

Biomega-DHA™

Benefits of Biomega-DHA™

- Supports Healthy Inflammatory Pathways
- Important for Proper Fetal Brain Development
- Promotes Positive and Relaxed Mood
- Supports Learning, Cognition & Memory
- Helps to Sustain Attention
- Provides Cardiovascular Benefits

The health benefits of two omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), seem indisputable and range from improved cardiovascular risk factors and body composition to promotion of healthy inflammatory pathways. Lately, however, DHA has received a brighter spotlight of attention due to its ability to influence the structure, function, and signaling of the brain. This impact results in a positive effect on memory and the nervous system, appealing to those interested in brain development and an aging population concerned about cognitive decline.⁽¹⁾

Docosahexaenoic acid (DHA) is a structural constituent of membranes specifically in the central nervous system; this omega-3 fatty acid is the primary structural component of the human brain, cerebral cortex, skin and retina. Technically,

DHA is not an essential fatty acid since the human body can synthesize small (almost insignificant) amounts of it from short-chain omega-3 precursor ALA (alpha linolenic acid). However, this conversion is limited by the delta-6 desaturase enzymatic step, which generally has a low efficiency. The rate conversion has also been shown to be affected by the genetic setup in the fatty acid desaturase (FADS) gene cluster and varies depending on age and circulating levels of sex hormones.⁽²⁾

The accumulation of DHA in the brain takes place during the brain growth spurt during pregnancy and up to two years of age with high levels of DHA in the brain maintained throughout life.⁽³⁾ Because the rate of membrane DHA incorporation in early life—in the brain as well as in other tissues—depends on maternal transfer, dietary supply (i.e., breastfeeding) and endogenous LC-PUFA production, it is critical the mother's DHA intake is adequate.

Brain DHA accumulation continues into childhood, and although the accretion rate declines, the incorporation of DHA is still



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theoretically high at least during the preschool years. Once high levels of DHA are achieved in the brain these are maintained during later life, but this also depends on an optimal dietary supply, as dietary intake of DHA from fish in adults has been shown to be the dominant determinant of DHA levels.⁽⁴⁾

A single study collecting data from three trials that randomized to long chain polyunsaturated fatty acid (LC-PUFA) formulas immediately after birth or after breastfeeding for 6 weeks or 4–6 months, respectively and continued supplementation throughout the first year of life, found significant beneficial effects on problem solving at 9 months of age only in the studies that started intervention early.⁽⁵⁾ However, one study that examined the effects of DHA-enriched baby food also found an apparent improvement of cognitive outcomes.⁽⁶⁾

In another functional magnetic resonance imaging study, DHA supplementation was associated with increased activation of the prefrontal cortex and better reaction time during sustained attention in healthy 8–10-year-old boys.⁽⁷⁾ DHA-supplemented children were also shown to have had a more relaxed mood compared to controls⁽⁸⁾, which is consistent with another trial that found an apparent effect on mood, i.e., a reduction in impulsivity and anti-social behavior, in 450 healthy 8–10 year-

old children supplemented with fish oil versus olive oil.⁽⁹⁾ Similar behavioral effects were also observed in South African children who exhibited a decrease in physical activity during school hours, less oppositional behavior and improved attention after fish oil supplementation.⁽¹⁰⁾

DHA supplementation has also been well-researched in adults. In one trial with 485 subjects with mild memory complaints, an improvement of memory was demonstrated after 0.9 g/day of DHA for 24 weeks.⁽¹¹⁾ A meta-analysis of all randomized trials investigating the effect of fish oil on cognitive decline also indicated a potential beneficial effect, but only in trials that had supplied >1 g/day of DHA in subjects who at the beginning of the trial exhibited some signs of cognitive decline.⁽¹²⁾ Furthermore, analysis of human brains has shown that people with Alzheimer disease (AD) have less DHA in their frontal lobe and hippocampus compared with unaffected individuals.⁽¹³⁾

The protective role of n-3 LC-PUFA is also supported in other studies, showing that a dietary intake of DHA induces an increase in DHA levels in the hippocampus with subsequent improvement of memory performances.⁽¹⁴⁾ Depression oftentimes presents with an increased production of pro-inflammatory cytokines and elevations in plasma homocysteine levels;⁽¹⁵⁾ N-3 LC-PUFA



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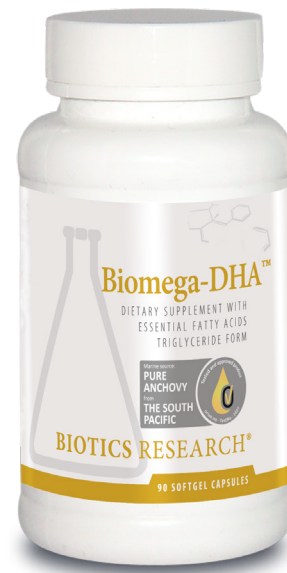
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supplementation have been shown to reduce both.⁽¹⁶⁾ Thus, it can be speculated that n-3 PUFAs produce a positive effect on mood, partly because of the high brain content of DHA and its involvement in neurogenesis and neuroplasticity and partly due to their anti-inflammatory properties⁽¹⁷⁾ as well as their effect on carbon metabolism, which is known to be of importance in relation to the metabolism of mono-aminergic neurotransmitters.⁽¹⁸⁾

Other epidemiological studies have in the same way found that lower n-3 LC-PUFA intake is linked to an increased risk for emerging depressive symptoms.⁽¹⁹⁾ Therefore, higher habitual dietary n-3 LC-PUFA intake may be protective against mood swings or even ultimately prevent mood dysregulation.⁽²⁰⁾ Although there are few trials studying the effect of DHA supplementation on fatty acid status as a function of the FADS polymorphisms. Most evidence indicates that the DHA accumulation is mainly affected by dietary intake, specifically of preformed DHA.

Each **Biomega-DHA™** capsule provides 600mg DHA and 6mg EPA per capsule. As with all Biotics Research fish oil products, **Biomega-DHA™** comes in natural triglyceride form and is Orivo-certified, meaning its source can be traced to a sustainable fishery in the cold waters of the far South Pacific Ocean.



Supplement Facts

Serving Size: 1 Softgel Capsule

	Amount Per Serving	% Daily Value
Calories	10	
Calories from Fat	10	
Total Fat	1 g	2%*
Saturated Fat	<0.5 g	<3%*
Vitamin E (as mixed tocopherols)	4 mg	27%
Omega-3 fatty acids	750 mg	†

* Percent Daily Values based on a 2,000 calorie diet

† Daily Value not established

Other Ingredients: Capsule shell (gelatin, glycerin, water and lycopene).

Contains ingredients derived from Anchovy.

This product is gluten and dairy free.

Each softgel capsule of **Biomega-DHA™** contains 660 mg of EPA and DHA, providing a natural source of the following total Omega-3 fatty acids:
 EPA (Eicosapentaenoic acid) 60 mg
 DHA (Docosahexaenoic acid)..... 600 mg
 Additional Omega-3 Fatty Acids 90 mg

RECOMMENDATION: One (1) softgel capsule with each meal as a dietary supplement or as otherwise directed by a healthcare professional.

KEEP OUT OF REACH OF CHILDREN

Store in a cool, dry area.
 Sealed with an imprinted safety seal for your protection.
 Product # 1431 Rev. 11/19
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