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SAMPLE REPORT

Profile: : FNNTB: Nutrient & Toxic Elements Analysis - Blood

Nutrient Elements

Major elements

		Sample	Result	95% Reference Range	
Calcium	Ca	Serum	9.1	8.60-10.1	mg/dL
Magnesium	Mg	RBC	5.54	4.07-6.18	mg/dL
Potassium	K	RBC	351	280-395	mg/dL

Trace elements

				95% Reference Range	
Ferritin		Serum	94.4	40-330	µg/L
Selenium	Se	WB	275 ↑	131-261	µg/L
Manganese	Mn	RBC	24.5	21.0-33.8	µg/L
Chromium	Cr	WB	1.97	1.45-3.10	µg/L
Vanadium	V	Serum	3.96	2.73-5.82	µg/L
Molybdenum	Mo	WB	1.64	0.70-1.70	µg/L
Cobalt	Co	WB	0.59	0.40-1.05	µg/L
Lithium	Li	WB	0.81	0.32-20.0	µg/L

Cu、Zn

				Redox Range	Walsh/Pfeiffer Functional Range
Copper	Cu	Serum	76	70-122 ●	70-110●
Zinc	Zn	Plasma	145	75-152 ●	90-135●
Cu / Zn ratio		-	0.52 ↓	0.58-1.41▲	0.8-1.0▲

Unit: µg/dL●,ratio▲

Commentary:

1. These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.
2. Nutrient elements analysis is to analyze the nutrients in the red blood cells, serum and whole blood. This analysis is used to evaluate the nutritional status.
3. Nutrient elements analysis reference range for statistical analysis is based on the general public blood test results. The Reference Range is a statistical interval representing 2.5% to 97.5%.
4. The functional reference values for copper, zinc, Cu/Zn ratio are based on the recommendations of Carl Pfeiffer M.D./William Walsh Ph.D. The interpretation of Cu/Zn is more important than the evaluation of copper and zinc. The optimal range should be maintained at 0.8-1.0.

Toxic Elements

Toxic elements
(Sample：Whole blood)

		Result	75% Threshold Value	Percentile (75th / 95th)	95% Reference Range
Mercury	Hg	9.73 ↑	<3		<5
Lead	Pb	18.8 ↑	<18		<25
Cadmium	Cd	0.26	<1		<2
Arsenic	As	6.92	<8.5		<13
Nickel	Ni	1.34	<2		<5
Aluminum	Al	35.8	<50		<70

Potentially toxic elements
(Sample：Whole blood)

Antimony	Sb	4.39	<5		<6.5
Barium	Ba	0.46	<1		<2
Beryllium	Be	0.08	<0.25		<1
Bismuth	Bi	<dl	<0.01		<0.1
Thallium	Tl	0.04	<0.05		<0.1
Tin	Sn	0.75	<0.8		<1.5

Others
(Sample：Whole blood)

Palladium	Pd	0.03	<0.35		<1
Platinum	Pt	<dl	<0.125		<0.4
Silver	Ag	0.01	<0.35		<1

Unit：μg/L

Commentary:

1. These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.
2. Toxic elements analysis is to analyze the harmful elements in the whole blood, and evaluate the toxin accumulation in the body.
3. Toxic elements analysis can be an indicator of short-term toxicity exposed. Toxic Elements Clearance profile can assess long-term toxicity exposed and accumulation of tissue.
4. Toxic elements analysis reference range for statistical analysis is based on the general public blood test results. The Reference Range is a statistical interval representing 75%.

Nutrient & Toxic Element Analysis

Nutrient Elements :

Elements can be measured in whole blood, erythrocytes, or serum. Each element has unique physiological properties, so the most sensitive and specific tests for evaluating a patient vary according to the element.

1) Whole blood is the most broadly recognized specimen for assessing total body status of nutrient elements, and is commonly used for baseline, non-challenged toxic element assessment. · The disadvantage of whole blood is unable to analyze the utilization efficiency of organizations for specific nutrients, such as enzyme cofactors.
2) Erythrocyte element testing is a valuable assessment tool for evaluating long term element status. Erythrocyte levels tend to reflect elemental tissue levels.
3) Serum specimen for the elements used to assess the presence of extracellular or short-term exposure and acute poisoning.

The presence of the body has its different physiological characteristics and nutritional significance of various elements. Function medical testing take individual methods of analysis to provide a complete assessment of the results, the ideal nutritional supplement program as a basis for planning personal medical care.

Item	Physiological effects	Excessive or deficiency symptoms	Food Source
Se Selenium	Selenium is an essential component of glutathione peroxidase which plays a role as an antioxidant. Erythrocytes can be useful to establish selenium status, as selenium is present in high concentrations in erythrocyte glutathione peroxidase. However, of all the selenoproteins GPx has the lowest threshold for selenium saturation. Therefore, a patient may have high or normal RBC Se levels (due to GPx), while other tissues are still low in Se. In clinical settings, whole-blood selenium is widely used to assess selenium status. Selenium is also a cofactor in deiodination of T4 to T3.	Se Deficiency: Compromised immunity, male & female reproductive health, cardiovascular health, inflammation regulation in asthma and thyroid hormone metabolism. Se Excess: Garlic breath odor, brittle fingernails and hair, neurological complaints, swelling.	Nuts, shellfish, liver, fish, sunflower seeds, whole grains, seafood.
Cu/Zn ratio	Antagonism exists between copper and zinc, zinc will reduce the absorption of copper. Serum Cu / Zn imbalance may lead to pyrrole disorder, chronic fatigue, behavioral disorders and mental illness and other issues.	Low Copper and Zinc Ratio: cholesterol metabolism disorders, hypercholesterolemia, hypertension and coronary heart disease. High Copper and Zinc Ratio: Autism spectrum disorders (ASDs), mental illness.	Diet control (liver,mussels, lean meat, nuts, meat, liver, seafood, beer, pumpkin seeds, eggs, dairy).

Toxic Elements

Nutrient & Toxic Element Analysis

Toxic elements, particularly heavy metals such as lead, mercury, cadmium, and arsenic, are widely present in the environment and can enter the human body through food, air, water, and various products we come into contact with daily. The accumulation of these elements in the body can lead to a range of health issues, including nervous system damage, weakened immune function, kidney impairment, and long-term health risks such as developmental disorders.

Testing for toxic elements in the body allows for early identification of potential health risks and enables appropriate interventions. Regular testing is especially important for individuals living in high-risk environments or with a history of chronic exposure, as it helps to protect health and prevent related diseases in a timely manner.

Item	Main Source	Symptoms and Diseases
Hg Mercury	Dental amalgams, mercury vapor from broken thermometer or light bulbs、contaminated shellfish or seafood(especially tuna, shark, swordfish, sailfish) contaminated water supplies, paint, batteries, herbs, a few whitening cosmetic products.	Irritability, insomnia, fatigue, reduced memory, trembling limbs, stomatitis, gingivitis, gastrointestinal tract and kidney dysfunction, weak immune system.
Pb Lead	Water pollution, air pollution, soil pollution and contaminated crops, building and decorating or home supplies, hair dyes, lead-based paint, lead pipes, water heaters, lead toys, crystal glass, vitreous enamel.	Memory / mental decline, affecting fertility, mental disorders, insomnia, loss of appetite, anemia, constipation, kidney dysfunction, children mental retardation.