BloodChemistry
SOFTWARE

Alane Palmer | Nutritionally Yours

Functional Health Report
Patient Copy

Conventional US Units

Health Improvement Plan

The Health Improvement Plan takes all the information on this report and focuses on the top areas that need the most attention.

Hyperlipidemia

The results of your blood test indicate that you have higher than optimal levels of cholesterol and fat in your blood (a condition called hyperlipidemia), which is associated with an increased risk of cardiovascular disease. There is a need for cardiovascular support, especially support to help lower excessive blood fats.

Rationale:
Cholesterol - Total ↑, LDL Cholesterol ↑

Inflammation

The results of your blood test indicate a tendency towards inflammation and shows a need for anti-inflammatory support.

Rationale:
Homocysteine ↑, HDL Cholesterol ↑, RDW ↑, Vitamin D (25-OH) ↓

Bacterial Infection

The results of your blood test indicate a tendency towards a bacterial infection and a need for immune support.

Rationale:
Neutrophils ↑, Monocytes ↑

Hypothyroidism

The results of your blood test indicate a tendency towards hypothyroidism and a need for thyroid gland support.

Rationale:
TSH ↑, Cholesterol - Total ↑

Metabolic Acidosis

The results of your blood test indicate a tendency towards metabolic acidosis and a need for pH support.

Rationale:
Anion gap ↑, CO2 ↓

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

This Health Improvement Plan has been prepared for   Additional personalized recommendations for nutritional support may be applicable based on this laboratory evaluation, your history and other clinical findings.

Suggested Individual Nutrient Recommendations

The Health Improvement Plan takes all the information on this report and focuses on the top areas that need the most attention.

Vitamin D Need

The results of your blood test indicate that your vitamin D levels might be lower than optimal and shows a need for vitamin D supplementation.

Rationale:
Vitamin D (25-OH) ↓

Zinc Need

The results of your blood test indicate that your zinc levels might be lower than optimal and shows a need for zinc supplementation.*

Rationale:
Alk Phos ↓

Vitamin B12/Folate Need

The results of your blood test indicate that your vitamin B12/folate levels might be lower than optimal and shows a need for vitamin B12/folate supplementation.

Rationale:
MCV ↑, Homocysteine ↑, RDW ↑

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Blood Test Results Report

The Blood Test Results Report lists the results of your Blood Chemistry Screen and CBC Test and shows you whether or not an individual biomarker is outside of the optimal range and/or outside of the clinical lab range.

Above Optimal Range 11 Current 0 Previous ↑	Above Standard Range 5 Current 0 Previous ↑↑	Alarm High 1 Current 0 Previous ⚠
Below Optimal Range 3 Current 0 Previous ↓	Below Standard Range 0 Current 0 Previous ↓↓	Alarm Low 0 Current 0 Previous ▼

Biomarker	Current Jul 08 2016	Optimal Range	Standard Range	Units
Glucose	84.00	75.00 - 86.00	65.00 - 99.00	mg/dL
Hemoglobin A1C	5.40	4.50 - 5.50	0.00 - 5.70	%
Insulin - Fasting	3.50	0.00 - 5.00	2.00 - 19.00	µIU/ml
BUN	16.00	10.00 - 16.00	7.00 - 25.00	mg/dL
Creatinine	1.02	0.80 - 1.10	0.40 - 1.50	mg/dL
BUN/Creatinine Ratio	15.68	10.00 - 16.00	6.00 - 22.00	Ratio
Sodium	140.00	135.00 - 142.00	135.00 - 146.00	mEq/L
Potassium	4.00	4.00 - 4.50	3.50 - 5.30	mEq/L
Sodium/Potassium Ratio	35.00	30.00 - 35.00	30.00 - 35.00	ratio
Chloride	101.00	100.00 - 106.00	98.00 - 110.00	mEq/L
CO2	22.00 ↓	25.00 - 30.00	19.00 - 30.00	mEq/L
Anion gap	21.00 ↑↑	7.00 - 12.00	6.00 - 16.00	mEq/L
Protein, total	7.50 ↑	6.90 - 7.40	6.10 - 8.10	g/dL
Albumin	4.70	4.00 - 5.00	3.60 - 5.10	g/dL
Globulin, total	2.80	2.40 - 2.80	1.90 - 3.70	g/dL
Albumin/Globulin Ratio	1.70	1.40 - 2.10	1.00 - 2.50	ratio
Calcium	9.30	9.20 - 10.00	8.60 - 10.40	mg/dL
Calcium/Albumin Ratio	1.97	0.00 - 2.60	0.00 - 2.60	ratio
Alk Phos	60.00 ↓	70.00 - 100.00	35.00 - 115.00	IU/L
AST (SGOT)	24.00	10.00 - 26.00	10.00 - 35.00	IU/L
ALT (SGPT)	20.00	10.00 - 26.00	6.00 - 29.00	IU/L
Bilirubin - Total	0.90	0.10 - 0.90	0.20 - 1.20	mg/dL
Iron - Serum	116.00	85.00 - 130.00	40.00 - 160.00	µg/dL
Ferritin	55.00	30.00 - 70.00	10.00 - 232.00	ng/mL
TIBC	374.00 ↑	250.00 - 350.00	250.00 - 425.00	µg/dL
% Transferrin saturation	31.00	20.00 - 35.00	15.00 - 50.00	%
Cholesterol - Total	242.00 ↑↑	160.00 - 180.00	125.00 - 200.00	mg/dL
Triglycerides	74.00	70.00 - 80.00	0.00 - 150.00	mg/dL
LDL Cholesterol	153.00 ↑↑	0.00 - 120.00	0.00 - 130.00	mg/dL

Test	Value		Optimal Range	Standard Range	Units
HDL Cholesterol	74.00	↑	55.00 - 70.00	46.00 - 100.00	mg/dL
Cholesterol/HDL Ratio	3.30		0.00 - 4.00	0.00 - 5.00	Ratio
Triglyceride/HDL Ratio	1.00		0.00 - 2.00	0.00 - 2.00	ratio
TSH	2.14	↑	1.30 - 2.00	0.40 - 4.50	µU/mL
Free T3	3.10		3.00 - 3.50	2.30 - 4.20	pg/ml
Total T3	109.00		90.00 - 168.00	76.00 - 181.00	ng/dL
Free T4	1.40		1.00 - 1.50	0.80 - 1.80	ng/dL
Total T4	8.90		6.00 - 11.90	4.50 - 12.00	µg/dL
Thyroid Peroxidase (TPO) Abs	1.00		0.00 - 6.80	0.00 - 9.00	IU/ml
Thyroglobulin Abs	1.00		0.00 - 1.00	0.00 - 1.00	IU/ml
C-Reactive Protein	0.10		0.00 - 0.45	0.00 - 0.79	mg/dl
Homocysteine	8.00	↑	0.00 - 7.20	0.00 - 10.30	µmol/L
Vitamin D (25-OH)	38.00	↓	50.00 - 90.00	30.00 - 100.00	ng/ml
Vitamin B12	819.00		400.00 - 1100.00	200.00 - 1100.00	pg/ml
Folate	22.00		15.00 - 25.00	5.50 - 10.00	ng/ml
Testosterone, Total Female	53.00	↑↑	35.00 - 45.00	2.00 - 45.00	ng/dl
Estradiol, Female	631.00	⚠	352.00 - 450.00	19.00 - 357.00	pg/ml
Total WBCs	6.60		5.50 - 7.50	3.80 - 10.80	k/cumm
RBC, Female	5.06	↑	3.90 - 4.50	3.80 - 5.10	m/cumm
Hemoglobin, Female	15.10	↑	13.50 - 14.50	11.70 - 15.50	g/dl
Hematocrit, Female	47.10	↑↑	37.00 - 44.00	35.00 - 45.00	%
MCV	93.20	↑	82.00 - 89.90	80.00 - 100.00	fL
MCH	29.90		28.00 - 31.90	27.00 - 33.00	pg
MCHC	32.10		32.00 - 35.00	32.00 - 36.00	g/dL
Platelets	205.00		155.00 - 385.00	140.00 - 400.00	k/cumm
RDW	14.50	↑	11.70 - 13.00	11.00 - 15.00	%
Neutrophils	65.70	↑	40.00 - 60.00	40.00 - 74.00	%
Lymphocytes	25.90		24.00 - 44.00	14.00 - 46.00	%
Monocytes	7.20	↑	0.00 - 7.00	4.00 - 13.00	%
Eosinophils	1.00		0.00 - 3.00	0.00 - 3.00	%
Basophils	0.20		0.00 - 1.00	0.00 - 1.00	%

Out of Optimal Range Report

The following results show all of the biomarkers that are out of the optimal reference range. The biomarkers that appear closest to the top of each section are those biomarkers that are farthest from optimal.

Above Optimal Range ↑	Below Optimal Range ↓
17 Total	3 Total

Above Optimal

Cholesterol - Total ↑ 242.00 mg/dL (+ 360 %)

Cholesterol is a steroid found in every cell of the body and in the plasma. It is an essential component in the structure of the cell membrane where it controls membrane fluidity. It provides the structural backbone for every steroid hormone in the body, which includes adrenal and sex hormones and vitamin D. The myelin sheaths of nerve fibers are derived from cholesterol and the bile salts that emulsify fats are composed of cholesterol. Cholesterol is made in the body by the liver and other organs, and from dietary sources. The liver, the intestines, and the skin produce between 60-80% of the body's cholesterol. The remainder comes from the diet. An increased cholesterol is just one of many independent risk factors for cardiovascular disease. It is also associated with metabolic syndrome, hypothyroidism, biliary stasis, and fatty liver.

Estradiol, Female ↑ 631.00 pg/ml (+ 235 %)

Estradiol (E2) is the most commonly measured estrogens, the others being estrone (E1) and estriol (E3). The serum estradiol level is not specific to any particular phase of the menstrual cycle. It is a general assessment of estradiol. Increased levels of estradiol in woman suggest an increased risk of breast or endometrial cancer.

Anion gap ↑ 21.00 mEq/L (+ 230 %)

The anion gap is the measurement of the difference between the sum of the sodium and potassium levels and the sum of the serum CO2/bicarbonate and chloride levels.

RDW ↑ 14.50 % (+ 165 %)

The Red Cell Distribution Width (RDW) is essentially an indication of the degree of abnormal variation in size of red blood cells (called anisocytosis). Although the RDW will increase with vitamin BI2 deficiency, folic acid, and iron anemia, it is increased most frequently with vitamin B12 deficiency anemia.

RBC, Female ↑ 5.06 m/cumm (+ 143 %)

The RBC Count determines the total number of red blood cells or erythrocytes found in a cubic millimeter of blood. The red blood cell functions to carry oxygen from the lungs to the body tissues and to transfer carbon dioxide from the tissues to the lungs where it is expelled. Increased levels are associated with dehydration, stress, a need for vitamin C and respiratory distress such as asthma.

Testosterone, Total Female ↑ 53.00 ng/dl (+ 130 %)

The total testosterone test measures both the testosterone that is bound to serum proteins and the unbound form (free testosterone). In women, elevated total testosterone levels are associated with the following: excessive growth of hair on the face and chest (hirsuitism), Polycystic Ovary Syndrome (PCOS) and an increased risk for insulin resistance.

Hemoglobin, Female ↑ 15.10 g/dl (+ 110 %)

Hemoglobin is the oxygen carrying molecule in red blood cells. Hemoglobin levels may be increased in cases of dehydration.

Hematocrit, Female ↑ 47.10 % (+ 94 %)

The hematocrit (HCT) measures the percentage of the volume of red blood cells in a known volume of centrifuged blood. It is an integral part of the Complete Blood Count (CBC) or Hemotology panel. Elevated levels of hematocrit are associated with dehydration. An increased hematocrit is also associated with but by no means diagnostic of asthma or emphysema. Due to the lack of optimum oxygenation of the blood, the body will increase the red blood cell count to increase the number of cells that can be oxygenated. The hematocrit will go up accordingly.

MCV ↑ 93.20 fL (+ 92 %)

The MCV is a measurement of the volume in cubic microns of an average single red blood cell. MCV indicates whether the red blood cell size appears normal (normocytic), small (microcytic), or large (macrocytic). An increase or decrease in MCV can help determine the type of anemia present. An increased MCV is associated with B12, folate, or vitamin C deficiency.

Neutrophils ↑ 65.70 % (+ 78 %)

Neutrophils are the white blood cells used by the body to combat bacterial infections. They are the most numerous and important white cell in the body's reaction to inflammation. Levels will be increased in bacterial infections.

LDL Cholesterol ↑ 153.00 mg/dL (+ 78 %)

LDL functions to transport cholesterol and other fatty acids from the liver to the peripheral tissues for uptake and metabolism by the cells. It is known as "bad cholesterol" because it is thought that this process of bringing cholesterol from the liver to the peripheral tissue increases the risk for atherosclerosis. An increased LDL cholesterol is just one of many independent risk factors for cardiovascular disease. It is also associated with metabolic syndrome, oxidative stress and fatty liver.

HDL Cholesterol ↑ 74.00 mg/dL (+ 77 %)

HDL functions to transport cholesterol from the peripheral tissues and vessel walls to the liver for processing and metabolism into bile salts. It is known as "good cholesterol" because it is thought that this process of bringing cholesterol from the peripheral tissue to the liver is protective against atherosclerosis. Increased HDL is considered protective for the formation of fatty plaques in the artery.

TIBC ↑ 374.00 µg/dL (+ 74 %)

Total Iron Binding Capacity is an approximate estimation of the serum transferrin level. Transferrin is the protein that carries the majority of the iron in the blood. Elevated levels of TIBC are associated with iron deficiency anemia.

TSH ↑ 2.14 µU/mL (+ 70 %)

TSH or thyroid stimulating hormone is a hormone produced by the anterior pituitary to control the thyroid gland's production of T4, to store T4 and to release it into the blood stream. TSH synthesis and secretion is regulated by the release of TRH (Thyroid Releasing Hormone) from the hypothalamus. TSH levels describes the body's desire for more thyroid hormone (T4 or T3), which is done in relation to the body's need for energy. A high TSH is the body's way of saying "we need more thyroid hormone". Optimal TSH levels, in a normally functioning pituitary, can tell us that the amount of T4 in the blood match the body's current need and/or ability to utilize the energy necessary for optimal cell function. When the pituitary is not functioning in an optimal manner, the TSH test can be quite misleading.

Protein, total ↑ 7.50 g/dL (+ 70 %)

Total serum protein is composed of albumin and total globulin. Conditions that affect albumin and total globulin readings will impact the total protein value. An increased total protein is most often due to dehydration.

Homocysteine ↑ 8.00 µmol/L (+ 61 %)

Homocysteine is a molecule formed from the incomplete metabolism of the amino acid methionine. Deficiencies in Vitamins B6, B12 and folate cause methionine to be converted into homocysteine. Homocysteine increases the risk of cardiovascular disease by causing damage to the endothelial lining of the arteries, especially in the heart. Increased levels of homocysteine are associated with an increased risk of cardiovascular disease and stroke, as well as cancer, depression and inflammatory bowel disease.

Monocytes ↑ 7.20 % (+ 53 %)

Monocytes are white blood cells that are the body's second line of defense against infection. They are phagocytic cells that are capable of movement and remove dead cells, microorganisms, and particulate matter from circulating blood. Levels tend to rise at the recovery phase of an infection or with chronic infection.

Below Optimal

CO2 ↓ 22.00 mEq/L (- 110 %)

Carbon Dioxide is a measure of bicarbonate in the blood. CO_2, as bicarbonate, is available for acid-base balancing. Bicarbonate neutralizes metabolic acids in the body. Decreased levels are associated with metabolic acidosis.

Alk Phos ↓ 60.00 IU/L (- 83 %)

Alkaline phosphatase (ALP) is a group of isoenzymes that originate in the bone, liver, intestines, skin, and placenta. It has a maximal activity at a pH of 9.0-10.0, hence the term alkaline phosphatase. Decreased levels of ALP have been associated with zinc deficiency.

Vitamin D (25-OH) ↓ 38.00 ng/ml (- 80 %)

This vitamin D test measures for levels of 25-OH vitamin D and is a very good way to assess vitamin D status. Decreased vitamin D levels are a sign of Vitamin D deficiency.

Functional Index Report

The indices shown below represent an analysis of your blood test results. These results have been converted into your individual Functional Indices Report based on our latest research. This report gives me an indication of the level of dysfunction that exists in the various physiological systems in your body from the digestion of the food you eat to the health of your liver and the strength of your immune system – which are all key factors in maintaining optimal health. We can use this information to put together a unique treatment plan designed to bring your body back into a state of functional health, wellness and energy.

Score Guide: **90% - 100%** - Dysfunction Highly Likely, **70% - 90%** - Dysfunction Likely, **50% - 70%** - Dysfunction Possible, **< 50%** - Dysfunction Less Likely.

Functional Index	0% 100%
Lipid Panel Index	91%
Acid-Base Index	90%
Thyroid Function Index	71%
Immune Function Index	53%
Inflammation Index	50%
Cardiovascular Risk Index	46%
Red Blood Cell Index	31%
Blood Sugar Index	31%
Bone Health Index	23%
Oxidative Stress Index	21%
GI Function Index	17%
Gallbladder Function Index	17%
Liver Function Index	15%
Adrenal Function Index	11%
Allergy Index	0%
Toxicity Index	0%
Heavy Metal Index	0%
Electrolyte Index	0%
Kidney Function Index	0%
Sex Hormone Index - Female	0%

Lipid Panel Index

The Lipid Panel index gives us an indication of the levels of cholesterol and fat in your blood. An increased Lipid Panel Index indicates that you have higher than optimal levels of cholesterol and fat in your blood (a condition called hyperlipidemia). Hyperlipidemia is associated with an increased risk of cardiovascular disease and may be genetic or be due to dietary factors, hormonal imbalances, blood sugar dysregulation and/or other metabolic imbalances. For your blood test, your Lipid Panel Index is:

[91%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Cholesterol - Total ↑, LDL Cholesterol ↑

Acid-Base Index

The Acid-Base Index can help us pinpoint imbalances in the body's pH (acid-alkaline) regulation system. There are a number of elements in the blood that will go out of balance when the body gets too acidic (a condition called metabolic acidosis) or too alkaline (a condition called metabolic alkalosis). For your blood test, your Acid-Alkaline Index is:

[90%] - Dysfunction Highly Likely. Much improvement required.

Rationale:
Anion gap ↑, CO2 ↓

Thyroid Function Index

The Thyroid Function Index allows us to assess the functional health of your thyroid. The thyroid produces hormones that control how the body uses energy. They are responsible for controlling metabolism in the body, for maintaining body temperature, regulating cholesterol and controlling mood. By examining specific elements on the blood test we can see if your thyroid is in a state of increased function (a condition called hyperthyroidism), in a state of decreased function (hypothyroidism) or hopefully optimal function! For your blood test, your Thyroid Function Index is:

[71%] - Dysfunction Likely. Improvement required.

Rationale:
TSH ↑

Immune Function Index

The Immune Function Index allows us to assess the state of function in your immune system. When the immune system is in a state of balance we are able to cope and deal with infections with little or no lasting negative side-effects. Elements on a blood test allow us to check and see if the immune system is in a state of balance or not. Some of the factors to consider include a low functioning immune system (a condition called immune insufficiency), bacterial or viral infections or GI dysfunction associated with decreased immune function: abnormal immunity in the gut lining, a decrease in immune cell function in the gut or an increase in abnormal bacteria, etc. in the gut (a condition called dysbiosis). For your blood test, your Immune Function Index is:

[53%] - Dysfunction Possible. There may be improvement needed in certain areas.

Rationale:
Neutrophils ↑, Monocytes ↑, Alk Phos ↓

Inflammation Index

The Inflammation Index can help us identify whether or not you are suffering from inflammation. This is important because inflammation can be silent, i.e. not have any symptoms. A number of elements on a blood test can indicate the presence of inflammation. These are markers for inflammation and are not specific to any particular inflammatory condition or disease but they can help us look at the underlying dysfunctions that are the true cause of inflammation in the body. For your blood test, your Inflammation Index is:

[50%] - Dysfunction Possible. There may be improvement needed in certain areas.

Rationale:
Homocysteine ↑, HDL Cholesterol ↑, RDW ↑, Vitamin D (25-OH) ↓