

## Cardiovascular Support

# Ultra Omega - 3

500 EPA/250 DHA

PRODUCT CODE P8760

## Description

The omega-3 fatty acids abundant in fish oils are known for the many benefits associated with their ability to support a healthy, balanced inflammatory response. Through this mechanism, omega-3 fatty acids assist in the maintenance of cardiovascular health, immune system function, and joint comfort. Omega-3 fatty acids also have been shown to promote the proper functioning of the central nervous system, thereby playing a critical role in mood and cognition.

## Features & Benefits

- Supports balanced inflammatory response<sup>8, 12-14, 16-18</sup>
- Supports healthy cardiovascular system<sup>2-6, 16-19</sup>; helps maintain normal heart rhythm<sup>3</sup>; helps maintain already healthy blood lipids<sup>4</sup>
- Supports healthy immune function<sup>8, 12-14, 16-18</sup>
- Supports bone and joint health<sup>20, 26-28</sup>
- Supports proper functioning of the central nervous system<sup>21, 22, 24</sup>, thereby playing a critical role in mood and cognition<sup>23-25</sup>
- May help maintain a healthy body weight<sup>26-30</sup>

## Suggested Usage

As a dietary supplement, take one softgel one to four times daily with meals or as directed by your health care practitioner.

## Allergen Checklist

Contains no sugar, salt, starch, yeast, wheat, gluten, corn, milk, egg, shellfish or preservatives.

## Cautions/ Interactions

Omega-3 fatty acids may interact with aspirin<sup>31</sup>, warfarin<sup>32</sup>, and statin drugs<sup>33</sup>. Omega-3 fatty acids may affect the metabolism of certain medications, including cyclosporine<sup>34</sup> and topical corticosteroids.<sup>35</sup>



## Technical Summary

- EPA is a precursor of prostaglandins and leukotrienes involved in maintaining a balanced inflammatory response\*
- Omega-3 fatty acids are important in cell membrane chemistry, including structure and cell signaling
- DHA in particular is associated with the proper functioning of the central nervous system

Consumption of omega-3 fatty acids may reduce the risk of coronary heart disease. (FDA approved health claim.) FDA evaluated the data and determined that, although there is scientific evidence supporting the claim, the evidence is not conclusive.

## Mechanisms of Action

The ratio of omega-6 to omega-3 fatty acids in the diet of early humans has been widely estimated to be 1:1, but the ratio in the typical Western diet is now almost 10:1 due to increased use of vegetable oils rich in omega-6 fatty acids as well as reduced fish consumption. The focus of much recent work has been on the implications of fatty acid ratios on cell membrane integrity, structure and function with implications for cell signaling.<sup>36</sup> The phospholipids of the brain's gray matter contain a high proportion of DHA and this suggests that fatty acid is important to central nervous system functioning.<sup>21-25, 36</sup>

The downstream effect of balance in consumption of omega-3 to omega-6 fatty acids and of excessive consumption of omega-6 fatty acids is a shift in the synthesis of eicosanoids that are derived from 20-carbon PUFAs. Eicosanoids are potent chemical messengers that play critical roles in inflammatory responses.<sup>8, 12-14, 16-18</sup> Their quantity and ratios influence leukotriene production. Leukotrienes are naturally produced eicosanoid lipid mediators and are produced in the body from arachidonic acid by the enzyme 5-lipoxygenase. Their synthesis usually accompanies the production of histamine and leukotrienes that can act to sustain inflammatory reactions. This factor is one reason that omega fatty acid balance is important to inflammatory balance. Inflammatory balance, in turn, is linked to immune functioning.<sup>8, 12-14, 16-18</sup> With the excess of omega-6 to omega-3 fatty acids typical of Western diets, the physiologic balance is shifted towards the eicosanoid arachidonic acid and poorer control of inflammatory responses.

## Clinical Applications

Considerable interest has been showered on the roles of omega-3 fatty acids in visual and neurological development in the infant, hence on ingestion of adequate nutrition by the mother during pregnancy and lactation. Of late, this attention has been turned to the possible usefulness of omega-3 fatty acids in mood and cognition, especially in the elderly (keeping in consideration the importance of baseline ratios of omega-6 to omega-3 to any findings).<sup>23-25</sup> By extension, it is to be expected that the modulation of healthy inflammatory and immune responses might translate into usefulness in other areas also more commonly of concern in middle and later life, such as the support of bone and joint health.<sup>20, 26-28</sup> Of particular interest is application of omega-3 fatty acids to cardiovascular health. The FDA has allowed the claim that consumption of omega-3 fatty acids may reduce the risk of coronary heart disease. In addition, consumption of omega-3 fatty acids helps to maintain normal heart rhythm<sup>3</sup> and blood lipids already within a healthy range.<sup>4</sup>

## Complementary Products

**Coenzyme Q10 (P3182)** is offered as a separate product – CoQ10 benefits cardiac function through energy production. **Acetyl-L-carnitine (P0076)** also often is recommended both for support of mitochondrial function and the maintenance of membrane structures.

<b>Supplement Facts</b>		<b>P1661</b>
Serving Size 1 Softgel		
		Amount Per Serving
Calories		10
Calories from Fat		10
Total Fat		1 g
Saturated Fat		< 0.5 g
Trans Fat		0 g
Polyunsaturated Fat		0.9 g
Monounsaturated Fat		< 0.5 g
Cholesterol		0 mg
Vitamin E (as natural d-alpha Tocopherol)		2 IU
<b>Natural Fish Oil Concentrate</b>		<b>1.0 g (1,000 mg)</b>
<b>Omega-3 Fatty Acids</b>		<b>750 mg</b>
<b>Eicosapentaenoic Acid (EPA)</b>		<b>500 mg</b>
<b>Docosahexaenoic Acid (DHA)</b>		<b>250 mg</b>

Other ingredients: Softgel Capsule (gelatin, glycerin, water and enteric coating).

Contains fish (sardines, anchovies, mackerel) and soy derivatives. Contains no sugar, salt, starch, yeast, wheat, gluten, corn, milk, egg, shellfish or preservatives.

### REFERENCES

1. Oh R. Practical applications of fish oil (Omega-3 fatty acids) in primary care. J Am Board Fam Pract. 2005 Jan-Feb;18(1):28-36. <http://www.ncbi.nlm.nih.gov/pubmed/15709061>
2. Reiffel JA, McDonald A. Antiarrhythmic effects of omega-3 fatty acids. Am J Cardiol. 2006 Aug 21;98(4A):50i-60i. <http://www.ncbi.nlm.nih.gov/pubmed/16919517>
3. Robinson JG, Stone NJ. Antiatherosclerotic and antithrombotic effects of omega-3 fatty acids. Am J Cardiol. 2006 Aug 21;98(4A):39i-49i. <http://www.ncbi.nlm.nih.gov/pubmed/16919516>
4. Davidson MH. Mechanisms for the hypotriglyceridemic effect of marine omega-3 fatty acids. Am J Cardiol. 2006 Aug 21;98(4A):27i-33i. <http://www.ncbi.nlm.nih.gov/pubmed/16919514>
5. Wang C, Harris WS, Chung M, Lichtenstein AH, Balk EM, Kupelnick B, Jordan HS, Lau J. n-3 Fatty acids from fish or fish-oil supplements, but not alpha-linolenic acid, benefit cardiovascular disease outcomes in primary- and secondary-prevention studies: a systematic review. Am J Clin Nutr. 2006 Jul;84(1):5-17. <http://www.ncbi.nlm.nih.gov/pubmed/16825676>
6. Balk EM, Lichtenstein AH, Chung M, Kupelnick B, Chew P, Lau J. Effects of omega-3 fatty acids on serum markers of cardiovascular disease risk: a systematic review. Atherosclerosis. 2006 Nov;189(1):19-30. <http://www.ncbi.nlm.nih.gov/pubmed/16530201>
7. Mickleborough TD. Dietary omega-3 polyunsaturated fatty acid supplementation and airway hyperresponsiveness in asthma. J Asthma. 2005 Jun;42(5):305-14. <http://www.ncbi.nlm.nih.gov/pubmed/16036405>
8. Wild GE, Drozdowski L, Tartaglia C, Clandinin MT, Thomson AB. Nutritional modulation of the inflammatory response in inflammatory bowel disease—from the molecular to the integrative to the clinical. World J Gastroenterol. 2007 Jan 7;13(1):1-7. <http://www.ncbi.nlm.nih.gov/pubmed/17206749>
9. Peet M, Stokes C. Omega-3 fatty acids in the treatment of psychiatric disorders. Drugs. 2005;65(8):1051-9. <http://www.ncbi.nlm.nih.gov/pubmed/15907142>

*References continued on page 3*

Formulated by doctors and clinical scientists exclusively for licensed healthcare practitioners. Manufactured in an A-rated Good Manufacturing (GMP) Certified facility.

**PROTOCOL**  
FOR LIFE BALANCE™

Protocol For Life Balance™

Manufactured by NHG, Bloomingdale, IL 60108 Made in the U.S.A.

Toll Free 877.PROTO10 / Fax 800.886.1045 / [www.protocolforlife.com](http://www.protocolforlife.com)

 Healthy Patients, Satisfied Physicians™



10. Al-Hasani H, Joost HG. Nutrition-/diet-induced changes in gene expression in white adipose tissue. *Best Pract Res Clin Endocrinol Metab.* 2005 Dec;19(4):589-603. <http://www.ncbi.nlm.nih.gov/pubmed/16311219>
11. Azain MJ. Role of fatty acids in adipocyte growth and development. *J Anim Sci.* 2004 Mar;82(3):916-24. <http://www.ncbi.nlm.nih.gov/pubmed/15032450>
12. James MJ, Proudman SM, Cleland LG. Dietary n-3 fats as adjunctive therapy in a prototypic inflammatory disease: issues and obstacles for use in rheumatoid arthritis. *Prostaglandins Leukot Essent Fatty Acids.* 2003 Jun;68(6):399-405. <http://www.ncbi.nlm.nih.gov/pubmed/12798660>
13. Simopoulos AP. Omega-3 fatty acids in inflammation and autoimmune diseases. *J Am Coll Nutr.* 2002 Dec;21(6):495-505. <http://www.ncbi.nlm.nih.gov/pubmed/12480795>
14. Calder PC, Grimble RF. Polyunsaturated fatty acids, inflammation and immunity. *Eur J Clin Nutr.* 2002 Aug;56 Suppl 3:S14-9. <http://www.ncbi.nlm.nih.gov/pubmed/12142955>
15. Watkins BA, Li Y, Lippman HE, Seifert MF. Omega-3 polyunsaturated fatty acids and skeletal health. *Exp Biol Med (Maywood).* 2001 Jun;226(6):485-97. <http://www.ncbi.nlm.nih.gov/pubmed/11395919>
16. Tull SP, Yates CM, Maskrey BH, O'Donnell VB, Madden J, Grimble RF, Calder PC, Nash GB, Rainger GE. Omega-3 Fatty acids and inflammation: novel interactions reveal a new step in neutrophil recruitment. *PLoS Biol.* 2009 Aug;7(8):e1000177. <http://www.ncbi.nlm.nih.gov/pubmed/19707265>
17. Ebrahimi M, Ghayour-Mobarhan M, Rezaiean S, Hoseini M, Parizade SM, Farhoudi F, Hosseini-zehad SJ, Tavallaei S, Vejdani A, Azimi-Nezhad M, Shakeri MT, Rad MA, Mobarra N, Kazemi-Bajestani SM, Ferns GA. Omega-3 fatty acid supplements improve the cardiovascular risk profile of subjects with metabolic syndrome, including markers of inflammation and auto-immunity. *Acta Cardiol.* 2009 Jun;64(3):321-7. <http://www.ncbi.nlm.nih.gov/pubmed/19593941>
18. Bouwens M, van de Rest O, Dellschaft N, Bromhaar MG, de Groot LC, Geleijnse JM, Müller M, Afman LA. Fish-oil supplementation induces antiinflammatory gene expression profiles in human blood mononuclear cells. *Am J Clin Nutr.* 2009 Aug;90(2):415-24. <http://www.ncbi.nlm.nih.gov/pubmed/19515734>
19. Schiano V, Laurenzano E, Brevetti G, De Maio JI, Lanero S, Scopacasa F, Chiariello M. Omega-3 polyunsaturated fatty acid in peripheral arterial disease: effect on lipid pattern, disease severity, inflammation profile, and endothelial function. *Clin Nutr.* 2008 Apr;27(2):241-7. <http://www.ncbi.nlm.nih.gov/pubmed/18237823>
20. Maroon JC, Bost JW. Omega-3 fatty acids (fish oil) as an anti-inflammatory: an alternative to nonsteroidal anti-inflammatory drugs for discogenic pain. *Surg Neurol.* 2006 Apr;65(4):326-31. <http://www.ncbi.nlm.nih.gov/pubmed/16531187>
21. Cao D, Kevala K, Kim J, Moon HS, Jun SB, Lovinger D, Kim HY. Docosahexaenoic acid promotes hippocampal neuronal development and synaptic function. *J Neurochem.* 2009 Aug 13. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/19682204>
22. Saldanha LG, Salem N Jr, Brenna JT. Workshop on DHA as a required nutrient: overview. *Prostaglandins Leukot Essent Fatty Acids.* 2009 Aug-Sep;81(2-3):233-6. <http://www.ncbi.nlm.nih.gov/pubmed/19643589>
23. Antypa N, Van der Does A, Smelt A, Rogers R. Omega-3 fatty acids (fish-oil) and depression-related cognition in healthy volunteers. *J Psychopharmacol.* 2009 Sep;23(7):831-40. <http://www.ncbi.nlm.nih.gov/pubmed/18583436>
24. Conklin SM, Gianaros PJ, Brown SM, Yao JK, Hariri AR, Manuck SB, Muldoon MF. Long-chain omega-3 fatty acid intake is associated positively with corticolimbic gray matter volume in healthy adults. *Neurosci Lett.* 2007 Jun 29;421(3):209-12. <http://www.ncbi.nlm.nih.gov/pubmed/17574755>
25. Conklin SM, Harris JI, Manuck SB, Yao JK, Hibbeln JR, Muldoon MF. Serum omega-3 fatty acids are associated with variation in mood, personality and behavior in hypercholesterolemic community volunteers. *Psychiatry Res.* 2007 Jul 30;152(1):1-10. <http://www.ncbi.nlm.nih.gov/pubmed/17383013>
26. Weiss LA, Barrett-Connor E, von Mühlen D. Ratio of n-6 to n-3 fatty acids and bone mineral density in older adults: the Rancho Bernardo Study. *Am J Clin Nutr.* 2005 Apr;81(4):934-8. <http://www.ncbi.nlm.nih.gov/pubmed/15817874>
27. Geusens P, Wouters C, Nijs J, Jiang Y, Dequeker J. Long-term effect of omega-3 fatty acid supplementation in active rheumatoid arthritis. A 12-month, double-blind, controlled study. *Arthritis Rheum.* 1994 Jun;37(6):824-9. <http://www.ncbi.nlm.nih.gov/pubmed/8003055>
28. Shen CL, Peterson J, Tatum OL, Dunn DM. Effect of long-chain n-3 polyunsaturated fatty acid on inflammation mediators during osteoblastogenesis. *J Med Food.* 2008 Mar;11(1):105-10. <http://www.ncbi.nlm.nih.gov/pubmed/18361745>
29. Buckley JD, Howe PR. Anti-obesity effects of long-chain omega-3 polyunsaturated fatty acids. *Obes Rev.* 2009 May 12. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/19460115>
30. Kunesova M, et al. The influence of n-3 polyunsaturated fatty acids and very low calorie diet during a short-term weight reducing regimen on weight loss and serum fatty acid composition in severely obese women. *Physiol Res.* 2006;55(1):63-72. <http://www.ncbi.nlm.nih.gov/pubmed/15857162>
31. Svaneborg N, Kristensen SD, Hansen LM, et al. The acute and short-time effect of supplementation with the combination of n-3 fatty acids and acetylsalicylic acid on platelet function and plasma lipids. *Thromb Res* 2002;105:311-6. <http://www.ncbi.nlm.nih.gov/pubmed/12031825>
32. Buckley M, Goff A, Knapp W. Fish oil interaction with warfarin. *Ann Pharmacother* 2004;38:50-2. <http://www.ncbi.nlm.nih.gov/pubmed/14742793>
33. Omega-3 Fatty Acids Monograph, The Natural Standard Database. Accessed 9/23/09. <http://www.naturalstandard.com/>
34. Sabry A, El-Dahshan K, El-Hussieni A. Prevention of chronic cyclosporine nephrotoxicity in Sprague Dawely rats: role of colchicine and omega-3-fatty acids. *Int Urol Nephrol.* 2007;39(1):271-3. <http://www.ncbi.nlm.nih.gov/pubmed/17333531>
35. Omega-3 Fatty Acids. University of Maryland Medical Center website, accessed 9/23/09. <http://www.umm.edu/altmed/articles/omega-3-000316.htm>
36. Kidd PM. Omega-3 DHA and EPA for cognition, behavior, and mood: clinical findings and structural-functional synergies with cell membrane phospholipids. *Altern Med Rev.* 2007 Sep;12(3):207-27. <http://www.ncbi.nlm.nih.gov/pubmed/18072818>