Functional Health Report

A comprehensive analysis of your patient's test results.

BLOOD CHEMISTRY ANALYSIS

Practitioner Report

Prepared for	Female Sample 58 year old female born Nov 01, 1966 Fasting
Requested by	Mrs. christina pann The Science & Soul Academy
Collected Date	Jul 12, 2025
Lab	Quest
Powered by	OptimalDX

What's Inside?

1

An introduction to Functional Blood Chemistry Analysis and the Functional Health Report (FHR).

Introduction

Functional Blood Chemistry Analysis (FBCA)

Functional Blood Chemistry Analysis is the process by which blood biomarkers are organized, analyzed, and interpreted. FBCA provides a comprehensive assessment of the state of health in the main functional systems and the supporting accessory systems of the body. It also gives us a window into the nutrient status of the body and whether you are trending towards or away from optimal health.

Mrs. christina pann
The Science & Soul Academy

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 decision-making process. Patients understand and are educated that blood testing is the norm for health assessment.

However, many people feel unwell long before a traditional blood test becomes diagnostic. 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 dys-functional, 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 reference ranges used on a traditional lab test are based on statistics, not on whether a certain value represents good health or optimal physiological function. The problem is that "normal" ranges represent "average" populations rather than the optimal level required to maintain good health. Most "normal" reference 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 based on optimal physiology, not the "normal" population. This results in a tighter "Functional Physiological Range," which allows us to evaluate the area within the "Normal" reference range 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.

A full breakdown of all the individual biomarker results, showing if a particular biomarker is outside the optimal range or the standard range, plus a comparative and historical view.

Analytics

Blood Test Results

The Blood Test Results Report lists the results of your patient's Chemistry Screen and CBC and shows you whether or not an individual biomarker is optimal, outside of the optimal range, or outside of the standard range. The biomarkers are grouped into their most common categories.

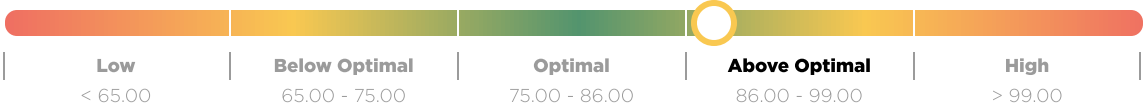
Some biomarkers in the Blood Test Results Report that are above or below the Optimal or marked Low or High may be hyperlinked into the "Out of Optimal Range Report", so you can read some background information on those biomarkers and why they may be high or low.

0	7	26	62	14	5	0	118
Alarm Low	**Low**	**Below Optimal**	**Optimal**	**Above Optimal**	**High**	**Alarm High**	**Total**

BLOOD GLUCOSE

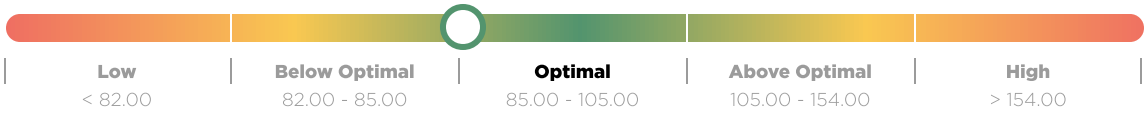
Blood glucose regulation markers provide a comprehensive assessment of metabolic health, insulin sensitivity, and pancreatic function, offering insights that extend beyond traditional fasting glucose measurements. Advanced glycemic markers and calculated indices enable you to detect metabolic dysfunction at earlier stages, assess beta cell function, and evaluate insulin resistance patterns, allowing for more precise and personalized interventions.

Glucose Fasting
87.50 mg/dL



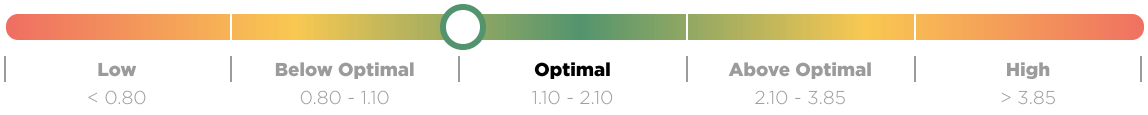
Hemoglobin A1C
4.60 %

eAG
85.00 mg/dL



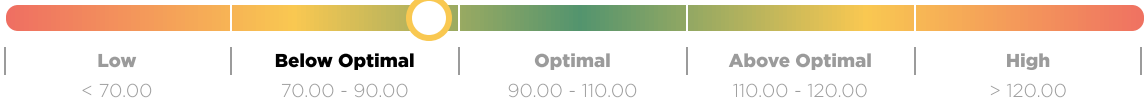
Insulin - Fasting
3.70 µIU/mL

C-Peptide
1.11 ng/mL

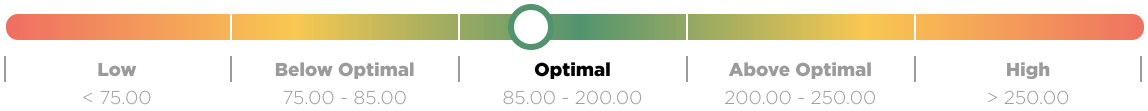


Fructosamine
201.00 µmol/L

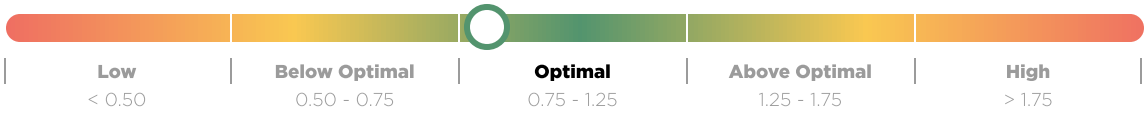
HOMA2-%B
87.50 %



HOMA2-%S
124.00 %



HOMA2-IR
0.80 Index



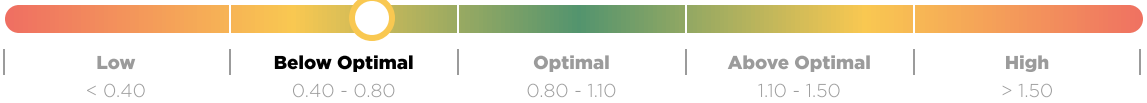
QUICKI
0.40 Index

RENAL

Kidney and renal biomarkers offer a comprehensive view of glomerular filtration efficiency, protein metabolism, and overall excretory function. Evaluating these indicators helps detect subtle declines in renal performance long before overt pathology arises. Early detection allows for proactive interventions—such as optimizing hydration, adjusting dietary protein intake, and reducing potential nephrotoxic exposures—to preserve renal health. Integrative strategies may also address systemic factors, including inflammation and metabolic imbalances, ensuring the kidneys can continue to effectively filter waste and maintain electrolyte balance.

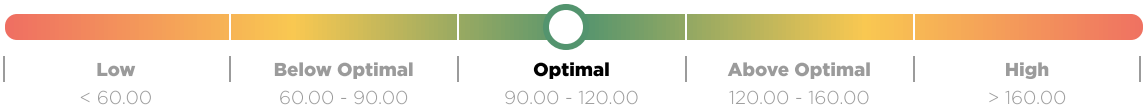
BUN
6.00 mg/dL

Creatinine
0.65 mg/dL



BUN : Creatinine
9.00 Ratio

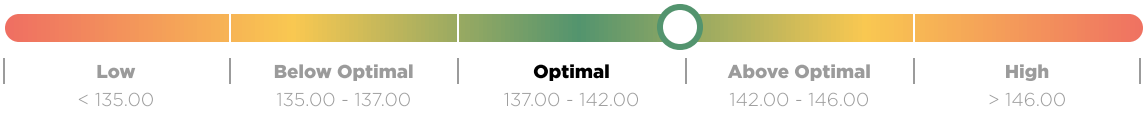
eGFR
104.00 mL/min



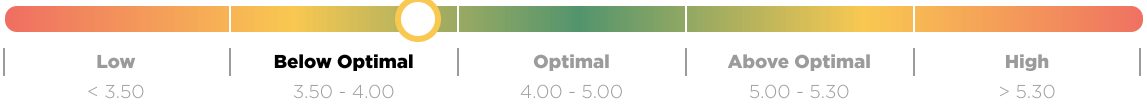
ELECTROLYTES

Electrolytes are essential for maintaining cellular function, fluid balance, and acid-base homeostasis. Dysregulation in electrolyte levels can indicate underlying metabolic disturbances, adrenal dysfunction, or renal imbalances, which may contribute to fatigue, cardiovascular stress, or neuromuscular issues. Evaluating sodium, potassium, chloride, and carbon dioxide levels and their ratios can provide insights into hydration status, adrenal health, and systemic pH regulation. Supporting electrolyte balance through targeted nutrition, stress management, and proper hydration can optimize cellular function and overall physiological resilience.

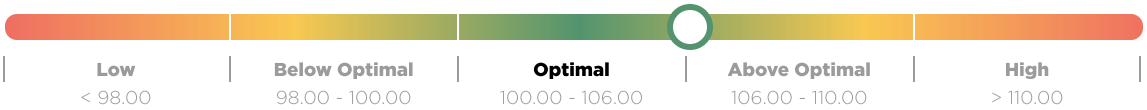
Sodium
141.90 mEq/L



Potassium
3.90 mEq/L

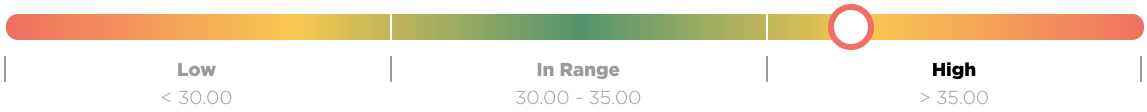


Chloride
106.00 mEq/L



CO2
26.00 mEq/L

Sodium : Potassium
36.38 ratio

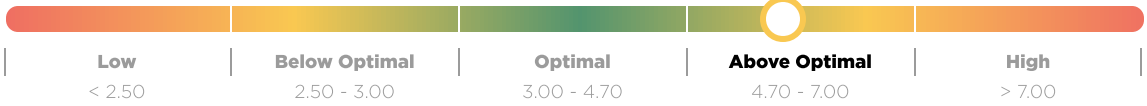


METABOLIC

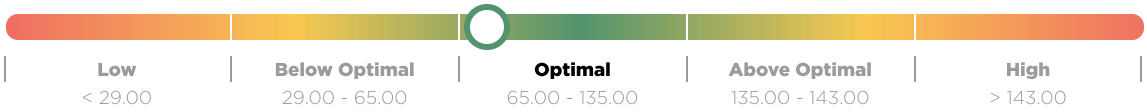
Metabolic biomarkers allow you to evaluate metabolic efficiency, assess tissue breakdown, and identify potential metabolic acidosis or inflammatory states.

Anion Gap
13.80 mEq/L

Uric Acid
5.65 mg/dL



Creatine Kinase (CK)
72.00 U/L

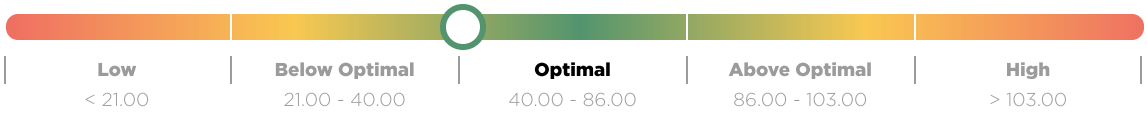


Leptin
12.20 ng/mL

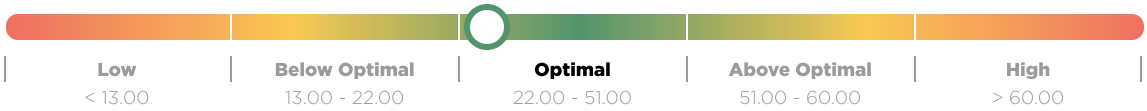
ENZYMES

Enzymes play a crucial role in metabolic processes, including digestion, cellular energy production, and red blood cell function. Imbalances in enzyme levels can indicate pancreatic dysfunction, impaired glucose metabolism, or oxidative stress affecting red blood cell stability. Optimizing enzyme activity is essential for digestive efficiency, detoxification, and overall metabolic resilience. Identifying deficiencies or elevations early allows for targeted nutritional and lifestyle interventions to support enzymatic function and prevent long-term dysfunction.

Amylase
42.00 U/L



Lipase
25.00 U/L

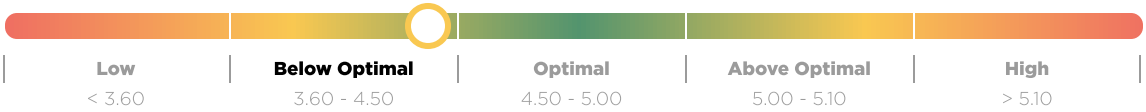


PROTEINS

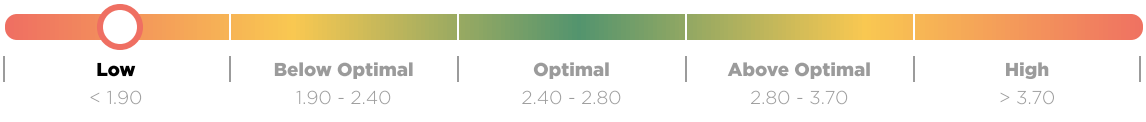
Protein analysis provides essential insights into nutritional status, immune function, and protein synthesis. These markers enable you to evaluate liver function, assess acute and chronic inflammatory states, identify specific immune responses, and monitor nutritional adequacy in you patients.

Protein - Total
6.10 g/dL

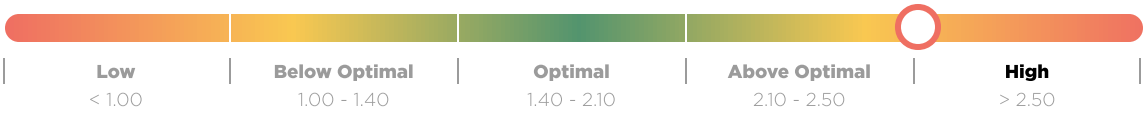
Albumin
4.40 g/dL



Globulin - Total
1.70 g/dL



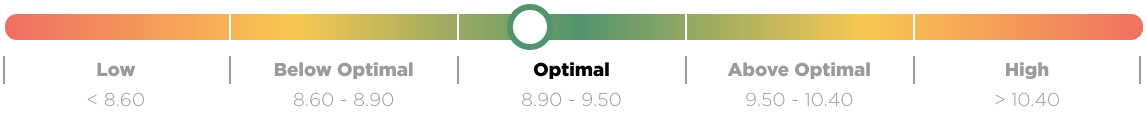
Albumin : Globulin
2.60 ratio



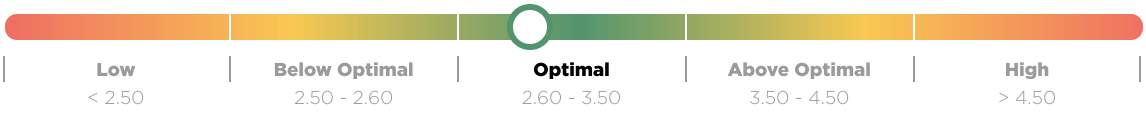
MINERALS

Mineral biomarker analysis provides comprehensive insights into both extracellular and intracellular mineral status, including crucial mineral ratios and interactions. These markers enable you to evaluate mineral balance, assess cellular mineral status, and identify potential mineral interactions that may affect enzymatic function and metabolism.

Calcium
9.10 mg/dL



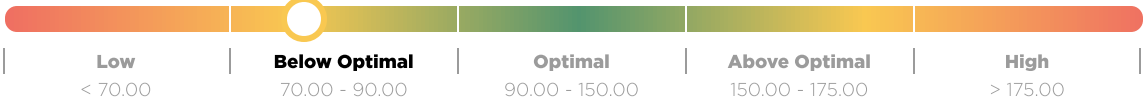
Phosphorus
2.90 mg/dL



Magnesium - Serum
2.30 mg/dL

Magnesium - RBC
6.20 mg/dL

Copper - Serum
76.00 µg/dL

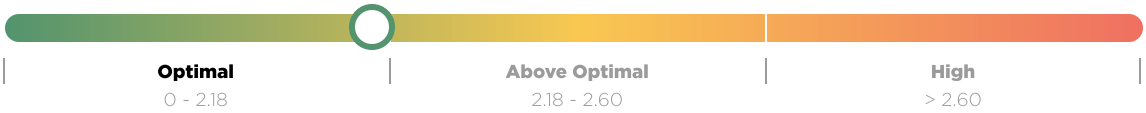


Zinc - Serum
65.70 µg/dL

Zinc - RBC
9.20 mg/L

Copper : Zinc Ratio
1.16 Ratio

Calcium : Albumin
2.07 ratio

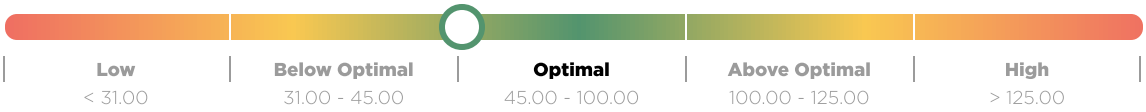


Calcium : Phosphorus
3.14 ratio

LIVER AND GB

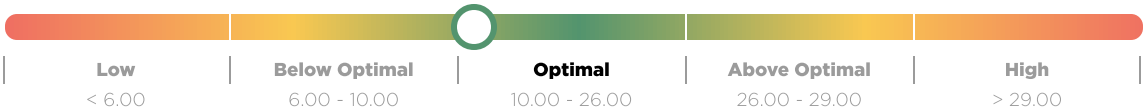
Liver and gallbladder biomarkers provide insights into hepatobiliary function, detoxification capacity, and bile acid metabolism. These enzymes and metabolites enable you to evaluate liver cell integrity, cholestasis, biliary function, and potential inflammatory processes, helping you assess both acute and chronic liver stress.

Alk Phos
46.00 IU/L



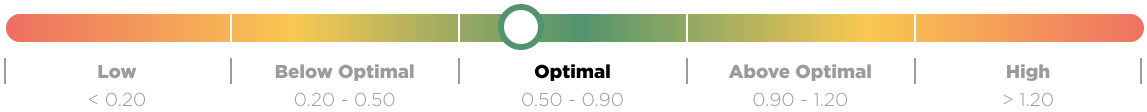
AST
14.00 IU/L

ALT
11.00 IU/L



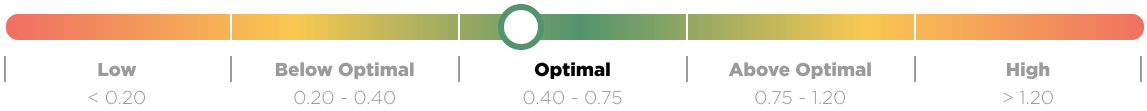
LDH
131.00 IU/L

Bilirubin - Total
0.60 mg/dL

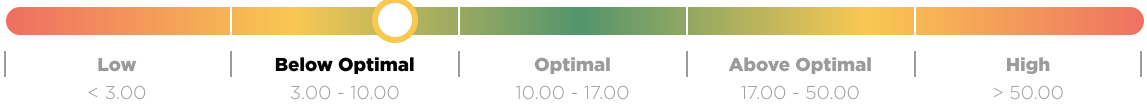


Bilirubin - Direct
0.10 mg/dL

Bilirubin - Indirect
0.50 mg/dL



GGT
8.00 IU/L



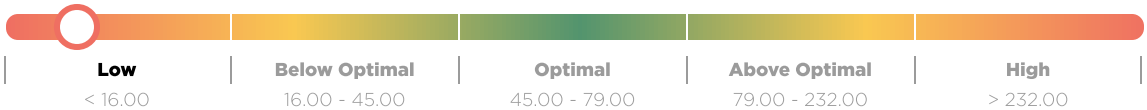
AST : ALT
1.27 Ratio

IRON MARKERS

Iron biomarkers are pivotal for assessing iron homeostasis and its influence on hematological and metabolic processes. Approximately 70% of the body's iron is localized in red blood cells, underscoring iron's critical role in oxygen transport from the lungs to peripheral tissues. Beyond oxygen delivery, iron supports energy release at the cellular level and contributes to immune and neurological functions. Evaluating these markers helps identify potential deficiencies or overload long before overt clinical manifestations arise.

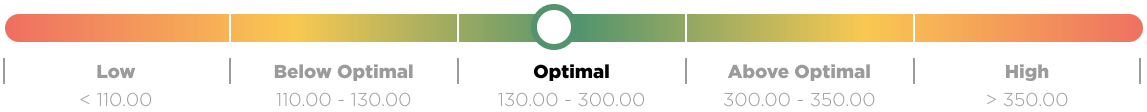
Iron - Serum
79.00 µg/dL

Ferritin
12.00 ng/mL

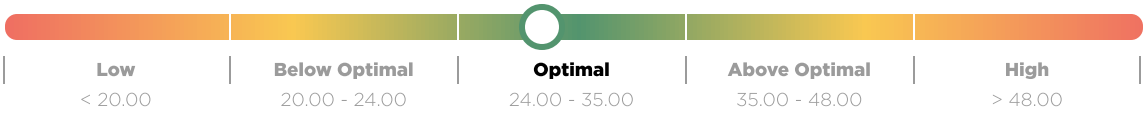


TIBC
284.00 µg/dL

UIBC
205.00 µg/dL



% Transferrin saturation
28.00 %



Transferrin
255.00 mg/dL

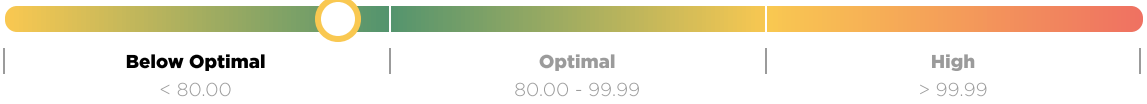
LIPIDS

Lipid biomarkers assess the distribution and ratios of various lipid fractions. These markers enable you to evaluate lipid metabolism and dyslipidemia and assess the role lipids play in atherogenic risk patterns.

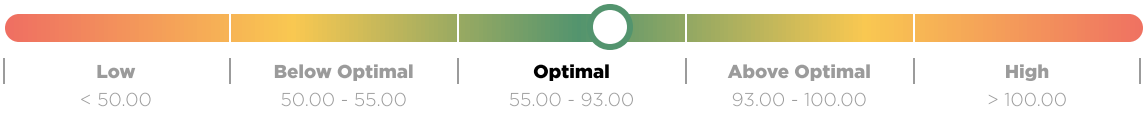
Cholesterol - Total
165.00 mg/dL

Triglycerides
65.00 mg/dL

LDL Cholesterol
70.00 mg/dL

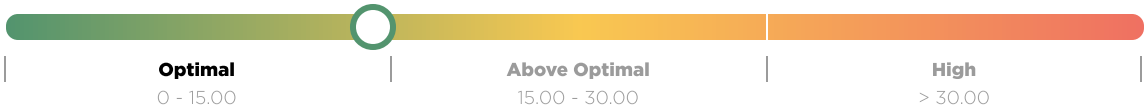


HDL Cholesterol
81.00 mg/dL



Non-HDL Cholesterol
84.00 mg/dL

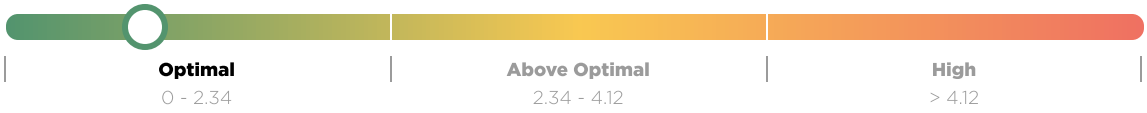
VLDL Cholesterol
14.20 mg/dL



Cholesterol : HDL
2.04 Ratio

Triglyceride:HDL
0.80 ratio

LDL : HDL
0.86 Ratio



CARDIOMETABOLIC

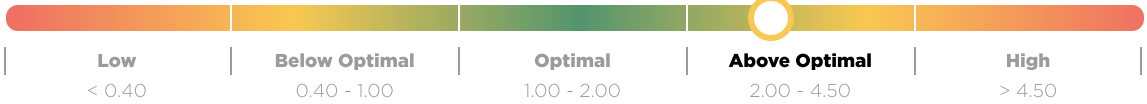
Cardiometabolic biomarker analysis provides a detailed assessment of cardiovascular and metabolic function. This comprehensive approach aids in the early detection of endothelial dysfunction, subtle myocardial stress, and metabolic irregularities, empowering targeted interventions that address root causes before they evolve into overt clinical conditions.

Homocysteine
7.50 µmol/L

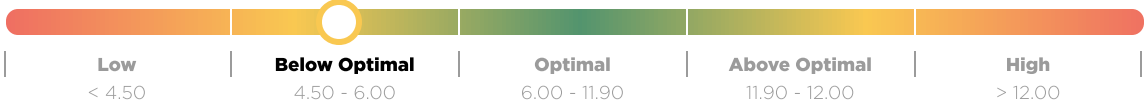
THYROID

Thyroid biomarker analysis provides detailed insights into the complete thyroid axis, including hormone production, conversion, transport, and autoimmune status. These biomarkers enable you to evaluate thyroid function at multiple levels, from pituitary control to cellular hormone availability and antibody presence, helping you identify subtle patterns of dysfunction before the emergence of thyroid pathology.

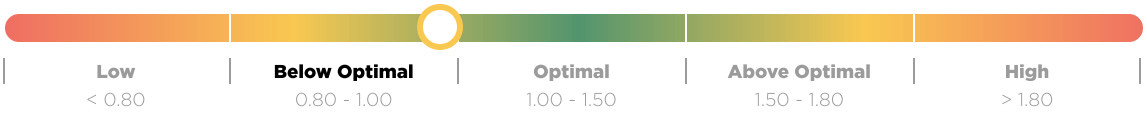
TSH
2.95 mIU/L



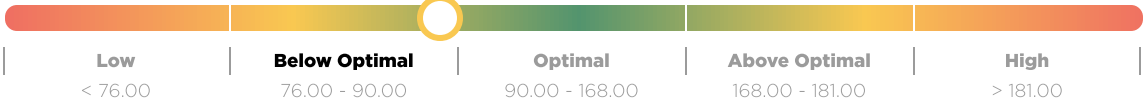
T4 - Total
5.20 µg/dL



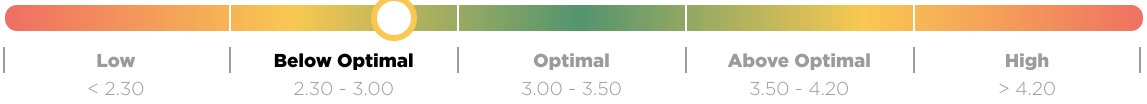
T4 - Free
0.98 ng/dL



T3 - Total
89.20 ng/dL



T3 - Free
2.80 pg/mL

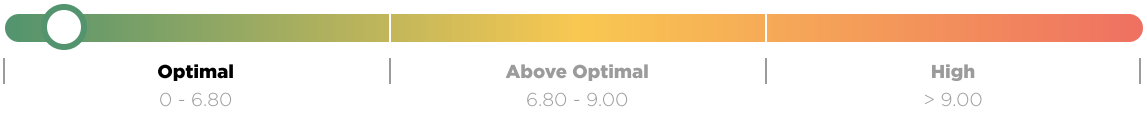


Reverse T3
28.00 ng/dL

T3 Uptake
26.20 %

Free Thyroxine Index (T7)
1.36 Index

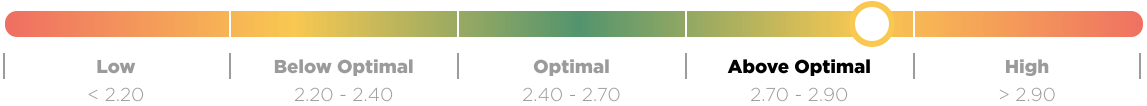
Thyroid Peroxidase (TPO) Abs
1.10 IU/mL



Thyroglobulin Abs
<1.00 IU/mL

Free T3 : Reverse T3
10.00 Ratio

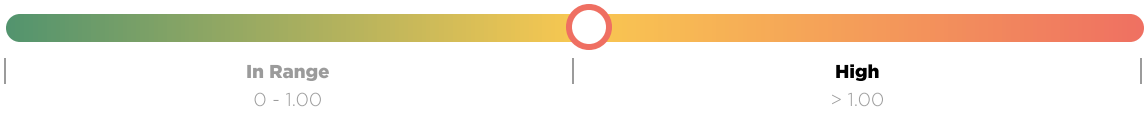
Free T3 : Free T4
2.86 Ratio



INFLAMMATION

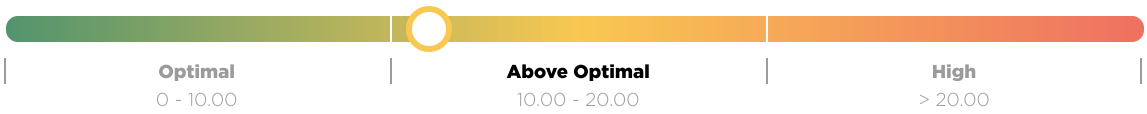
Inflammatory biomarkers provide data points for evaluating both acute and chronic systemic inflammation, offering insights into cardiovascular risk, autoimmune activity, and overall immune system activation. Beyond standard markers, advanced testing options allow you to assess specific inflammatory pathways, oxidative stress levels, and tissue repair processes, enabling more precise intervention strategies and monitoring of therapeutic effectiveness.

Hs CRP
1.15 mg/L



C-Reactive Protein
4.65 mg/L

ESR
11.20 mm/hr



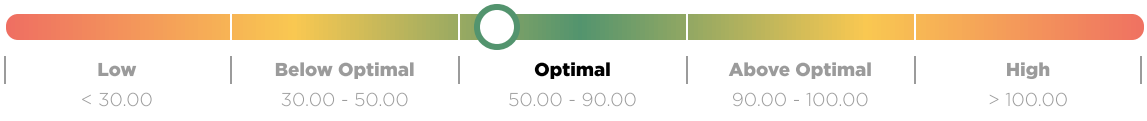
Fibrinogen Activity
221.00 mg/dL

Neutrophil : Lymphocyte (NLR)
1.25 Ratio

VITAMINS

Vitamin biomarker analysis provides insights into nutrient status through both direct measurement and functional markers of vitamin utilization. These biomarkers enable you to evaluate multiple forms of each vitamin, assess cellular availability, and identify subtle nutrient insufficiencies that may affect metabolic pathways, helping you develop targeted supplementation strategies for your patients.

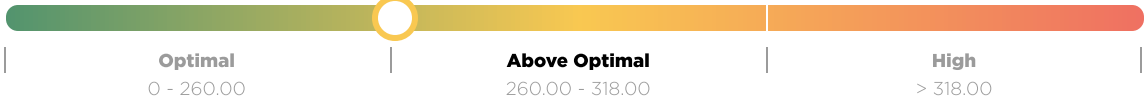
Vitamin D (25-OH)
56.20 ng/mL



Vitamin B12
462.00 pg/mL

Folate - Serum
15.20 ng/mL

Methylmalonic Acid
261.00 nmol/L



Folate - RBC
376.00 ng/mL

HORMONES

Hormone biomarker analysis provides insights into endocrine function across multiple axes, including reproductive, adrenal, and metabolic pathways. These markers enable you to evaluate complex hormonal relationships and feedback loops, helping you identify subtle imbalances and guide therapeutic interventions.

DHEA-S
285.00 µg/dL

FSH
Unknown
16.30 mIU/mL

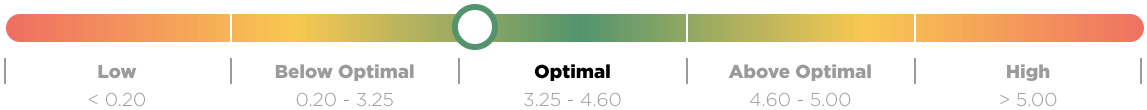
Follicular	2.50-10.20	Luteal	1.50-9.10
Ovulation	3.10-17.70	Post Menopausal	23.00-116.30

LH
Unknown
9.80 mIU/mL

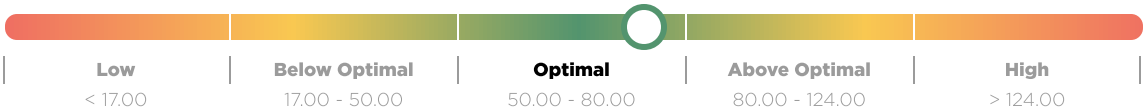
Follicular	1.90-12.50	Luteal	0.50-16.90
Ovulation	8.70-76.30	Post Menopausal	10.00-54.70

Testosterone Total
33.20 ng/dL

Testosterone Free
3.38 pg/mL



Sex Hormone Binding Globulin
75.00 nmol/L



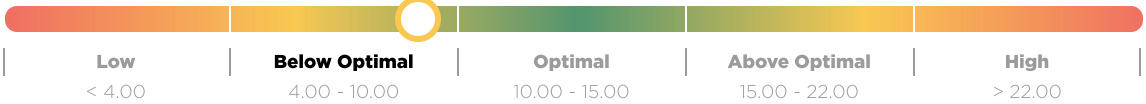
Estradiol
Unknown
55.00 pg/mL

Follicular	19.00-144.00	Luteal	56.00-214.00
Ovulation	64.00-357.00	Post Menopausal	0.00-31.00

Progesterone
Unknown
8.00 ng/mL

Follicular	0.00-1.00	Luteal	2.60-21.50
Ovulation	0.10-12.00	Post Menopausal	0.00-0.50

Cortisol - Total/AM
9.00 µg/dL



Cortisol : DHEA-S
0.03 ratio

Gastrin
46.00 pg/mL

Testosterone Bioavailable
8.10 ng/dL

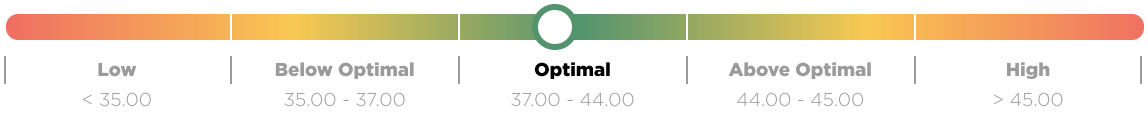
CBC

CBC biomarker analysis provides insights into blood cell composition, morphology, and overall hematopoietic function. These interconnected biomarkers enable you to evaluate oxygen-carrying capacity, detect various types of anemia, assess platelet function, and identify potential bone marrow concerns.

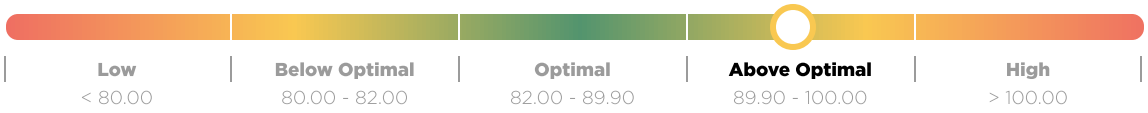
RBC
4.23 m/cumm

Hemoglobin
13.80 g/dL

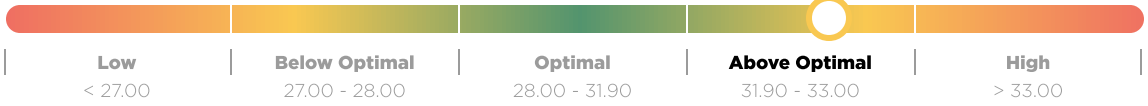
Hematocrit
40.00 %



MCV
94.60 fL

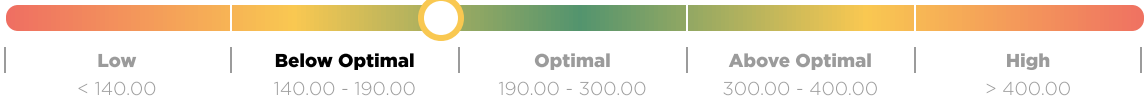


MCH
32.60 pg



MCHC
34.50 g/dL

Platelets
187.00 10E3/uL



MPV
8.80 fL

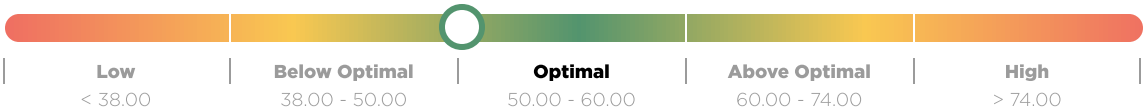
RDW
12.40 %

WBCS

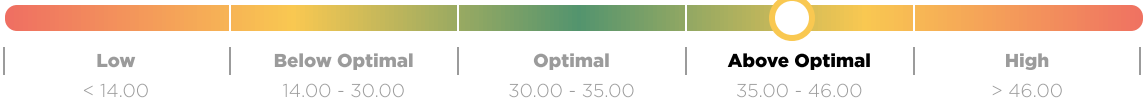
White blood cell analysis provides insights into immune system composition and activity through both absolute counts and relative percentages of each cell type. These markers enable you to evaluate immune system balance, assess specific immune responses, and identify patterns of inflammation or infection, helping you develop targeted therapeutic strategies for your patients.

Total WBCs
2.60 k/cumm

Neutrophils - %
50.40 %



Lymphocytes - %
40.20 %

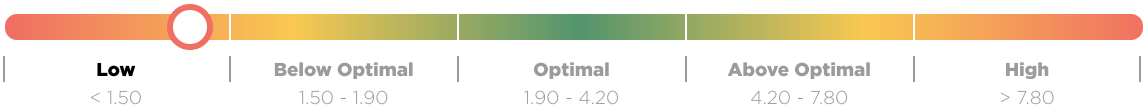


Monocytes - %
6.80 %

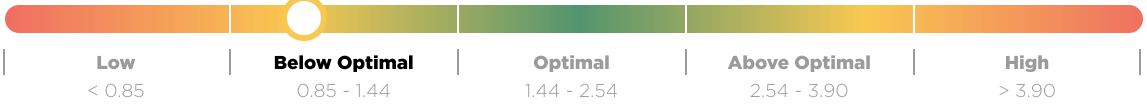
Eosinophils - %
1.50 %

Basophils - %
1.10 %

Neutrophils - Absolute
1.31 k/cumm



Lymphocytes - Absolute
1.05 k/cumm

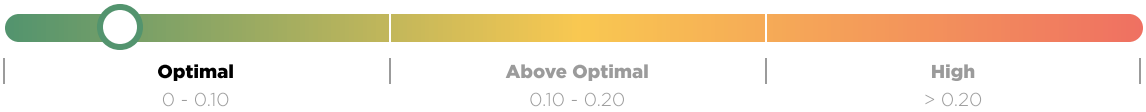


Monocytes - Absolute
0.18 k/cumm

Eosinophils - Absolute
0.04 k/cumm

Basophils - Absolute

0.03 k/cumm



Out of Optimal Range

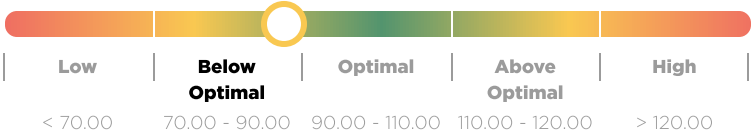
The following report shows all of the biomarkers that are out of the optimal range and gives you some important information as to why each biomarker might be elevated or decreased.

Alarm Low	Low	Below Optimal	Above Optimal	High	Alarm High
0	7	26	14	5	0

BLOOD GLUCOSE

HOMA2-%B

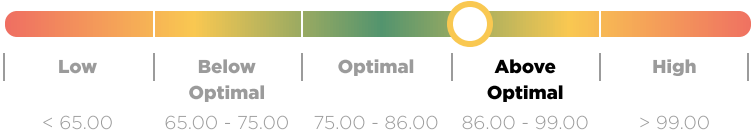
87.50 %



HOMA2-%B provides an estimation of pancreatic beta-cell function, indicating how effectively the pancreas produces insulin. Low HOMA2-%B reflects decreased beta-cell activity and diminished insulin output. Over time, this finding—especially if accompanied by other metabolic risk factors—may signal progression toward more advanced dysglycemia or Type 2 Diabetes. Evaluating additional markers such as fasting glucose, HbA1C, or C-Peptide can help identify the extent of beta-cell impairment and guide early interventions.

Glucose Fasting

87.50 mg/dL

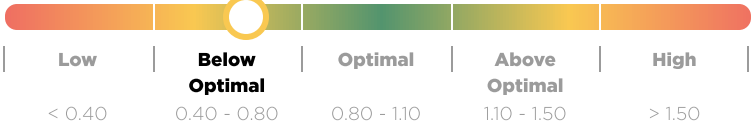


Fasting blood glucose (FBG) is a critical indicator of metabolic status and reflects the intricate balance of glucose homeostasis, primarily mediated by the hormones insulin and glucagon. Insulin facilitates cellular glucose uptake and inhibits hepatic glucose production, while glucagon promotes glycogenolysis and gluconeogenesis in the liver. Elevated FBG levels are typically indicative of disrupted insulin activity or insufficient insulin secretion, commonly seen in conditions such as type 1 diabetes mellitus, where pancreatic beta-cell destruction leads to severe insulin deficiency, and type 2 diabetes mellitus, characterized by insulin resistance and eventual pancreatic beta-cell exhaustion. Additionally, increased FBG can signal underlying metabolic syndrome or prediabetic states, suggesting a broader spectrum of insulin resistance encompassing impaired glucose tolerance and altered lipid metabolism.

RENAL

Creatinine

0.65 mg/dL



Serum creatinine reflects the end product of muscle metabolism, cleared by the kidneys. Low serum creatinine can result from reduced muscle mass or conditions associated with muscle wasting. While low creatinine typically does not indicate kidney dysfunction, correlating these findings with patient history, body composition, and other renal parameters can help differentiate normal variation from possible underlying pathologies such as malnutrition or sarcopenia.

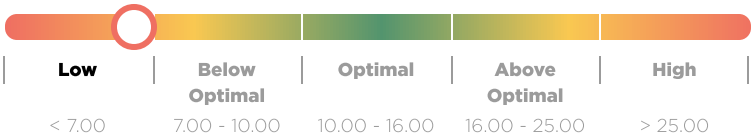
BUN : Creatinine

9.00 Ratio

The BUN:Creatinine ratio compares blood urea nitrogen (BUN) to serum creatinine, providing insights into protein metabolism and renal function. When the ratio is low, you should be aware it may suggest insufficient protein intake or conditions that impair urea production (e.g., advanced liver disease). Although less commonly a direct sign of renal dysfunction, correlating a low ratio with the patient's nutritional status, liver function tests, and clinical presentation can help confirm whether a dietary adjustment or further investigation is warranted.

BUN

6.00 mg/dL

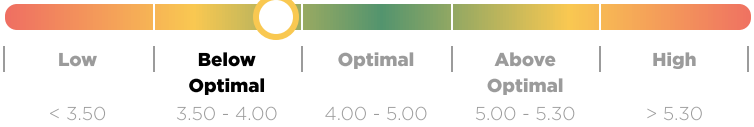


Blood Urea Nitrogen (BUN) is a key biochemical marker reflecting protein metabolism and renal function. Urea, the primary component measured by BUN tests, is formed in the liver as an end product of protein degradation and is subsequently excreted by the kidneys. Decreased BUN levels may be less clinically significant but can occur in scenarios such as severe hepatic damage where urea production is compromised, malnutrition or overhydration, which dilutes the concentration of urea in the blood.

ELECTROLYTES

Potassium

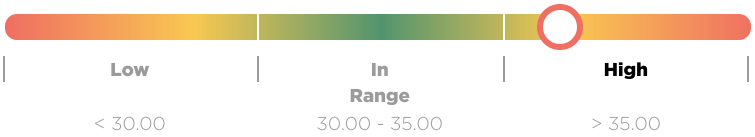
3.90 mEq/L



Serum potassium is a key electrolyte involved in maintaining cellular membrane potential, muscle function, and cardiac rhythm. When serum potassium is low (hypokalemia), it can reflect adrenal stress, excessive renal or gastrointestinal potassium losses, or dietary insufficiency. Clinically, patients may exhibit muscle weakness, cramping, or even cardiac arrhythmias. Evaluating concurrent electrolyte levels, renal function, and potential medications (e.g., diuretics) is crucial to identifying the underlying cause and guiding an appropriate intervention strategy.

Sodium : Potassium

36.38 ratio

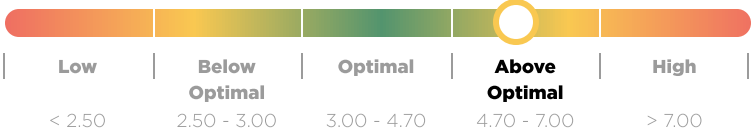


The sodium:potassium ratio compares two key electrolytes primarily regulated by the adrenal hormones aldosterone and cortisol. An elevated ratio often signifies acute stress or increased aldosterone activity, leading to sodium retention and potassium excretion. This elevated aldosterone output is frequently associated with pro-inflammatory processes, potentially contributing to pain, tissue irritation, and metabolic dysregulation. Reviewing the patient's overall hormonal profile, fluid status, and markers of inflammation can help refine the diagnosis and guide therapeutic strategies to mitigate these stress-related effects.

METABOLIC

Uric Acid

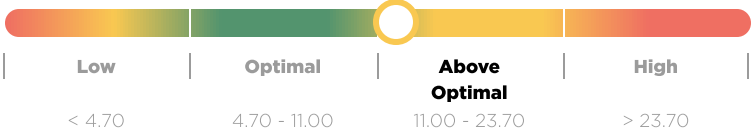
5.65 mg/dL



Uric acid is the end-product of purine, nucleic acid, and nucleoprotein metabolism, offering insight into oxidative balance and inflammation. Elevated uric acid can be associated with gout, increased inflammation, oxidative stress, renal dysfunction, and cardiovascular risk factors. Heightened levels may also suggest impaired excretion or excessive production due to intestinal hyperpermeability, chronic inflammatory states, or dietary factors high in purines. Evaluating patterns in lipid profiles, renal markers (BUN/creatinine), and inflammatory markers can clarify whether the elevation signifies gout, cardiovascular disease risk, rheumatoid arthritis, or other systemic conditions.

Leptin

12.20 ng/mL

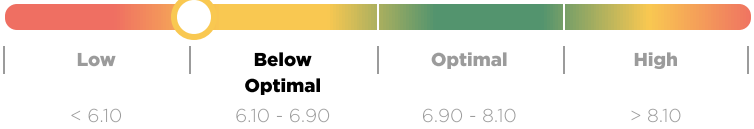


Leptin is an adipocyte-derived hormone involved in regulating energy balance, immune function, and bone metabolism. Elevated leptin levels correlate with increased adipose tissue mass and may indicate leptin resistance. This dysregulation is frequently seen in obesity, metabolic syndrome, and insulin-resistant states. Elevated leptin may exacerbate inflammatory pathways, contributing to the pathophysiology of cardiovascular disease and other comorbidities. Further assessment of body composition, insulin resistance markers, and inflammatory parameters can help guide interventions such as dietary modifications, weight management strategies, or pharmacotherapy.

PROTEINS

Protein - Total

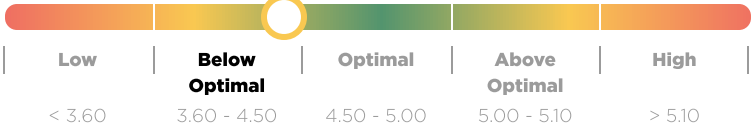
6.10 g/dL



Serum total protein is composed of albumin and total globulins, reflecting both nutritional status and hepatic protein synthesis. Low total protein levels often suggest malnutrition, hypochlorhydria (leading to decreased protein digestion), or liver dysfunction that impairs protein production. Evaluating albumin, globulin fractions, and related markers (e.g., liver enzymes, RBC indices) can help distinguish between inadequate amino acid intake, reduced digestive capacity, or compromised hepatic function.

Albumin

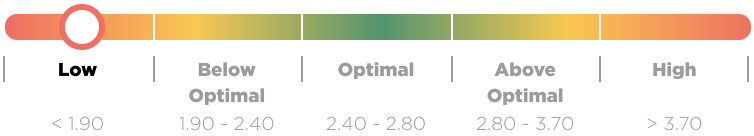
4.40 g/dL



Albumin is one of the major blood proteins. Produced primarily in the liver, Albumin plays a major role in water distribution and serves as a transport protein for hormones and various drugs. Albumin levels are affected by digestive dysfunction and a decreased albumin can be an indication of malnutrition, digestive dysfunction due to HCl need (hypochlorhydria), or liver dysfunction. Malnutrition leads to a decreased albumin level in the serum primarily from lack of available essential amino acids. Decreased albumin can also be a strong indicator of oxidative stress and excess free radical activity.

Globulin - Total

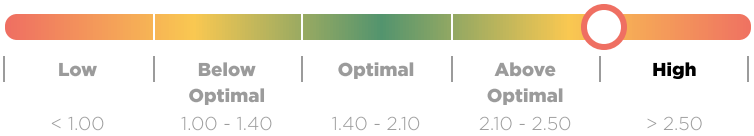
1.70 g/dL



Total globulin represents the sum of immunoglobulins (antibodies) and other globular proteins involved in immune defense, inflammatory processes, and transport functions. A low total globulin can suggest immunodeficiency, malnutrition, or certain gastrointestinal conditions that impair protein absorption. Additionally, chronic inflammation in the digestive tract can sometimes deplete globulin levels. Assessing immunoglobulin subsets, liver enzymes, and nutritional status helps determine whether the low globulin is due to immune insufficiency, reduced protein intake, or malabsorption issues.

Albumin : Globulin

2.60 ratio

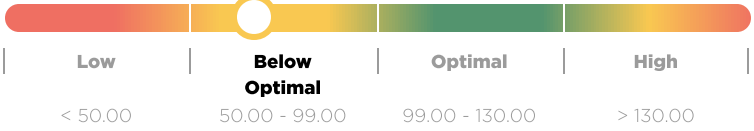


The albumin:globulin (A:G) ratio compares the liver-derived protein albumin to total globulins, which include immunoglobulins and other proteins associated with immune response and inflammation. A high A:G ratio often reflects relatively reduced globulin levels or disproportionately high albumin. This can occur in situations of immunodeficiency, hypogammaglobulinemia, or hemoconcentration (dehydration). Reviewing immune markers, assessing hydration status, and correlating with other nutritional or hepatic indicators can clarify whether the ratio's elevation stems from a genuine drop in globulins or an increase in albumin concentration.

MINERALS

Zinc - Serum

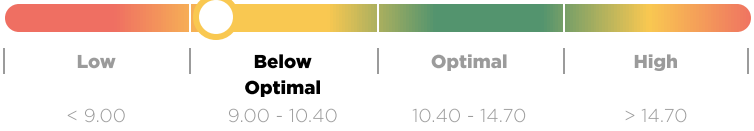
65.70 µg/dL



Zinc is a trace mineral that participates in a significant number of metabolic functions and is found throughout the body's tissues and fluids. Low levels of serum zinc are associated with zinc deficiency.

Zinc - RBC

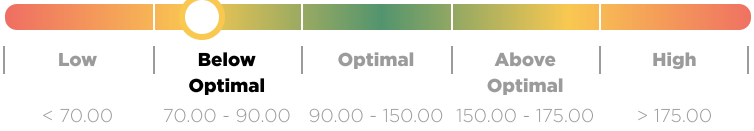
9.20 mg/L



Zinc is a trace mineral that participates in a significant number of metabolic functions and is found throughout the body's tissues and fluids. Low levels of serum zinc are associated with zinc deficiency. Measuring RBC zinc provides a better assessment of intracellular and long-term zinc status than serum zinc alone.

Copper - Serum

76.00 µg/dL

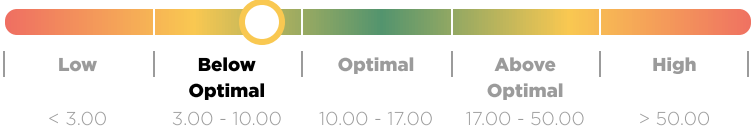


Serum copper is an essential trace mineral in the blood, vital for energy production, iron transport, neurotransmitter synthesis, and antioxidant defense. Low serum copper levels can lead to impaired hematopoiesis, neurological dysfunction, connective tissue abnormalities, and reduced myelin and melanin formation. Conditions such as malabsorption, Menkes disease, or chronic malnutrition can result in copper deficiency, adversely affecting the liver and brain, where copper is most concentrated.

LIVER AND GB

GGT

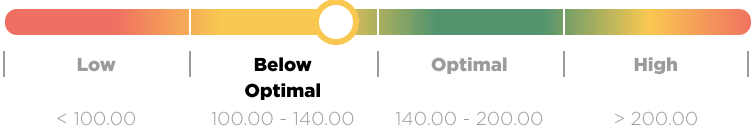
8.00 IU/L



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. Decreased levels are associated with vitamin B6 and magnesium deficiency.

LDH

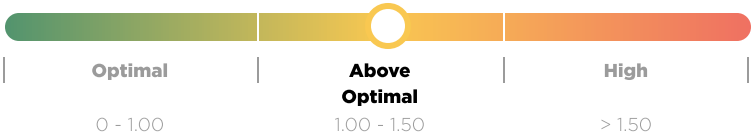
131.00 IU/L



LDH represents a group of enzymes that are involved in carbohydrate metabolism. Decreased levels of LDH often correspond to hypoglycemia (especially reactive hypoglycemia), pancreatic function, and glucose metabolism.

AST : ALT

1.27 Ratio

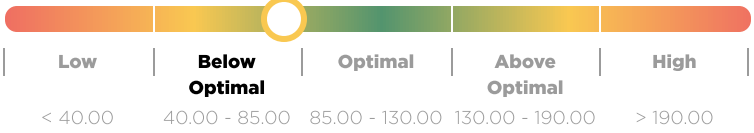


The AST:ALT ratio, also known as the De Ritis ratio, provides a tool for assessing and monitoring liver function and the progression and the severity of liver disease. An increasing AST:ALT ratio above 1 is associated with a trend towards progressive impairment of liver function for those with existing liver disease.

IRON MARKERS

Iron - Serum

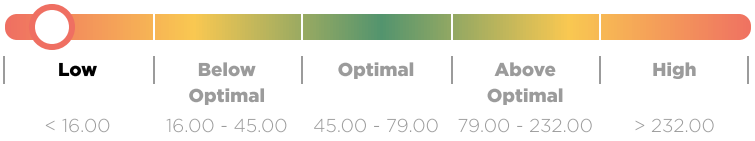
79.00 µg/dL



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. Decreased iron levels are associated with iron deficiency anemia, hypochlorhydria and internal bleeding. The degree of iron deficiency is best appreciated with ferritin, TIBC and % transferrin saturation levels.

Ferritin

12.00 ng/mL

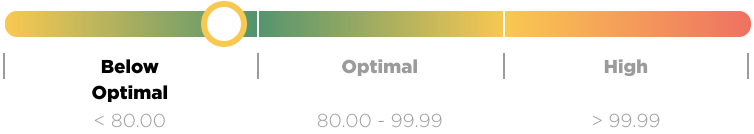


Ferritin is the main storage form of iron in the body. Decreased levels are strongly associated with iron deficiency where it is the most sensitive test to detect iron deficiency.

LIPIDS

LDL Cholesterol

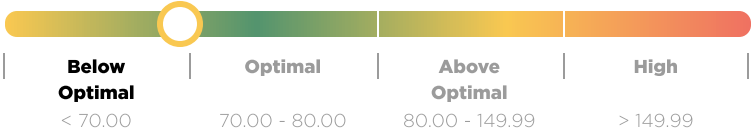
70.00 mg/dL



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. There is no clinical significance for a decreased LDL level.

Triglycerides

65.00 mg/dL

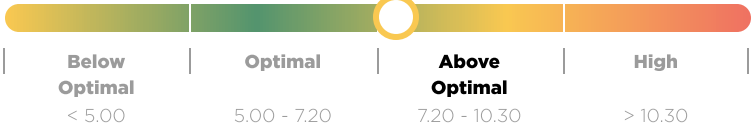


Serum triglycerides are composed of fatty acid molecules that enter the bloodstream either from the liver or from the diet. Serum Triglyceride levels may be decreased in liver dysfunction, a diet deficient in fat, and inflammatory processes.

CARDIOMETABOLIC

Homocysteine

7.50 µmol/L

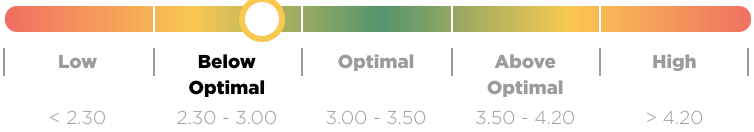


Homocysteine is a molecule formed from the incomplete metabolism of the amino acid methionine. Increased levels of homocysteine are associated with an increased risk of cardiovascular disease and stroke.

THYROID

T3 - Free

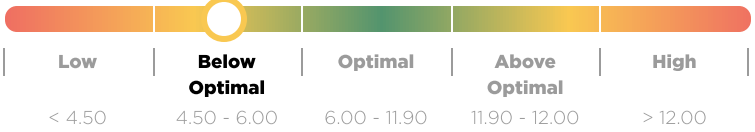
2.80 pg/mL



T-3 is the most active thyroid hormone and is primarily produced from the conversion of thyroxine (T-4) in the peripheral tissue. Free T3 is the unbound form of T3 measured in the blood. Free T3 represents approximately 8 – 10% of circulating T3 in the blood. Free T-3 levels may be decreased with hypothyroidism and is associated with selenium deficiency.

T4 - Total

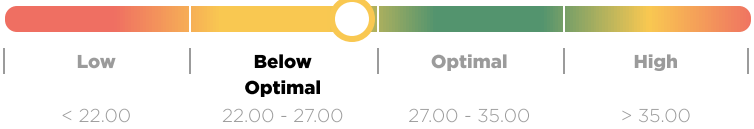
5.20 µg/dL



T-4 is the major hormone secreted by the thyroid gland. T-4 production and secretion from the thyroid gland is stimulated by the pituitary hormone TSH. Total T4 reflects the total amount of T4 present in the blood i.e. amount bound to thyroxine-binding globulin and free levels. Decreased total T-4 levels are associated with Hypothyroidism and/or a selenium deficiency.

T3 Uptake

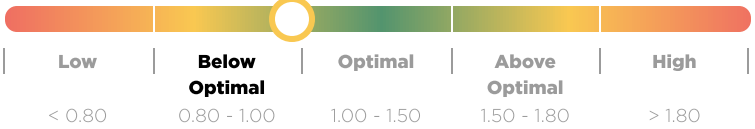
26.20 %



The T-3 uptake test has nothing to do with actual T-3 levels, as the name might suggest. Decreased levels are associated with hypothyroidism and deficiencies of iodine and selenium.

T4 - Free

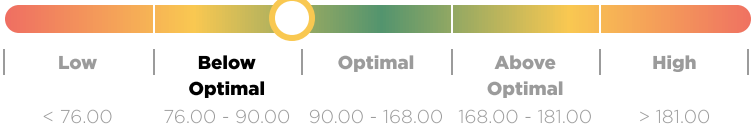
0.98 ng/dL



T-4 is the major hormone secreted by the thyroid gland. T-4 production and secretion from the thyroid gland are stimulated by the pituitary hormone TSH. Deficiencies of zinc, copper, and vitamins A, B2, B3, B6, and C will cause a decrease in the production of T4 by the follicles of the thyroid gland. Free T-4 is the unbound form of T4 in the body. Only about 0.03 – 0.05% of circulating T4 is in the free form. Free T-4 will be decreased in hypothyroidism and is associated with iodine deficiency.

T3 - Total

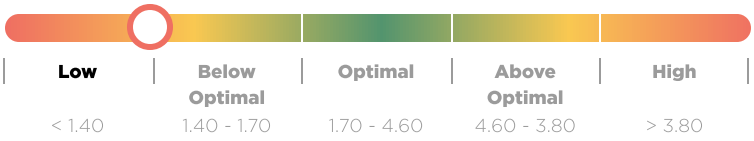
89.20 ng/dL



T-3 is the most active thyroid hormone and is primarily produced from the conversion of thyroxine (T-4) in the peripheral tissue. T-3 is 4 -5 times more metabolically active than T-4. Total T3 reflects the total amount of T3 present in the blood i.e. amount bound to protein and free levels. Decreased total T-3 are associated with Hypothyroidism and/or a selenium deficiency.

Free Thyroxine Index (T7)

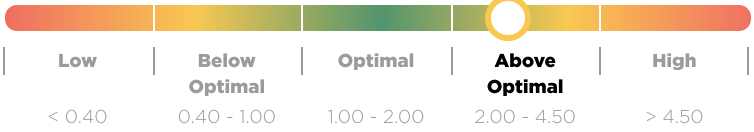
1.36 Index



The Free Thyroxine Index is a calculated measurement used to determine how much active thyroid hormone (thyroxine/Free T4) is available. Decreased levels are associated with hypothyroidism.

TSH

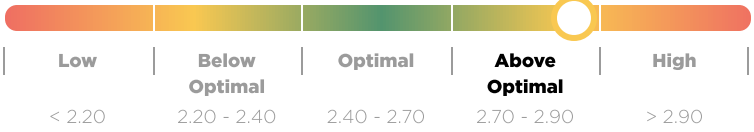
2.95 mIU/L



TSH or thyroid-stimulating hormone is a hormone produced by the anterior pituitary to control the thyroid gland's production of the thyroid hormone thyroxine (T4). TSH levels can be confusing because TSH levels increase when there is too little thyroid hormone in circulation. An elevated TSH is a sign that the body needs more thyroid hormone. Elevated levels of TSH are associated with primary hypothyroidism.

Free T3 : Free T4

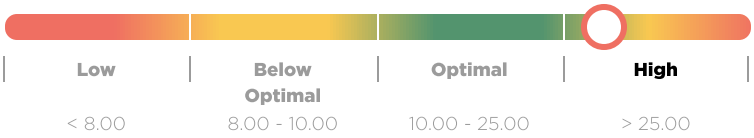
2.86 Ratio



The Free T3: Free T4 ratio is a measure that assesses the balance between two important thyroid hormones in your blood: Free T3 (triiodothyronine) and Free T4 (thyroxine). These hormones play vital roles in regulating energy, metabolism, and many other bodily functions. A normal ratio indicates a balanced conversion of T4 (a storage hormone) to T3 (the active hormone). A high ratio, on the other hand, indicates that there might be an excessive conversion of T4 to T3, which can be seen in situations of hyperactive thyroid function where there's excessive T3 production. In certain situations, an elevated ratio may also be associated with an emerging hypothyroidism.

Reverse T3

28.00 ng/dL

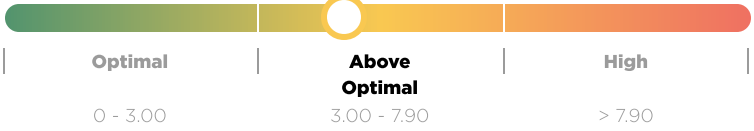


Reverse T-3 is formed from the thyroid hormone T-4 (thyroxine). It is thought to be an inactive form of thyroid hormone that acts as a sort of metabolic brake on the body. High stress and cortisol levels, chronic illness, inflammation, multiple vitamin deficiencies, fasting, yo-yo dieting, poor nutrition, calorie restriction, lack of exercise, and increased alcohol intake can all raise reverse T-3 levels.

INFLAMMATION

C-Reactive Protein

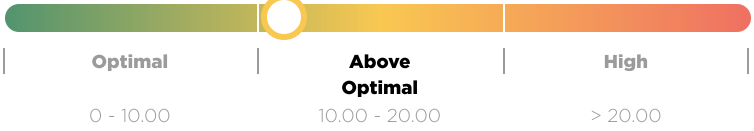
4.65 mg/L



C-Reactive Protein is a blood marker that can help indicate the level of inflammation in the body. Increasing CRP levels indicate increasing inflammation and possibly infection. Higher levels are associated with visceral adiposity, periodontal disease, hypertension, and increased cardiovascular risk. Higher CRP is also observed with diabetes and depression, reflecting how inflammation can play a role in a variety of chronic health issues.

ESR

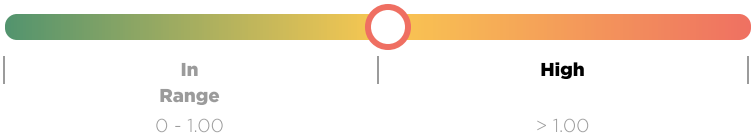
11.20 mm/hr



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. Elevated levels of ESR are associated with inflammation.

Hs CRP

1.15 mg/L

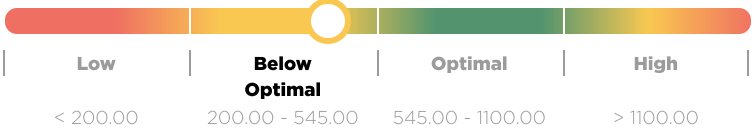


High Sensitivity C-Reactive Protein (Hs-CRP) is a blood marker that can help indicate the level of chronic inflammation in the body. Increased levels are associated with an increased risk of inflammation, cardiovascular disease, stroke, and diabetes.

VITAMINS

Vitamin B12

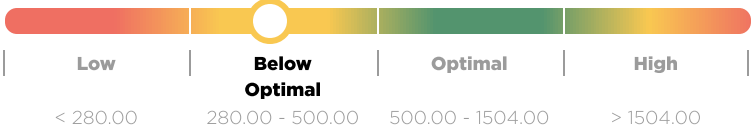
462.00 pg/mL



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.

Folate - RBC

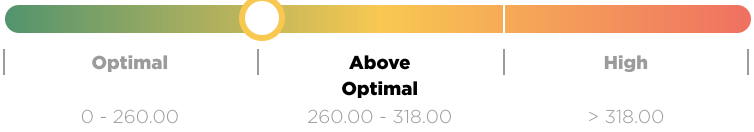
376.00 ng/mL



Red blood cell folate reflects long-term folate stores, which are essential for DNA production, cell growth, and the formation of healthy red blood cells. When RBC folate levels are low, it may indicate a deficiency of folate (or possibly vitamin B12), which can impair DNA synthesis, disrupt methylation, and increase the risk of neural tube defects or hyperhomocysteinemia.

Methylmalonic Acid

261.00 nmol/L



Methylmalonic acid (MMA) is a byproduct of the metabolism of certain fatty acids and amino acids, a process that requires vitamin B12. Testing for MMA can help detect an early B12 deficiency and help differentiate between folate and B12 deficiency. Elevated levels reflect a B12 deficiency.

HORMONES

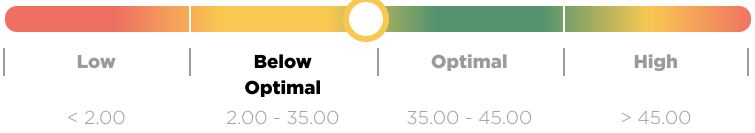
Cortisol - Total/AM

9.00 µg/dL

The serum cortisol test is used to identify dysfunction in the adrenal gland. Decreased levels are associated with adrenal hypofunction, a dysfunction where the adrenal glands do not produce enough cortisol.

Testosterone Total

33.20 ng/dL

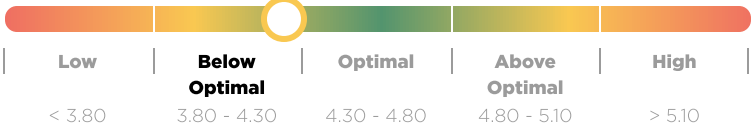


The total testosterone test measures both the testosterone that is bound to serum proteins and the unbound form (free testosterone). In women, low total testosterone levels have been linked to an increased risk for the following: osteoporosis, decreased lean body mass and decreased libido.

CBC

RBC

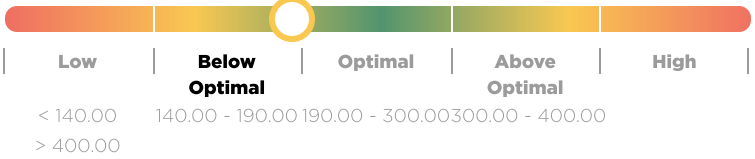
4.23 m/cumm



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. Decreased levels are primarily associated with anemia.

Platelets

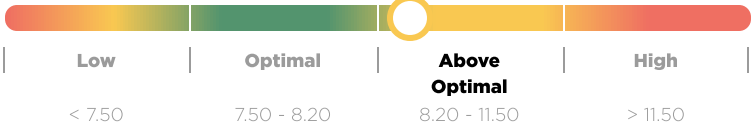
187.00 10E3/uL



Platelets or thrombocytes are the smallest of the formed elements in the blood. Platelets are necessary for blood clotting, vascular integrity, and vasoconstriction. They form a platelet plug, which plugs up breaks in small vessels. Decreased levels are associated with oxidative stress, heavy metal body burden and infections.

MPV

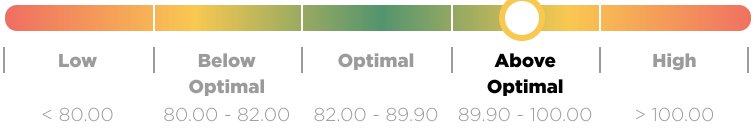
8.80 fL



MPV or Mean Platelet Volume is a calculated measurement of the relative size of platelets in the blood. Elevated levels of MPV are seen with platelet destruction.

MCV

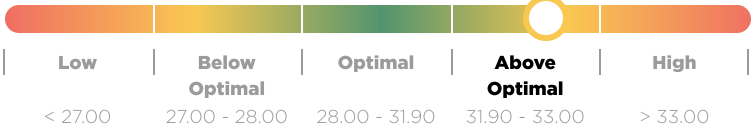
94.60 fL



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.

MCH

32.60 pg

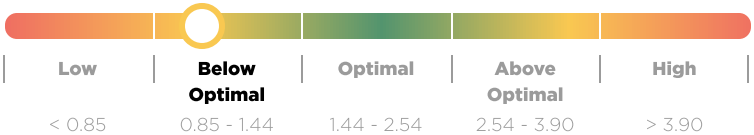


The Mean Corpuscular Hemoglobin (MCH) is a calculated value and is an expression of the average weight of hemoglobin per red blood cell. MCH, along with MCV can be helpful in determining the type of anemia present. It is elevated with B12/folate deficiency and hypochlorhydria.

WBCS

Lymphocytes - Absolute

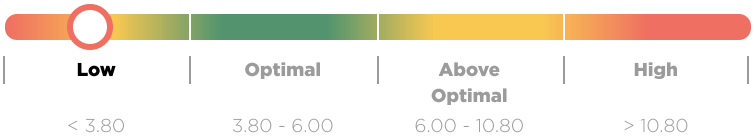
1.05 k/cumm



Lymphocytes are a type of white blood cell. Decreased levels are often seen in a chronic viral infection when the body can use up a large number of lymphocytes and oxidative stress. A decreased ***Lymphocytes - Absolute*** count may also indicate the presence of a fatigued immune response, especially with a low Total WBC count.

Total WBCs

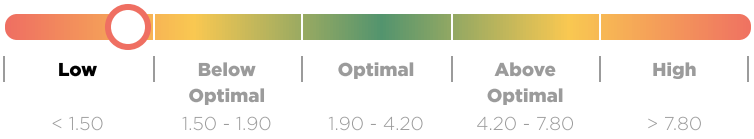
2.60 k/cumm



The total White Blood Cell (WBC) count measures the sum of all the WBCs in the peripheral blood. Decreased total White Blood Cell Levels are associated with chronic bacterial or viral infections, immune insufficiency, and may be seen in people eating a raw food diet.

Neutrophils - Absolute

1.31 k/cumm

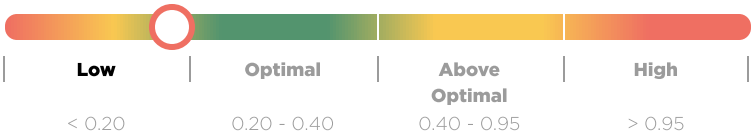


Low	Below Optimal	Optimal	Above Optimal	High
< 1.50	1.50 - 1.90	1.90 - 4.20	4.20 - 7.80	> 7.80

Neutrophils are the white blood cells used by the body to combat bacterial infections and are the most numerous and important white cell in the body's reaction to inflammation. ***Neutrophils - Absolute*** is an actual count of the number of neutrophils in a known volume of blood. Decreased levels are often seen in chronic viral infections.

Monocytes - Absolute

0.18 k/cumm

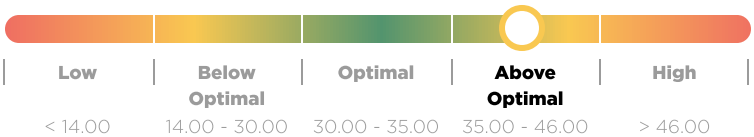


Low	Optimal	Above Optimal	High
< 0.20	0.20 - 0.40	0.40 - 0.95	> 0.95

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.

Lymphocytes - %

40.20 %

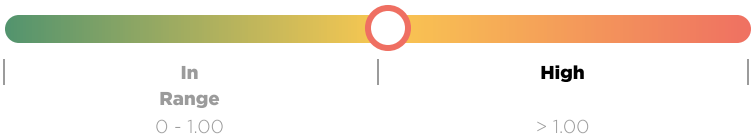


Low	Below Optimal	Optimal	Above Optimal	High
< 14.00	14.00 - 30.00	30.00 - 35.00	35.00 - 46.00	> 46.00

Lymphocytes are a type of white blood cell. An increase in ***Lymphocytes - %*** is usually a sign of a viral infection but can also be a sign of increased toxicity in the body or inflammation.

Basophils - %

1.10 %



In Range	High
0 - 1.00	> 1.00

Basophils are one of the circulating white blood cells. They constitute a small percentage of the total white blood cell count. Basophils play an important role in the inflammatory process by releasing important substances, such as heparin, to prevent clotting in the inflamed tissue. Basophils will often be increased with tissue inflammation and are often seen with cases of intestinal parasites.

3

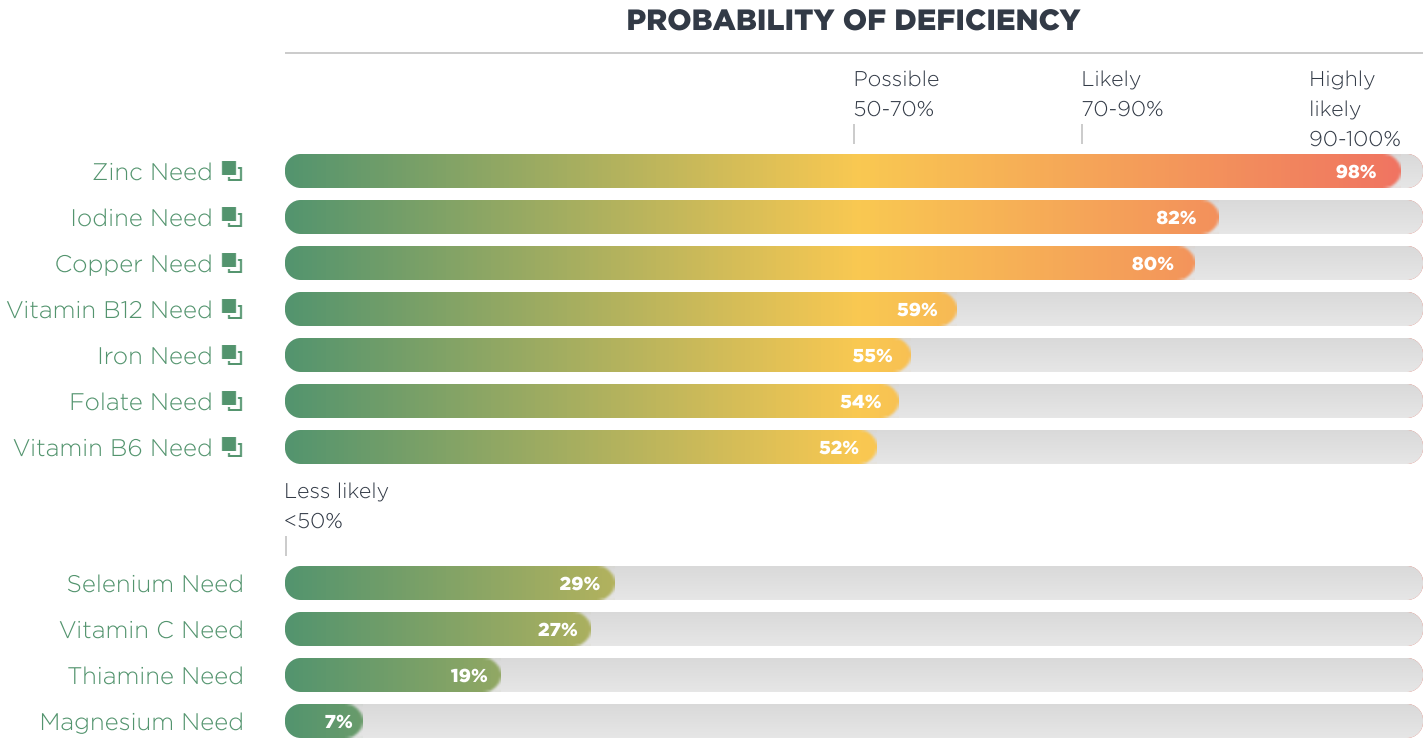
An in-depth functional system and nutrient evaluation.

Assessment

Individual Nutrient Deficiencies

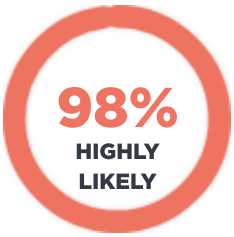
The scores represent the degree of deficiency for individual nutrients based on your patient's blood results. The status of an individual nutrient is based on a number of factors such as actual dietary intake, digestion, absorption, assimilation and cellular uptake of the nutrients themselves. All of these factors must be taken into consideration before determining whether or not your patient 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 detailed description and individual explanation of the results shown in this report.



Individual Nutrient Deficiency 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.



Deficiency Highly Likely. Much improvement required.

ZINC NEED

Your patient has a high Zinc Need score, indicating a significant likelihood of zinc deficiency. Indicators of zinc deficiency include low serum zinc levels, low RBC zinc levels, elevated alkaline phosphatase levels, and symptoms such as impaired immune function, hair loss, dermatitis, delayed wound healing, and taste disturbances. It is essential to evaluate your patient's dietary intake and absorption of zinc. Factors such as poor dietary intake, gastrointestinal disorders (e.g., Crohn's disease, celiac disease), chronic liver or kidney disease, and high phytate intake (which impairs zinc absorption) can contribute to reduced zinc levels. Before considering zinc supplementation, review your patient's diet for zinc-rich foods (e.g., meat, shellfish, legumes, seeds, nuts) and evaluate potential factors that may impair absorption or increase its utilization.

Rationale

Zinc - Serum ↓, Zinc - RBC ↓

Biomarkers considered

Zinc - Serum, Zinc - RBC

Deficiency Likely. Improvement required.

IODINE NEED

Your patient is likely trending towards an iodine deficiency, as evidenced by their increasing iodine need score. While there is a rising risk of deficiency, it is important to monitor their thyroid function and overall iodine status. Factors such as low dietary iodine intake, exposure to goitrogenic substances, and suboptimal thyroid function can contribute to declining iodine levels. Evaluating these aspects and implementing dietary modifications to increase iodine intake, such as incorporating more iodine-rich foods like seaweed, dairy, and iodized salt, may help improve iodine levels before considering supplementation.

Rationale

T4 - Total ↓, T4 - Free ↓, T3 Uptake ↓, TSH ↑

Biomarkers considered

T4 - Total, T4 - Free, T3 - Total, T3 - Free, T3 Uptake, TSH

Deficiency Likely. Improvement required.

COPPER NEED

Your patient is likely trending towards a copper deficiency, as indicated by their elevated copper need score. While the risk of copper deficiency is increasing, assessing their dietary intake and absorption efficiency is vital. Factors such as excessive zinc intake, gastrointestinal issues, or inadequate nutritional copper could contribute to this trend. Evaluating and addressing these potential causes, including the need for vitamin C and B vitamins, is recommended before initiating copper supplementation.

Rationale

Copper - Serum ↓

Biomarkers considered

Copper - Serum

Biomarkers not available in this test - consider running in future tests:

Copper - RBC

Deficiency Possible. There may be improvement needed in certain areas.

VITAMIN B12 NEED

Your patient may be in the early stages of vitamin B12 deficiency, as indicated by their elevated vitamin B12 need score. Although immediate intervention may not be necessary, it is advisable to monitor their vitamin B12 levels in future assessments. Keeping an eye on lifestyle factors that influence vitamin B12 status, such as diet, overall health, and exposure to factors that impair absorption or increase requirements, can help manage and potentially prevent further decline in vitamin B12 levels. Regular monitoring and dietary adjustments to ensure adequate vitamin B12 intake, along with strategies to enhance absorption, may be sufficient at this stage to address potential deficiencies.

Rationale

Vitamin B12 ↓, Methylmalonic Acid ↑, Homocysteine ↑, MCV ↑

Biomarkers considered

Vitamin B12, Methylmalonic Acid, Homocysteine, LDH, MCV, RDW

Biomarkers not available in this test - consider running in future tests:

Active B12

Deficiency Possible. There may be improvement needed in certain areas.

IRON NEED

Your patient may be in the early stages of iron deficiency, as indicated by their elevated iron need score. Although immediate intervention may not be necessary, it is advisable to monitor their iron levels in future assessments. Keeping an eye on lifestyle factors that influence iron status, such as diet, the presence of minor sources of blood loss (e.g., heavy menstruation), and overall health, can help manage and potentially prevent further decline in iron levels. Regular monitoring and dietary adjustments to ensure adequate iron intake, along with strategies to enhance iron absorption, may be sufficient at this stage to address potential deficiencies.

Rationale

Iron - Serum ↓, Ferritin ↓, RBC ↓

Biomarkers considered

Iron - Serum, Ferritin, RBC, Hemoglobin, Hematocrit, MCV, MCHC, % Transferrin saturation, MCH, TIBC, RDW

Deficiency Possible. There may be improvement needed in certain areas.

FOLATE NEED

Your patient may be in the early stages of folate deficiency, as indicated by their elevated Folate Need score. Although immediate intervention may not be necessary, it is advisable to monitor their folate levels in future assessments. RBC folate levels may be within the lower normal range but below optimal, suggesting potential early depletion, while serum folate levels may be slightly below optimal. Elevated homocysteine levels, if present, suggest a need for closer observation. At this stage, symptoms may be minimal or absent, but it is important to keep an eye on lifestyle factors that influence folate status, such as diet, overall health, and exposure to factors that impair absorption or increase requirements. Regular monitoring and dietary adjustments, including increasing intake of folate-rich foods, may be sufficient at this stage to manage and potentially prevent further decline in folate levels.

Rationale

Folate - RBC ↓, Homocysteine ↑, MCV ↑

Biomarkers considered

Folate - RBC, Folate - Serum, Homocysteine, MCV, RDW

Deficiency Possible. There may be improvement needed in certain areas.

VITAMIN B6 NEED

Your patient may be in the early stages of vitamin B6 deficiency, as indicated by their elevated vitamin B6 need score. Although immediate intervention may not be necessary, it is advisable to monitor their vitamin B6 levels in future assessments. Keeping an eye on lifestyle factors that influence vitamin B6 status, such as diet, overall health, and exposure to factors that increase vitamin B6 requirements, can help manage and potentially prevent further decline in vitamin B6 levels. Regular monitoring and dietary adjustments to ensure adequate vitamin B6 intake, along with strategies to enhance absorption and reduce factors that increase vitamin B6 requirements, may be sufficient at this stage to address potential deficiencies.

Rationale

Homocysteine ↑, GGT ↓

Biomarkers considered

Homocysteine, GGT, AST, ALT

Biomarkers not available in this test - consider running in future tests:

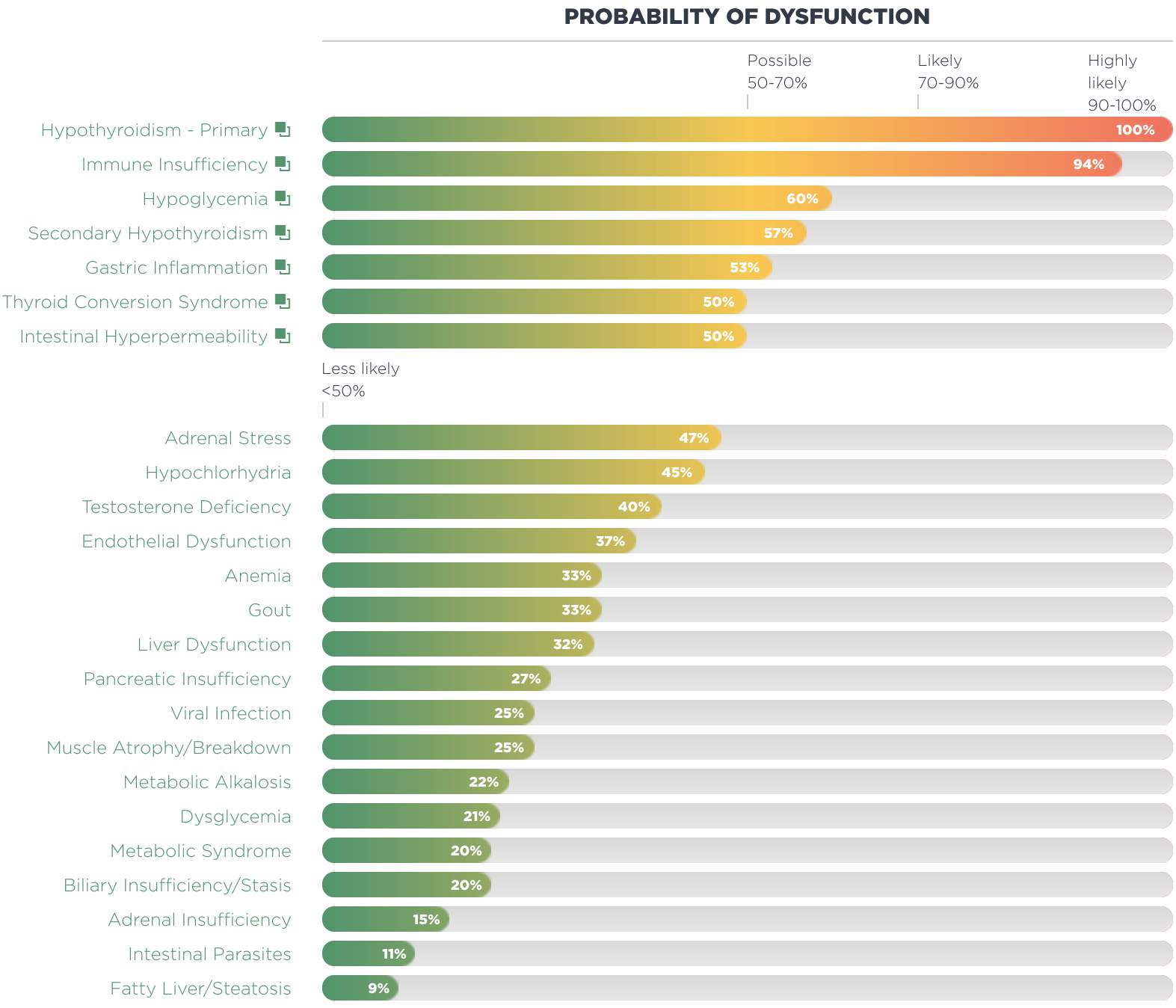
Vitamin B6

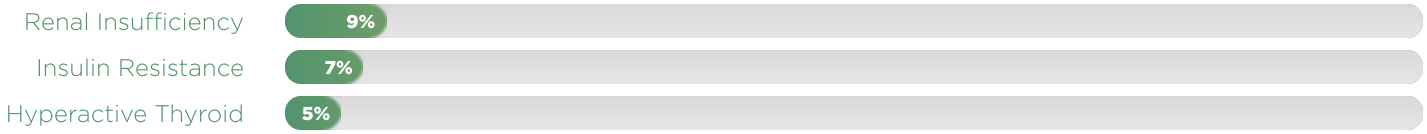
Clinical Dysfunctions

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 detailed description and individual explanation of the results shown in this report.




Renal Insufficiency
9%
Insulin Resistance
7%
Hyperactive Thyroid
5%

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.

HYPOTHYROIDISM - PRIMARY

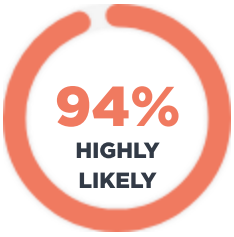
In primary hypothyroidism the problem is located in the thyroid gland itself, which fails to produce thyroid hormone. Consider primary hypothyroidism with an increased **TSH**, a decreased **Total T4**, a decreased **Total T3**, a decreased **Free T4**, a decreased **Free T3** and a decreased **T3-uptake**. Additional elements that may be out of range with primary hypothyroidism include an increased **total cholesterol** and **triglyceride** level. Primary hypothyroidism is often preceded by autoimmune thyroid disease. If you have a patient with suspected thyroid disease you should screen for thyroid antibodies.

Rationale

TSH ↑, T4 - Total ↓, T3 - Total ↓, T3 Uptake ↓, T4 - Free ↓, T3 - Free ↓, Free Thyroxine Index (T7) ↓

Biomarkers considered

TSH, T4 - Total, T3 - Total, T3 Uptake, Cholesterol - Total, Triglycerides, T4 - Free, T3 - Free, Free Thyroxine Index (T7)



Dysfunction Highly Likely. Much improvement required.

IMMUNE INSUFFICIENCY

Consider an immune insufficiency with a decreased **total WBC count** along with a decreased **albumin,** a decreased **total globulin**, and a decreased **alkaline phosphatase** level.

Rationale

Total WBCs ↓, Albumin ↓, Globulin - Total ↓

Biomarkers considered

Total WBCs, Albumin, Globulin - Total, Alk Phos

Dysfunction Possible. There may be improvement needed in certain areas.

HYPOGLYCEMIA

Consider hypoglycemia with a decreased fasting **blood glucose** along with a decreased **LDH**. Additional elements that may be out of range with hypoglycemia include a decreased **Hemoglobin A1C** and an increased **SGPT/ALT** level.

Rationale

LDH ↓

Biomarkers considered

Glucose Fasting, LDH, Hemoglobin A1C

Dysfunction Possible. There may be improvement needed in certain areas.

SECONDARY HYPOTHYROIDISM

Secondary hypothyroidism is highly likely when there is significant anterior pituitary dysfunction affecting the production of thyroid-stimulating hormone (TSH). This results in inadequate stimulation of the thyroid gland, leading to low thyroid hormone levels despite a normally functioning thyroid. Suspect secondary hypothyroidism due to anterior pituitary dysfunction if the subjective indications of thyroid hypofunction are present and the following pattern is seen in the thyroid biomarkers: A decreased TSH, a decreased or normal Total T4, a decreased or normal Free T4 and a decreased or normal Free T3. The likelihood increases if serum triglycerides are elevated and total cholesterol is increased. Additional biomarkers that may be out of range with anterior pituitary dysfunction (secondary hypothyroidism) include an increased BUN above the "normal" range and an increased calcium. Anterior pituitary dysfunction is a common problem and one that is frequently mistaken for thyroid hypofunction (the subjective indications are usually identical and the patient's axillary temperature will frequently be below normal).

Rationale

T4 - Total ↓, T4 - Free ↓, T3 - Free ↓, Free Thyroxine Index (T7) ↓, T3 - Total ↓

Biomarkers considered

TSH, BUN, Calcium, Cholesterol - Total, Triglycerides, T4 - Total, T4 - Free, T3 - Free, Free Thyroxine Index (T7), T3 - Total

Dysfunction Possible. There may be improvement needed in certain areas.

GASTRIC INFLAMMATION

Gastric inflammation or gastritis is often secondary to hypochlorhydria where the pattern is similar but the total globulin level may be decreased unless inflammation is severe, which may lead to an increased **globulin** level due to the increased production of inflammatory immunoglobulins. Consider gastric inflammation or gastritis with a decreased **total globulin**, a decreased serum **protein**, a decreased **phosphorous**, a decreased **hemoglobin** and an increased **BUN**. Additional elements that may be out of range with gastric inflammation include an increased **basophil** count, an increased **ESR**, a decreased **albumin** and a decreased **creatinine**.

Rationale

Protein - Total ↓, Creatinine ↓, Albumin ↓, ESR ↑, Basophils - % ↑

Biomarkers considered

Globulin - Total, Protein - Total, Hemoglobin, BUN, Creatinine, Albumin, Phosphorus, ESR, Basophils - %, Gastrin

Dysfunction Possible. There may be improvement needed in certain areas.

THYROID CONVERSION SYNDROME

Thyroid Conversion Syndrome or low T3 syndrome is a form of hypothyroidism that clearly demonstrates the problem of using TSH alone as a marker for Hypothyroidism. Consider Thyroid Conversion Syndrome or low T3 syndrome when you have a **normal TSH** along with a **decreased Total T3**, a **decreased Free T3**, a **normal Total T4**, a **normal Free T4** and an **increased reverse T3**. These patients will be suffering from all the classic signs and symptoms of low thyroid.

Rationale

T3 - Total ↓, T3 - Free ↓, Reverse T3 ↑

Biomarkers considered

Free T3 : Reverse T3, T3 - Total, T3 - Free, Free T3 : Free T4, Reverse T3

Dysfunction Possible. There may be improvement needed in certain areas.

INTESTINAL HYPERPERMEABILITY

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 ↑

Biomarkers considered

Uric Acid, Alk Phos

4

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

Appendix

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