OmegaQuant Analytics
5009 W. 12th St, Suite 7
Sioux Falls, SD 57106
omegaquant.com

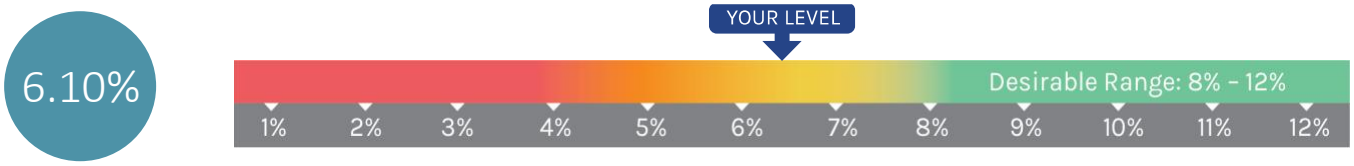
Omega-3 Index Plus Report

NAME: John Doe
DOB: 01/01/1950
ID: JDoe

COLLECTION DATE: 04/10/2018
RESULT DATE: 04/11/2018
PROVIDER:
ACCOUNT: Complimentary

Your Omega-3 Index

Reference Range*: 2.8 – 15.4%



* Reference Ranges encompass about 99% of fatty acids levels measured in US adults. Visit our FAQ section for more information on ranges.

The Omega-3 Index is the proportion of long-chain omega-3s, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), of all fatty acids in your red blood cell membranes. It reflects the omega-3 status of your body over the last 4 months, similar to how hemoglobin A1C reflects long-term glucose blood levels. As a part of an overall healthy lifestyle, an Omega-3 Index in the **8-12%** range may help to maintain heart, brain, eye and joint health. To increase your Omega-3 Index, eat foods rich in EPA and DHA, especially "oily" fish such as those in the accompanying table. They can also be obtained from dietary supplements (fish, krill, cod liver, algal oils) and functional foods (omega-3 enriched milk, eggs, etc.).

The amount of EPA and DHA needed to raise the Omega-3 Index into the desirable range is different for everybody. Many factors – age, sex, weight, diet, genetics, smoking habits, medications, and other medical conditions – can all influence the body's response to EPA and DHA. Still, we can provide an estimate, based on our own research, of how much EPA and DHA you may need to raise your level to the desirable range given your current Omega-3 Index level. Visit our Omega-3 Index Calculator on OmegaQuant.com to find out your personalized EPA and DHA recommendation.

The other main dietary omega-3 fatty acid, alpha-linoleic acid (ALA), is found in walnuts, flax and chia seeds. ALA can be converted to EPA and DHA in the body, but this happens at a very low rate in most people. An increase in ALA intake will have little to no effect on the Omega-3 Index.

Please consult with your healthcare provider before making any dietary changes. If you increase your intake of EPA and DHA, your Omega-3 Index will begin to slowly go up within a few days but will continue to change for 3-4 months. We recommend that you re-measure your Omega-3 Index in 3-4 months until you reach the desirable range. Once you reach the desirable range for Omega-3 Index, we recommend that you re-test every 6 months. Answers to commonly asked questions about your results can be found in the FAQ section on our website.

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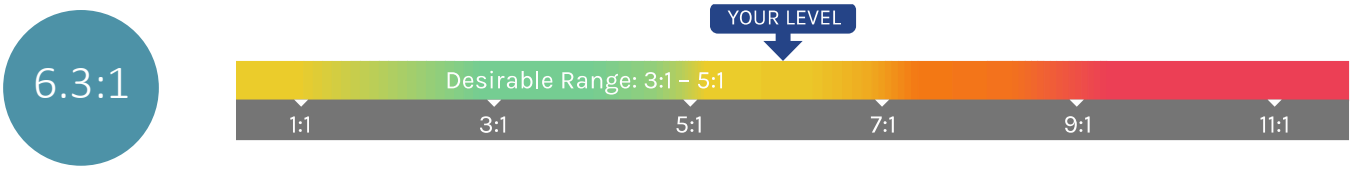
Omega Ratios Report

NAME: John Doe
DOB: 01/01/1950
ID: JDoe

COLLECTION DATE: 04/10/2018
RESULT DATE: 04/11/2018
PROVIDER:
ACCOUNT: Complimentary

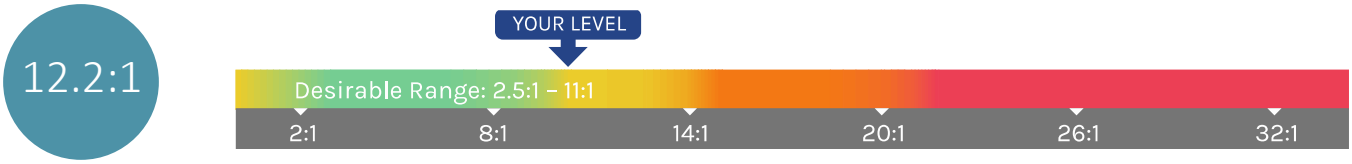
Omega-6:Omega-3

Reference Range*: 1.9:1 – 14.6:1



AA:EPA

Reference Range: 1.1:1 – 69.1:1*



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Omega-6:Omega-3 (n6:n3) ratio is calculated by dividing the sum of seven omega-6 fatty acids by the sum of four omega-3 fatty acids in whole blood. Only one omega-6 fatty acid, arachidonic acid (AA), and one omega-3 fatty acid, eicosapentaenoic acid (EPA), make up the AA:EPA ratio. The desirable range for the Omega-6:Omega-3 ratio is **3:1 to 5:1**, and the desirable range for the AA:EPA ratio is **2.5:1 – 11:1**. The desirable ranges for the ratios were calculated to correspond to the desirable range for the Omega-3 Index due to the strong relationship between among these metrics.

Higher omega-3 blood levels are strongly related to improved health and longevity. Similarly, higher - not lower - blood levels of the main omega-6 fatty acid, linoleic acid, have been associated with better heart and metabolic health. AA blood levels alone are a poor predictor of health outcomes. There is considerable controversy regarding increased omega-6 intake and health; therefore, we propose to aim for a low ratio by raising omega-3 blood levels.

Please consult with your healthcare provider before making any dietary changes. The best way to lower both the Omega-6:Omega-3 and the AA:EPA ratios is to consume more omega-3 EPA and DHA from fish or supplements (see attached table). Omega-6 blood levels are less responsive to dietary changes than omega-3 blood levels. Therefore, we do not recommend lowering your intake of omega-6s as a strategy to correct these ratios, but rather raising your intake of EPA and DHA. It will take 3-4 months for these ratios to reach their new levels and we recommend re-testing at that time.

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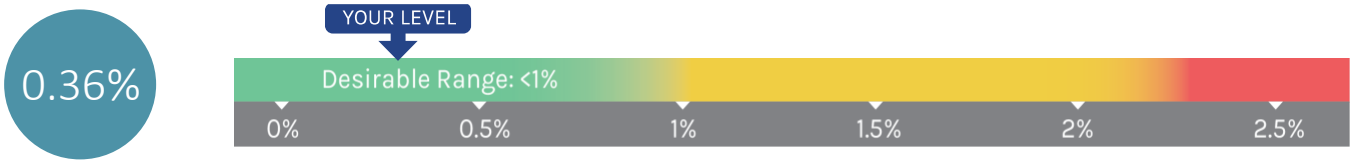
Trans Fat Index Report

NAME: John Doe
DOB: 01/01/1950
ID: JDoe

COLLECTION DATE: 04/10/2018
RESULT DATE: 04/11/2018
PROVIDER:
ACCOUNT: Complimentary

Your Trans Fat Index

Reference Range*: 0.22 – 1.99%



* Reference Ranges encompass about 99% of fatty acids levels measured in US adults. Visit our FAQ section for more information on ranges.

The Trans Fat Index is the percent of 18:1 and 18:2 *trans* fatty acids of total fatty acids in red blood cell membranes, and the desirable range is **<1%.** *Trans* fatty acids (or *trans* fats) in our blood come only from the food we eat because our bodies cannot make them. *Trans* fats in the diet come from two sources: 1) industrial production by the "partial hydrogenation" of vegetable oils, in which liquid oils are converted into solid fats to be used in processed foods, and 2) meat and milk products of ruminant animals, like cows and goats. The fatty acids that make up the Trans Fat Index were chosen because they were typically found in processed foods, but a small amount may come from ruminant sources.

Higher intakes of *trans* fats from processed foods have led to higher Trans Fat Index levels. High *trans* fat blood levels and intake have been strongly related to heart disease. As such, the World Health Organization (WHO) has called on all countries to remove *trans* fats from their food supplies by 2023, and many countries have already achieved this. The relationship between ruminant *trans* fats and heart disease is not as clear. The amount of ruminant *trans* fats typically present in meat and dairy are very low, so normal intakes of these foods probably will not result in a high Trans Fat Index.

Traditionally, *trans* fats were abundant in processed foods, like baked goods, chips, and microwave popcorn. As *trans* fats have been removed from the food supply, however, eating processed foods has become less connected to blood *trans* fat levels. For example, since 2009, the average Trans Fat Index measured at OmegaQuant has decreased by half (from 1.7% to 0.8%), and in 2017 more than half of the samples submitted to OmegaQuant have a Trans Fat Index of <1%. Still, if you ate a lot of processed food in the past, your Trans Fat Index may be elevated.

Please consult with your healthcare provider before making any dietary changes. If your Trans Fat Level is <1%, there is no need to change your diet. If your Trans Fat Level is >1%, you may still be releasing stored *trans* fats that have built up over the years. Eating less processed food ensures you will not be eating any "hidden" *trans* fats that may still be in the food supply. We recommend you re-test every 6 months until your levels are <1%.

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Amount of EPA and DHA in Seafood and Supplements

Fish and Seafood (3 oz or 85 g)	EPA (mg)	DHA (mg)	EPA + DHA (mg)
Pacific Herring	1056	751	1807
Atlantic Herring	773	939	1712
Atlantic Salmon (wild)	349	1215	1564
Bluefin Tuna	309	970	1279
Atlantic Salmon (farmed)*	510 - 587	680 - 1238	1190 - 1825
Pink Salmon (wild)	456	638	1094
Coho Salmon (farmed)	347	740	1087
Mackerel (canned)	369	677	1046
Sockeye Salmon (wild)	451	595	1046
ChumSalmon (canned)	402	597	999
Rainbow Trout (farmed)	284	697	981
Coho Salmon (wild)	341	559	900
Sardines (canned)	402	433	835
Albacore (or white) Tuna (canned)	198	535	733
Shark (raw)	267	444	711
Swordfish	117	579	696
Sea Bass	175	473	648
Pollock	77	383	460
Flat Fish (Flounder/Sole)	207	219	426
Blue Crab	207	196	403
Halibut	77	318	395
Oysters (farmed)	195	179	374
King Crab	251	100	351
King Mackerel	148	193	341
Walleye	93	245	338
Dungeness Crab	239	96	335
Scallops	141	169	310
Skipjack Tuna	77	201	278
Mixed Shrimp	145	122	267
Clams	117	124	241
Yellowfin Tuna	40	197	237
Light Chunk Tuna	40	190	230
Catfish (wild)	85	116	201
Catfish (farmed)	42	109	151
Cod	3	131	134
Mahi-Mahi (dolphin fish)	22	96	118
Tilapia	4	111	115
Orange Roughy	5	21	26
Dietary Supplements – Amount (mg) per capsule or per teaspoon			
Standard Fish Oil Capsules	180	120	300
Fish Oil Concentrates (many varieties)	100-400	100-400	300-700
Cod Liver Oil (teaspoon)	300	500	800
Krill Oil	100-300	50-150	150-450
Algal Oil	50-150	100-300	150-450

Table adapted from Harris et al. Current Atherosclerosis Reports 2008;10:503-509. Values based on USDA Nutrient Data Lab values and are for fish cooked with dry heat unless otherwise noted.

*Farmed Salmon can have a range of EPA and DHA based on the fish feed. Sprague M, et al. Scientific Reports, 2016; 6:21892.