

COMPLETE CHILDREN'S DHA/EPA

Ingredients: Each Two Chewable Soft Gelatin Capsules Supplies: DHA 162.50 mg, EPA 62.50 mg, ALA (Alpha-Linolenic Acid) from Flaxseed 12.5 mg, GLA (Gamma Linolenic Acid) from Black Currant Seed Oil 12.5 mg, Vitamin E (D-Alpha Tocopherol-natural) 25 i.u. In a pleasantly fruit flavored soft gel chewable capsule.

Supportive Function: Support for a healthy immune system. Also supports the cardiovascular system, normal brain function and kidney support. Take with Complete Children's Co-Factors for best results.

When is Complete Children's DHA helpful? Nutritional support for a healthy immune system. Also supports normal brain and nervous system development/ the cardiovascular system, function, kidney provides nutritional support for conditions of pain/inflammation, asthma, allergy, ADD/ADHD, depression, vaccination, behavioral problems, dermatitis, colitis, cholesterol/triglycerides, autoimmune disease, etc.

Clinical Applications/Research: Allergy: Many believe that changes in the typical diet, that include decreased consumption of omega 3 fatty acids, may explain the increase in the prevalence of atopic diseases, such as asthma, eczema and allergic rhinitis (Black PN, Sharpe S. Dietary fat and asthma: is there a connection? Eur Respir J. 1997 Jan; 10(1): 6-12.) Dietary intake of the omega 6's (arachidonic acid) was positively associated with seasonal allergic rhinoconjunctivitis (Wakai, K. et al. seasonal allergic rhinoconjunctivitis and fatty acid intake: A cross-sectional study in Japan. Ann Epidemiol 2001 Jan; 11(1): 59-64.) Omega 3's from fish oil competitively inhibit the production of all the inflammatory modulators from omega 6's. Other atopic diseases such as bronchial asthma and atopic dermatitis are characteristically associated with an imbalance between different types of T cells and cytokines, leading to an increase of IgE and histamine, which gives rise to allergic symptoms (Strannegard O and Strannegard I.L. Allergy 2001; 56(2): 91-102). Omega-3 polyunsaturated fatty acid supplementation "may reduce omega-6-derived allergic inflammation and inflammation-perpetuated sensitization to multiple allergens, and may be beneficial in the prevention of allergy" (Dietary Fatty Acids and Allergy, Kankaanpaa P, et al, Ann Med, 1999; 31:282-287.)

Asthma: Fish oils make anti-inflammatory substances. Fish oil can block some of the inflammatory leukotrienes, and leukotrienes are responsible for most of the inflammation that is involved in asthma attacks. Leukotrienes are 1,000 times more potent as stimulators of bronchial constriction than histamine (Murray M and Pizzorno J, Encyclopedia of Natural Medicine, Prima Publishing, CA. p. 152). It is believed that asthma sufferers may have an imbalance in fatty acid metabolism, subjecting them to risk for elevated leukotriene production (Yen SS and Morris HG. Biochem Biophys Res Com 1981; 103:774-79). Fish oil is a competitive substrate for arachidonic acid, thereby reducing inflammatory mediators (Oily fish and asthma - A fishy story? Thien, F et al., Medical Journal of Australia, February 5, 1996; 164:135-36). A study on children found that those eating fresh, oily fish had ¼ the risk of asthma as children who did not eat oily fish (Hodge et al., Consumption of oily fish and childhood asthma risk. Med J

Australia 1996; 164:137-40). Canned fish, non-oily fish, and total fish intake were not found to be protective against asthma. Oily fish include Atlantic salmon, anchovy, sardine, blue mackerel, rainbow trout, cod, yellowtail, and several others with greater than 2% fat content. Aside from the production of anti-inflammatory substances, the reported effects of fish oil and omega 3's on the immune system could also be playing a role in ameliorating symptoms.

Eczema and other inflammatory conditions: Dietary supplements ranging 1-8 g per day of omega 3 fatty acids have been reportedly beneficial in the treatment of eczema, psoriasis, IBD (inflammatory bowel disease) and rheumatoid arthritis... treatment with omega-3 long-chain PUFA reduces mucosal damage (Gil A. Polyunsaturated fatty acids and inflammatory diseases. *Biomed Pharmacother.* 2002 Oct; 56(8): 388-96; Jensen RG Possible alleviation of atopic eczema in a breast fed infant by maternal supplementation with a fish oil concentrate. *J Pediatr Gastroenterol Nutr.* 1992 May; 14(4): 474-5.)

Bipolar disorder/depression: Omega 3 fatty acids improved the short-term course of illness in a preliminary study of patients with bipolar disorder. The omega 3 group performed better for nearly every outcome measure (Stoll, A.L. et al. Omega 3 fatty acids in bipolar disorder: a preliminary double blind, placebo-controlled trial. *Arch Gen Psychiatry* 56(5): 407-12).

“Fish oil blocked the abnormal signaling in the brain which we think is present in mania and depression” – Andrew Stoll, lead researcher in a study published by the *Am Med Assoc Arch Gen Psychiatry* (Fatty oil in fish eases depression. *Reuters* May 14, 1999). Also, “Stoll said omega 3 fatty acids boost levels of the neurotransmitter serotonin in the brain – similar to the effect of popular anti-depressants such as Prozac”. One of the mechanisms may be that the omega 3's replenish the lipid bilayer surrounding brain cells that receive signals from chemical transmitters. As Dr. Murphy points out, the fat we eat affects the ability of neurotransmitters like serotonin and dopamine to dock on membrane receptor sites and initiate their respective physiological functions.

Brain development/regeneration of nerve cells: Consumption of omega 3's by eating fish once a week significantly reduces risk of Alzheimer's (Barberger-Gateau, P. et al. *British Medical Journal* 2002; 325 Oct 26:932-933). This article also noted a specific role of the omega 3 fatty acids in the regeneration of nerve cells.

General Immune System: The fatty acids in fish oil can influence the immune system by their effect on cytokines, macrophages, and other immune molecules. Cytokines and macrophages are immune defense molecules highly involved in the inflammatory response (Kremer, JM (ed.) *Progress in Inflammation Research: Medicinal fatty acids in inflammation.* Birkhauser Verlag, 1998).

Autoimmune disease: The fatty acids in fish oil can influence the autoimmune system by their effect on cytokines, macrophages, and the MHC II complex. The MHC class II complex is a genetically set cell coding system that determines susceptibility to autoimmune disease. Fish oil affects T-cells, adhesion molecule expression, signal transduction and MHC class II expression (reduces the expression of these autoimmune-susceptible cells) (Immunoregulatory and anti-inflammatory effects of omega 3 polyunsaturated fatty acids. *Brazilian Journal of Medical and Biological Research* 1998 Apr;31(4):467-90, as cited by Dan Murphy, DC, DABCO). Omega 3-induced effects may be of use as a therapy for “disorders which involve an inappropriately-activated immune response” (Kremer, JM (ed.) *Progress in Inflammation Research: Medicinal fatty acids in inflammation.* Birkhauser Verlag, 1998, as cited by Dan Murphy, DC, DABCO).

ADD/ADHD: It is believed that ADD patients may suffer from altered fatty acid metabolism. For instance, one well controlled clinical trial found that 53 subjects with ADHD had significantly lower concentrations of key fatty acids in their plasma, and in

red blood cell lipids, than did the 43 control subjects (Stevens LJ et al. AJCN 1995; 62:761-768). In the same study, a subgroup of 21 subjects with ADHD exhibited symptoms of actual essential fatty acid deficiency. All ADHD subjects were lower than controls in the long chain omega 3 fatty acids (EPA and DHA found in fish oil).

Autism: “Phospholipid fatty acids are major structural components of neuronal cell membranes, which modulate membrane fluidity and hence function. Evidence from clinical and biochemical sources have indicated changes in the metabolism of fatty acids in several psychiatric disorders. We examined the phospholipid fatty acids in the plasma of a population of autistic subjects compared to mentally retarded controls. Our results showed a marked reduction in the levels of DHA (23%) in the autistic subjects, resulting in significantly lower levels of total omega 3 polyunsaturated fatty acids (PUFA) (20%), without significant reduction in the omega 6 series, and consequently a significant increase in the omega-6/omega-3 ratio (25%)” (Vancassel S. et.al. Plasma fatty acid levels in autistic children. Prostaglandins Leukot Essent Fatty Acids. 2001 Jul; 65(1): 1-7.)

Vaccination: Vaccination has been observed to increase the expression of cells, which code for autoimmune susceptibility (Koppang EO et. al. Vaccination induces major histocompatibility complex class II expression in the Atlantic salmon eye. Scand J Immunol. 2003 Jul; 58(1): 9-14.), and fish oil has been observed to decrease expression (Immunoregulatory and anti-inflammatory effects of omega 3 polyunsaturated fatty acids. Brazilian Journal of Medical and Biological Research 1998 Apr;31(4):467-90, as cited by Dan Murphy, DC, DABCO). Fish oil may be able to reduce harmful effects of vaccination by its influence on the immune system.

*Please Note: Dr. Murphy recommends that you also take the sister product COMPLETE CHILDREN’S CO-FACTORS™

Testimonials: “A friend gave us a bottle of both the complete children's DHA\EPA and Complete Childrens Co-Factors. We have also changed our daughter’s diet to include more protein and less carbs. There has been a dramatic change in her personality, span in school and overall learning ability, which has been a major problem over the past year.” (Tim Kimpton)

Suggested Dosage: 2-4 capsules daily or as recommended. Refrigerate after opening for best results.

Size: 120 chewable capsules

Vegetarian: No

Contraindications: (* Note that generally, the dose is so low on the children’s fish oils that the contraindications do not apply, and generally children are not on blood thinners, however the contraindications are listed here for safety purposes): Fish oil can thin the blood and should not be combined with blood thinning drugs. Thinning the blood is normally considered to be advantageous because of the effect on reduced risk for blood clots/heart attack. Although blood thinning can hypothetically raise risk for hemorrhage/stroke, fish intake has been associated with reduced risk for stroke (Hiroyasu I, et al. Intake of fish and omega 3 fatty acids and risk of stroke in women. JAMA 2001; 285(3) Jan 17:304-312.)