



Fatty Acid profile™



Analysis of Fatty Acids

- Detects fatty acid imbalances and deficiencies that relate to degenerative diseases
- Provides a comprehensive analysis, including omega-3, omega-6, odd chain, saturated, and trans fatty acids
- Serves as a guide to fatty acid therapy
- Metamatrix offers the only quantitative analysis of fatty acids available

Fatty acids are the components of dietary fat. In the body, they serve as a source of energy from a process called fatty acid oxidation. Fatty acids are also the principal components of triglycerides, which act as the body's long-term energy reservoir. Plasma fatty acids provide a magnified view of serum triglycerides. Unsaturated fatty acids are the predominant building blocks of phospholipids, which are the structural components of nerves and cell membranes, as well as the precursors of a special class of hormones called eicosanoid hormones. Unlike the endocrine hormones, eicosanoids are not synthesized in a specific gland and transported to their sites of action. Rather, they are synthesized by almost all cells in the body except red blood cells. Eicosanoids are involved in the initiation of inflammatory responses, the regulation of blood circulation and pressure, the control of ion transport through membranes, the modulation of synaptic transport, the induction of blood clotting, the regulation of the sleep/wake cycle, and the control of several reproductive functions.

Recently, a great deal of interest has been paid to the AA/EPA ratio. According to Dr. Barry Sears, a lower AA/EPA ratio indicates a better balance of "good" and "bad" eicosanoids in your body. An AA/EPA ratio of 1.5 is considered to be ideal since this is the ratio found in the Japanese population having the greatest longevity and the lowest incidence of cardiovascular disease.

Dietary fatty acids influence the level of cholesterol-containing lipoproteins in the serum, impacting the risk for atherosclerosis and cardiovascular disease. Saturated fatty acids increase the level of LDL in the blood serum, while monounsaturated fatty acids

(MUFAs) and polyunsaturated fatty acids (PUFAs) decrease the level of LDL and increase the level of HDL.

Natural fats almost exclusively contain unsaturated fatty acids with cis-double bonds. Processed fats, like the hydrogenated fats in some margarines, frequently contain trans-fatty acids that increase the level of LDL and decrease the level of HDL.

Plasma fatty acid levels reflect body stores as influenced by recent dietary intake and are useful for monitoring response to supplementation and dietary modifications. Plasma levels are preferred for assessment of dietary adequacy of essential fatty acids as revealed by adipose tissue composition. Mead acid and the triene/tetraene ratio reveal chronic essential fatty acid insufficiency.

Red blood cell membrane levels of fatty acids reveal metabolic effects and long-term balance in the tissues. This test is preferred to assess nutritional status of the critical eicosanoid and long chain fatty acids necessary for membrane stabilization.

Metamatrix fatty acid analysis features:

- The only quantitative analysis of fatty acids commercially available.
- A plasma AA/EPA ratio.
- Metamatrix quality and reliability backed by over 20 years of experience.



Fatty Acids

Test #0040 - Fatty Acids (plus ratios) -
Plasma

Test #0041 - Fatty Acids (plus ratios) -
Erythrocytes

Specimen Requirements

#0040 - 3 ml of plasma, frozen

#0041 - Whole blood, refrigerated

Method: GC/MS

Turnaround Time: 7-14 days, 14 days average

CPT Code

82725 Fatty acids, nonesterified

Analytes Reported

Polyunsaturated Omega-3

Alpha-Linolenic Acid (ALA)
Eicosapentaenoic Acid (EPA)
Docosapentaenoic Acid
Docosahexaenoic Acid (DHA)

Polyunsaturated Omega-6

Linoleic Acid
Gamma Linolenic Acid (GLA)
Eicosadienoic Acid
Dihomogamma Linolenic
Acid (DGLA)
Arachidonic Acid
Docasadienoic Acid
Docosatetraenoic Acid

Polyunsaturated Omega-9

Mead Acid

Monounsaturated

Myristoleic Acid
Palmitoleic Acid
Vaccenic Acid
Oleic Acid
11-Eicosenoic Acid
Erucic Acid
Nervonic Acid

Saturated

Capric Acid
Lauric Acid
Myristic Acid
Palmitic Acid
Stearic Acid
Arachidic Acid
Behenic Acid
Lignoceric Acid
Hexacosanoic Acid

Odd Chain

Pentadecanoic Acid
Heptadecanoic Acid
Nonadecanoic Acid
Heneicosanoic Acid
Tricosanoic Acid

Trans

Palmitelaidic Acid
Total C:18 Trans

Ratios (calculated)

LA/DGLA
EPA/DGLA
AA/EPA
Triene/Tetraene



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