Blood Chemistry Analysis

Functional Health Report



Practitioner Report

Prepared

for 56 year old male born May 02, 1964

Requested

by

Test date Apr 27, 2020

Powered by







What's Inside?

An introduction to functional blood chemistry anaysis and your report.

An in-depth functional system and nutrient evaluation.

A full breakdown of all individual biomarker results, showing distance from optimal, comparative and historical views.

SECTION 1: INTRODUCTION

- What's Inside?
- Functional BCA

SECTION 2: ASSESSMENT

- 5 Functional Body Systems
- 9
- 12 Nutrient Status
- 15 Nutrient Deficiencies
- Clinical Dysfunctions

SECTION 3: ANALYSIS

- 28 Blood Test Results
- 39 Out of Optimal Range

The top areas that need the most

Additional notes and information pertinent to this report.

SECTION 4: HEALTH IMPROVEMENT PLAN

50 Health Improvement

SECTION 5: APPENDIX

54 Disclaimer





An introduction to functional blood chemistry anaysis and your report.

Introduction

- 1 What's Inside?
- 3 Functional BCA





Functional Blood Chemistry Analysis

Functional Blood Chemistry Analysis can be defined as the process by which complex and comprehensive blood biomarkers are organized, analyzed and interpreted to provide a comprehensive assessment of the state and trends of the main body systems, the supporting body accessory systems, along with the status of nutrients and trends towards and away from clinical dysfunction.

WHY BLOOD TESTING?

Blood has a lot to tell us about our state of health and the blood chemistry and CBC / hematology test is the most commonly ordered medical lab test worldwide. These blood tests are an integral part of Western clinical medicine and are used to aid in the diagnostic decisionmaking process. Patients understand and are educated that blood testing is the norm for health assessment.

However, many, many people start to feel unwell long before a traditional blood test becomes diagnostic and more often than not, our patients are told by their physician that "everything on your blood test looks normal."

"NORMAL" IS NOT OPTIMAL

Most patients who feel "unwell" will come out "normal" on a blood test. Clinical experience suggests that these people are by no means "normal" and are a far cry from being functionally optimal. They may not yet have progressed to a known disease state but they are what we call dysfunctional, i.e. their physiological systems are no longer functioning properly and they are starting to feel un-well.

The issue is not that the blood test is a poor diagnostic tool, far from it. The issue is that the ranges used on a traditional lab test are based on statistics and not on whether a certain value represents good health or optimal physiological function. The problem is that "normal" reference ranges usually represent "average" populations rather that the optimal level required to maintain good health. Most "normal" ranges are too broad to adequately detect health problems before they become pathology and are not useful for detecting the emergence of dysfunction.

THE FUNCTIONAL APPROACH

The functional approach to chem screen and CBC analysis is oriented around changes in physiology and not pathology. We use ranges that are based on optimal physiology and not the "normal" population. This results in a tighter "Functional Physiological Range", which allows us to evaluate the area within the "Normal" range that indicates that something is not quite right in the physiological systems associated with this biomarker. This gives us the ability to detect patients with changes in physiological "function". We can identify the factors that obstruct the patient from achieving optimal physiological, biochemical, and metabolic functioning in their body.

Another thing that separates the Functional Blood Chemistry Analysis from the Traditional approach is we are not simply looking at one individual biomarker at a time in a linear report of the data. Rather, we use trend analysis between the individual biomarkers to establish a client's otherwise hidden trend towards or away from a functional health optimal.

THE FUNCTIONAL HEALTH REPORT

The Functional Health Report is the result of a detailed algorithmic analysis of your blood test results. Our analytical and interpretive software analyzes the blood test data for its hidden meaning and reveals the subtle, web-like patterns hidden within the numbers that signal the first stages of functional change in the body.

SUMMARY

In closing, Blood testing is no longer simply a part of disease or injury management. It's a vital component of a comprehensive Functional Medicine work up and plays a vital role in uncovering hidden health trends. comprehensive health promotion and disease prevention.







An in-depth functional system and nutrient evaluation.

Assessment

- 5 Functional Body Systems
- 9 Accessory Systems
- 12 Nutrient Status
- 15 Nutrient Deficiencies
- 18 Clinical Dysfunctions

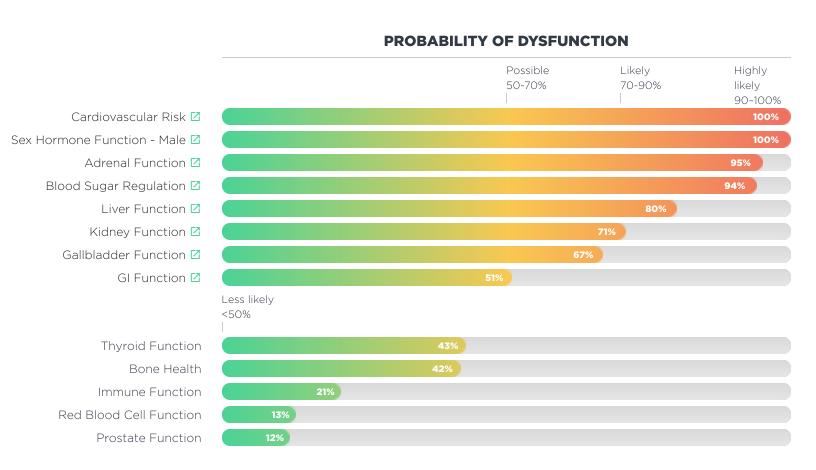
Functional Body Systems

The Functional Body System results represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Functional Body Systems Report based on our latest research.

This report gives you an indication of the level of dysfunction that exists in the various physiological systems in the body.

Please use this report in conjunction with the "Practitioner's Only Clinical Dysfunctions Report" to identify which dysfunctions and conditions are causing changes in the Functional Body Systems.

Each Body System that has a probability of dysfunction above 50% is included in the section that follows so you can read a highly detailed description and individual explanation of the results shown in this report.



Functional Body Systems Details

This section contains detailed descriptions and explanations of the results presented in the Functional Body Systems report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.



Dysfunction Highly Likely.

Much improvement

required.

CARDIOVASCULAR RISK 🗹

The Cardiovascular Risk score is based on the measurement of 15 biomarkers in a blood test that indicates an increased risk of this patient developing cardiovascular disease (heart attack, coronary artery disease, and stroke). A high Cardiovascular Risk score indicates that your patient may have an increased risk of cardiovascular disease, Atherosclerosis, Endothelial Dysfunction, and Inflammation.

Rationale

Triglyceride:HDL ↑, Glucose Fasting ↑, LDH ↑, Cholesterol
- Total ↑, Triglycerides ↑, LDL
Cholesterol ↑, HDL Cholesterol
↓, Ferritin ↑, Hs CRP - Male
↑, Homocysteine ↑,
Hemoglobin A1C ↑, Estradiol Male ↑, Testosterone Total Male ↓, Vitamin D (25-OH) ↓,
Testosterone Free - Male ↓

Biomarkers considered

Triglyceride:HDL, Glucose Fasting, AST, LDH, Cholesterol Total, Triglycerides, LDL
Cholesterol, HDL Cholesterol,
Ferritin, Fibrinogen, Hs CRP Male, Homocysteine,
Hemoglobin A1C, Estradiol Male, Testosterone Total - Male,
Insulin - Fasting, Vitamin D (25OH), Testosterone Free - Male

Patient result not available - consider running in future tests:

Testosterone Free - Male LABCORP



Dysfunction Highly Likely.

Much improvement

required.

SEX HORMONE FUNCTION - MALE

The Male Sex Hormone Function score helps us assess for sex hormone regulation in your patient. A high Male Sex Hormone Function score indicates an increasing level of sex hormone deficiencies in your patient. Review the individual levels of hormones to identify which hormones are causing the high score: Testosterone Total, Testosterone Free, DHEA-S, Progesterone, Sex Hormone Binding Globulin (SHBG), and Estradiol. Please refer to the "Clinical Dysfunctions" report to get a sense of the probability of Testosterone Deficiency in this patient.

Rationale

Estradiol - Male ↑,
Testosterone Free - Male ↓,
Testosterone Total - Male ↓,
Progesterone - Male ↓

Biomarkers considered

Estradiol - Male, Testosterone Free - Male, Testosterone Total -Male, PSA - Total, Progesterone - Male

Patient result not available - consider running in future tests:

Testosterone Free - Male LABCORP



Dysfunction Highly Likely.

Much improvement

required.

ADRENAL FUNCTION

The Adrenal Function score allows us to assess the functional health of your patient's adrenal glands. A high Adrenal Function score indicates that there is dysfunction within your patient's adrenal system and further assessment is needed to find out what the dysfunction is. Please refer to the "Clinical Dysfunctions" report to get a sense of the probability of dysfunction in these "conditions": Adrenal Stress and Adrenal Insufficiency.

Rationale

Potassium ↑, Sodium :
Potassium ↓, BUN ↑,
Cholesterol - Total ↑,
Triglycerides ↑, DHEA-S - Male
↓

Biomarkers considered

Sodium, Potassium, Sodium:
Potassium, Glucose - Fasting,
BUN, Chloride, CO2, Cholesterol
- Total, Triglycerides, DHEA-S Male

Patient result not available - consider running in future tests:

Cortisol - AM. Cortisol - PM



Dysfunction Highly Likely.

Much improvement

required.

BLOOD SUGAR REGULATION

The Blood Sugar Regulation score allows us to assess the functional health of your patient's blood sugar regulation. A high Blood Sugar Regulation score indicates that there is dysfunction in this patient's blood sugar regulation. Blood sugar dysregulation is affected by genetics, diet, lifestyle, nutrition, and environment. Please refer to the "Clinical Dysfunctions" report to get a sense of the probability of dysfunction in these "conditions": Hypoglycemia, Metabolic Syndrome and Insulin Resistance. Long-standing Blood Sugar Dysregulation, if left unassessed or treated, may lead to hyperinsulinemia, and type 2 Diabetes.

Rationale

Glucose - Fasting ↑,
Hemoglobin A1C ↑, Cholesterol
- Total ↑, Triglycerides ↑, LDL
Cholesterol ↑, HDL Cholesterol
↓, DHEA-S - Male ↓

Biomarkers considered

Glucose - Fasting, LDH, Hemoglobin A1C, Insulin -Fasting, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol, DHEA-S - Male

Patient result not available consider running in future tests:

C-Peptide, Fructosamine, Leptin - Male



Dysfunction Likely. Improvement required

LIVER FUNCTION **Z**

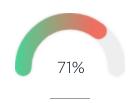
The Liver Function score allows us to assess the functional health of your patient's liver. A high Liver Function score may indicate the need for further assessment of liver function. Factors affecting liver function include Fatty Liver (steatosis), Hepatitis (inflammation of the hepatic cells from infections, toxins, etc.) liver cell damage from cirrhosis, infection, alcohol, chemical damage and hepatic necrosis or a decrease in either phase 1 or phase 2 liver detoxification pathways. Liver dysfunction may negatively impact the immune system and the body's energy systems.

Rationale

Globulin - Total ↑, LDH ↑,
Bilirubin - Total ↑, Cholesterol Total ↑, Iron - Serum ↑,
Ferritin ↑, Bilirubin - Direct ↑,
GGT ↑, MCV ↑

Biomarkers considered

ALT, BUN, Albumin, Globulin -Total, Albumin : Globulin, Alk Phos, AST, LDH, Bilirubin - Total, Cholesterol - Total, Triglycerides, Iron - Serum, Ferritin, Bilirubin -Direct, GGT, Protein - Total, RDW, MCV



Dysfunction Likely.
Improvement required

KIDNEY FUNCTION

The Kidney Function score allows us to assess the functional health of your patient's kidney. A high Kidney Function score reflects a decrease in renal function in this patient, which can be due to renal insufficiency or if the BUN and Creatinine are grossly elevated the beginning stages of conditions that can greatly impair renal function. Factors such as Dehydration, Heavy Metal Toxicity, over the counter or prescription drugs, Renal Insufficiency, Liver Dysfunction or Renal Disease should be considered.

Rationale

BUN \uparrow , BUN : Creatinine \uparrow , eGFR Non-Afr. American \downarrow , Uric Acid - Male \uparrow , LDH \uparrow , Magnesium - Serum \uparrow

Biomarkers considered

BUN, Creatinine, BUN: Creatinine, Phosphorus, eGFR Non-Afr. American, Uric Acid -Male, AST, LDH, Magnesium -

Patient result not available - consider running in future tests:

eGFR African American



Dysfunction Possible.

There may be improvement needed in certain areas.

GALLBLADDER FUNCTION

The Gallbladder Function score allows us to assess the functional health of your patient's biliary system. A high Gallbladder Function score indicates that there is dysfunction within your patient's hepato-biliary system and further assessment is needed to find out what the dysfunction is. Some factors to consider include problems in the liver itself that compromises the production of bile (Biliary Insufficiency), the progressive thickening of the bile within the gallbladder (Biliary Stasis) or Biliary Obstruction that causes cholestasis, a condition of impaired bile flow. Biliary obstruction can occur in the liver but more often occurs outside the liver where it is most often due to a common calculus and usually occurs on a spectrum of mild to severe. Biliary obstruction usually has a genesis in biliary stasis.

Rationale

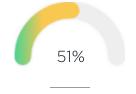
GGT ↑, Cholesterol - Total ↑, LDH ↑, Bilirubin - Total ↑, Bilirubin - Direct ↑

Biomarkers considered

GGT, Alk Phos, Cholesterol -Total, ALT, LDH, Bilirubin - Total, Bilirubin - Direct, Triglycerides

Patient result not available - consider running in future tests:

Gastrin



Dysfunction Possible.

There may be improvement needed in certain areas.

GI FUNCTION

The GI Function score allows us to assess the functional health of your patient's GI system. A high GI Function score indicates that there is dysfunction within your patient's GI system and further assessment is needed to pinpoint exactly what that dysfunction is. Please refer to the "Clinical Dysfunctions" report to get a sense of the probability of dysfunction in these "conditions": Hypochlorhydria, Gastric Inflammation, Helicobacter pylori, Pancreatic Insufficiency, Dysbiosis and Intestinal Hyperpermeability.

Rationale

BUN ↑, Globulin - Total ↑, MCV ↑, Anion Gap ↑, Uric Acid - Male ↑, GGT ↑

Biomarkers considered

BUN, Protein - Total, Globulin - Total, Albumin, Phosphorus, Alk Phos, MCV, Eosinophils - %, Basophils - %, Iron - Serum, Creatinine, Chloride, Anion Gap, Uric Acid - Male, Calcium, GGT, Total WBCs, Hemoglobin - Male

Patient result not available - consider running in future tests:

Gastrin



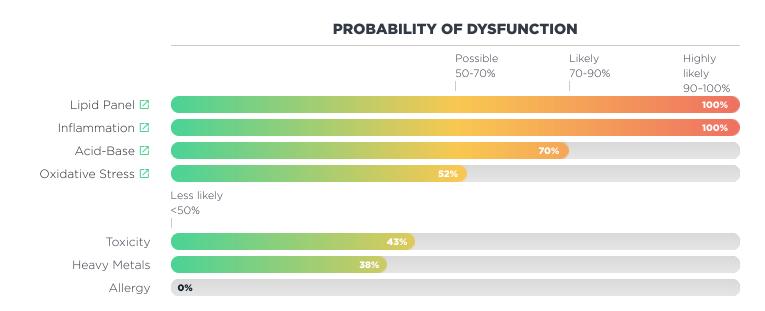
Accessory Systems

The Accessory System results represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Accessory Systems Report based on our latest research.

This report gives you an indication of the level of dysfunction that exists in the various physiological systems in the body.

Please use this report in conjunction with the "Practitioner's Only Clinical Dysfunctions Report" to identify which dysfunctions and conditions are causing changes in the Accessory Systems.

Each Accessory System that has a probability of dysfunction above 50% is included in the section that follows so you can read a highly detailed description and individual explanation of the results shown in this report.



Accessory Systems Details

This section contains detailed descriptions and explanations of the results presented in the Accessory Systems report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.



Dysfunction Highly Likely.

Much improvement
required.

LIPID PANEL [7]

A high Lipid Panel score indicates that there is a strong clinical indication of hyperlipidemia, which has been shown to indicate a potential risk of developing atherosclerotic coronary artery disease. Although hyperlipidemia is a cause, it's important to look at many other risks for this disease including smoking, blood sugar dysregulation, hypertension, elevated homocysteine and other diet and lifestyle considerations.

Rationale

Cholesterol - Total ↑,
Triglycerides ↑, LDL
Cholesterol ↑, Cholesterol:
HDL ↑, Triglyceride:HDL ↑,
HDL Cholesterol ↓

Biomarkers considered

Cholesterol - Total, Triglycerides, LDL Cholesterol, Cholesterol : HDL, Triglyceride:HDL, HDL Cholesterol



Dysfunction Highly Likely.

Much improvement

required.

INFLAMMATION

A high Inflammation score reflects the degree of inflammation that your patient may be dealing with. A number of biomarkers in the blood increase in the presence of dysfunctions and diseases associated with inflammation: cardiovascular disease, diabetes, hypertension, autoimmune diseases, and fibromyalgia to name a few.

Rationale

Hs CRP - Male ↑,
Homocysteine ↑, Uric Acid Male ↑, LDH ↑, Globulin Total ↑, Iron - Serum ↑,
Ferritin ↑, ESR - Male ↑,
Vitamin D (25-OH) ↓

Biomarkers considered

Hs CRP - Male, Fibrinogen,
Homocysteine, Uric Acid - Male,
LDH, Sodium: Potassium,
Globulin - Total, Cholesterol Total, Triglycerides, HDL
Cholesterol, Iron - Serum,
Ferritin, ESR - Male, Platelets,
Lymphocytes - %, Basophils - %,
Alk Phos, RDW, Vitamin D (25OH), Basophils - Absolute, ALT

Patient result not available - consider running in future tests:

Creatine Kinase, C-Reactive Protein



Dysfunction Likely.
Improvement required

ACID-BASE

A high Acid-Base score indicates a functional imbalance in the body's pH system. Consider metabolic acidosis or metabolic alkalosis as a cause of this imbalance.

Rationale

Anion Gap \uparrow , Potassium \uparrow

Biomarkers considered

Anion Gap, Potassium, Chloride, CO2, Calcium



Dysfunction Possible.

There may be improvement needed in certain areas.

OXIDATIVE STRESS

A high Oxidative Stress score indicates that your patient may be dealing with a high oxidative stress burden. A blood test does not directly measure oxidative stress but rather biomarkers in the blood that are affected by the presence of oxidative stress, e.g. a sudden decrease in total cholesterol from a historically normal level is a strong indicator of increased oxidative stress. Factors to consider are an exposure to environmental toxins, inflammatory processes and low antioxidant levels in the body.

Rationale

Globulin - Total ↑, Uric Acid - Male ↑, Bilirubin - Total ↑, LDL Cholesterol ↑, Ferritin ↑

Biomarkers considered

Albumin, Globulin - Total, Cholesterol - Total, Platelets, Lymphocytes - %, Uric Acid -Male, Bilirubin - Total, HDL Cholesterol, Lymphocytes -Absolute, LDL Cholesterol, Ferritin, Neutrophils - %, Homocysteine **⋒ ④ ●**

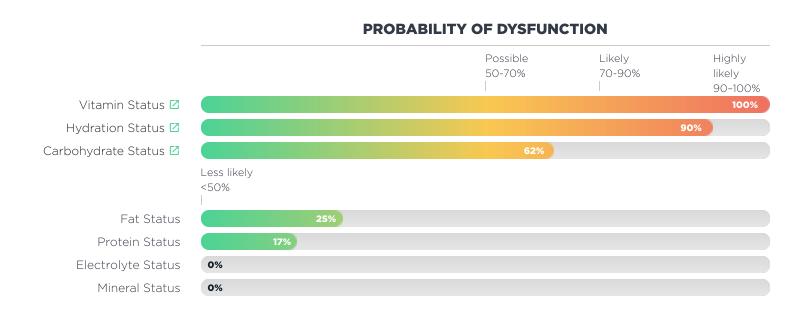


Nutrient Status

The Nutrient Status results represent an algorithmic analysis of this blood test. These results have been converted into your client's individual Nutrient Status Report based on our latest research.

This report gives you an indication of your client's general nutritional state. The Nutrient Status is influenced by actual dietary intake, digestion, absorption, assimilation, and cellular uptake of the nutrients themselves.

Each Nutrient category that has a probability of dysfunction above 50% is included in the section that follows so you can read a detailed description and individual explanation of the results shown in this report.



Nutrient Status Details

This section contains detailed descriptions and explanations of the results presented in the Nutrient Status report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.



Dysfunction Highly Likely.

Much improvement

required.

VITAMIN STATUS

The Vitamin Status score gives us a general indication of the balance of certain vitamins in the body based on the results of this blood test. A high Vitamin Status score indicates a level of deficiency or need in one or more of the vitamins reflected in this score, which includes vitamin B12, vitamin B6, folate, thiamin, vitamin D and vitamin C. Please use the information in the Nutrient Deficiencies report to identify which vitamin or vitamins may be in need.

Rationale

Anion Gap ↑, Homocysteine
↑, Vitamin D (25-OH) ↓, MCV
↑, Folate - Serum ↓

Biomarkers considered

Anion Gap, Albumin, AST, ALT, GGT, Homocysteine, Vitamin D (25-OH), MCV, Folate - Serum, Vitamin B12

Patient result not available - consider running in future tests:

Methylmalonic Acid



Dysfunction Highly Likely.

Much improvement

required.

HYDRATION STATUS

The Hydration Status score gives us a good indication of how well hydrated your patient was at the time their blood was drawn. Dehydration is a very common problem and often shows up on a standard blood chemistry and CBC test. Insufficient water intake and/or excessive use of diuretics such as over the counter and prescription drugs, botanical medicines, caffeine etc. are the most common causes of dehydration and may be a cause of an increased Hydration Status score. An increased albumin is a sign of dehydration along with an increased Urea, Sodium, Potassium, RBC count, Hemoglobin, and Hematocrit.

Rationale

BUN ↑, Potassium ↑, Protein
- Total ↑, RBC - Male ↑,
Hemoglobin - Male ↑,
Hematocrit - Male ↑

Biomarkers considered

Albumin, BUN, Sodium, Potassium, Protein - Total, RBC -Male, Hemoglobin - Male, Hematocrit - Male



CARBOHYDRATE STATUS

The Carbohydrate Status score gives us an assessment of how your patient's body handles their dietary intake of carbohydrates, especially refined carbohydrates, and sugars. A diet high in refined carbohydrates and sugars will deplete phosphorus stores and other important co-factors for carbohydrate metabolism. It may also increase serum glucose and serum triglyceride levels. Follow up a high Carbohydrate Status score with a thorough assessment of blood sugar regulation and also an investigation into this patient's dietary consumption of sugars and refined carbohydrates.

Rationale

Glucose - Fasting ↑,
Cholesterol - Total ↑,
Triglycerides ↑, LDL
Cholesterol ↑, HDL Cholesterol
↓

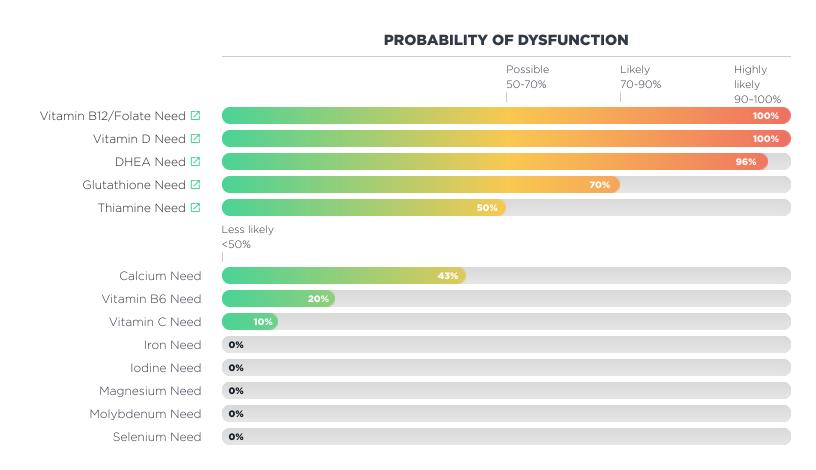
Biomarkers considered

Glucose - Fasting, Phosphorus, LDH, Cholesterol - Total, Triglycerides, LDL Cholesterol, HDL Cholesterol, Total WBCs

Individual Nutrient Deficiencies

The values represent the degree of deficiency for individual nutrients based on your client's blood results. The status of an individual nutrient is based on a number of factors such as actual dietary intake, digestion, absorption, assimilation and cellular uptake of the nutrients themselves. All of these factors must be taken into consideration before determining whether or not your client actually needs an individual nutrient.

Each individual Nutrient Deficiency that has a probability of dysfunction above 50% is included in the section that follows so you can read a highly detailed description and individual explanation of the results shown in this report.



Individual Nutrient Deficiencies Details

This section contains detailed descriptions and explanations of the results presented in the Nutrient Deficiencies report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.



Dysfunction Highly Likely.

Much improvement

required.

VITAMIN B12/FOLATE NEED

Consider a Vitamin B12 and folate need if the MCV is increased along with an increased MCH and an increased Methylmalonic Acid (MMA). If there is also an increased RDW, MCHC, and LDH (especially the LDH-1 isoenzyme fraction), and a decreased Uric Acid the probability of vitamin B-12/folate deficiency anemia is very high. Serum Vitamin B12 and serum Folate may also be decreased.

Rationale

MCV ↑, LDH ↑, Homocysteine ↑, Folate -Serum ↓, Vitamin B12 ↓

Biomarkers considered

MCV, LDH, Homocysteine, Uric Acid - Male, Albumin, Total WBCs, RBC - Male, Hemoglobin - Male, Hematocrit - Male, MCH, MCHC, RDW, Neutrophils - %, Folate - Serum, Vitamin B12

Patient result not available - consider running in future tests:

Methylmalonic Acid

100%

Dysfunction Highly Likely.

Much improvement

required.

VITAMIN D NEED 🗹

The results of this blood test indicate that this patient's Vitamin D levels might be lower than optimal.

Rationale

Vitamin D (25-OH) ↓

Biomarkers considered

Vitamin D (25-OH)

96%

Dysfunction Highly Likely.

Much improvement

required.

DHEA NEED

The results of this blood test indicate that this patient's DHEA levels might be lower than optimal.

Rationale

DHEA-S - Male ↓

Biomarkers considered

DHEA-S - Male



Dysfunction Likely.
Improvement required

GLUTATHIONE NEED

Suspect a glutathione need if the GGT is elevated. An elevated GGT is most commonly associated with alcohol consumption or gallbladder issues but suspect a glutathione need if GGT is elevated and there is no evidence of gallbladder dysfunction.

Rationale

GGT 1

Biomarkers considered

GGT



Dysfunction Possible.

There may be improvement needed in certain areas.

THIAMINE NEED [2]

Consider Thiamine deficiency with an increased anion gap along with a decreased CO₂. Hemoglobin and hematocrit levels may be normal or decreased. Due to thiamine's role in glycolysis, LDH levels may be decreased and glucose levels may be normal to increased.

Rationale

Anion Gap ↑, Glucose - Fasting ↑

Biomarkers considered

Anion Gap, CO2, Glucose -Fasting, LDH, Hemoglobin -Male, Hematocrit - Male **⋒ ④ ●**

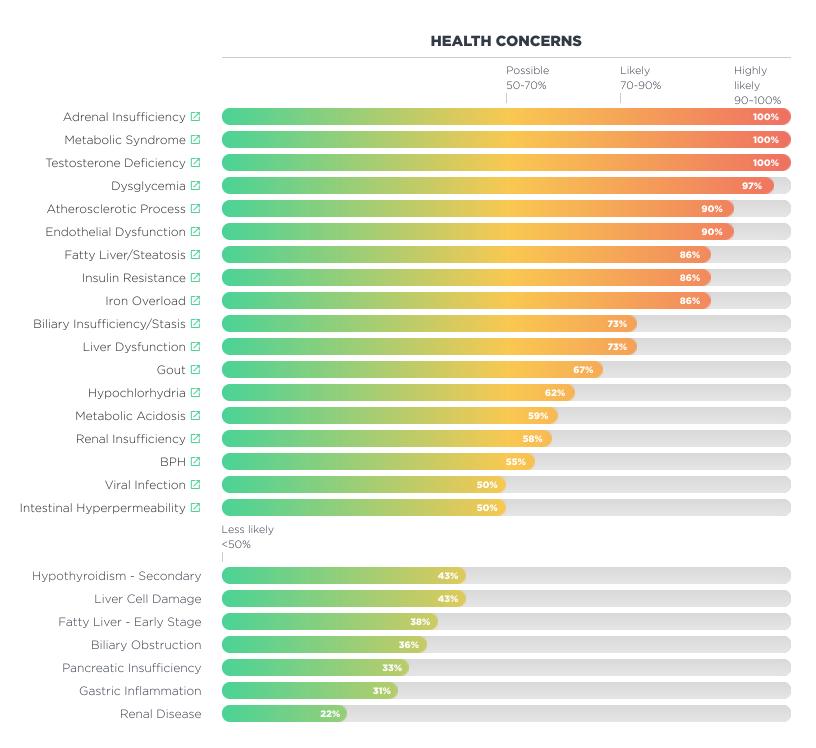


Clinical Dysfunctions

Advanced practitioner only report

The Clinical Dysfunctions Report shows a list of likely Health Concerns that your client may be suffering from based on an analysis of their Chemistry Screen and CBC results.

Each Clinical Dysfunction that has a probability of dysfunction above 50% is included in the section that follows so you can read a highly detailed description and individual explanation of the results shown in this report.



Bacterial Infection	21%
Intestinal Parasites	13%
Anemia	13%
Hyperactive Thyroid	12%
Liver Cirrhosis	12%
Adrenal Stress	6%

Clinical Dysfunctions Details

This section contains detailed descriptions and explanations of the results presented in the Clinical Dysfunctions report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.



Dysfunction Highly Likely.

Much improvement

required.

ADRENAL INSUFFICIENCY

Adrenal insufficiency can cause a decrease in the secretions of both the glucocorticoid and mineralcorticoid hormones. A decrease in aldosterone, the major mineralcorticoid, from adrenal insufficiency will have an impact on potassium and sodium metabolism causing an increase in serum potassium and a decrease in serum sodium. Consider Adrenal Insufficiency with an increased serum potassium along with a decreased sodium and/or chloride and a decreased serum DHEA-sulfate. Additional elements that may be out of range with adrenal insufficiency include an increased blood glucose and an increased serum triglyceride. Urinary chloride will be increased. Adrenal insufficiency can be confirmed with salivary cortisol/DHEA studies.

Rationale

Sodium: Potassium ↓,
Potassium ↑, Cholesterol Total ↑, Triglycerides ↑,
DHEA-S - Male ↓

Biomarkers considered

Sodium: Potassium, Sodium, Potassium, Glucose - Fasting, Chloride, Cholesterol - Total, Triglycerides, DHEA-S - Male

Patient result not available - consider running in future tests:

Cortisol - AM, Cortisol - PM



Dysfunction Highly Likely.

Much improvement

required.

METABOLIC SYNDROME

Consider metabolic syndrome with an increased triglyceride, an increased total cholesterol, an increased LDL cholesterol, a decreased HDL, an increased fasting blood glucose and an increased hemoglobin A1C. Additional elements that may be out of range with metabolic syndrome include an increased fasting insulin, an increased uric acid and decreased DHEA.

Rationale

Glucose - Fasting ↑,
Triglycerides ↑, Hemoglobin
A1C ↑, Uric Acid - Male ↑,
Cholesterol - Total ↑, LDL
Cholesterol ↑, HDL Cholesterol
↓, DHEA-S - Male ↓

Biomarkers considered

Glucose - Fasting, Triglycerides, Hemoglobin A1C, Insulin -Fasting, Uric Acid - Male, Cholesterol - Total, LDL Cholesterol, HDL Cholesterol, DHEA-S - Male, Sex Hormone Binding Globulin - Male

Patient result not available - consider running in future tests:

Leptin - Male



Dysfunction Highly Likely.

Much improvement

required.

TESTOSTERONE DEFICIENCY

Consider a functional testosterone deficiency with a decreased total testosterone and a decreased free testosterone

Rationale

Testosterone Total - Male ψ ,
Testosterone Free - Male ψ

Biomarkers considered

Testosterone Total - Male, Testosterone Free - Male

Patient result not available - consider running in future tests:

Testosterone Free - Male



Dysfunction Highly Likely.

Much improvement

required.

DYSGLYCEMIA

Dysglycemia is an imbalance in the ability of the body to regulate blood glucose levels causing unhealthy blood glucose levels that can lead to Diabetes, Metabolic Syndrome, Obesity, Insulin Resistance and Hyperinsulinemia. Consider dysglycemia with an elevated blood glucose level and an elevated hemoglobin A1C level.

Rationale

Glucose - Fasting ↑, Hemoglobin A1C ↑

Biomarkers considered

Glucose - Fasting, Hemoglobin A1C

Patient result not available - consider running in future tests:

Leptin - Male



Dysfunction Highly Likely.

Much improvement

required.

ATHEROSCLEROTIC PROCESS [2]

Consider an atherosclerotic process with an increased triglyceride level in relation to an increased total cholesterol and an increased uric acid level, a decreased HDL and an increased LDL. Additional elements that may be out of range with an atherosclerotic process include an increased platelet level, an increased homocysteine, an increased HSCRP, and an increased fibrinogen. AST/SGOT may be elevated due to the presence of this enzyme in heart tissue and CO2 may be elevated as well.

Rationale

Uric Acid - Male ↑,
Homocysteine ↑, Cholesterol Total ↑, LDL Cholesterol ↑,
HDL Cholesterol ↓, Hs CRP Male ↑

Biomarkers considered

Uric Acid - Male, Triglycerides, Homocysteine, Cholesterol -Total, LDL Cholesterol, HDL Cholesterol, Platelets, CO2, AST, Fibrinogen, Hs CRP - Male



Dysfunction Highly Likely.

Much improvement

required.

ENDOTHELIAL DYSFUNCTION

Consider endothelial dysfunction with an increased homocysteine, an increased blood glucose, an increased fibrinogen, an increased HS-CRP, a decreased free serum testosterone, and an increased iron. Some of the other causes of endothelial dysfunction include smoking, hypertension, nutrient deficiencies, a standard Western diet, and a lack of exercise.

Rationale

Hs CRP - Male ↑,
Homocysteine ↑, Glucose Fasting ↑, Iron - Serum ↑,
Testosterone Free - Male ↓

Biomarkers considered

Fibrinogen, Hs CRP - Male, Homocysteine, Glucose -Fasting, Iron - Serum, Testosterone Free - Male

Patient result not available - consider running in future tests:

Testosterone Free - Male



Dysfunction Likely. Improvement required

FATTY LIVER/STEATOSIS 🗹

Steatosis or fatty liver is caused by the accumulation of fat in the functional units of the liver. Non Alcoholic Steatotic Hepatitis is one of the most common causes of elevated liver enzymes. Fatty liver will cause extensive liver cell damage, so early detection is essential. Consider steatosis/fatty liver if the SGPT/ALT is increased above the SGOT/AST and GGTP levels, which may be elevated. Advanced steatosis will cause the SGPT/ALT to be elevated as much as 4 times the upper limit of normal. Consider it more likely if the LDH and alkaline phosphatase levels are also increased.

Rationale

GGT ↑, LDH ↑, Ferritin ↑

Biomarkers considered

ALT, Alk Phos, AST, GGT, LDH, Ferritin



Dysfunction Likely. Improvement required

INSULIN RESISTANCE

Insulin resistance is the condition in which people lose sensitivity to the hormone insulin. As the cells become resistant to insulin, levels of insulin and blood glucose will rise. Consider insulin resistance with an increased fasting insulin and an increased fasting blood glucose, an increased Hemoglobin A1C, an increased triglyceride and an increased Triglyceride/HDL ratio. You may also see an increased total cholesterol, an increased C-Peptide, a decreased HDL and a decreased phosphorous.

Rationale

Triglycerides ↑,
Triglyceride:HDL ↑, Glucose Fasting ↑, Hemoglobin A1C ↑

Biomarkers considered

Triglycerides, Triglyceride:HDL, Glucose - Fasting, Insulin -Fasting, Hemoglobin A1C, Cholesterol - Total

Patient result not available - consider running in future tests:

C-Peptide, Leptin - Male



Dysfunction Likely.
Improvement required

IRON OVERLOAD

Iron overload is a condition marked by an increase in serum iron, a decreased TIBC, an increased % transferrin saturation, and an increased ferritin level. Iron overload can be a genetic disease called Hemochromatosis or a non-genetic variant called hemosiderosis. Both conditions are caused by an excess absorption of iron, which leads to deposition of excess iron in the tissues, especially the liver. Often the SGOT/AST may be elevated and in severe cases may be 4-5 times the normal range.

Rationale

Iron - Serum ↑, Ferritin ↑, %
Transferrin saturation ↑

Biomarkers considered

Iron - Serum, Ferritin, % Transferrin saturation, AST, TIBC. ALT



Dysfunction Likely.

Improvement required

BILIARY INSUFFICIENCY/STASIS

Biliary stasis or insufficiency can often be caused by a mild obstruction in the extra-hepatic biliary duct. GGTP levels will frequently be increased above optimal but not necessarily. Bilirubin levels (total and/or direct) will also be elevated along with alkaline phosphatase,

LDH, triglycerides and total cholesterol. SGPT/ALT may be normal or increased. Many cases of biliary stasis will show normal lab values. In these situations suspect biliary stasis or insufficiency if there are strong subjective indicators. If the score for Biliary Insufficiency/Stasis is elevated consider further testing or treat accordingly.

Rationale

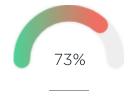
GGT ↑, Cholesterol - Total ↑, LDH ↑, Bilirubin - Total ↑, Bilirubin - Direct ↑

Biomarkers considered

GGT, Cholesterol - Total, Alk Phos, ALT, LDH, Bilirubin - Total, Bilirubin - Direct, Triglycerides

Patient result not available - consider running in future tests:

Gastrin



Dysfunction Likely. Improvement required

LIVER DYSFUNCTION [2]

Suspect liver dysfunction if SGPT/ALT is increased along with an increased SGOT/AST and an increased GGTP. The likelihood of liver dysfunction increases with a decreased serum albumin, an increased serum alkaline phosphatase, an increased serum bilirubin, a decreased cholesterol, an increased globulin and an increased LDH. Additional biomarkers that may be out of range with liver dysfunction are an increased ferritin, an increased serum iron, a decreased total protein, an increased MCV and a decreased triglyceride.

Rationale

Ferritin ↑, GGT ↑, Bilirubin Total ↑, Cholesterol - Total ↑,
LDH ↑, Globulin - Total ↑,
Bilirubin - Direct ↑, Iron Serum ↑, MCV ↑

Biomarkers considered

ALT, Ferritin, Alk Phos, AST, GGT, Bilirubin - Total, Cholesterol - Total, LDH, Albumin, Globulin - Total, BUN, Bilirubin - Direct, Triglycerides, Albumin : Globulin, Protein -Total, Iron - Serum, RDW, MCV, Monocytes - %, Monocytes -Absolute



GOUT

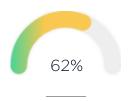
Gout is a condition in which uric acid crystals precipitate in the tissue, especially the big toe (tophi). Consider gout if there is an increased uric acid. The likelihood increases if there is also a decreased phosphorous, an increased total cholesterol, an increased BUN and a normal or increased creatinine.

Rationale

Uric Acid - Male ↑, BUN ↑, Cholesterol - Total ↑

Biomarkers considered

Uric Acid - Male, BUN, Creatinine, Phosphorus, Cholesterol - Total



Dysfunction Possible.

There may be improvement needed in certain areas.

HYPOCHLORHYDRIA

Consider hypochlorhydria with an increased total globulin level and a normal or decreased total protein and/or albumin, an increased BUN, a decreased serum phosphorous. Other values that may be reflective of a developing or chronic hypochlorhydria include an increased MCV and MCH, a decreased calcium and iron, a decreased chloride, an increased anion gap and a decreased alkaline phosphatase.

Rationale

BUN \uparrow , Globulin - Total \uparrow , MCV \uparrow , Anion Gap \uparrow

Biomarkers considered

BUN, Protein - Total, Globulin -Total, Albumin, Phosphorus, Alk Phos, MCV, Iron - Serum, Anion Gap, Calcium, MCH

Patient result not available - consider running in future tests:

Gastrin



Dysfunction Possible.

There may be improvement needed in certain areas.

METABOLIC ACIDOSIS

Consider metabolic acidosis if the anion gap is increased along with an increased potassium, a decreased CO_2 and an increased chloride.

Rationale

Anion Gap \uparrow , Potassium \uparrow

Biomarkers considered

Anion Gap, Potassium, Chloride, CO2



RENAL INSUFFICIENCY [2]

Suspect renal insufficiency if there is an increased BUN with a normal or increased serum Creatinine, a normal to increased Uric Acid, and an increased serum phosphorous. EGFR may be slightly elevated. LDH and SGOT/AST will usually be normal.

Rationale

BUN ↑, eGFR Non-Afr. American ↓, Uric Acid - Male ↑

Biomarkers considered

BUN, Creatinine, Phosphorus, eGFR Non-Afr. American, Uric Acid - Male, Platelets

Patient result not available - consider running in future tests:

eGFR African American



Dysfunction Possible.

There may be improvement needed in certain areas.

BPH

An increased serum creatinine is associated with dysfunction of prostatic origin (Benign Prostatic Hypertrophy - BPH, prostatitis) or a chronic inflammatory/infectious process (chronic UTIs). Suspect BPH if there is an increased creatinine level along with an increased PSA and a normal BUN (ruling out kidney involvement) and electrolytes. Additional elements that may be out of range with BPH include an increased monocyte count and LDH (especially isoenzyme #4, which has a prostatic origin).

Rationale

LDH \uparrow , Monocytes - % \uparrow , Monocytes - Absolute \uparrow

Biomarkers considered

Creatinine, LDH, PSA - Total, Monocytes - %, Monocytes -Absolute



Dysfunction Possible.

There may be improvement needed in certain areas.

VIRAL INFECTION

Consider a viral infection with increased lymphocytes and an elevated total WBC count. Neutrophils may be normal or decreased. Increased monocytes indicate the recovery period. Expect to see increased band cells in the acute phase. Additional elements that may be out of range with a viral infection include an increased serum iron and an increased LDH.

Rationale

LDH ↑, Monocytes - % ↑, Iron - Serum ↑

Biomarkers considered

Lymphocytes - %, Total WBCs, Lymphocytes - Absolute, LDH, Monocytes - %, Iron - Serum, Neutrophils - %



INTESTINAL HYPERPERMEABILITY [2]

Although there are no tests specifically for intestinal hyperpermeability on a blood chemistry screen, it is associated with an increased uric acid and an increased alkaline phosphatase.

Rationale

Uric Acid - Male 🔨

Biomarkers considered

Uric Acid - Male, Alk Phos



A full breakdown of all individual biomarker results, showing distance from optimal, comparative and historical views.

Analytics

- 28 Blood Test Results
- 39 Out of Optimal Range

AN	ALY	TICS
⋒	①	(

Blood Test Results	Out of Optimal Range					
Blood Glucose	Renal	Prostate	Electrolytes	Metabolic		
Proteins	Minerals	Liver and GB	Iron Markers	Lipids		
Thyroid	Inflammation	Vitamins	Hormones	CBC/Hematology		
White Blood CellsWhite Blood Cells						

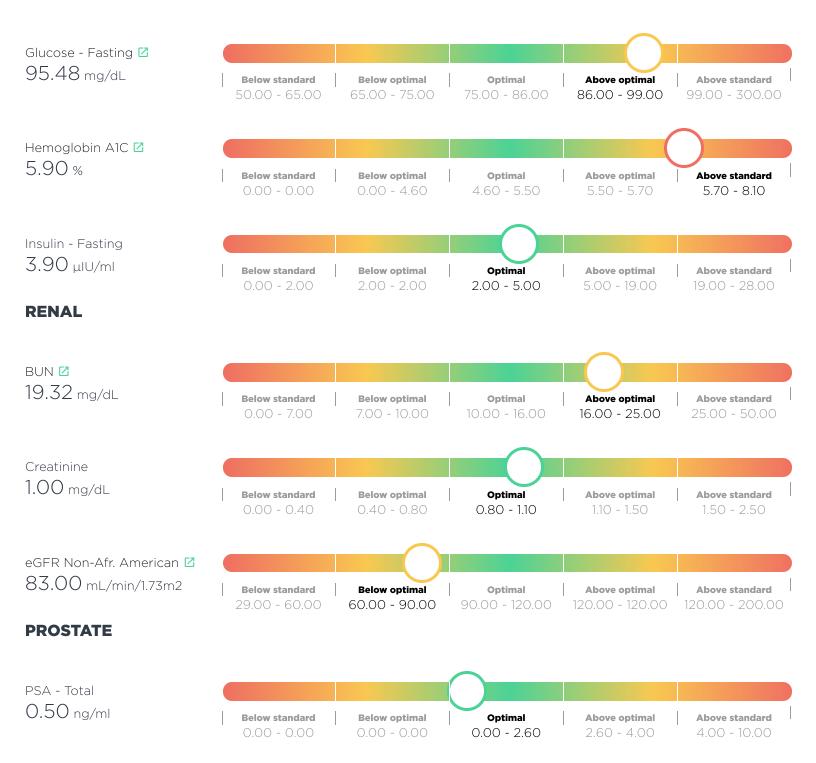
Blood Test Results

The Blood Test Results Report lists the results of the Chemistry Screen and CBC and shows you whether or not an individual biomarker is outside of the optimal range and/or outside of the clinical lab range. The biomarkers are grouped into their most common categories.

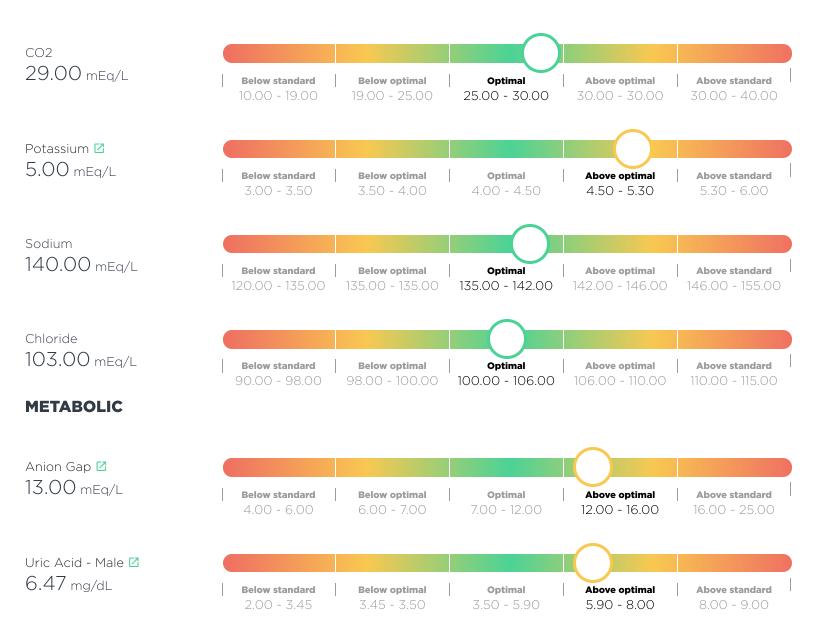
Each biomarker in the Blood Test results report that is above or below the Optimal or Standard Range hyperlinks into our Out of Optimal Range report so you can read a description of the biomarker and some of the reasons why it may be high or low.



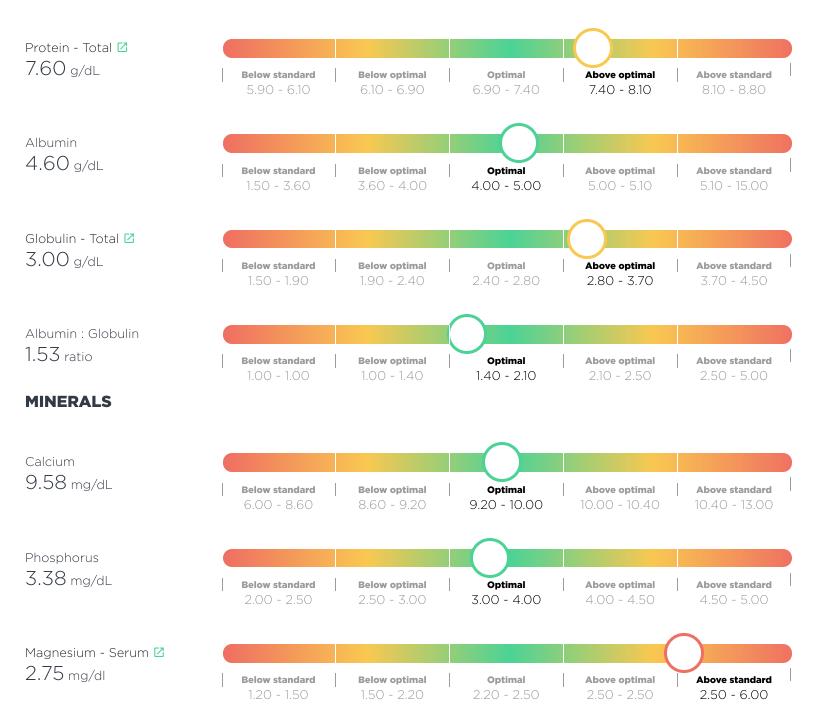
BLOOD GLUCOSE



ELECTROLYTES



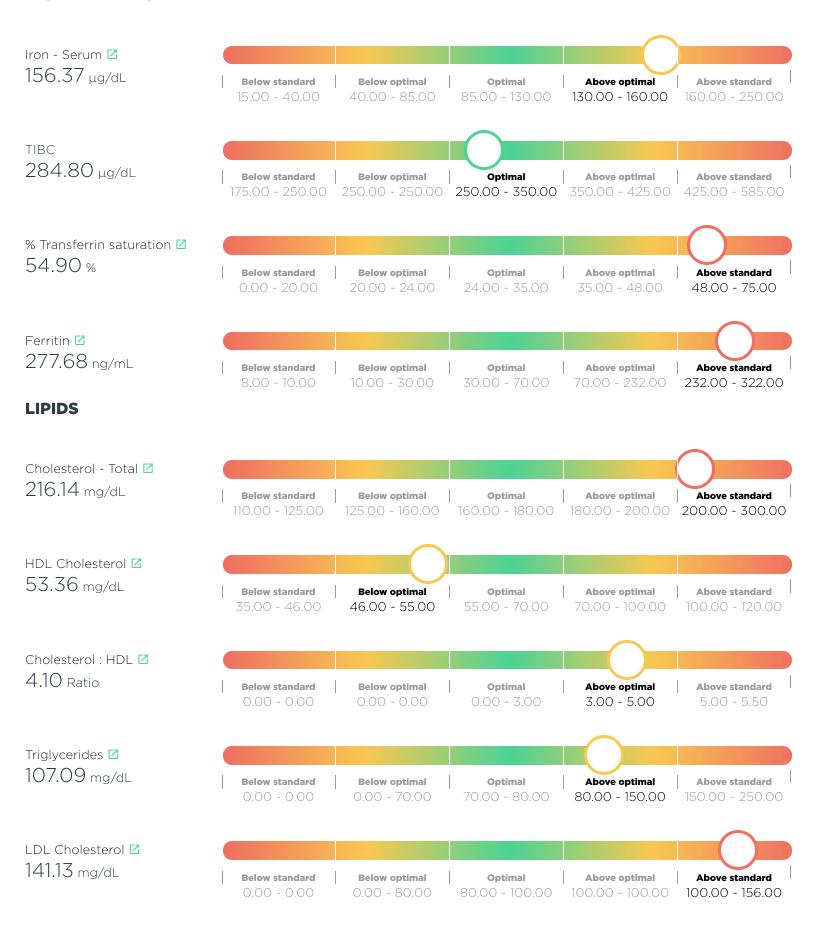
PROTEINS



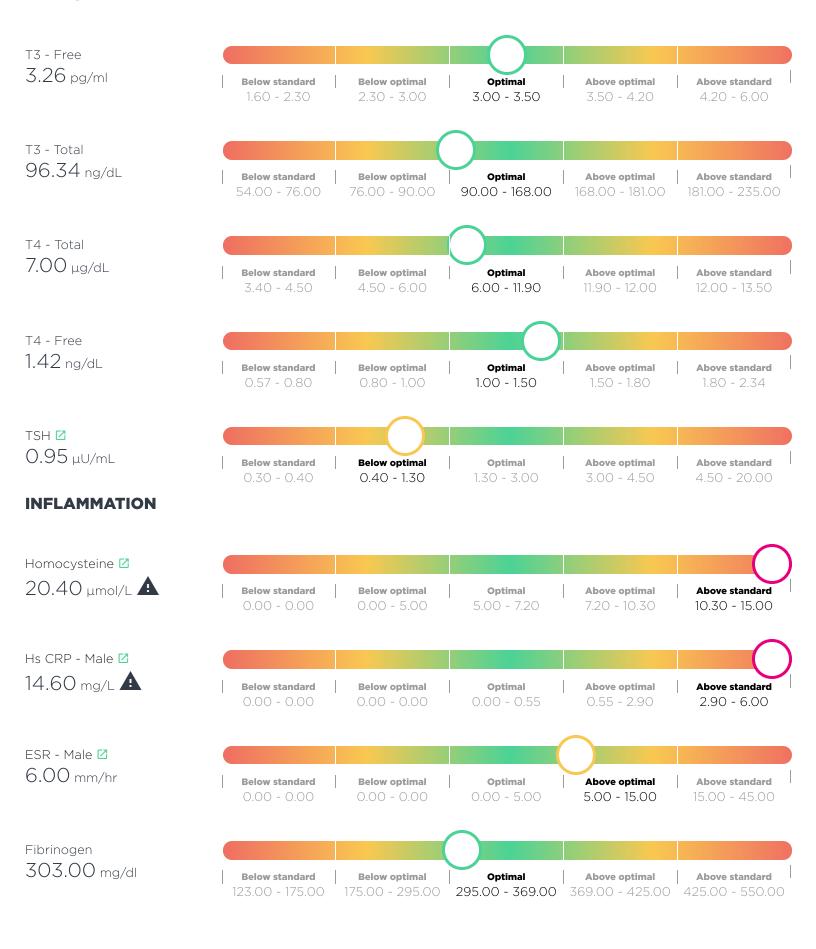
LIVER AND GB



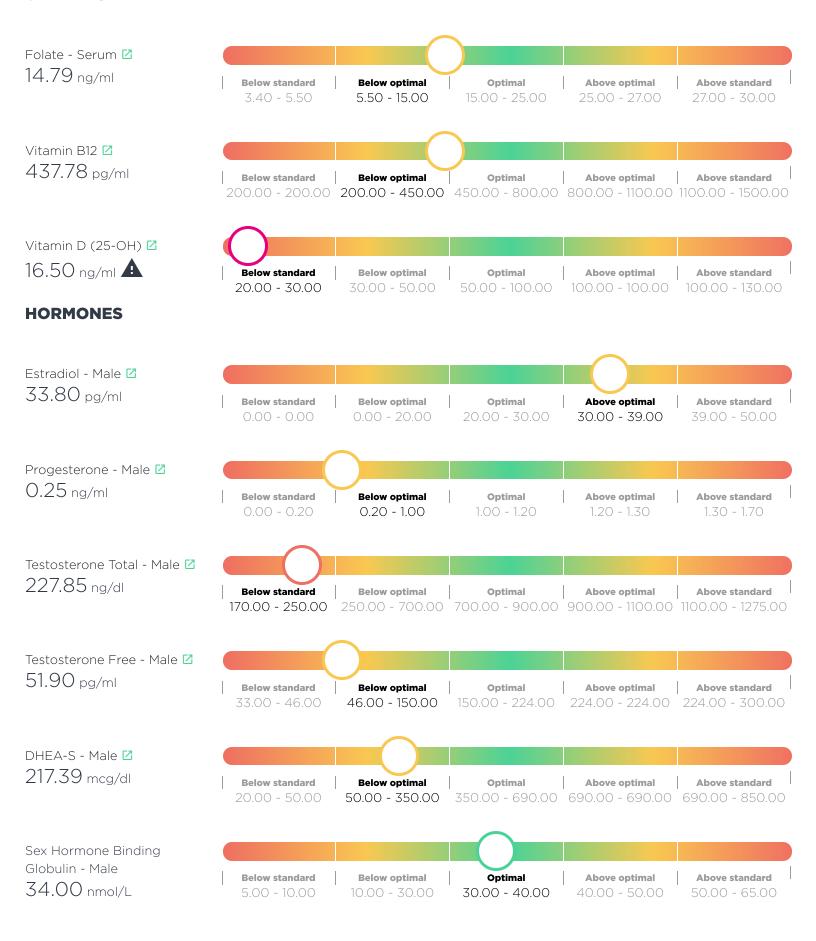
IRON MARKERS



THYROID



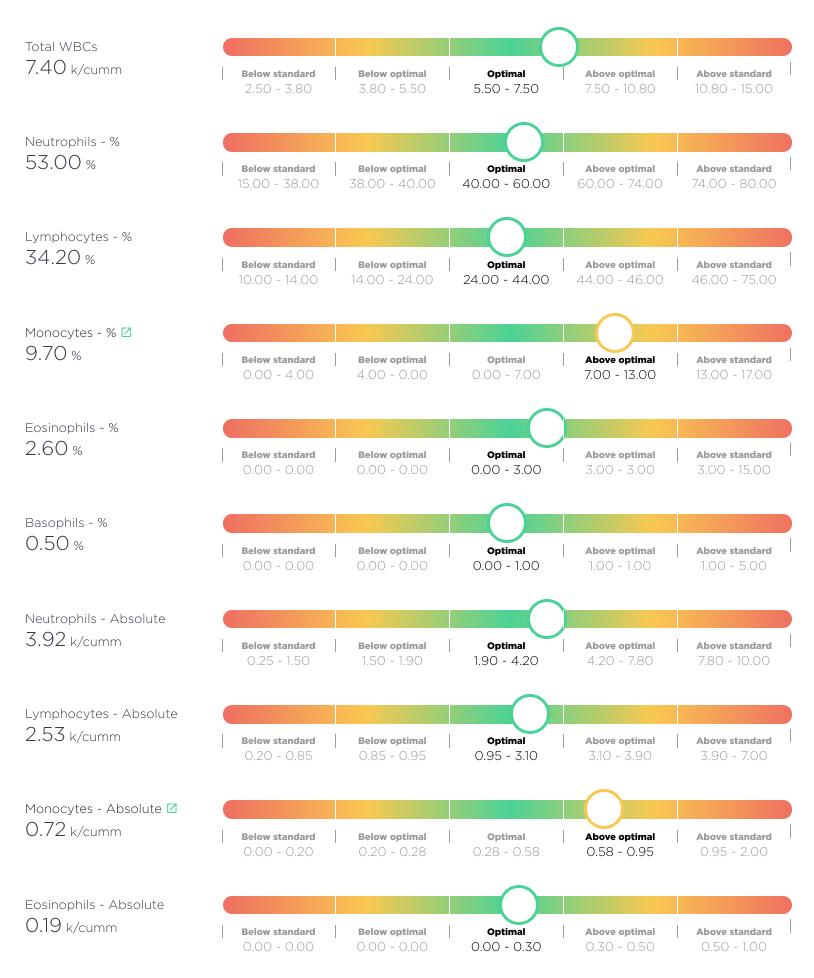
VITAMINS



CBC/HEMATOLOGY



WHITE BLOOD CELLS



WHITE BLOOD CELLS (CONTINUED)

Basophils - Absolute $0.04 \, \text{k/cumm}$







Out of Optimal Range

The following report shows all of the biomarkers that are out of the optimal reference range and gives you some important information as to why each biomarker might be elevated or decreased.

Each biomarker in the Out of Optimal Range report hyperlinks back into the Blood Test Results report so you can a see a more detailed view of the blood test result itself.

Total number of biomarkers by optimal range





















Alarm low

Below standard

Below optimal **Optimal**

Above optimal

Above standard **Alarm high**

Total

Above Optimal

14.60 mg/L

HS CRP - MALE 🗹 🛕

High Sensitivity C-Reactive Protein (Hs-CRP) is a blood marker that can help indicate the level of chronic inflammation in the body. Increased levels are associated with an increased risk of inflammation, cardiovascular

disease, stroke, and diabetes.

20.40 umol/L

HOMOCYSTEINE A

Homocysteine is a molecule formed from the incomplete metabolism of the amino acid methionine. Increased levels of homocysteine are associated with an increased risk of cardiovascular disease and stroke.

277.68

FERRITIN

Ferritin is the main storage form of iron in the body. Increased levels are associated with iron overload, an increasing risk of cardiovascular disease, inflammation and oxidative stress

TRIGLYCERIDES [2]

Serum triglycerides are composed of fatty acid molecules that enter the bloodstream either from the liver or from the diet. Levels will be elevated in metabolic syndrome, fatty liver, in people with an increased risk of cardiovascular disease, hypothyroidism, and adrenal dysfunction

353.00

LDH 🖾 🛕

LDH represents a group of enzymes that are involved in carbohydrate metabolism. Increased levels of LDH are used to evaluate the presence of tissue damage to the cell causing a rupture in the cellular cytoplasm. LDH is found in many of the tissues of the body, especially the heart, liver, kidney, skeletal muscle, brain, red blood cells, and lungs. Damage to any of these tissues will cause an elevated serum LDH level.

141.13

LDL CHOLESTEROL [2]

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.



% TRANSFERRIN SATURATION

Ø

The % transferrin saturation index is a calculated value that tells how much serum iron is bound to the iron-carrying protein transferrin. A % transferrin saturation value of 15% means that 15% of iron-binding sites of transferrin is being occupied by iron. It is a sign of iron overload or too much iron in the blood if it is above the optimal range.

216.14 mg/dL

CHOLESTEROL - TOTAL [2]

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. 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.

5.00 mEq/L

POTASSIUM

Potassium is one of the main electrolytes in the body. Due to the critical functions of potassium for human metabolism and physiology, it is essential for the body to maintain optimal serum levels even though a small concentration is found outside of the cell. Potassium levels should always be viewed in relation to the other electrolytes. Potassium concentration is greatly influenced by adrenal hormones. Increased levels are associated with adrenal insufficiency and may also be elevated in dehydration.

95.48 mg/dL

GLUCOSE - FASTING

Blood glucose levels are regulated by several important hormones including insulin and glucagon. Glucose is also directly formed in the body from carbohydrate digestion and from the conversion in the liver of other sugars, such as fructose, and fat into glucose. Increased blood glucose is associated with type 1 & 2 diabetes, metabolic syndrome, and insulin resistance.

2.75 mg/dl

MAGNESIUM - SERUM

Magnesium is important for many different enzymatic reactions, including carbohydrate metabolism, protein synthesis, nucleic acid synthesis, and muscular contraction. Magnesium is also needed for energy production and is used by the body in the blood clotting mechanism. Magnesium is excreted by the kidney so an increased serum magnesium is associated with kidney dyfunction.

15.60 g/dl

HEMOGLOBIN - MALE

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

156.37 µg/dL

IRON - SERUM 🛂

Serum iron reflects iron that is bound to serum proteins such as transferrin. Serum iron levels will begin to fall somewhere between the depletion of the iron stores and the development of anemia. Increased iron levels are associated with liver dysfunction, conditions of iron overload (hemochromatosis and hemosiderosis) and infections.

19.32 mg/dL

BUN 🗹

BUN or Blood Urea Nitrogen reflects the ratio between the production and clearance of urea in the body. Urea is formed almost entirely by the liver from both protein metabolism and protein digestion. The amount of urea excreted as BUN varies with the amount of dietary protein intake. Increased BUN may be due to an increased production of urea by the liver or decreased excretion by the kidnev. BUN is a test used predominantly to measure kidney function, where it will be increased. An increased BUN is also associated with dehydration and hypochlorhydria.

5.26 m/cumm

RBC - MALE

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.

3.00 g/dL

GLOBULIN - TOTAL

Globulins constitute the body's antibody system and Total globulin is a measurement of all the individual globulin fractions in the blood. An elevated total globulin level is associated with hypochlorhydria, liver dysfunction, immune activation, oxidative stress, and inflammation.



MONOCYTES - ABSOLUTE

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.

5.90

HEMOGLOBIN A1C

The Hemoglobin A1C test measures the amount of glucose that combines with hemoglobin to form glycohemoglobin during the normal lifespan of a red blood cell, which is about 120 days. The amount of alvcohemoalobin formed is in direct proportion to the amount of glucose present in the bloodstream during the 120-day red blood cell lifespan. In the presence of high blood glucose levels (hyperglycemia) the amount of hemoglobin that is glycosylated to form glycohemoglobin increases and the hemoglobin A1C level will be high. Hemoglobin A1C is used primarily to monitor long-term blood glucose control and to help determine therapeutic options for treatment and management. Studies have shown that the closer to normal the hemoglobin A1C levels are kept, the less likely those patients are to develop the long-term complications of diabetes.

7.60 g/dL

PROTEIN - TOTAL 🔼

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. 9.70

MONOCYTES - %

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.

33.80 pg/ml

ESTRADIOL - MALE

Estradiol is a minor hormone in men. Estradiol is synthesized from testosterone and androstenedione in men and plays a role in male sex hormone physiology. High levels of estradiol in men are associated with abdominal obesity, an increased risk of cardiovascular disease, insulin sensitivity, and blood sugar dysregulation.

4.10 Ratio

CHOLESTEROL: HDL

The ratio of total cholesterol to HDL is a far better predictor of cardiovascular disease than cholesterol by itself. A lower ratio is ideal because you want to lower cholesterol (but not too low) and raise HDL. A level below 3.0 would be ideal. Every increase of 1.0, i.e. 3.0 to 4.0 increases the risk of heart attack by 60%.

91.80 fL

MCV 🗹

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.

6.47 mg/dL

URIC ACID - MALE

Uric acid is produced as an endproduct of purine, nucleic acid, and nucleoprotein metabolism. Levels can increase due to over-production by the body or decreased excretion by the kidneys. Increased uric acid levels are associated with gout, atherosclerosis, oxidative stress, arthritis, kidney dysfunction, circulatory disorders and intestinal permeability.

O.23 mg/dL

BILIRUBIN - DIRECT

Direct or conjugated bilirubin is the form of bilirubin that has been made water soluble in the liver so it can be excreted in the bile. An increase in direct or conjugated bilirubin may be associated with a dysfunction or blockage in the liver, gallbladder, or biliary tree.

34.00 IU/L

GGT 🔼

Gamma Glutamyl Transferase (GGT) is an enzyme that is present in highest amounts in the liver cells and to a lesser extent the kidney, prostate, and pancreas. It is also found in the epithelial cells of the biliary tract. GGT will be liberated into the bloodstream following cell damage or destruction and/or biliary obstruction. GGT is induced by alcohol and can be elevated following chronic alcohol consumption and in alcoholism.



ANION GAP

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. Increased levels are associated with thiamine deficiency and metabolic acidosis.

6.00 mm/hr

ESR - MALE

The ESR test is based on the fact that certain blood proteins will become altered in inflammatory conditions, causing aggregation of the red blood cells and as such it is a non-specific measure for inflammation in the body. The ESR is useful for determining the level of tissue destruction, inflammation, and is an indication that a disease process is ongoing and must be investigated.

0.94 mg/dL

BILIRUBIN - TOTAL

The total bilirubin is composed of two forms of bilirubin: Indirect or unconjugated bilirubin, which circulates in the blood on its way to the liver and direct or conjugated bilirubin, which is the form of bilirubin made water-soluble before it is excreted in the bile. An increase in total bilirubin is associated with dysfunction or blockage in the liver, gallbladder, or biliary tree, or red blood cell hemolysis.

48.30 %

HEMATOCRIT - MALE

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.

O.71 mg/dL

BILIRUBIN - INDIRECT

Bilirubin is formed from the breakdown of red blood cells. Indirect or unconjugated bilirubin is the protein (albumin) bound form of bilirubin that circulates in the blood on its way to the liver prior to being eliminated from the body in the bile. Elevated levels of indirect or unconjugated bilirubin are usually associated with increased red blood cell destruction.

Below Optimal

0.25 ng/ml

PROGESTERONE - MALE [7]

Progesterone is often considered to be a female hormone but men produce progesterone too. In the body, it's converted into testosterone and serves to oppose and balance estrogen. As men age, their progesterone levels drop, which may cause the testosterone levels to fall.

227.85 ng/dl

TESTOSTERONE TOTAL - MALE

Ø

Testosterone is the primary sex hormone for men. The total testosterone test measures both the testosterone that is bound to serum proteins and the unbound form (free testosterone). Decreased total testosterone levels are associated with a number of dysfunctions including metabolic syndrome, an increased risk of cardiovascular disease, increase in abdominal obesity, decreased libido and erectile dysfunction.

51.90 pg/ml

TESTOSTERONE FREE - MALE

Testosterone is the primary sex hormone for men. The free testosterone test measures the testosterone that is unbound to serum proteins such as Sex Hormone Binding Globulin (SHBG) and albumin. Decreased free testosterone levels are associated with a number of dysfunctions including metabolic syndrome, an increased risk of cardiovascular disease, increase in abdominal obesity, decreased libido and erectile dysfunction.

16.50 ng/ml

VITAMIN D (25-OH) 🗹 🛕

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.



DHEA-S - MALE 🗹

DHEA is produced primarily from the adrenals and is the most abundant circulating steroid in the human body and influences more than 150 known anabolic (repair) functions throughout the body and brain. It is the precursor for the sex hormones: testosterone. progesterone, and estrogen. Decreased levels are associated with adrenal insufficiency and many common age-related conditions, including diseases of the nervous, cardiovascular, and immune systems such as metabolic syndrome, coronary artery disease, osteoporosis, mood disorders, and sexual dysfunction. Ideally, DHEA levels should be maintained at the level of a healthy 30-vear-old to maximize the antiaging effects



EGFR NON-AFR. AMERICAN 🗹

The eGFR is a calculated estimate of the kidney's Glomerular Filtration Rate. It uses 4 variables: age, race, creatinine levels and gender to estimate kidney function. Levels below 90 are an indication of a mild loss of kidney function. Levels below 60 indicate a moderate loss of kidney function and may require a visit to a renal specialist for further evaluation.

0.95 μU/mL

TSH 🗹

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 bloodstream. TSH synthesis and secretion is regulated by the release of TRH (Thyroid Releasing Hormone) from the hypothalamus. TSH levels describe the body's desire for more thyroid hormone (T4 or T3), which is done in relation to the body's need for energy. A low TSH reflects the body's low need for thyroid hormone. Optimal TSH levels, in a normally functioning pituitary, can tell us that the amount of T4 in the blood matches 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 guite misleading.

53.36 mg/dL

HDL CHOLESTEROL [2]

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. Decreased HDL is considered atherogenic (tending towards the formation of fatty plaques in the artery).



VITAMIN B12 🔼

Vitamin B12 is an essential nutrient for DNA synthesis and red blood cell maturation and is also necessary for myelin sheath formation and the maintenance of nerves in the body. Decreased serum B12 levels are associated with a deficiency of B12, insufficient B12 intake in the diet, or malabsorption.

14.79 ng/ml

FOLATE - SERUM

Folate functions as a coenzyme in the process of methylation. Along with vitamin B12, folate is essential for DNA synthesis. Low folate intake can result in folate deficienc, which can impair methylation, DNA synthesis and red blood cell production.







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

Health Improvement Plan

50 Health Improvement

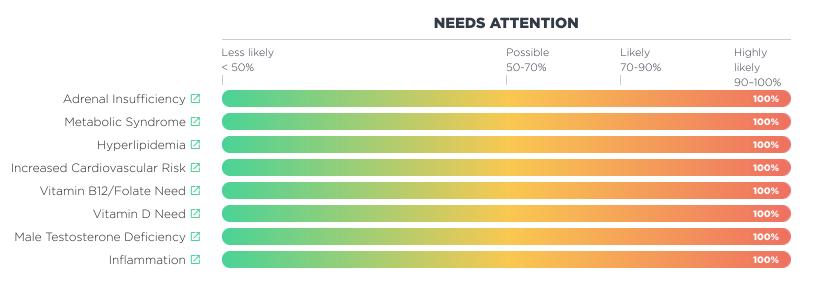




Health Improvement

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

Each area of Health Improvement is included in the section that follows so you can read a detailed description and individual explanation of the results shown in this report.



Health Improvement Details

This section contains detailed descriptions and explanations of the results presented in the Health Improvement Plan report including all the biomarkers considered in the algorithmic analysis and the rationale behind the interpretation.

ADRENAL INSUFFICIENCY [2]

The results of this blood test indicate a tendency towards adrenal insufficiency and a need for adrenal gland support.



Rationale

Sodium: Potassium \downarrow , Potassium \uparrow , Cholesterol - Total \uparrow , Triglycerides \uparrow , DHEA-S - Male \downarrow

METABOLIC SYNDROME

The results of this blood test indicate a tendency towards metabolic syndrome and a need for blood sugar support.

100%

Rationale

Glucose - Fasting \uparrow , Triglycerides \uparrow , Hemoglobin A1C \uparrow , Uric Acid - Male \uparrow , Cholesterol - Total \uparrow , LDL Cholesterol \uparrow , HDL Cholesterol \downarrow , DHEA-S - Male \downarrow

HYPERLIPIDEMIA

The results of this blood test indicate a tendency towards hyperlipidemia, which has been shown to increase the risk of developing atherosclerotic coronary artery disease. There is a need for cardiovascular support, especially support to help lower excessive blood fats.



Rationale

Cholesterol - Total \uparrow , Triglycerides \uparrow , LDL Cholesterol \uparrow , Cholesterol : HDL \uparrow , Triglyceride: HDL \uparrow , HDL Cholesterol \downarrow

INCREASED CARDIOVASCULAR RISK 🗹

The results of this blood test indicate a higher than optimal cardiovascular risk for this patient and shows a need for cardiovascular support.



Rationale

Triglyceride:HDL \uparrow , Glucose - Fasting \uparrow , LDH \uparrow , Cholesterol - Total \uparrow , Triglycerides \uparrow , LDL Cholesterol \uparrow , HDL Cholesterol \downarrow , Ferritin \uparrow , Hs CRP - Male \uparrow , Homocysteine \uparrow , Hemoglobin A1C \uparrow , Estradiol - Male \uparrow , Testosterone Total - Male \downarrow , Vitamin D (25-OH) \downarrow , Testosterone Free - Male \downarrow

VITAMIN B12/FOLATE NEED 🗹

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



Rationale

MCV ↑, LDH ↑, Homocysteine ↑, Folate - Serum ↓, Vitamin B12 ↓

VITAMIN D NEED

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



Rationale

Vitamin D (25-OH) ↓

MALE TESTOSTERONE DEFICIENCY [2]

The results of this blood test indicate a trend towards testosterone deficiency and a need for testosterone metabolism support.



Rationale

Testosterone Total - Male $oldsymbol{\psi}$, Testosterone Free - Male $oldsymbol{\psi}$

INFLAMMATION

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

100%

Rationale

Hs CRP - Male \uparrow , Homocysteine \uparrow , Uric Acid - Male \uparrow , LDH \uparrow , Globulin - Total \uparrow , Iron - Serum \uparrow , Ferritin \uparrow , ESR - Male \uparrow , Vitamin D (25-OH) \downarrow





Highly detailed and interpretive descriptions of the results presented in each of the assessment and analysis section reports.

Appendix

54 Disclaimer





Disclaimer

This Report contains information for the exclusive use of the above named recipient only, and contains confidential, and privileged information. If you are not the above named recipient or have not been given permission by the person, you are prohibited from reading or utilizing this report in any way, and you are further notified that any distribution, dissemination, or copying of this Report is strictly prohibited.

All information provided in this Report is provided for educational purposes only, including without limitation the 'optimal ranges' set forth in this Report. Neither this Report, nor any of the information contained in this Report, is intended for, or should be used for the purpose of, medical diagnosis, prevention, or treatment, including self-diagnosis, prevention, or treatment. This Report should not be used as a substitute for professional medical care, and should not be relied upon in diagnosing or treating a medical condition, ailment, or disease.

The 'optimal ranges' set forth in this Report are general reference reccomendations only, and are not intended to be guidelines for any specific individual. The 'optimal ranges' set forth in this Report are for educational purposes only, and are not intended to be, nor should they be construed as, a claim or representation of medical diagnosis or treatment.

Neither this Report, nor any information contained in this Report, should be considered complete, or exhaustive. This report does not contain information on all diseases, ailments, physical conditions or their treatment. This report is based on the lab data provided, which may or may not include all relevant and appropriate measures of your biochemistry.

The absence of a warning for a given drug or supplement or any combination thereof in no way should be construed to indicate that the drug or supplement or any combination thereof is safe, effective, or appropriate for you. Statements made about a supplement, product or treatment have not been evaluated by the Food and Drug Administration (FDA) and any mentioned supplement, product or treatment is not intended to diagnose, treat, cure or prevent any disease. The information contained in this Report has not been evaluated by the FDA.

You are encouraged to confirm any information obtained from this Report with other sources, and review all information regarding any medical condition or the treatment of such condition with your physician.

NEVER DISREGARD PROFESSIONAL MEDICAL ADVICE, DELAY SEEKING MEDICAL ADVICE OR TREATMENT, OR STOP CURRENT MEDICAL TREATMENT, BECAUSE OF SOMETHING YOU HAVE READ IN THIS REPORT.

Consult your physician or a qualified healthcare practitioner regarding the applicability of any of the information or materials provided in this Report in regards to your symptoms or medical condition. Always consult your physician before beginning a new treatment, diet, exercise, fitness plan, or health plan or program, and before taking any drug, supplement, or any combination thereof; or if you have questions or concerns about your health, a medical condition, or any plan or course of treatment. If you think you have a medical emergency, call 911 or your doctor immediately.