OmegaCheck ✓™

Specimen Type: EDTA Whole Blood   **Collection Tube:** 1 Purple Top

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Low levels of Omega-3 fatty acid may lead to increased risk of:

- Cardiovascular Disease
- Diabetes
- Obesity
- Inflammation
- Dementia
- Depression
- ADHD/Austism
- Infertility

OVERVIEW

Omega-6 and omega-3 fatty acids are long chain polyunsaturated fatty acids naturally produced in plants and in the animals that eat them. They are essential to health, like vitamins, and must be obtained from the diet. Both omega fatty acids are needed for many physiological processes including cardiovascular and neurological health, immune system function, and cellular integrity.[1]

The majority of omega-6 fats in the diet come from plant sources such as corn, soy, safflower, sunflower, and sesame oils. These foods contain linoleic acid (LA), and can convert to arachidonic acid (AA) inside the cell. Some animal sources (meat, milk, eggs, shrimp) contain higher amounts of AA given their high intake of omega-6 containing foods.[1]

Plant sources that contain higher amounts of omega-3 fatty acids include: flax, walnuts, soy, green plants, pumpkin, and algae. These foods can convert to the physiologically important eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA), and docosahexaenoic acid (DHA) inside the cell. Animal sources containing high amounts of EPA, DPA, and DHA include: cold water fish, wild game, and brown algae.[1] Omega-6 and -3 fatty acids ultimately produce important signaling molecules called prostanoids and eicosanoids. These signaling molecules help to coordinate immunity, inflammation, and coagulation.[1] The proper ratio of omega-6s to omega-3s may be helpful for reducing the risk of cardiovascular disease[2-12] and depression.[13-16] While excess intake of omega-6 can increase inflammation and platelet aggregation, omega-3s decrease inflammation and platelet aggregation. [1,2,5,11,17]

CLINICAL SIGNIFICANCE

The OmegaCheck may be performed on individuals with hypertension, hypertriglyceridemia, hypercholesterolemia, those with (or at high risk for) cardiometabolic disease, and/or those with depression.

- The mean omega-6:omega-3 ratio in the standard American diet is approximately 10:1. Diets with an omega-6:omega-3 ratio of 4:1 or less may reduce total mortality up to 70% over 2 years.[3]

- High intake of omega-6 fatty acids can prevent the absorption of omega-3 fats.[10]

- Consuming omega-3 fatty acids leads to reduction in and non-HDL cholesterol[6], Lp-PLA2 levels[5], and triglycerides.[6,7,18]

- Consuming more omega-3 fatty acids (while reducing the intake of omega-6 and arachidonic acid-containing foods) may reduce cardiac events in healthy patients, those with cardiovascular risk factors, and those with cardiovascular disease. [2,3,8,10]

MICRONUTRIENT STATUS AND IMPACT OF OMEGA-3 AND OMEGA-6 FATTY ACIDS

An optimal diet is critical for the proper functioning of the body's metabolic processes in general, and for balancing the proper ratio of omega-6 to omega-3, specifically. The conversion of plant-based omegas into prostanoids requires desaturase, elongase, cyclooxygenase, and lipoxygenase enzymes, and this process relies on adequate vitamin and mineral availability. Enzymes require a specific cofactor and coenzyme for each step of the conversion. The micronutrients involved in this process include: vitamins B3, B5, and C; choline, glutathione, magnesium, selenium, and zinc.[1]

TEST COMPONENTS	REFERENCE RANGE
OmegaCheck™ (% by weight)	≥ 5.5
Arachidonic Acid/EPA Ratio	<5
Omega-6/Omega-3 Ratio	<4.5
Omega-3 Total (% by weight)	
EPA (% by weight)	>2
DPA (% by weight)	>1
DHA (% by weight)	>4
Omega-6 Total (% by weight)	
Arachidonic Acid (% by weight)	<9
Linoleic Acid (% by weight)	<20

Risk Index
OmegaCheck (% by weight)

≥ 5.5 Low	3.8 - 5.4 Moderate	≤ 3.7 High

OmegaCheck is performed by Cleveland HeartLab.

This material is for informational and educational purposes only, and is not intended to constitute or substitute for the advice of a physician or other healthcare professional. Specific diagnosis, treatment plans, and interpretations, should be provided and reviewed by the treating practitioner.

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NOTICE: *The list of ICD-10 codes below is strictly for the ordering provider's convenience, and is not exhaustive. Please ensure that the diagnosis code(s) you select matches the reason you are ordering this test.*

Diagnosis	Dx Code	Diagnosis	
Type 2 Diabetes Mellitus with hyperglycemia	E11.65	Unspecified hyperlipidemia	E78.5
Type 2 Diabetes Mellitus without complications	E11.9	Metabolic Syndrome	E88.81
Other specified Diabetes Mellitus without mention of complications	E13.9	Essential (primary) hypertension	I10
Pure hpyercholesterolmia	E78.0	Atherosclerotic heart disease of native coronary artery without angina pectoris	I25.10
Pure hyperglyceridemia	E78.1	Impaired fasting glucose	R73.01
Mixed hyperlipidemia	E78.2	Impaired glucose tolerance test (oral)	R73.02

SPECIMEN REQUIREMENTS

Specimen Type: EDTA Whole Blood
Collection Tube: 1 Purple Top (EDTA); can be drawn in one tube with HgbA1c and Genetic tests.
Fasting: 9-12 hours recommended. It is also recommended that patients not take a fatty acid supplement within 12-24 hours.

Collection:
1. Gently invert 5-6 times.
2. Do not centrifuge.
3. Ship with frozen ice brick in the refrigerated kit provided.

Turn Around Time: 4-8 business days

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