn in a pan.

Know what you are getting when you supplement your diet.

# Reports & Comment

*The following briefs are taken from various technical journals and other sources by True Health editor Tom Valentine. The reports are invariably laced with the editor's strong opinions – therefore it has become a regular feature.*

## Interesting Observation On Epidemic Of Autism

A letter to the editor of our local newspaper, the *Naples Daily News*, by a medical doctor is worthy of repeating since it contains much food for thought.

“Hillary Clinton wants to increase autism funding to \$700 million annually, claiming that the diagnosis of autism has increased from one in 10,000 in 1993, to one in 150 in 2007, costing the nation \$35 billion each year.

“But why the exponential increase in autism since the early 1990s? Is it in our genes? No way, genes don't change that rapidly.

“Is autism diagnosed more? Maybe a little, but I doubt that explains the huge surge. That leaves environmental factors, and my bet is fetal ultrasound.

“Diagnostic fetal ultrasound has been used since 1973. In 1993, the energy level

of fetal ultrasound increased – nearly tenfold! Ultrasound energy is converted to heat, and the developing brain is very sensitive to temperature elevation. A couple of degrees make a difference.

“Animal studies have shown that fetal ultrasound can alter the migration of fetal brain cells.

“Ultrasound technicians vary in skill, and some may take more time in getting the image. It's the higher energy ultrasound machines coupled with longer ultrasound exposure times that have potentially resulted in thermal injury to fetal brains. Therefore the increased prevalence of autism since the early 1990s followed the increase in fetal ultrasound energy. The coincidence is glaring.

“Diagnostic fetal ultrasounds are vital in prenatal care. However, they should only be done when indicated and by skilled technicians. Furthermore, the Federal Food and Drug Administration should be extremely attentive to this situation.

“Let's be kind to the developing brains of our future children and grandchildren.”

## Doubletalk On Cholesterol

Reading *The Lancet*, December 1, 2007, left me reeling and confused. The theme, hyped by the headlines and teaser up front, said one thing – the body of the text said another, in a typically circumspect jargon.

I can only conclude that “big pharma” influenced the famed medical journal to continue the hype for those awful *statin* drugs.

A “meta-analysis” of studies of 55,000 vascular deaths claimed to determine blood cholesterol levels and vascular mortality by age, sex and blood pressure.

I can only describe the summary of the “findings” as classical doubletalk, but then, I'm prejudiced against the statin drugs. You be the judge.

*“Interpretation – Total cholesterol was positively associated with IHD (ischemic heart disease) mortality in both middle and old age and at all blood pressure levels. The absence of an independent posi-*

*tive association of cholesterol with stroke mortality, especially in older ages or higher blood pressures, is unexplained, and invites further research. Nevertheless, there is conclusive evidence from randomized trials that statins substantially reduce not only coronary event rates but also total stroke rates in patients with a wide range of ages and blood pressures.”* (emphasis mine)

Okay! What did they find that caused them to “interpret” that they had “conclusive evidence” that statins reduced “rates?”

From the summary of “findings” I read the following:

*“... Total cholesterol was weakly positively related to ischemic and total stroke mortality in early middle age (40-59 years), but this finding could be largely or wholly accounted for by the association of cholesterol with blood pressure. Moreover, a positive relation was seen only in middle-age and only in those with below average blood pressure; at older ages (70-89 years), and particularly for those with systolic blood pressure over about 145 mm Hg, total cholesterol was negatively related to hemorrhagic and total stroke mortality. The results for other vascular mortality were intermediate between those for IHD and stroke.”*

Except for the unwarranted and out of context plugs for statin drugs, this study “on the epidemiological associations of cholesterol with IHD

and stroke” should never have wasted the funding.

Curiously, in the “Comment” section, which was headed: “*The Paradox of Cholesterol and Stroke*” one finds a blatant plug for statin drugs and not much else.

You think, maybe, that the anti-cholesterol-causes-heart-disease folks have a point? Statins are mostly hype and sales and no substance.

## *Iron Deficiency Prevalent In Older People*

According to research published by the *American College of Cardiology* in 2006, more than half of all chronic heart failure patients are deficient in iron.

Frankly, most Americans over 50 are iron insufficient, but how would we know?

Many people know they need iron in their diets, but there is a fear factor that too much iron is dangerous when one takes a dietary supplement. This is generally false. More people need iron than should fear supplementing with it.

How does one know whether there is a potential for iron overload or whether supplementing is a good idea? It is known, for example, that babies and young children getting an iron sulfate supplement meant for adults could have overload problems, but around the world less than

one percent of adults have a genetic makeup leading to serious iron overload.

A practical solution to the supplement problem was found more than 60 years ago when the German doctor Franz Koehler developed special chelates for delivering minerals safely and effectively into the metabolism – especially the aspartates which *True Health* has featured for decades.

Dietary iron that is chelated with aspartic acid gets safely and effectively into the metabolism. Thus, the answer to questions about supplementing that we are about to explore here have been answered by the Koehler product called Lombic, which should be taken every day to maintain optimal iron levels.

A letter to the editor in *The Lancet*, December 8, 2007 issue, written by two Berlin *cachexia* experts, pointed out that “*more research is needed to validate appropriate cut-offs for iron deficiency and it is important to include the distinction between absolute and functional iron deficiency in our educational efforts.*”

It should be noted that *cachexia* is a profound and marked state of constitutional disorder, general ill health and malnutrition.

The World Health Organization (WHO) suggests that adult ferritin concentrations of less than 30 milligrams per liter should be the level when diagnosing absolute iron deficiency. However, the letter writers

made the following points in *The Lancet*:

*“When taking care of patients with chronic illness (darned near everyone over 60 in US today) and associated inflammation, this WHO approach is too narrow.*

*“Research has revealed that well above 50% of patients with chronic heart failure have iron deficiency, as assessed by bone marrow biopsy, but with mean ferritin concentrations of 75 milligrams per liter (of blood). And the UK guidelines on anemia management in chronic kidney disease recommend that a ferritin concentration of less than 200 milligrams per liter should trigger initiation of treatment with intravenous iron. These cutoffs define patients with **functional iron deficiency**.*

The writers conclude their letter by defining the two standard tests for iron status and then pointing out their shortcomings. They call for more research to *“validate appropriate cut-offs for iron deficiency and it is important to include the distinction between absolute and functional iron deficiency in our educational efforts.”*

The experts have a lot to learn. And then there was this bit of information :

*“In a randomized, placebo-controlled study involving 23 non-anemic children (aged 5-8 years) with serum ferritin levels less than 30 mg/ml, who met criteria for attention deficit*

*hyperactivity disorder (ADHD), results indicate that iron supplementation may improve symptoms of ADHD.*

*“The children were randomized to oral supplementation with iron or placebo for a period of 12 weeks. A progressive significant decrease in the ADHD Rating Scale along with a significant decrease in mean Clinical Global Impression-Severity was observed in the iron-supplemented group alone.*

*“Iron supplementation (80 mg/day) appeared to improve ADHD symptoms in children with low serum ferritin levels suggesting a need for future investigations with larger controlled trials. Iron therapy was well tolerated and effectiveness is comparable to stimulants.”*

Iron uptake is tightly regulated by the human body in what is best described as a “catch 22” situation. Our bodies have no physiological means of excreting iron—so, iron levels are controlled only by regulating uptake in the gut. Ingested iron can cause excessive levels in the blood, which in turn can cause damage to the cells of the gastrointestinal tract that prevents them from regulating iron absorption.

Lombic features dietary iron chelated in aspartic acid where the iron is caged in the envelope of the amino acid until it is delivered safely and properly to the blood and cells as needed.

Based upon the findings of the *cachexia* experts from

Berlin, virtually every person over 60 should be supplementing with iron for optimal “functional” health. A coated tablet of Koehler’s Lombic not only has iron aspartate but also contains zinc, magnesium, potassium, manganese and copper aspartates.

## *Vitamin C & E Test Very Well; Is That News?*

Scientists in Chile studied 110 men ages 35-60 years with grade one high blood pressure in a randomized, double blind, placebo-controlled study. The results indicated that supplementation with vitamins C and E may be associated with lower blood pressure.

The participants, who were without obesity, dyslipidemia, (bad fat metabolism) diabetes, smoking, vigorous exercise, use of medications, and high consumption of fruits and vegetables, (where on earth did they find them?), were randomized to daily supplementation with 400 IU of vitamin E and 1000 mg of vitamin C or placebo for a period of 8 weeks.

At intervention end, men in the vitamin E and C group showed significantly lower systolic, diastolic and mean arterial blood pressure levels and higher erythrocyte and serum antioxidant capacity, compared to men in the placebo group.

Additionally, blood pressure was positively associated with plasma 8-isoprostane levels and negatively associated with plasma FRAP levels in both groups. Thus, the authors concluded:

“The present study supports the view that oxidative stress is involved in the pathogenesis of essential hypertension. The enhancement of antioxidant status by vitamins C and E supplementation in essential hypertensive patients is associated with lower blood pressure. This suggests intervention with antioxidants as an adjunct therapy for hypertension.”

Wasn't this expected? They are called “*vitamins*”, which means you must get them from your diet, or else bad things happen; when you get them good things happen.

In another study, 12 patients with ischemic heart disease, who were undergoing a clinical coronary intervention procedure, were exposed to an acute oxidative stress (breathing 100% oxygen, rather than room air), coronary blood flow velocity decreased by 20% and coronary resistance increased by 23%, while the diameter of capacitance arteries did not significantly change. A 3-gram vitamin C infusion promptly restored coronary flow velocity and resistance to a slightly above basal level.

It was concluded that acute oxidative stress is mediated by vitamin C acting on the coronary microcirculation.

# *Money Control, Not Science Is Issue In Stem Cell Research*

The great new hope for medical science is stem cell research, which has been winding up a twisted road of controversy since the dawning of our present new century.

Curiously, there are about a dozen new popular books and articles about stem cell research – but nary a textbook. Why not?

One author suggests the likely reason no introductory textbook has been published is the protective market for standard biology texts – after all, one can learn all about cells in the standard texts. A sensational “new” text might hurt sales. And thus we see a money and marketing controversy before we even delve into human embryos being used like lab animals and whether cloned cells actually work in ongoing generations.

It falls upon *True Health* to try sorting out financial control by the establishment monopoly and control of tax-paid research funding.

The best way to bring things up-to-date is to tiptoe through the many recent news items in both the popular and technical press.

Firstly, we can see des-

peration playing a major role from a January 6 *Associated Press* story telling about Americans seeking stem cell therapy for paralysis in China. The story datelined Beijing opened as follows:

*“They’re paralyzed from diving accidents and car crashes, disabled by Parkinson’s, or blind. With few options available at home in America, they search the Internet for experimental treatments – and often land on Web sites promoting stem cell treatments in China.*

*“They mortgage their houses and their hometowns hold fundraisers as they scrape together the tens of thousands of dollars needed for travel and hope for a miracle cure.”*

The rest of the article is informative about the few claimed successes and a lot about folks not getting hopes up because failures abound. We say let them try – it’s their individual choice isn’t it?

Politics and semantics entered the fray last September when President George Bush issued an *Executive Order* to change the name of the official government Human Embryonic Stem Cell Registry at the

National Institutes of Health (NIH) to Human *Pluripotent* Stem Cell Registry.

The change in name evidently clears the way for Congress to allot some federal funding. (See, we told you so!)

Of course the term “pluripotency” is imprecise, and therefore perfect for political gamesmanship. However, scientists who work on such potent stem cells say it isn’t possible to create a pluripotent stem cell without research on newly derived embryonic stem cell lines.

Interestingly, a brief report in *Nature*, September 27, 2007, noted the following:

“...Not even human embryonic stem cells have been established as pluripotent since researchers have yet to establish their ability to become all human stem cells.”

Hmmm; Bet you haven’t heard that before!

You may recall that California established its own Institute for Regenerative Medicine (CIRM) and *funded it with \$3 billion in tax dollars* with the passage of Proposition 71 in November of 2004.

In the same September 27 issue (above) of *Nature* a short feature told about the new CIRM director, Dr. Alan Trounson, picked up from Australia because the original director Zach Hall “departed amidst rumors of tension between himself and Robert Klein, chair of the board.”

Dr. Trounson, one of the mavens of in vitro fertilization

decades ago, is the new boss who said the following about his new: “best job in stem cells in the world.”

*“You (him) are working with the best researchers, you’ve got an enormous amount of money and you’ve got political will and the people of California behind you...”*

When will the first stem cell therapy arrive?

*“I see it as a continuum. Adult stem cells are happening. Embryonic stem cells will come into use, and they won’t be immediate cures for everything. You need drugs and protocols as well as the cells, and you’ve got to work with the immune system.”*

Which proves two of our basic premises – one – regardless the miracles of medicine, we humans will always need quality nutrition for vibrant health; and two – it’s the funding, not the technical facts, stupid.

Several weeks later, the December 6, 2007 issue of *Nature* in a brief news note about CIRM and Chairman Klein said:

*“California officials may investigate potential conflicts of interest in the state’s \$3-billion stem cell initiative.*

*“State Controller John Chiang has asked for the Fair Political Practices Committee to look into the accusations against Robert Klein, the chairman, and John Reed, a board member, of the CIRM in San Francisco. A public advocacy group has also called for both*

*to resign after it emerged that Reed, on Klein’s advice, asked the CIRM to reconsider a grant decision involving a La Jolla researcher.*

*“Reed is president of the Burnham Institute and intervened after the CIRM decided to rescind a previously awarded grant of \$638,000 to a researcher who was not an on-site, full-time employee of the Burnham Institute.*

*“Klein says he now realizes that Reed should never have written the letter (that Klein advised he write) and that he looks forward to the investigation. ‘We welcome guidance so that we can learn,’ he says.”*

Apparently not much is happening with the allegations and investigations, but its just more emphasis on the real issue of stem cell research – money.

Nevertheless, there is news on the scientific side. Stand by.

November of 2007 was a busy month for stem cell chatter. The journal *Science*, week of November 23 featured a developmental biology report on new stem cell advances. Here’s the opening paragraph:

*“For a year and a half, stem cell researchers around the world have been racing toward a common goal: to reprogram human skin cells directly into cells that look and act like embryonic cells. Such a recipe would not need human embryos to generate patient specific stem cells – therefore bypassing the ethical and political debates that have surrounded the field*

for the past decade.”

The various projects started in Japan where scientists inserted four genes into cells taken from the tails of lab mice causing the cells to differentiate into cells with pluripotency.

In November of 2007 two groups of researchers announced they had reprogrammed human skin cells into induced pluripotent cells, each group used a slightly different combination of the four genes needed to get the result.

The two groups using human skin cells actually overshadowed an earlier feat reported by researchers at the Oregon National Primate Research Center where embryonic stem cells were cloned from monkey embryos, which was said to bring therapeutic cloning closer to humans.

The upshot of these advances is that stem cells needed to treat diabetes or Parkinson's or other difficult conditions may be made from a base of one's own cells, which avoids a lot of unknowns and appears to be a more practical approach.

In the meantime, a report in *New Scientist*, December 15 last year, told how reprogrammed adult mouse cells were used to reverse the symptoms of sickle-cell anemia in lab mice.

Stem cell dreams may be taking shape in spite of human egos, corruption and the constant need for money; we say: “don't forget to wisely supplement the diet fellows.”

## *Has The Brave New World Of Aldous Huxley and Bertrand Russell Arrived on Schedule?*

In high school in 1952-53 the book “Brave New World” by Aldous Huxley was popular, and one of my teachers asked us to review it and report what we thought. I admit to being fascinated by it and thought at the time it was interesting science fiction. My father suggested it was prophetic.

Recently, thanks to the Internet, a blogger by the name of Eileen Dannemann posted the following information that evidently came from another blogger:

“In a speech Aldous Huxley gave at UC Berkley, he went public with the fact that the elite hired him to write the novel based on what type of society the elite wanted to create consisting of a race of humans so completely enslaved whose actions – even their thoughts – are completely controlled by technologies that they are literal mindless robots. These following quotes from Bertrand Russell give you a glimpse of what these *people* (?) have in store for us – what the elite want and are working towards for humanity:

“Diet, injections, and injunctions will combine, from a very early age, to produce the sort of character and the sort of beliefs that the authorities consider desirable, and any serious criticism of the powers

that be will become psychologically impossible. Even if all are miserable, all will believe themselves happy, because the government will tell them that they are so.”

“Gradually, by selective breeding, the congenital differences between rulers and ruled will increase until they become almost different species. A revolt of the plebs would become as unthinkable as an organized insurrection of sheep against the practice of eating mutton.”

A citation was given: Bertrand Russell, *The Impact of Science on Society*, 1953, pg 49-50.

Stopping to think it over, I can see exactly what has happened with society in general: fluoride in drinking water; soy foods promoted as healthy food; microwave cooking; depleted soils; junk food additives; prescription medications; artificial trans fatty acids; mercury in dental fillings; white bread; genetic tinkering; excessive use of antibiotics and mutated pathogens; pseudo hormones in environment; milk homogenization, pasteurization; rBGH hormones in cows; irradiation; and electromagnetic pollution.

Did all that common anti-health simply “evolve” or was it planned as Huxley and Russell claimed?