DHA Absorb™

THIS INFORMATION IS FOR PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ONLY. THE INFORMATION IS INTENDED TO ASSIST PRACTITIONER DECISION MAKING AS TO WHETHER OR NOT THESE PRODUCTS FIT THE NEEDS OF THEIR PATIENT. THE SCIENTIFIC INFORMATION AND DIETARY SUPPLEMENT PRODUCTS PROVIDED BY ALIGHT HEALTH FORMULAS ARE NOT INTENDED FOR USE BY CONSUMERS AS A MEANS TO CURE, TREAT, PREVENT, DIAGNOSE, OR MITIGATE ANY DISEASE OR OTHER MEDICAL CONDITION.

DHA Absorb™ supports optimal DHA balance in the body. This product delivers 500mg of docosahexaenoic acid (DHA) along with 100mg of eicosapentaenoic acid (EPA) from fish oil in each softgel. The fish oils in DHA Absorb™ are provided in their natural triglyceride form, concentrating a minimum of 90% natural triglyceride-bound omega-3 fish oils, which results in the highest stability and bioavailability.

DHA and EPA are omega-3 polyunsaturated fatty acids. DHA encompasses the majority of the fatty acids in this product. DHA is a structural molecule stored in the phospholipid bilayer of cell membranes, and it is particularly enriched in mitochondria, endoplasmic reticulum, and synaptic terminals. The amount of DHA in these membrane structures significantly influences their function, including membrane fluidity, neurotransmitter release, signal transduction, lipid raft function, transmembrane receptor function, myelination, gene expression, neuroinflammation, and neuronal differentiation and growth.

The DHA and EPA fish oils in this product are in the triglyceride form, which is the closest to what is found in nature. This naturally occurring molecular form is found in many food sources rich in omega-3 fats. For example, fish oils in all fish species are almost exclusively present as triglycerides. Triglycerides are comprised of three fatty acids and a glycerol. Free fatty acids without the glycerol are rapidly oxidized. The glycerol backbone helps stabilize the fat molecules and prevents breakdown and oxidation, increasing overall oxidative stability.

Supplement Facts

Serving Size 1 softgel

Amount Per Serving		% Daily Value
Calories	10	
Total Fat	1 g	2%*
Omega-3 Fatty Acids (from fish oil)		
EPA (Eicosapentaenoic Acid)	100 mg	†
DHA (Docosahexaenoic Acid)	500 mg	†

*Percent Daily Values are based on a 2,000 calorie diet.
†Daily Value not established.

Other Ingredients: Bovine gelatin, purified water, glycerine, annato (color), natural lemon flavor, DeltaGold® tocotrienols, lipase.

Contains fish (anchovy, mackerel, sardine).

DeltaGold® delta and gamma tocotrienols
Astaxanthin AstaREAL®

In addition, evidence suggests that triglyceride fish oils are better absorbed as compared to the more commonly used ethyl ester forms., Ethyl esters are an alternate form of fats that are synthetically derived using ethanol alcohol. The vast majority of fish oil products on the market are in the ethyl ester form due to the cost of additional processing to convert the ethyl esters back to their natural triglyceride state.

Alight's DHA Absorb™ stands out above other brands because we took the extra steps and expense to metabolically convert the fish oil back to its most bioavailable triglyceride state, providing this form in the highest concentration possible, between 90-100% in every softgel. The enhanced health benefits of this form are especially important to people who have malabsorption issues.

Recommended Use

Take 1 softgel twice daily with a meal, or as directed by your health care practitioner.
Does not contain gluten, dairy, soy protein or GMOs.

Lipase is included to further enhance digestion and absorption, and to add protection against mold mycotoxins. Though this extra ingredient may seem unnecessary, with the triglyceride form being digested and absorbed better than the mass-marketed ethyl ester form, lipase on its own has enzymatic neutralizing activity unique to mold mycotoxins. Lipase also plays a role in unbinding and resorbing bile in terminal ileum, where mycotoxins may impede function and resultant absorption of omega-3s.

Tocotrienols are included to compliment the anti-inflammatory mechanisms of omega-3s. Tocotrienols are distinct molecules of vitamin E that contain an isoprenoid side chain. Tocotrienol supplementation modulates the inflammatory response and has potential metabolic modulating effects, including glucose homeostasis, through favorable alteration of the gut microbiota composition.

Absorption

Dietary fish oil is digested in the small intestine by the emulsifying action of bile salts and the hydrolytic activity of pancreatic lipase, yielding metabolic products that are then absorbed by intestinal enterocytes and reassembled as triglycerides. The chylomicrons as carrier molecules then transport the triglycerides into the lymphatic lacteals and finally into the bloodstream.

The ethyl ester forms of fish oil have a delayed reassembly in the enterocytes, which may cause an increase in free fatty acids and subsequent oxidation. Whereas the triglyceride form is more readily recognized, digested, and assimilated, while maintaining oxidative stability.

A number of medical conditions lead to malabsorption of dietary fats, including disorders of the intestinal tract, liver, gall bladder, and pancreas, as well as in people exposed to damp or water-damaged buildings. These indoor spaces host a mix of microbes that secrete toxins which negatively affect nutrient absorption.

Endotoxins and antibiotic bacterial metabolites found in damp buildings impede this process at the level of the enterocyte, inciting rampant inflammation and fostering a dysbiotic microbiome. Mold toxins have been shown to induce apoptosis of the enterocytes through oxidative processes, act as neurotoxins to the local enteric nervous system, and also cause inflammation.

In addition, due to their lipophilic nature, mycotoxins can bioaccumulate in bile, lymphatics, and other lipid-rich tissues, creating an impedance to absorption of omega-3 oils. The triglyceride form of fish oil helps to manage this impedance while maintaining oxidative stability.

Neuroprotection

DHA is highlighted for its role in neurological health. DHA's heralded neurological benefits include improved cognitive function, neuroprotection, and optimal neurodevelopment in children.

DHA supplementation is correlated with improvements in cognitive function in all ages, from toddlers to adults and the elderly, and not only when repleting deficiency states. In a randomized controlled trial, DHA improved both memory and reaction time in healthy young adults.

DHA Absorb™ contains fish oil in its natural TG (triglyceride) form. All of our fish oil products are a minimum 90% natural TG bound omega-3 oils. DHA Absorb™ is molecularly distilled and filtered to ensure purity and to maximize the removal of metals, pesticides, PCBs, and other contaminants. Lipase is added to enhance the digestibility and DeltaGold® tocotrienols are added to enhance stability of the product.

Since DHA can cross the blood-brain barrier, it remains an important therapeutic avenue to address neuroinflammatory and neurodegenerative processes in the brain. It has an inhibitory action on cell death and oxidative stress induced in the microglia, as well as microglia activation. This is of particular interest for those impacted by mold mycotoxins that have the ability to cross the blood-brain barrier, such as Chaetoglobosin and Enniatin, as well as after traumatic injury, such as concussion.

Current studies have revealed the ability for DHA metabolites to regulate cell redox homeostasis, impacting signaling pathways associated with neurotransmitters, and modulating neuronal functions involving brain-derived neurotropic factor (BDNF).

After ischemic stroke, enhancement of angiogenesis and the resulting improvement of cerebral microcirculation are key restorative mechanisms. Omega-3 polyunsaturated fatty acids enhance cerebral angiogenesis and provide long-term protection after stroke.

As an additionally beneficial ingredient, delta-tocotrienols have a distinct anti-inflammatory effect on primary microglia, which is important for neurological conditions involving microglial activation. Animal models suggest improved cognition by ameliorating synaptic dysfunction. This is accomplished through mediation of excitatory neurotransmission and synaptic plasticity.

Inflammation

Omega-3 polyunsaturated fatty acids, such as DHA and EPA, support a healthy inflammatory response. These fatty acids are capable of partly inhibiting many aspects of inflammation including leukocyte chemotaxis, adhesion molecule expression, production of prostaglandins and leukotrienes and other pro-inflammatory cytokines. They also give rise to anti-inflammatory and inflammation resolving mediators called resolvins, protectins and maresins.

Omega-3s play a role in the prevention of metabolic and cardiovascular disease, with supplementation leading to improvements in cardiometabolic outcomes, including markers of inflammation. Animal models describe DHA's ability to modulate the basic mechanisms related to low-grade chronic inflammation in obesity. These benefits might be related to the modulation of gut microbiota by DHA, maintaining the balance between gut immunity and the gut microbiota.

Beyond metabolic aspects, DHA has biological significance in visual health. Many people with mold exposure complain of visual deterioration, which often is long-standing even after removal from the exposure. As an aspect of the retinal ultrastructure, it supports visual development and retinal health, alleviating vascular dysfunction and mediating inflammation.

Research suggests that DHA may ameliorate autoimmune inflammation by exerting anti-inflammatory effects that regulate the functional activities of dendritic cells, resulting in decreased production of pro-inflammatory cytokines, and enhanced capability of regulatory T-cell induction.

With additive effects, tocotrienols promote anti-inflammatory macrophage polarization by inducing the inflammatory M1 phase to switch to the anti-inflammatory M2 phase, similar to the mechanisms by which specialized pro-resolving mediators from fish oils attenuate chronic systemic inflammation.

Mycotoxin Protection

A 2015 review article in Advances in Clinical and Experimental Medicine summarizes the aspects of omega-3 polyunsaturated fatty acids as they relate to mycotoxin protective mechanisms. It states that they "have amphiphatic properties: hydrophilic head and hydrophobic tail. Such structure and other properties are responsible for exerting the following biological action: maintaining cell-membrane fluidity, inhibiting inflammatory processes, decreasing secretion of proinflammatory cytokines by monocytes/macrophages, decreasing susceptibility to ventricular rhythm disorders of the heart, improving functions of vascular endothelial cells, inhibiting blood platelet aggregation and decreasing triglyceride synthesis in the liver."*

Each biological action mentioned above is negatively impacted by mold mycotoxins. Mycotoxins are taken up into the membranes and alter their structure and function. While there are specific biological mycotoxin protections conferred by omega-3s, the basic premise of reducing the toxicity of the membrane by replacing beneficial fats is behind most biological actions.

For specific examples, DHA and EPA protect intestinal barrier function integrity of jejunal cells against the mycotoxin Deoxynivalenol (DON), also known as vomitoxin. Many mycotoxins are hepatotoxic and nephrotoxic, as well as genotoxic and carcinogenic. DHA was shown to be hepatoprotective and chemopreventive against the commonly observed mycotoxin found in water-damaged buildings called Aflatoxin. Mouse models indicate that DHA attenuates mycotoxin-induced immunoglobulin A (IgA) nephropathy.

The presence of tocotrienols assists the resolution of inflammation from mycotoxins. The inflammation and hepatocellular damage from mycotoxin exposure has been correlated to the development of non-alcohol fatty liver disease, as well as hepatocellular carcinoma. A randomized, placebo controlled trial found that supplementation of the delta fraction of tocotrienols improved biochemical markers of hepatocellular injury and steatosis in patients with nonalcoholic fatty liver disease. Tocotrienols have also displayed anti-cancer effects.

Tocotrienols also have additional mycotoxin-specific effects, including immunoprotective and genoprotective. Animal studies have shown that delta-tocotrienol's nephroprotective effects have resulted in restored glomerular filtration rate (GFR), absoluted fluid reabsorption, and renal antioxidant enzyme activity after mycotoxin exposure, thereby improving blood pressure.

Therapeutic Differences by Composition

In order to be legally termed as a triglyceride form, a fish oil product only requires 60% conversion from ethyl ester to triglyceride. Therefore, if a manufacturers takes the extra step and expense to create the triglyceride form, they convert just 60 – 65% of the fish oil to triglycerides to save on cost. This leaves a mixture of ethyl ester, and mono- and diglyceride oil in the remainder.

Alight Health Formulas™ places quality and efficacy above cost. We use the TruTG™ method to reach the maximum amount of triglycerides possible, yielding between 90% and 100% in our finished product — delivering the highest stability, bioavailability, and naturally occurring fish oil.

For more information about Alight Health Formulas™, email contact@alighthealthformulas.com.

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