

# Omega-3-fatty acids / Krill Oil

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## What are Omega-3-fatty acids?

Omega-3-fatty acids are polyunsaturated fatty acids. They can't be produced by human body itself, thus, must be obtained through diet. Omega-3 fatty acids can be found in various plants, algae and fishes—in the form of  $\alpha$ -linolenic acids and their descendants.

Alpha-linolenic acids (or  $\alpha$ -linolenic acids, also known as ALA) exist in vegetable oil such as linseed oil, rapeseed oil, and in less known oil out of chia- and perilla plants. You can also find them in algal oil, walnuts and leafy vegetables. These fatty acids are preliminary stages of those biologically most active omega-3 fatty acids: eicosapentaenoic acids (EPA) and docosahexaenoic acids (DHA). EPA and DHA exist mainly in fish and in particular type of algae. The human body is generally capable to turn ALA into EPA and DHA, yet only to a limited extent.



## What is the importance of Omega-3-fatty acids?

Omega-3 fatty acids fulfill a multitude of functionalities. They are essential for various metabolic processes, are components of cell membrane and play a crucial roll in normal growth and development by children.

## Omega-3-fatty acids protect the heart

We've known that omega-3-fatty acids lower the risk of sudden cardiac death and prevent further cardiovascular diseases. Studies on human prove the following effects of EPA & DHA:

- They act as anti-cardiac arrhythmia, i.e. they protect against irregular cardiac rhythm in both upper- and lower chambers of heart: atria and ventricles.
- They stabilize the unstable blood flow in vessels, which can cause myocardial infarction due to a coronary artery blockage (a build-up of plaques along the inner walls of the arteries).
- They decelerate the proceeding of abnormal changes in coronary arteries as well as in coronary veins.



- They help sinking triglyceride levels—a high level of triglycerides in the bloodstream is linked to, and may constitute the risk of thrombosis and atherosclerosis.
- They have the preventative impact against coronary heart diseases.
- They accelerate the blood circulation.
- They inhibit thrombocyte aggregation.
- And they show a great deal of beneficial effects on vessel functionality, blood pressure as well as against inflammation mediators.



### Omega-3-Fatty acids reduce the risks of Dementia

Omega-3-fatty acids can even sink the risk of dementia diseases—such as its most common type—Alzheimer. Many studies show, that a high-level of EPA and DHA is related to bigger brain volumes. Therefore, the benefit of omega-3-fatty acids becomes significant, due to the fact that brain shrinkage is one crucial factor in dementia progression.

### Further application examples

Omega-3-fatty acids EPA and DHA are attributed to the highly therapeutical impact in treating numerous chronic degenerative and inflammatory diseases. It is general recommended in treating autoimmune diseases and cancer. By multiple sclerosis, for example, omega-3-fatty acids combined with Coenzyme Q10 can at least partially recover the damaged insulating covers of nerve cells, i.e. rebuild the destructed myelin sheaths of neurons. Omega-3-fatty acids used with vitamin D together can regulate the immune system by increasing the number of leukocytes in blood (or so-called “white blood cells”). People ever with returning infections benefit from such adjunctive therapy.

### How does krill oil differ from fish oil?

Although fish oil shows a higher concentration of omega-3-fatty acids in comparison with krill oil, the omega-3-fatty acids in krill oil can however be better absorbed by the body. This is because, whereas the omega-3-fatty acids in fish oil are exclusively attached to its lipid-soluble-only carriers—triglycerides (which is highly hydrophobic), those in krill oil are bound to amphipathic phospholipids, meaning they are soluble in both water and fat. This fact leads to far-reaching results in terms of bodily tolerability, digestion and absorption of the oils. And the typical “fishy” belching phenomenon after intake of fish oil is totally dropped by taking krill oil instead. Further benefits of krill oils are:



- The ratio between omega-3-fatty acids and omega-6-fatty acids of krill oil is about 3 times higher than that of fish oil.
- In comparison with fish oil, krill oil contains natural astaxanthin.
- Krill occupies its position at the lowest trophic level of the food chain. Therefore heavy metals and other toxics can hardly find their way to pass into the body of this organism. Fishes stand, as opposed to krill, further up at the high trophic level of the food chain. The chances of getting their body contaminated by heavy metal or other toxics are obviously much greater.

- Conversely to many fish species, krill is not threatened by overfishing. The krill population is estimated at approx. 500 million tonnes worldwide, no other animal species in the world is capable to proliferate more than krill. The global krill harvest saturated at about 200'000 tonnes annually, which makes up less than 0.1% of its population. Nonetheless, it is meaningful to only utilize krill from sustainable sources.

### What is astaxanthin?

Astaxanthin is a natural, reddish pigment belongs to the class of carotenoids (such as beta-carotene, zeaxanthin and lutein). It is mainly produced by green algae. It provides the red color of crustaceans, which feed on the algae. Astaxanthin is also an effective antioxidant, which helps eliminating the free radicals in the body, or, for example, protecting the skin from damages & stresses initiated by UV-radiation. Its antioxidant functionality is considerably stronger than vitamin E. Astaxanthin deploys its protective effects not only until inside of the body: it preserves the krill oil already during the storage, e.g. in capsules.



### What particular attention should be paid to when purchasing krill oil?

For environmental reasons, only the krill oil from sustainable and controlled resources should be considered for a purchase. Last but not least, it's meaningful to only look after the krill oil, which is proceeded as rapidly as possible after its catch.