OmegaCheck®

CPT Code **82542***
Order Code **C302**
Specimen Type **Whole Blood**
Tube Type **Lavender Top**

Low omega-3 fatty acid levels are associated with:

- Hypertriglyceridemia
- High blood pressure
- Increased risk of heart disease

Description

Omega-3 and omega-6 fatty acids are polyunsaturated long chain fatty acids (PUFA) required by the body for proper functioning, normal growth and the formation of neural synapses and cellular membranes. Omega-3 and -6 fatty acids are considered "essential" and obtained primarily from dietary sources.

Three of the most important omega-3 fatty acids are eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA), and docosahexaenoic acid (DHA). Omega-3 fatty acids are primarily obtained from food sources, such as oily fish. They have antioxidant,[1] anti-inflammatory,[2] and antithrombotic[3] effects, and can help to reduce triglyceride levels.[4-6] Two of the most important omega-6 fatty acids are arachidonic acid (AA) and linoleic acid (LA). Omega-6 fatty acids are obtained from animal sources and plant oils, and have proinflammatory[2,7] and prothrombotic[7] properties at high levels.

Clinical Use

OmegaCheck® may be performed on individuals with hypercholesterolemia, hypertriglyceridemia, hypertension, and/or those at high metabolic or cardiovascular risk.

Clinical Significance

- Consumption of omega-3 fatty acids reduces the occurrence of major acute cardiac events in healthy individuals or patients with cardiovascular risk factors or who have cardiovascular disease.[8-14]
- Consumption of omega-3 fatty acids leads to a reduction in triglycerides[4-6] and non-high-density lipoprotein (non-HDL),[6] as well as lipoprotein-associated phospholipase A_2 (Lp-PLA_2) levels.[6]
- A high intake of omega-6 fatty acid precursors can interfere with the absorption of omega-3 fatty acids.[8]
- The mean omega-6:omega-3 ratio of the standard American diet is approximately 10:1.8 A diet with an omega-6:omega-3 fatty acid ratio of 4:1 or less may reduce total mortality up to 70% over two years.[11]

Testing Frequency

Testing frequency depends on the individual's medical history. OmegaCheck® may be run alongside a standard lipid panel or other cardiometabolic tests.

Specimen Type

OmegaCheck® should be performed on a whole blood specimen. Fasting samples are preferred, but not required, and omega-3 supplementation should not be altered immediately prior to the blood draw.

Commercial Insurance or Medicare Coverage

Coverage guidelines have not been established or posted by CMS (Medicare & Medicaid). We have reviewed the larger carriers (Aetna, United Healthcare, Cigna, Blues) and information is limited or has not been posted.

6701 Carnegie Ave. | Suite 500 | Cleveland, OH 44103
p 866.358.9828 | f 866.869.0148
clevelandheartlab.com | knowyourrisk.com | chlcme.com

ClevelandHeartLab®
Know your risk.

Quest Diagnostics™

RELATIVE RISK

OmegaCheck®

EPA+DPA+DHA (%by weight)

≥5.5 Low	3.8-5.4 Moderate	≤3.7 High

The OmegaCheck® was developed and validated at Cleveland HeartLab with the support of Nutrasource Diagnostics, Inc.

Specimen Considerations

Omega-3 and -6 fatty acid levels can be measured in whole blood or within red blood cell (RBC) membranes. The OmegaCheck® test measures omega-3 and -6 fatty acid levels in whole blood. The whole blood test provides a complete picture of the amount of omega-3 and -6 fatty acids in the body, and may reflect more recent levels of supplementation or dietary intake. RBC membrane levels provide a picture of consumption levels over a longer period of time, because the incorporation of these fatty acids into the membranes of RBC takes several days to weeks. Regardless, both whole blood (EPA+DPA+DHA (%)) and RBC membrane (EPA + DHA (%)) measurements demonstrate positive correlation (r=0.91, p<0.0001).14 This finding has been confirmed by studies run by Cleveland HeartLab. Additional studies suggest that EPA, DHA, and DPA are associated with different cardioprotective roles against CHD, indicating benefit for assessing these omega-3 levels.

Treatment Considerations†

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviews by the treating practitioner.

✓ **Assess lifestyle habits.**

- Consider diet/exercise/weight reduction efforts if appro¬priate.[15]
- Dietary sources of omega-3 fatty acids include fatty fishes (salmon, tuna, sardines), walnuts, flax and chia seeds, and plant oils.[15] Foods high in omega-6 fatty acids include meat, poultry, grain-based products (cakes, pizza, pasta), and soy/corn/sunflower oils.[2,16]

✓ **Consider omega-3 fatty acid supplementation.**

- If currently taking, consider adjusting dosage.[17]

** The CPT codes provided are based on AMA guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.*

† The treatment considerations are provided for informational purposes only and are not intended as medical advice. A physician's test selection and interpretation, diagnosis, and patient management decisions should be based on his/her education, clinical expertise, and assessment of the patient.

References

1. Kesavulu MM, Kameswararao B, Apparao C, Kumar E, Harinarayan C. Effect of ω-3 fatty acids on lipid peroxidation and antioxidant enzyme status in type 2 diabetic patients. *Diabetes Metab*. 2002; 28: 20-26. 2. James MJ, Gibson RA, Cleland LG. Dietary polyunsaturated fatty acids and inflammatory mediator production. *Am J Clin Nutr*. 2000; 71: 343s-348s. 3. Engstrom K, Wallin R, Saldeen T. Effect of low-dose aspirin in combination with stable fish oil on whole blood production of eicosanoids. *Prostaglandins Leukot Essent Fatty Acids*. 2001; 64: 291-297. 4. Balk E, Chung M, Lichtenstein A, et al. Effects of omega-3 fatty acids on cardiovascular risk factors and intermediate markers of cardiovascular disease. *Evid Rep Technol Assess.* 2004 (93): 1-6. 5. Musa-Veloso K, Binns MA, Kocenas AC, et al. Long-chain omega-3 fatty acids eicosapentaenoic acid and docosahexaenoic acid dose-dependently reduce fasting serum triglycerides. *Nutrition Reviews*. 2010; 68: 155-167. 6. Kastelein JJP, Maki KC, Susekov A, et al. Omega-3 free fatty acids for the treatment of severe hypertriglyceridemia: The EpanoVa fOr Lowering Very high tyriglyceridEs (EVOLVE) trial. *J Clin Lipidol*. 2014; 8: 94-106. 7. Schmitz G and Ecker J. The opposing effects of n-3 and n-6 fatty acids. *Prog Lipid Res*. 2008; 47: 147-155. 8. Saito Y, Yokoyama M, Origasa H, et al. Effects of EPA on coronary artery disease in hypercholesterolemic patients with multiple risk factors: Sub-analysis of primary prevention cases from Japan EPA Lipid Intervention Study (JELIS). *Atherosclerosis*. 2008; 200: 135-140. 9. Marchioli R, Barzi F, Bomba E, et al. Early protection against sudden death by n-3 polyunsaturated fatty acids after myocardial infarction. Time-course analysis of the results of the Gruppo-Italiano per lo Studio della Sopravvievenza nell'Infarto Miocardio (GISSI)-Prevenzione. *Circulation*. 2002: 105; 1897-1903. 10. Pottala JV, Garg S, Cohen BE, et al. Blood eicosapentaenoic and docosahexaenoic acids predict all-cause mortality in patients with stable coronary heart disease: The Heart and Soul Study. *Circ Cardiovasc Qual Outcomes*. 2010; 3: 406-412. 11. de Lorgeril M, Renaud S, Mamelle N, et al. Mediterranean alpha-linolenic acid-rich diet in secondary prevention of coronary heart disease. *Lancet*. 1994; 343: 1454-1459. 12. Simopoulos AP. The importance of the omega-6/omega-3 fatty acid ratio in cardiovascular disease and other chronic diseases. *Exp Biol Med*. 2009; 233: 674-688. 13. Albert CM, Campos H, Stampfer MJ, et al. Blood levels of long-chain n-3 fatty acids and the risk of sudden death. *N Engl J Med*. 2002; 346: 1113-1118. 14. Harris WS and von Schacky C. The Omega-3 Index: A new risk factor for death from coronary heart disease? *Prev Med*. 2004; 39: 212-220. 15. Salisbury AC, Amin AP, Harris WS, et al. Predictors of omega-3 index in patients with acute myocardial infarction. *Mayo Clin Proc*. 2011;86(7):626-32.

QuestDiagnostics.com