

Squalene

The miraculous essential omega 2 oil.

Secrets from the sea

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Scientists have discovered that in the very beginning of life on Earth, about 3,5 billion years ago, microbes and later in the Precambrian period membrane cells of organisms were full of squalene. At that time the substance was apparently essential for their survival in a hostile environment with a lack of oxygen.

Until recently no one knew that this natural chemical is also found in small amounts in the human body. Newborn babies show the highest content of squalene in their blood.

With an age between 30 and 40 the stock of squalene in our body decreases strongly. It is not surprising that in this stage of life record performances of sportsmen take place in a lesser degree.

The deep sea shark, a prehistoric animal, dispose of an enormous concentration of squalene in his liver. Through the ages fishermen all over the world were acquainted with the beneficial and wonderworking effects of this liver oil of a number of deep-sea sharks living beneath 1000 m. The local people on the Japanese peninsula of Izu called the substance already for centuries "Samedawa" or a cure-all. They used it for a wide range of diseases from constipation to cancer. In ancient China the miraculous effects of shark liver oil are recorded for posterity in the pharmaceutical book of "Honzukomuko".

It is just two decennia ago that scientist discovered a larger amount of squalene in olive and palm oil. Research has shown that people with an increased consumption of these two natural food oils show a significant decreased risk of developing cardiovascular diseases as well as cancer. Two leading scientist in this field, Theresa J. Smith en Harold L. Newmark suggest that this protective effect is due to the component of squalene. Olive and palm oil hold a concentration of a about 0,5% of this substance.

In countries around the Mediterranean sea an high squalene consumption (200-400 mg per day = 2 capsules) through the intensive use of olive oil was observed.

For lovers of olive oil and olives this can amount up to one gram per day per person. Roughly the same amount applies to the average consumer of palm oil in Asia.

Historical Importation

It is generally assumed that squalene was an essential substance in the very beginning of life. After millions of years of evolutionary development the liver of the deep sea shark forms the richest source of natural squalene. Shark liver oil consists of about 60-85 % of this organic matter. Olive oil has a squalene concentration of only 0,4 -0,8 %. During the production process from olive oil squalene can easily be distilled to a concentration of about 99%.

Since time immemorial Japan uses seafood as a staple diet. It's not surprising then that in 1906 a Japanese chemist Dr. Mitsumaro Tsjuimoto, specialised in oils and

fats, published his scientific research about the secrets of shark liver oil. He discovered that a specific substance in the oil was responsible for the healing properties. He called it squalene because the people of Japan and neighbored islands extract the oil only from sharks livers of the Squalidae family. According to fishery authorities his order represents the second largest order and includes 7 families and about 113 species and their most distinguishing feature is the missing anal fin. Most species also have a spine in front of the first dorsal fin. The majority are deep water species, and some have luminescent organs. Some species can reach a length for instance the Greenland shark, *Somniosus microcephalus*, of 7m. 6 kinds are used for the production of shark liver oil: the Aizame shark or Dog Shark, the nurse shark, de Kasumizame or Fog shark, the Gulper Shark, the Thompson's Shark or bird beak shark and the Cat Shark. The squalidae sharks live 500 to 1000 m below sea level. They have no fish maw but carry a conspicuous big liver. This organ makes up 25 % of their body weight and is of vital importance for their existence in greater depth. Because of a unique metabolism these sharks can survive in great depth, where is lack on oxygen. Unlike whales, which are a viviparous and an often endangered species, most of the squalidae sharks show an successful ovoviviparous or in some cases also an oviparous reproduction, with up to twelve eggs at a time. The squalidae family feed mainly on plankton, algae en small fishes and reach a maximum body length of 1,5 m.

The Gulper Shark

Through research Dr. Carl Luer, a biochemist in Florida, found that sharks do not suffer or hardly ever suffer from cancer. Even after they were exposed to high concentrations of carcinogen substances their immune system saved them from disorder or illness. At the same time scientists discovered that their wounds heal two times faster as wounds of humans do. The first sharks lived about 400 million years ago and are about 130 million years older than the oldest dinosaur species from the Triassic period. The perfectly developed shark body survived millions of years of evolutionary influences without any major changes while the dinosaurs vanished. Aqua dynamic built, looking nearly the same as their prehistoric ancestors, the senses, the mating behavior and the resistance against diseases of these animals are until today highly effective and need therefore no further adaptation. Some of the species can reach the age of hundred years or more.

Olive oil or Squalene

Not only animals like sharks have a certain quantity of squalene in their body, also plants like olives and the fruit of the oil palm contain this substance, though in a lesser degree. The olive oil, received from the first compression, holds about 400-450 mg/100g of squalene, while refined oil contain about 25% less. In some cases premium quality olive oil show a higher concentration of up to 700mg /100g. According to the same research the average squalene consumption of adults in western countries including the USA run up to 30 mg per day.

In Mediterranean countries frequent and well-balanced use of premium quality olive oil provides a daily dosage of up to

400 mg of squalene. According to the researchers Gylling and Miettinen in some special cases 'olive lovers' consume through their daily diet more than 1g (2 capsules) squalene.

The olive tree (*Olea Europaea*) has its origin in countries round me eastern Mediterranean Sea. Both the Old and the New Testament give the olive tree, the olive branch and olive fruits a role of importance. The fruits were not only used for food and for the production of olive oil, it was also applied to balm and to salve as well as for perfume and lamp oil.

Because the fruits and the oil are easy to conserve and contain many nutritious substances an olive tree was a very precious possession. Due to trade and the migration of peoples the plant spread out along the shores of the Mediterranean sea.

Squalene and cancer

Epidemiological studies on nutrition indicate a strong protective effect of olive oil against different forms of cancer. The health statistics of Greece, a country with a high consumption of olive oil, has in comparison with the USA 65% less cases of Breast cancer. Partial scientific examination of the Greece population show that the risk to develop breast cancer drop by 25% through a twice a day consumption of olive oil. Another study in Spain give proof of a significant reduced risk of breast connection with a lavish use of olive oil in their daily nutrition.

In Italy, where olive oil make up 80 % of the consumed edible oils, recent scientific research prove the same: Women with the highest consumption of monounsaturated fatty acids (MUFA), as occurring in olive oil, in their daily nourishment, show the same significant decline of breast cancer risk. Leading scientists on this field, Theresa J. Smith and Harold L. Newmark, suggest that this protecting effect can be related to the high concentration (0,2-0,7%) of squalene in olive oil (14,18). This reasonable assumption is supported by the results of a substantial number of animal experiments. The majority of the research has studied the effect of systematically or local administered squalene on chemically Induced cancers of the skin, the colon and the lungs. The consequential discovery of the "Peroxisom Proliferator-Activated-Receptor" and the herewith closely connected PPAR-technology caused at the same time a new view on cancer and opened new perspectives concerning prevention and treatment. (Visit the Dutch website www.ppar.nl)

Components of shark liver oil

Except squalene, the liver oil of the deep see shark contains vitamin A, D3 and E, Jodium and alcohol, as well as alcoxyglycerols and other immunity enhancing nutritional substances. As it turns out now the synergetic effect of squalene together with the other components improve not only the sharks immunity against cancer and other *diseases*, but supports the animal with an increased endurance.

Natural chemical Processes

In 1936 Dr. Paul Carer (1889-1971), a world-famous Swiss professor in chemistry and lecturer at the University of Zurich, author of several scientific books on pharmacy, succeeded in the determination of the chemical formula and structure of Squalene. Squalene from shark liver oil is named in Latin "squalene exogeno oleum". The medical name is Spinacene or Supraene. The biochemical structure of squalene is C₃₀ H₅₀ (C₃₀:6n- omega₂) all trans isoprenoid, what means C₃₀ polyprenyl compound hold 6 prenyl (better known as isoprenoid or isoprene). Because of a double bond structure of six CH₃ compounds the isoprenoid has a strong antioxidative effect lik a natural antibiotic. Other isoprenoids are Beta carotene, lycopene, vitamin A, vitamin E and Coenzyme Q10. Not long ago the knowledge spread that squalene is one of our body's own essential substances, which occurs in small quantities in the skin and blood. It is an a polar polyunsaturated fattv acid

(PUFA or long-chain polyenes) that plays an important role in an in-between (intermediate) phase of our body's cholesterol synthesis. It is not only essential for a healthy skin, according to a new scientific thesis of PPAR technology it differentiates also cancer cells to fat cells (adipocyte) finally followed by apoptosis. (For more information please visit the website www.ppar.nl)

Squalene is in fact a metabolite and precursor of the cholesterol synthesis. In our body Squalene can be converted into useful HDL-cholesterol, whereby the level of good cholesterol increase and the level bad LDL-cholesterol become reduced.

Main properties

Health as well as dysbalance of our body has its origin on the cellular level. A wide range of squalene's core properties influence this level. Therefore it find a wide application:

- Anti-oxidant - powerful Anti-oxidant
- Oxygen generator - vast recuperation
- Immune stimulator - good immune response
- Fat regulator/energy modulator - natural vitality

Fahrenheit Farma's natural pure squalene does not smell or taste like fish as we expect from cod-liver oil. Our squalene's odour is neutral and burps, as seldom as they occur, leave no fishy taste. Because of a lack of fine distillery methods some other brands of shark liver oil still have the typical taste and smell of cod-liver oil. Squalene an omega 2 fatty acid has unlike omega 3 fish oils more complete and effective chemic groups.

Squalene - A strong natural anti-oxidant

The biochemical structure squalene is C₃₀ H₅₀ (C₃₀: 6n-omega 2) all trans isoprenoid, that means a C₃₀ polyprenyl compound hold 6 prenyl (better known as isoprenoid or isoprene). Because of a double bound structure this isoprenoid has the function of a strong anti-oxidant and a natural antibiotic. The molecular weight of squalene is heavier than that of EPA or DHA, through which all active bonding positions of the receptor can be maximal belayed. As consequence squalene permeates not only deeper in cells but also faster and more effective.

Squalene- A unique oxygen generator

The unsaturated hydrocarbons carbons of squalene (C₃₀ H₅₀) bind hydrogen ions from water and saturate with that squalene (C₃₀ H₆₂). This chemical process release 3 unbound oxygen molecules (O₂):

$C_{30}H_{50} \text{ (squalene)} + 6 H_2O \text{ (water)} > C_{30}H_{62} + 3 O_2 \text{ (oxygen)}$.

During this reaction blood is getting purified, polluted and finally purified again. The quality of the blood and the blood vessels determines the result.

Dr. Nideo Noguchi and many other specialists hold the opinion that nearly all human diseases are caused by a deficiency of oxygen in blood and cells. Squalene has shown efficiency in improving the quantity and quality of the oxygen saturation in cells, leading in a impressive number of cases to an enhanced vitality. As an omega 2 fatty acid squalene has a redox function which releases oxygen from water,

resulting in this above mentioned increased oxygen level in the cells. Squalene is in fact an oxygen generator which provides our organism with a sufficient oxygen level and distributes it into the remotest cells of our body. Squalene will mainly lay up in our skin and the adipose tissue, the natural stock of this substance. The increased oxygen level stimulates also the natural metabolism. There is strong empiric evidence that the combination of squalene with regular medication produces good and sometimes even better results in the recovery process. In comparison to adults the body of babies and pre-schoolers show the highest levels of squalene. This fact could explain the energetic behavior and the vivid eyes of young and healthy children.

Starting with an age of 30 the squalene level in our organism drops significantly. Therefore it is not surprising that round an age of 30 the sport performances of most humans decline. Squalene can intercept this lack of energy and improve the power output.

Powerful immune stimulator

An important substance in shark liver oil are the alkoxyglycerols (AKG's), also known as glycerol ether lipids, G-E's), which are stimulating the immune system and protect us against uncontrolled and malignant cell growth. Swedish biochemist Sven Brohult discovered that AKG's support the production of white corpuscles, which are responsible for an optimal function of our immune system. Alkoxyglycerols are also present in organs being essential for our immune defence like spleen, lymph nodes as well as in bone marrow and mother's milk. Because of an hostile environment a baby need to strengthen his immune system in no time. The main substance of mother's milk, alkoxyglycerol, stimulates and boost this process. Shark liver oil contain much more of this substance than other fish oils.

Sustainable properties (strong points) of Squalene

Shark liver oil has been proved to work out sustainable and effectively and can be seen as nutrition supplement with the following properties and applications:

- Anti-oxidant (intercepting free radicals)
- Anti-biotic (anti bacterial, anti-infectious)
- Anti-coagulant (reducing thrombocyte aggregation, disintegrate blood clots)
- Anti-histaminic (suppressing histamine)
- Anti-phlogiston (combat inflammation)
- Anti-allergic (preventing allergic reactions)
- Anti-carcinogen (anti-cancer through differentiation of cancer cells to adiposity

[fat cell] apoptosis [cell death] and necrosis [cell decomposition])

- Digestive (stimulating digestion)
- Immune stimulant (improving resistance, supporting development and

activity of phagocytes and lymphocytes)

Effects and applications

- re-establishes the auto-immune system
- supports internal and external healing of tissue damage
- supports growth of blood cells
- works as strong anti-oxidant and scavenger of free radicals
- leads to extra natural energy, vitality and top condition
- protects and cleans cells and tissues and keep them healthy
- provides a good prostate function
- helps to recover from stiff and painful muscles
- provides elastic: and healthy joints
- protects the during aging
- strengthens the immune system and support the natural immune defence
- provide a healthy skin: more elastic, less wrinkles
- improved control of allergies, eczema and psoriasis
- reduces formation of scar tissues
- reduces harmful LDL-cholesterol and the cholesterol level in the blood

- improves the body's energy by providing the blood cells with oxygen
- works as an effective antibiotic
- supports the recovery of asthma- and CNSLD-patients (chronic non-specific

lung disease)

- protects against common cold and influenza
- supports control of candida, candidiasis, mycosis, and athlete's foot disease
- reduces gastric disorder and indigestion
- improves the blood circulation
- helps to control chronic illnesses like asthma, diabetes, rheumatism and

arthritis

- releases from pain
- helps to control varicose veins and decalcification
- Improves the memory and the concentration
- helps to control ADHD, hyperactivity and dyslexia
- helps to control the growth of several forms of cancer through the benefit of

PPAR- technology based on suppletion of LCP

- helps to excrete several toxins in humans as well as animals

Healthy and beautiful skin, sharp eye-sight and untroubled cerebration

Several studies indicate that consumption of squalene provides us also with other advantageous effects. Scientists as Kohno and others found, that squalene is a powerful scavenger of reactive singlet oxygen in the surface of human skin. Beside this effect squalene protects healthy and smooth skin against wrinkles by feeding and guarding important processes in the skin cells. The unsaturated fatty acids of squalene plays also a crucial role in the moisture regulation of the skin. About 10 percent of our skin surface (skin lipids) is made of squalene. Squalene safeguards also a healthy fat metabolism and the oxygen transport to and from our skin. Through the stimulation of a healthy digestion it provides us also with a healthy intestinal flora with natural and regular bowel.

The benefits for our skin one by one

- influences the skin positively through a healthy digestion and an optimal intestinal flora
- intercepts through anti-oxidants free radicals in the skin
- stimulates a better blood circulation and nourishment of the skin
- brings the skin layers in balance and revitalise this important organ
- equalizes and regulates the metabolism from and to the skin
- improve the moisture balance and the elasticity of the skin
- creates a visible improvement of the skin structure
- protects partially against sun rays including uv-rays.

This is one of the many reasons why this substance is intensively used in the cosmetic industry. Squalene is also crucial for the well-being of our eyes especially for the photosensitive cells of the retina. Scientists found out that squalene stimulates the development and maturation of the brain structure resulting in an improvement of the memory and the ability of concentration. That's only logical), as the human brain consists for more than 80 percent of fatty acids.

Squalene Omega 2 Products

High quality squalene capsules are difficult to obtain on the European market. To improve the squalene supply Fahrenheit Farma will introduce mid 2004 as a world premiere squalene distilled from pure premium olive oil.

Why to take Squalene?

1. Squalene can help enhance the quality of life, it taken continuously.
2. Squalene is very useful for patients with Heart disease, diabetes, arthritis and hepatitis.
3. Squalene can help blood cholesterol levels of people who eat a lot of fatty foods.
4. Squalene is highly recommended for people who suffer from gastritis.

5. Squalene can be taken as a general health tonic for hard working people.
6. Squalene helps the skin get the nutrients it needs, and gives it a more beautiful complexion.

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