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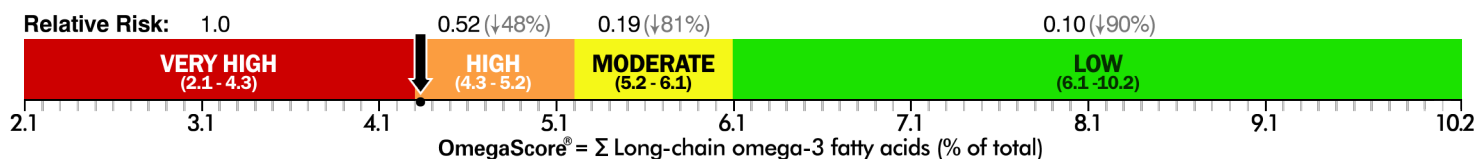
OmegaScore®
 Whole Blood OmegaScore® Report

Sample ID: LAL-DBS-022
Analysis Date: 06/06/19

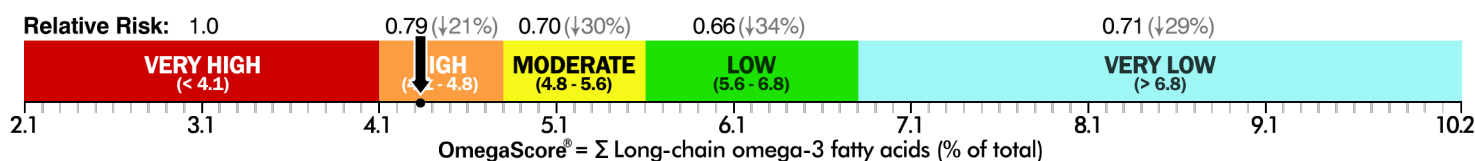
Your OmegaScore® is the summed percentage of the long chain omega-3 fatty acids (EPA, eicosapentaenoic acid + DPA, docosapentaenoic acid + DHA, docosahexaenoic acid) as a percentage of the total fatty methyl esters as measured in your whole blood sample.*

Your OmegaScore® is a very strong indicator of the risk for sudden cardiac death based on published studies from the Harvard School of Public Health in the New England Journal of Medicine. A high OmegaScore® is related to a reduced risk for "sudden cardiac death¹" and "all-cause mortality²".

Your Whole Blood
OmegaScore®
4.33

Risk of Sudden Cardiac Death: High Risk


The omega-3 fatty acids were measured in apparently healthy subjects who were followed for up to 17 years. As seen in the accompanying chart, those subjects who had the highest scores had a 90% lower risk for sudden cardiac death as compared to those with the lowest scores who were at the highest risk for sudden cardiac death.¹

Risk of All-cause Mortality: High Risk


Participants in the Framingham Heart Study had their omega-3 fatty acids measured at baseline and were then followed for a median period of 7.3 years. As seen in the accompanying chart, those subjects who had the higher scores had a 29-34 % lower risk for all-cause mortality (e.g. cardiovascular disease, cancer, or other causes) as compared to those having the lowest scores who were at the highest mortality risk.²

- Studies show that higher levels of EPA and DHA omega-3 help contribute to increased longevity and reduce the risk for cardiac death and a variety of serious ailments.
- In adults, higher blood levels of EPA and DHA omega-3 have been associated with a significantly lower risk for psychological distress, depression, cognitive impairment, age-related cognitive deterioration and dementia.

Further evidence-based information with references from medical and nutritional journals on the various benefits of long-chain omega-3 fatty acids as EPA plus DHA for human health throughout the life cycle and for disease prevention/management can be found at www.dhaomega3.org.

The term omega-3 (or n3) fatty acids refers to long chain polyunsaturated fatty acids with 18 – 22 carbons in chain length and which have 3 - 6 double bonds (unsaturation sites) within the fatty acid structure. The term omega-3 (n3) refers to the position of the first of multiple double bonds being 3 carbons away from the methyl end of the molecule.

- The predominant omega-3 fatty acid in our typical diet is ALA, alpha-linolenic acid (a 18-carbon fatty acid with 3 double bonds referred to as a shorter chain fatty acid) which is consumed mainly via plant-based sources (vegetable oils such as soybean and canola oils or foods containing them.)
- The so-called long-chain omega-3 fatty acids which we can consume are predominantly EPA (eicosapentaenoic acid with 20 carbons in chain length and 5 double bonds) and DHA (docosahexaenoic acid with 22 carbons in chain length and 6 double bonds.)

Since EPA and DHA are found mostly in fish/seafood, our low intake of such in North America (in contrast to Japan as an example) results in low levels of these in our body tissues and in our blood. While ALA can be converted to EPA and DHA in the liver, the conversion efficiency in humans is extremely limited. Thus, the most effective way to improve EPA plus DHA levels in the body is to consume them preformed from fish/seafood and/or via supplements derived from fish and algal oils enriched in EPA and DHA.

It is well established that EPA and DHA levels in the blood represents a risk factor for cardiovascular disease and other health/disease conditions. Higher levels in the body, as measured by blood measures, have been associated with a significantly lower risk for earlier all-cause mortality, certain cancers, age-related cognitive deterioration, and other chronic conditions. These beneficial effects resulting from a better EPA and DHA status in the circulation/body are mediated via several physiological and biochemical mechanisms.

The human diet contains high levels of saturated fatty acids (derived mainly from animal-based food sources such as meats and dairy products) and monounsaturated fatty acids from mixed food sources (vegetable oils including olive oil and animal-based food sources.)

The levels of saturated and monounsaturated fatty acids in the circulating blood and body tissues partly reflects the corresponding dietary intakes of these fatty acid types. Unlike the omega-3 and omega-6 fatty acids which are essential in our diet for optimal health (referred to as 'essential fatty acids',) the saturated and monounsaturated fatty acids are referred to as 'non-essential fatty acids' because the human body has the synthetic enzymic capacity to produce these in various tissues.

Summary - Fatty Acid Results:	% By Weight
% Saturated Fatty Acids:	37.47
% Monosaturated Fatty Acids:	25.91
% Polyunsaturated Fatty Acids:	36.62
Σ Omega-3:	9.27
Σ Omega-6:	27.35
Σ Omega-6/Σ Omega-3 Ratio:	0.34
AA/EPA Ratio:	9.72
Eicosapentaenoic acid (EPA):	0.50
Docosahexaenoic acid (DHA):	2.25
Docosapentaenoic acid (DPA):	1.58
OmegaScore®	4.33

References:

* The Omega-3 Index: a new risk factor for death from coronary heart disease?

- (Prev Med. 2004 Jul;39(1):212-20.) Harris WS1, Von Schacky C.

¹ Blood Levels of Long Chain n-3 Fatty Acids and the Risk of Sudden Cardiac Death

- As studied by the Harvard School of Public Health and Division of Preventive Medicine, Brigham & Women's Hospital, Boston, MA, USA.
- Ref.: Albert et al., N. Engl. J. Med. 346(15):1113-1118, 2002

² Blood Levels of Long Chain n-3 Fatty Acids and the Risk of All-cause Mortality

- Ref.: Harris et al., J. Clin. Lipidol. 12(3):718-727, 2018 - See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6034629/>

LAL-SOP-5 - OmegaScore®

Determination of weight percentage of DHA, EPA and Omega-3 Fatty Acid Composition in Whole Blood by GC-FID via DBS Cards

- As analyzed in a controlled environment using an Agilent GC 7890A/B GC System by Flame Ionization Detection.
- These results only relate to the sample as received.

This OmegaScore® report is not intended as a medical report or advice to individuals from Lipid Analytical LLC, it is solely a measurement and calculation of various fatty acids based on the samples provided. "Risk Levels" are intended as a quick reference of these measurements as compared to current research, but should be interpreted by a licensed medical professional for advice on any dietary changes and/or supplementation that may be required.

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