

Lab ID
Patient ID PAT-100009
Ext ID 25309-0100

Test Patient

Sex: Female • 45yrs • 01-Jan-80

RECEIVED
05-Nov-25

OMEGA FATTY ACIDS PANEL

Specimen type - Blood-EDTA

Collected

20-Oct-25

RED CELL FATTY ACIDS SUMMARY

TEST	RESULT	H/L	REFERENCE	UNITS
Saturated Fats, Total	35.04		(29.89-42.10)	%
Monosaturated Fats, Total	17.39		(15.65-31.82)	%
Omega 3 Fatty Acids, Total	5.95		(2.57-15.15)	%
Omega 6 Fatty Acids, Total	42.21		(24.85-44.15)	%
Omega 3/Omega 6 Ratio	0.14		(0.07-5.30)	ratio
AA/EPA Ratio	15.60		(1.10-30.00)	ratio
Omega 3 Index	4.14		(>4.00)	%
Delta 6 Desaturase Activity (LA/DGLA)	15.38		(6.00-25.00)	ratio

Omega 3 Fatty Acids

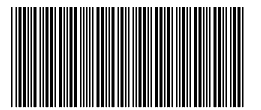
TEST	RESULT	H/L	REFERENCE	UNITS
alpha-Linoleic (ALA) C18:3 n-3	0.30		(0.10-1.90)	%
Eicosapentaenoic (EPA) 20:5n3	1.00		(0.14-6.92)	%
Docosapentaenoic (DPA) 22:5 n3	1.49		(0.53-2.81)	%
Docosahexaenoic (DHA) 22:6 n3	3.16		(1.00-6.50)	%
Total Omega 3 Fatty Acids	5.95		(2.57-15.15)	%

Omega 6 Fatty Acids

TEST	RESULT	H/L	REFERENCE	UNITS
Linoleic (LA) 18:2 n6	23.38		(14.00-31.30)	%
γ-Linoleic (GLA) 18:3 n6	0.31		(0.05-0.72)	%
Eicosadienoic 20:2 n6	0.18		(0.10-0.43)	%
Dihomo-γ-linolenic (DGLA) 20:3 n6	1.52		(0.50-2.50)	%
Arachidonic (AA) 20:4 n6	15.60	H	(5.00-14.80)	%
Docosatetraenoic (DTA) 22:4 n6	0.93		(0.30-2.50)	%
Docosapentanoic (22:5n6)	0.29		(0.08-0.83)	%
Total Omega 6 Fatty Acids	42.21		(24.85-44.15)	%

Monosaturated Fatty Acids

TEST	RESULT	H/L	REFERENCE	UNITS
Palmitoleic 16:1 n7	0.66		(0.13-2.90)	%
Vaccenic 18:1 n7	0.55		(0.00-1.50)	%
Oleic 18:1 n9	14.49		(14.20-29.50)	%
Gondoic 20:1 n9	0.19		(0.10-0.77)	%



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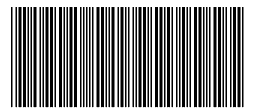
TEST	RESULT	H/L	REFERENCE	UNITS
Nervonic 24:1 n9	1.50		(0.50-3.00)	%
Total Monosaturated Fatty Acids	17.39		(15.65-31.82)	%
Total Omega 9 Fatty Acids	16.18		(16.00-27.00)	%

Saturated Fatty Acids

TEST	RESULT	H/L	REFERENCE	UNITS
Myristic C14:0	0.46		(0.10-2.45)	%
Pentadecyclic C15:0	0.12		(0.05-0.30)	%
Palmitic C16:0	22.24		(17.50-27.10)	%
Magaric C17:0	0.22		(0.14-0.45)	%
Stearic C18:0	10.77		(8.40-15.00)	%
Arachidic C20:0	0.19		(0.10-0.53)	%
Behenic C22:0	0.34		(0.20-1.59)	%
Lignoceric C24:0	0.70		(0.20-1.92)	%
Total Saturated Fatty Acids	35.04		(29.89-42.10)	%

Trans Fatty Acids

TEST	RESULT	H/L	REFERENCE	UNITS
Trans Palmitoleic 16:1 n-7t	0.05		(0.02-0.55)	%
Trans Oleic 18:1t	0.21		(0.00-0.51)	%
Trans Linoleic 18:2n6t	0.03	L	(0.07-0.92)	%
Trans Fatty Acids, Total	0.29	L	(0.30-2.02)	%
Trans Fat Index	0.24		(0.22-1.99)	%



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RED CELL FATTY ACIDS COMMENTS

The Western diet has significantly altered the balance between omega-6 (n-6) and omega-3 (n-3) fatty acids, which historically maintained a near 1:1 ratio. Modern dietary shifts and advances in the food industry have led to a disproportionate increase in n-6 intake, with the ratio now estimated to exceed 20:1. This imbalance is associated with a higher prevalence of chronic diseases, including cardiovascular disease, cancer, metabolic syndrome, obesity, mood disorders, autoimmune conditions, and neurodegenerative diseases. To address this, dietary strategies emphasising omega-3 intake over omega-6 are recommended to restore a healthier balance and reduce disease risk.

INFLAMMATION INDEX COMMENT:

An AA/EPA ratio of 3.0 is deemed acceptable whilst an ideal/optimal ratio is 1.5.

The patient needs to be titrated using Omega 3 Essential Fatty Acids to bring the patient to an optimal ratio.

Supplementation Recommendations: The following dosages are suggestive guidelines as indicated in the literature:

AA/EPA Ratio	Interpretation
1.5	Ideal
3.0	Good
10	Moderate risk
>15	High risk

Treatment Suggestions	Omega-3 Per Day
Maintenance	2.5g
Improved CV function	5.0g
Chronic pain	7.5g
Neurological disease	10.0g

OMEGA 3 INDEX:

The biomarker, Omega 3 Index, has been derived from the accepted principle that the RBC membranes reflect cardiac membrane omega 3 FA content.

As supplementation of omega 3 FAs (in particular EPA and DHA) is known to reduce the risk of CHD, the Omega 3 Index expresses the sum of the EPA and DHA as a percentage of the total identified fatty acids.

An Omega 3 Index greater than 8% is deemed to be desirable (Cardioprotective).

An Omega 3 Index between 4 and 8 % is deemed acceptable.

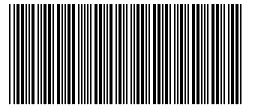
An Omega 3 Index less than 4% is deemed to be undesirable (High Risk).

ELEVATED C20:4 n-6 (ARACHIDONIC ACID, AA):

Arachidonic acid (AA), C20:4 n-6, is a polyunsaturated omega-6 fatty acid derived from dietary sources, including meat, eggs, and certain oils, or synthesized in the body from linoleic acid. AA is a crucial component of phospholipids in cell membranes and plays a pivotal role in the regulation of inflammatory responses and immune function. Through its metabolism, arachidonic acid is converted into eicosanoids, including prostaglandins, thromboxanes, and leukotrienes, which mediate a wide range of physiological processes, from vasodilation to immune response. While arachidonic acid is essential for normal bodily functions, excessive levels relative to omega-3 fatty acids can lead to an imbalance, promoting chronic inflammation and increasing the risk of conditions such as cardiovascular disease, autoimmune disorders, and cancer. Therefore, maintaining a balanced omega-6 to omega-3 ratio is vital for reducing inflammation and supporting overall health.

TRANS FAT INDEX REFERENCE RANGES:

Desirable:	< 1.0 %
Intermediate:	1.0 - 1.65 %
Undesirable:	> 1.65 %



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Trans Fat Index: The trans fat index measures the proportion of trans fats in the diet. A higher index indicates a greater intake of harmful trans fats, which are linked to increased cardiovascular disease risk. Lowering the trans fat index promotes heart health and reduces disease risk.

Methodology

Gas Chromatography-MS (GC/MS)