

## Shark Liver Oil

In the April 1996 issue of Life Extension magazine, we reported on the benefits of Shark Liver Oil and its primary ingredient, "alkylglycerols." New findings are validating the disease prevention and treatment effects of alkylglycerols, suggesting this shark liver oil extract may soon be integrated into mainstream medicine. Alkylglycerols were first isolated by a physician in Sweden named Dr. Astrid Brohult. Dr. Brohult was treating children with leukemia, with little success. Because white blood cells are produced in the bone marrow, she started to feed the sick children bone marrow from calves. The result of this bone marrow feeding was a marked improvement in the children's immune systems and white blood cell counts. Unfortunately, Dr. Brohult could not get the children to eat enough bone marrow to sustain these results. So Dr. Brohult set out to find the active ingredient in bone marrow and isolate it. With the help of her husband Dr. Sven Brohult, it was determined that alkylglycerols were responsible for the immune system enhancing effects. Were there any other sources? Yes! In fact, these same compounds are found in the livers of cold-water sharks, like the Greenland Shark. The shark in general has gained a lot of popularity because cancer occurrence is very rare in sharks. The existence of alkylglycerols in their liver may be one reason for the natural immunity to cancers.



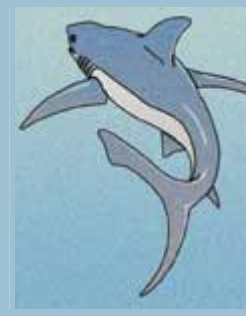
### Shark liver oil and cancer

The biologic effects of shark liver oil include stimulation of blood leukocyte and thrombocyte production as well as the activation of macrophage and anti-tumor activity. Other effects include the ability to protect against radiation damage during radiation therapy for various types of cancer. Alkylglycerols act as a powerful immune system booster against infectious disease and are what help give nursing animals, including breast-fed babies, protection against infection until their own immune systems can fully develop. In a study published in the Journal of Cell Physiology (February 1999), researchers studied the cell differentiation-promoting potential of a particular type of alkylglycerols on human colon cancer cells. The scientists wanted to observe the ability of alkylglycerols to change the biological makeup of human colon cancer cells. Alkylglycerols were shown to ". . . promote a more benign or differentiated phenotype in colon cancer cells." Treatment of the cancer cells with alkylglycerols resulted in a reduction of cellular proliferation and a reduced capacity for cellular invasion. In other words, alkylglycerols led to lowered cancer cell reproduction and a reduced ability of the cancer cells to invade healthy cells. The authors concluded that alkylglycerols possess both cancer preventative properties, as well as cancer treatment effects. In a study published in the Journal of Alternative & Complementary Medicine (Spring 1998), researchers extolled the many biologic actions of shark liver oil alkylglycerols. It was pointed out that shark liver oil has been around for 40 years and has been used as both a preventative and therapeutic agent. Not only have alkylglycerols been used to treat leukemia, as in the case of the children in Sweden, they have also been used to prevent radiation sickness stemming from radiation cancer treatments. Furthermore, the high level of alkylglycerols that exist naturally within any given tumor cell has lead scientists to postulate that this is may be an apparent attempt of the body to control cell growth. In another study referred to in this paper, researchers found that the activation of protein kinase C, an essential step in cancer cell growth, can actually be stopped or inhibited by alkylglycerols. In addition, it's been suggested that alkylglycerols directly act on the macrophages (large immune cells that gobble up cancer cells). Overall, alkylglycerols are able to stimulate the macrophage to secrete over 50 substances concerned directly or indirectly with the immune system. Some of these substances, the interleukins, are powerful immune system fighters that interact with lymphocytes.

### What are alkylglycerols?

Alkylglycerols are glycerol ether lipids that are naturally occurring in hematopoietic (blood forming) organs such as bone marrow, spleen and liver.

They are also present in cow's milk as well, while not occurring in plants. One of the most potent sources of alkylglycerols is **shark liver oil**.



### Psoriasis and other skin inflammatory diseases

Another use for **shark liver oil** is in the treatment of psoriasis and dermatitis. In the case of psoriasis, the skin cells divide at an abnormally high rate. Rather than taking 28 days to turn over a new set of cells, in psoriasis, it takes three or four days. The most common treatment is cortisone and UV treatments, both of which have significant side effects. Currently alkylglycerols are used alone or as an adjuvant to other therapies because they help block cell turnover and boost the immune system. A recommended dosage has been two 1000 mg capsules of **shark liver oil** (providing 400 mg alkylglycerols) on a daily basis. This can be reduced as symptoms improve. In fact, a topical treatment of **shark liver oil** may soon be available. Dermatitis, another skin disease that mainly affects children, has been successfully treated with **shark liver oil**. Again the alkylglycerols' immune stimulating effects, as well as their ability to slowdown cell proliferation, help combat this extremely painful and sometimes scarring skin disease. Children over the age of five have benefitted from taking one 1000 mg capsule every other day.

### Antifungal, antibacterial and antiviral

**Shark liver oil** has been used for years in the Scandinavian countries as an effective antibacterial, antiviral, antifungal, as well as antiparasitic agent. In the case of bacteria, like the tubercular bacteria (a very hardy bacteria because of its coating, which makes it virtually indestructible), these bacteria can actually live inside the macrophage sent out by the body's immune system to kill them! Fortunately there's another solution. Alkylglycerols are able to stimulate the helper T cells, which are highly sensitized to the bacteria-infected macrophage, and thus the body is able to destroy the bacteria. Viruses like the dreaded HIV, Ebola, or even the herpes virus are actually very simple compositions. So simple they can only survive and replicate inside a host living cell. The process ultimately leads to the destruction of the cell. The body attempts to combat the virus using a number of different methods and substances. By employing the use of one of the body's intercellular messenger cytokines such as Interleukin-2, the body can actually program a cell infected with a virus to self destruct. Thus when the cell dies, the virus is unable to replicate. Alkylglycerols are beneficial because they are known to increase the production of certain cytokines that attack viruses. According to some researchers, viral infections such as influenza or the common cold, can be prevented or reduced significantly by the addition of **shark liver oil**, taken at the first sign of symptoms. The daily dose of five 1000 mg **Shark Liver Oil** capsules, containing 200 mg of alkyl glycerol each, taken for up to 30 days have been shown to be a powerful antifungal.

### Suggested dosage

Alkylglycerols are relatively safe. The product offered by The Life Extension Buyers Club is processed from the livers of **sharks** found in the waters off the coast of Norway. For immune system stimulation and prevention of disease, one or two capsules daily is sufficient for most individuals. For cancer, and the relief of symptoms related to radiation treatments, five or six 1000 mg capsules (containing 200 mg of alkylglycerols each) daily are recommended. At no time should the maximum recommended dose be exceeded. In the case of chronic use, over 30 days straight, a possible, albeit rare, side effect known as thrombocythemia (excess thrombocytes) can occur, leading to a tendency for the blood to clot. This condition is easily

diagnosed with a blood test and reversed with lower dosages, the addition of a low dose aspirin (81 mg daily) or omega -3 fatty acid supplementation. Consult with your physician if thrombocytopenia is a consideration or if you are using Shark Liver Oil for the treatment of serious disease states. Other than the rare instance of blood clotting at chronic high doses, the alkylglycerols found in shark oil are remarkably nontoxic and are a great way to enhance your immune system naturally.

For more information on specific therapies, you can find Shark Liver Oil in Life Extension's reference book, Disease Prevention & Treatment, Expanded Third Edition on pages 45-47, 100-101, 157-158, 163, 700.

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