

Sample ID: 011-11JN82-0222-SWZ Batch No.: 66-240623-002-011-001-SWZ ULR: - Version: 1.0	Name: Zhao Zhang Address: Krung Thep Mahanakhon (bangkok), 10500, Thailand Phone: +66-956536916
Date of Receiving: 24-Jun-2023 Date of Analysis: 24-Jun-2023 Date of Reporting: 26-Jun-2023	Referred by: Dr. Art Referral Center: Sanwiz Lab

Test Method: LHC/SOP/5.4/01

OMEGA BalanceTest (Complete)

	Your Value	Reference Range		Your Value	Reference Range
Polyunsaturated Omega-6 fatty acids	32 %	23.5-40%	Polyunsaturated Omega-3 fatty acids	5.6 %	2.1-12.5%
Linoleic acid (LA) C18:2,n6	17.8 %	13.3-30.2%	Alpha-linolenic acid (ALA) C18:3,n3	0.2 %	0.1-1.3%
Gamma-linolenic acid (GLA) C18:3,n6	0.3 %	0.1-0.9%	Eicosapentaenoic acid (EPA) C20:5,n3	0.5 %	0.1-4.2%
Dihomo-gamma-linolenic acid (DGLA) C20:3,n6	1.3 %	0.5-3.1%	Docosapentaenoic acid (DPA) C22:5,n3	1.0 %	0.4-2.8%
Arachidonic acid (AA) C20:4,n6	12.6 %	5.4-17.1%	Docosahexaenoic acid (DHA) C22:6,n3	3.9 %	0.7-6.6%
Saturated fatty acids	39.9 %	27.3-40%	Monounsaturated fatty acids	22.6 %	15-26%
Myristic Acid (MA) C14:0	0.5 %	0.2-2.4%	Palmitoleic Acid (PLA) C16:1, n7	1.6 %	0.2-3.4%
Palmitic acid (PA) C16:0	26.5 %	18.4-32.2%	Oleic acid (OA) C18:1,cis-9	21.0 %	12.6-27.6%
Stearic acid (SA) C18:0	12.9 %	9.2-21.5%			

----- End of Test Report -----

Note:

- Sample type: Dried Blood Spots (DBS)
- These results relate only to the sample as received.
- These results should not be used for diagnostic purposes and should be clinically correlated.
- Individual fatty acid levels are calculated as % of these 13 fatty acids.
- Reference ranges reflect about 99% of fatty acids levels measured in Indian adults.

Analyzed by

 Name: Mrityunjay Singh
 Dy. Technical Manager



Approved signatory

 Name: Dr. Kuldeep Kumar Ravivanshi
 Technical Manager

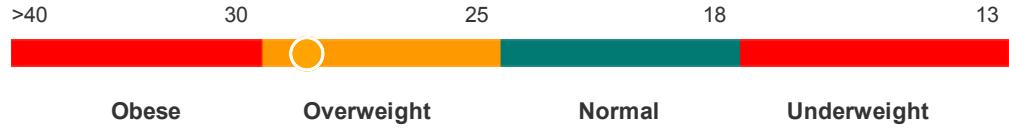
B-57, 1st Floor, Naraina Industrial Area, Phase-2, New Delhi-110028, INDIA

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Fatty Acid Profile Indicators

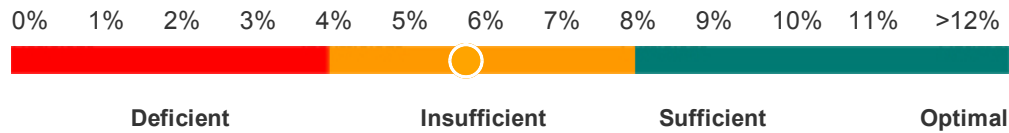
BMI Body Mass Index

Recommended weight Range



Your Value
27.8

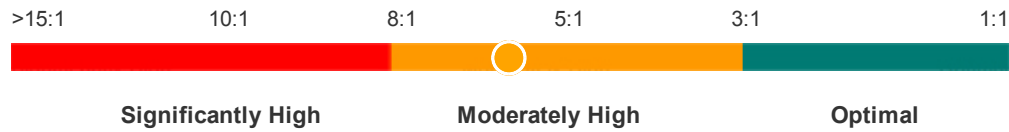
Omega-3 Index



Your Value
5.7%

Dietary Indicators

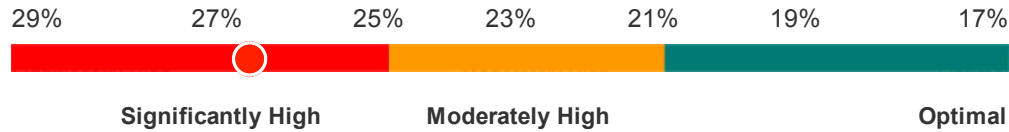
Omega-6 to Omega-3 Ratio



Your Value
5.7 : 1

Palmitic Acid Index

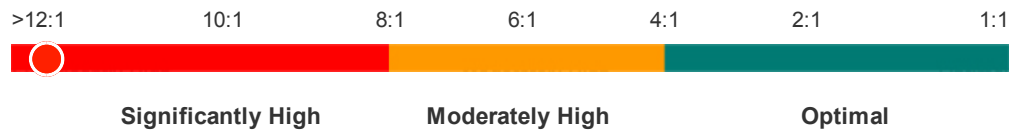
A blood cell biomarker of excess dietary carbohydrates



Your Value
26.5%

Inflammatory Indicator

AA to EPA Ratio



Your Value
25.2 : 1

Test Results

The results shows that your fatty acid profile is: **UNBALANCED**

It is recommended that you take **3g Omega-3 (6 Omega Boost Active Softgels)** daily for a period of **4 months** to improve your bioavailability of Omega-3 (EPA+DHA). This will help reduce the Omega-6 to Omega-3 ratio and decrease the dietary inflammation (AA/EPA). You should also consider changing your diet to one with less Omega-6 by reducing daily intake of plant oils and grains. Reducing your intake of sugar and carbohydrates will also bring your Palmitic acid index within the desired range.

A new OMEGA HealthTest may be repeated after this period which will indicate improvements that may lead to reduced recommended dosage.

Description of Test Indicators

The **Body Mass Index (BMI)** is the first indicator of an imbalanced body. The Body Mass Index (BMI) is a general health index that measures body fat based on your height and weight, and applies to most adult men and women aged 20 and above. The higher your BMI, the higher the amount of fat in your body. If your BMI is less than 20, you are in the underweight range which may relate to nutritional deficiency diseases. A **BMI between 20-25 indicates a healthy and recommended weight range**. If your BMI is between 25-30, you are in the overweight category and it is recommended that you actively start to reduce weight by eating fewer calories, or by increasing the physical activity to burn more calories. A combination of the two is advisable. If your BMI is above 30, you are considered as an obese person. Obesity (BMI>30) is a driving force in the development of chronic lifestyle diseases. People with a BMI less than 20 or greater than 30 are recommended to seek advice from a doctor or an authorized nutritionist or dietician in order to develop a personal dietary plan for healthy weight management.

The Omega-3 Index represents the amount of Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) levels in blood. **The recommended levels of EPA+DHA in your blood should be above 8%.**¹ Recent scientific studies strongly suggest that Omega-3 fatty acids have a beneficial effect on cardiovascular, renal, hepatic and neural tissues, and may also serve important protective functions in injured and inflamed lung.²

The ratio of Omega-6 to Omega-3 reflects the composition of polyunsaturated fatty acids (PUFAs) in your diet. **The recommended optimal Omega-6 to Omega-3 ratio is less than 3:1.**³ An unbalanced Omega-6 to Omega-3 ratio is known to be a leading cause for chronic and lifestyle diseases such as general allergies, skin problems, muscle and joint problems, may develop undetected over time. Therefore, reducing the Omega-6 to Omega-3 ratio by using a combination of dietary supplements and dietary changes will promote optimal health.

When changing your diet, it is recommended to decrease the intake of Omega-6 fatty acids. Food products containing grains and edible oils like soybean-, sunflower- and corn oils are rich sources of Omega-6 fatty acids. At the same time, it is recommended to actively decrease the intake of sugar and refined carbohydrates. Carbohydrates serve as the primary energy source for working muscles, help brain and nervous system functioning and help the body use fat more efficiently. The liver and muscles can store around 500 grams of total carbohydrate as glycogen. The liver converts excess carbohydrates to Palmitic acid (PA), a long chain saturated fatty acid, to be stored in fat cells in fat tissues. Excess dietary carbohydrates and sugar are a known risk factor in diabetes II, obesity and metabolic syndrome.

The Palmitic acid (PA) index measures the level of Palmitic acid in your blood. It has been shown that level of PA in blood is related to HbA1c (glycated hemoglobin), a known marker for identifying average plasma glucose concentration.⁴ **The recommended level of PA index is below 21%.** If your PA index is above 25%, it is recommended that you actively reduce the intake of sugar and carbohydrate rich food. The ingredient- and nutrition list on labels of all food products provide information about sugar and carbohydrate content in the food product.

The **AA to EPA ratio** provides a unique insight into your current state of wellness and mirrors the inflammatory status of your body. Arachidonic acid (AA) and EPA are the starting point for the metabolism of pro-and-inflammatory compounds in the body. AA is a known inflammation promoting agent and is often defined as the root cause of chronic inflammation. An effective dietary intervention to reduce AA in the body is through a reduced intake of dietary animal sources—meat, eggs, dairy—or to reduce the intake of plant oils and grains rich in linoleic acid. Higher the AA to EPA ratio, greater the likelihood of developing a chronic inflammatory disease in the future. **The recommended optimal level of AA to EPA ratio is less than 3:1.**³

Types of Fats

Saturated fats are non-essential fats that come from animal products such as beef, lamb, pork, poultry with skin, butter, cream, cheese and other dairy products. Foods from plants that contain saturated fats include coconut, coconut oil, palm oil and palm kernel oil and cocoa butter. The American Heart Association recommends minimizing saturated fat consumption because of links to high cholesterol and an increased risk of cardiovascular disease.

Monounsaturated fats (MUFA) are non-essential fats that are generally considered to be of a good fat type. They are considered to be healthier alternatives to saturated and refined trans-fats found in most processed foods. Olive oil, avocados and almonds are good sources of MUFAs. The American Heart Association recommends replacing the majority of your saturated fat intake with monounsaturated fat or polyunsaturated fats.

Omega-6 is a family of essential polyunsaturated fatty acids (PUFA) that must come from the diet. Modern diets contain a high proportion of omega-6 fatty acids, especially Linoleic acid, an essential fatty acid from common vegetable oils (e.g. corn, soya, sunflower, and cottonseed), processed foods made with them, as well as from seeds, nuts (eg. Cashews and Pecans) and grains (eg. cereals, wheat flour, pastas etc.). Arachidonic acid (AA) accumulates in meats from grain-fed animals and poultry. These fatty acids are pro-inflammatory and their consumption should be under control.

Omega-3 is a family of essential PUFAs that must come from the diet. Alpha-Linolenic acid (ALA) originates from vegetable fats, while both Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) are rich in fatty shellfish and fish like Salmon, Anchovies, Herring, Sardines, and Trout. Plant derived ALA is not efficiently converted by our body into the required longer chain fatty acids EPA and DHA, which must come from marine sources or fish-oil based supplements. An adequate supply of EPA and DHA in your diet is crucial to the development and function of the nervous system.

¹Harris, W., "Omega-3 Fatty Acids and Cardiovascular Disease: A case study for Omega-3 Index as a New Risk Factor", *Pharmacological Research*, 2007, 217-223.

²Kohli, P., Levy, BD., "Resolvins and protectins: mediating solutions to Inflammation", *British Journal of Pharmacology* (2009) 158, 960–971.

³Simopoulos, AP., "Essential Fatty Acids in Health and Chronic Diseases", *Am J Clin Nutr* 1999;70 (suppl):560S-9S.

⁴Sherwali, S.et al., "Significance of HbA1c Test in Diagnosis and Prognosis of Diabetic Patients", *US National Library of Medicine* 2016; 11: 95–104.