

Wellness Advocate

Volume 4 Issue 9

A Total Wellness Newsletter

September 1994

OPC Proanthocyanidin

What do pine bark, grape seed and peanuts have in common?

The bioflavonols are a group of antioxidants belonging to the bioflavonoid family known as "Vitamin P". Known as OPC, proanthocyanidins, procyanidins, leucocyanidins, leukocyanidol and pycnogenols*. These are the most powerful free radical scavengers and vitamin C enhancers known. In France where research first began, OPC was the abbreviated name for "oligomeres procyanidoliques".

OPC as a bioflavonoid is considered semi-essential for human health, rather than a true vitamin because its deficiency does not directly cause a disease. Free radical damage is a common factor in more than 50 non "germ" diseases, including heart disease, cancer, arthritis and accelerated aging, of which OPC is a master fighter.

Professor Jacques Masquelier the father of OPC: discovered OPC, isolated OPC, named OPC, characterized OPC and invented the extraction techniques. He conducted and oversaw numerous clinical trials, tests and studies establishing the safety and efficacy of OPC.

Since the 1950's, Prof. Masquelier has guided his OPC discovery and invention through rigorous pharmaceutical testing. OPC is virtually free of side effects and totally non-carcinogenic.

OPC has been used effectively in promoting wellness as an anti-aging nutrient. OPC maintains and restores that youthful appearance, because of its ability to bond to collagen while promoting increased flexibility. Think of OPC as an "oral cosmetic".

Researched extensively in Europe, OPC has since 1969 been used as a nutritional supplement throughout the world. OPC has been studied and its benefits documented in many nutritional and medical journals. OPC is safe and non toxic and has been tested in mutagenic and carcinogenic studies around the world.

OPC as a dietary supplement, is patented in the US and in many countries around the world. The patented OPC varieties sold in one country under a given name may be sold in another country under a different name.

OPC the Anti-oxidant

Anti-oxidants are compounds that easily react with oxygen protecting the cells from the damaging reactions of the oxygen radical. OPC does more than protect, OPC helps repair by improving and stabilizing the skin protein collagen and improving the condition of arteries and capillaries.

OPC protects brain and nerve tissue because OPC penetrated the blood-brain barrier. OPC enhances the wellness effects of vitamin C and has been shown to be 20 times more effective than vitamin C and 50 times more effective than vitamin E as an anti-oxidant.

The anti-oxidant OPC reduces tissue damage caused by free radicals. OPC has been shown to help the body to improve circulation, resist blood vessel and skin damage, mental deterioration, reduce inflammation and other damage caused by harmful free radicals. OPC may relieve the trauma and pain caused by arthritis, diabetes and stroke, and is used for the prevention of cardiovascular diseases and cancer because of its unique role as a potent anti-oxidant and as a vitamin C "enhancer".

OPC prevents vitamin C from oxidizing to

dehydroascorbate. OPC helps by its enzyme action, ascorbic oxidase, that metabolizes the body's vitamin C. OPC helps vitamin C by providing hydrogen ions to reduce glutathione. Reduced glutathione converts oxidized vitamin C (dehydroascorbate) to its active form (ascorbate).

History

French explorer, Jacques Cartier wrote of his journey in the winter of 1534 to 1535 in Quebec. Cartier's expedition was threatened with extinction by scurvy. Cartier met a Quebec Indian who lead him to a tree identified as "Anneda", a large tree with evergreen leaves and a bark that was easy to remove. The men had to drink the extract and the remaining bark and needles were made into a dressing placed on the swollen joints. Cartier didn't know that the needles contained a small amount of vitamin C and the bark contained flavonols, which potentiates the effects of vitamin C. This first recorded use of OPC is how the expedition survived. Studies show 10mg of vitamin C rid the body of scurvy.

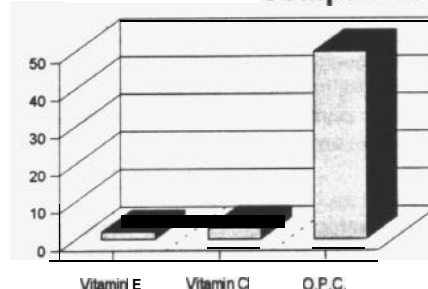
In 1932 vitamin C was discovered from lemon juice. The next year it was synthetically produced as ascorbic acid. In 1936, vitamin P was discovered as a vascular wall strengthener, but did not acquire the status of "vitamin".

Vitamin P are substances chemically named "polyphenols" which contain a benzene-pyran-phenolic acid nuclei named "flavan". This flavan nucleus forms the basic structure for hundreds of molecules that exist in all plants and are called "bioflavonoids" or "flavonoids".

Prof. Masquelier isolated and named the vitamin P factor, registering his first patents describing the method of extraction from the skin of peanuts and pine bark, both having strengthening effects on the vascular wall.

Because OPC is obtained using one of Prof. Masquelier's many patented extraction methods, he wanted a generic name to be used for this extract group.

Anti-oxidant Comparison



Prof. Masquelier coined the word **pycnogenol** (pronounced pick-nah-geh-nol), as bioflavonols, a special class of bioflavonoids with the active ingredient **OPC** that naturally occur in plants. Pycnogenol means "that which creates condensation". **OPC** works synergistically with vitamin C, as its enhancer.

The **pycgenol** name got out of control of its inventor and became trademarked, deposited and registered throughout the world by many different companies. The same material is even sold under different names. Prof. Masquelier still controls the use of his trademark in France.

In France in 1982, Prof. Masquelier patented his procedure for extracting these effective and nontoxic flavonols and for using these compounds for "preventing and fighting the harmful biological effects of free radicals."

In 1987, Prof. Masquelier was granted a U.S. "use" patent. Prof. Masquelier formalized the status of OPC as a "Plant extract with a proanthocyanidins content as therapeutic agent having radical scavenger effect". Quoting from the patents abstract, "The invention provides a method for preventing and fighting the harmful biological effects of free radicals in the organism of warm blooded animals and more especially human beings, namely cerebral involution, hypoxia following atherosclerosis, cardiac or cerebral infarction, tumor promotion, inflammation, ischaemia, alterations of the synovial liquid, collagen degradation, among others."

The patent applies to all plant materials containing **OPC**, it does mention pine bark. The patent states "this expression should be considered as covering, any plant extract with a proanthocyanidins content." Prof. Masquelier has advised that the research submitted to support the patent application was conducted with OPC from grape seed extracts.

OPC in Grape and Pine

Both pine bark and grape seed contain high levels of **OPC** (see chart above). Grape seed commonly yields an extract that is 92-95% pure OPC compared to the pine bark's lower potency of 85%. The pine bark extract has 15% of the material **non-OPC** and is taken up by other substances. Grape seed extract contains gallic esters which are the active, yet identified plant-derived free radical scavengers. **OPC's B2-3'-o-gallate** has the strongest anti-oxidant effect. These bio-flavanol-esters are found naturally in grape seeds. Pine bark does not have the strong anti-oxidant effect of the **B2-3'-o-gallate**. Choose between **OPC** from grape seed extract with the gallic acid based esters of proanthocyanidins showing the highest anti-oxidant activity of all **OPC's**, or **OPC** from pine bark extract with trace amounts of

other organic acids unrelated to OPC's anti-oxidant, tissue restoring, anti-carcinogen, anti-inflammatory activity.

According to Prof. Masquelier research on OPC was mostly conducted using OPC extracted from grape seeds. OPC from pine bark was researched using grape seeds.

OPC is a nutritive substance that must be obtained from plants. Industrially processed foods lack the parts of plants rich in OPC. Ripe fruit contain large quantities of OPC, in unripe fruit there is almost none. **OPC** is produced by mature fruit containing more anti-oxidant protection. Seeds from the wine industry found in grape seed extract are from ripe fruit.

OPC for Total Wellness

There are many ways that OPC helps maintain total wellness. There is evidence indicating improvement in mental functions, reduced risk of stroke, protection against the effects of stress, inflammation, reduction of hay fever and athletic injuries, reduction of some of the side effects of diabetes and improved vision. Beyond OPC's anti-oxidant function, it is believed to protect against cancer.

OPC and the vascular wall

The proper functioning of the heart and unhindered blood flow are the most essential physiological functions of the body. In Western countries, heart and vascular diseases rank as the number one killers.

OPC influences the essential factors that determine the intactness of the vascular wall.

Collagen and elastin (an essential component of connective tissue) are the stable building blocks of the vascular wall that determines elasticity and permeability. **OPC** helps prevent undesired excessive cross linking (aging). OPC enhances the natural renewal and production of collagen regulated by the body itself.

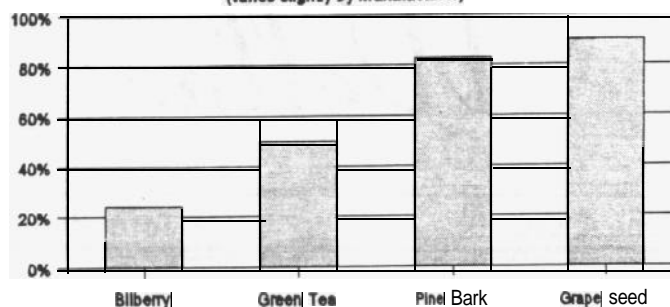
For renewal (bio-synthesis) of collagen, vitamin C is the vital element. One of the symptoms of scurvy is the decay of collagen caused by the lack of vitamin C. **OPC** is important because it is vitamin C's most powerful co-factor as a vitamin C sparing effect. **OPC** provides optimal use of the vitamin C available in helping the natural formation of collagen.

Vitamin C and cholesterol

The effects of vitamin C on cholesterol catabolism was demonstrated by E. Ginter. Cholesterol normally degrades into bile salts

OPC Purity of Popular Extracts

(varies slightly by manufacturer)



under the influence of vitamin C, therefore vitamin C eliminates cholesterol. Vitamin C is more effective in the presence of co-factors.

Connective tissue - scurvy

Vitamin C is essential in the production of connective tissue stimulating the formation of **hydroxyproline** (an integral component of connective tissue) and activates the enzyme propyl hydroxylase. Without vitamin C the connective tissue formed is soft and lacking firmness; wounds no longer heal, the vascular wall becomes porous and brittle, causing the capillaries to tear and hemorrhage.

To maintain total wellness on a sub-optimal diet of vitamin C could be done by supplementing with a good supply of **OPC** as a vitamin C co-factor. Administering megadoses of vitamin C and ignoring OPC doesn't make sense. The appropriate balance between OPC and vitamin C allows lower levels of vitamin C when higher levels of vitamin C are required. Making OPC available could speed up or initiate the healing process.

Allergies, Inflammation, Hay Fever

Using OPC as a medicine and dietary supplement can confirm OPC's natural relief factors in cases of hay fever and allergic reactions in the nose, throat and air passages. Allergies are a process of inflammation known to be a disorder of the immune system. The immune system is made up of cells with the capacity for recognizing, evaluating and neutralizing or eliminating alien material.

Inflammatory diseases include allergies or sensitivities, hepatitis, rheumatoid arthritis, osteoarthritis, Crohn's disease, lupus erythematosus and ulcerative colitis. **OPC** quenches free radicals and inhibits the inflammatory enzymes.

Blood Vessels and Circulation

As important as protection against free radicals is, **OPC** is best known for its beneficial effects on the blood vessels and circulation. **OPC** effectiveness against free radicals and free radical diseases have been known in Europe for more than two decades to strengthen blood vessels, including the capillaries, and to reduce edema (swelling

caused by water retention) and arrest varicose veins.

The **bioflavonoids** adhere to the collagen protein fibers in the blood vessels restoring resilience and flexibility. **OPC's** greatest effect on the circulatory system is the strengthening of the capillaries, restoring the impermeability of blood vessel walls.

Atherosclerosis

Anti-oxidant nutrients are protectors against heart disease. **OPC** protects vitamin C and becomes the body's first line defense against heart disease. The antioxidant nutrients, **glutathione**, beta-carotene and selenium are contributors.

OPC, a natural anti-oxidant, protects against heart disease by protecting the artery lining against injury and keeping the blood platelet from clumping and preventing clots from forming. **OPC** reduces adhesions of platelet to collagen surface in the lining of the blood vessels.

OPC anticlotting factor is important. **OPC** does not have the same interference aspirin does, resulting in a longer time to form a blood clot. **OPC** protects blood platelet and prevents the platelet from adhering to the artery walls. These actions reduce the risk of forming deadly clots.

Edema

OPC demonstrates anti-edema activity twice as strong as a frequently used inflammatory inhibitor drug.

Histamine is produced under the influence of hyaluronidase in Mast cells and is a product of decarboxylation of the amino acid histidine in the stomach lining. **Decarboxylation** takes place under the influence of the enzyme histidine decarboxylase (HD). **OPC** from grapes inhibits **HD's** activity and prevents the production of histamine.

Ulcers

Bioflavonols may be used for curing or preventing stomach ulcers and hemorrhages. Stomach hemorrhages are dangerous. **Catechin**, a bioflavanol monomer, was established to be a specific histidine decarboxylase (HD) inhibitor. Researchers conducted a test using 1000 laboratory animals exposed to **ulcer**-provoking stress for a period of six months. **Catechin** administered to the animals resulted in 80% of the animals not developing acute ulcers. Prof. Masquelier **confirmed** the biological availability of catechin is optimal when combined with either **OPC** from pine bark or grape seed extracts.

Prof. Masquelier performed anti-HD test with **OPC** from grape seed showing that **OPC** can inhibit the activity of the HD enzyme. **OPC** lowered the production of histamine by an average of 86% through inhibition of HD.

stress

Acute hemorrhagic ulcers of the esophagus, stomach and duodenum result in serious gastrointestinal bleeding and death. Histamine is involved in the pathogenesis of stress ulcers. **OPC** inhibits the enzyme histidine decarboxylase, that is known to lower histamine levels.

OPC reduces stress ulcers in the stomach and intestine by 82% because **OPC** prevents excessive histamine release. In 1990, researchers in Great Britain confirmed this and reported on the **OPC** anti-stress action and how it prevents ulcer formation.

The Inflammation Inhibitors

Leukotrienes are implicated in asthma **inflammations** such as arthritis, over sensitivities (allergies), skin inflammations, suppression of the immune system and **vascular** wall leakage (Permeability) which occurs in diabetic retinopathy.

"Leukotrienes are a class of polyunsaturated fats... Recent research shows that leukotriene oxidation products are extremely powerful bronchoconstrictors, which have long-lasting effects. Like histamine, they cause inflammation and constriction of the lung's air passages but they are not blocked by antihistamines.

Antioxidant can help prevent the formation of the active form of these compounds and also help destroy them after they have been formed. It is suspected that these autoxidation-produced broncho-constrictor may be involved in breathing difficulty in **S.I.D.S** (sudden infant death syndrome). (Pearson & Shaw 1982)

Platelet Activating Factor (**PAF**) is active in deregulation resulting from the following symptoms: allergies, angiopermeability, formation of edema, inflammation, low blood pressure, bronchial asthma and cerebral damage. Re-enforcing their aggressive activity, the leukotrienes (fatty acid derivatives) and **PAF** work on the body and trigger the production of histamine.

It is known that vitamin C is involved in the destruction of histamine and is an inflammation inhibitor. Vitamin C requirements are **reduced using OPC**. **OPC's** vitamin C saving effect pushes the fatty acid transformation to the good **prostaglandins** (**PGE1**) that are important for the body and away from the "bad guys" (**PGE2**).

Diabetes

OPC has a protective effect on the fragile **capillaries** of the eyes. Diabetes is one of the common causes of adult blindness with retina damage caused by the microbleeding of the eye capillaries.

The **OPC** from grape **seed** extract is used in France for treating diabetic retinopathy. Studies with 80 to 120 mg of **OPC** per day for a week were taken, then maintained on 40 to 80 mg of **OPC** per day for 1.5 to 4 months. Microbleeding of the capillaries

decreased in 90% of the patients and their eyesight noticeably improved.

Premenstrual Syndrome (PMS)

Common PMS symptoms are painful, swollen breasts, inflated stomach, puffy face, undefined pelvic pain, weight gain, functional disturbances in the legs, irritation, depression and headaches. These symptoms occur **from** an increased sensitivity to normal physiological variations in estrogen and progesterone levels.

Patients suffering from ambulatory treatment for various PMS problems were given **200** mg of **OPC** per day. In 61% of the women the physical disorders disappeared **after** two cycles, in 79% of the women the physical disorders disappeared after four cycles.

Athletic Injuries

Athletes may **find** **OPC's** ability to improve joint flexibility and **repair** the collagen in connective tissue helpful, because **OPC** reduces inflammation caused by injury. **OPC** is an effective **bioflavonoid** inhibiting the enzyme elastases and the bad prostaglandin **PGE2** that can lead to inflammation. **OPC** inhibits histamine release and reduces inflammation.

Athletes take **OPC** to minimize inflammation for that inevitable injury. By controlling the swelling, the athlete can quickly return to action.

Cancer

Italian researchers report that the anti-oxidant properties of **OPC** from grape seed extract represented characteristics for use in chemoprevention with antimutagenic potential at the mitochondrial and nuclear level. **OPC** inhibits skin tumor production and has free radical scavenging effects that may slow cancer mutagenesis.

Arthritis

OPC quenches the free radicals involved in the inflammatory process of diseases like osteoarthritis and rheumatoid arthritis. Improvement **from** arthritis has been reported with 120 - 150 mg of **OPC** per day.

Brain

OPC protects blood vessels, is important for brain function and is one of the few dietary **anti-oxidants** that crosses the **blood-brain** barrier. Protection of brain cells may help memory and reduce senility. Sluggish memories may improve with better circulation and cell nourishment.

Ski

The epidermis is the outer layer of skin that received its cell nourishment from the skin layer directly underneath called dermis. **OPC** reactivates damaged collagen and elastin, and protects each from attack by free

radicals and degrading enzymes, elastase and collagenase. OPC bind to collagen fibers and realign them to their youthful, undamaged form, preventing early facial wrinkles that occur because of lack of skin elasticity.

Well-nourished skin is radiant and youthful looking. OPC can be an important part of optimal nourishment for your skin. **OPC** offers important protection and revitalization. OPC will not make old skin new, but may improve the elasticity and appearance of skin.

Topical OPC

It has been known that plants rich in bioflavonols counteract allergic reactions. OPC in cream form has been researched and demonstrated to be effective against the dangerous effects of the sun (UV rays). When OPC cream is applied to the skin before exposure to the sun, less burning of the skin occurs.

Conclusion

OPC is absorbed into the bloodstream in about 20 minutes and can be detected in saliva in less than one hour. Once absorbed, the maximum protective effect lasts about 72 hours. OPC is excreted in the urine, and like other water-soluble nutrients should be taken daily for maximum protection. To take advantage of the full power of **OPC** from grape seed extract (92-95% pure OPC), the best anti-oxidant, combine with a good multi-vitamin, rich in vitamin C and other anti-oxidants for total wellness.

No studies (and we have looked at over 100) use less than 100 mg per day for their test. **Don't be fooled that a 20 mg capsule is therapeutic.** We recommend two mg per pound of body weight of **OPC**. As an example: 140 lb person might take two 150 mg capsules or 300 mg per day. For advanced usage double or triple these amounts. Although widely researched in Europe and around the world, **here** in the U.S. the information on this tremendous product is limited. If you have difficulty finding this product, drop a note to the **Wellness Advocate** and we will direct you to the nearest known location.