

## Functional Bloodwork Analysis

Blood Sugar	Range	Results		Root Cause Clues
<b>GLUCOSE (fasting)</b> The sugar in the blood which serves as the primary source of fuel to the cells of the body. Normally closely regulated by insulin. A steady supply must be available for use, and a relatively stable level of glucose must be maintained in the blood. <i>This is the amount that was currently in your bloodstream during your fasted blooddraw.</i>	75 - 86 mg/dL	96.00	High	Acute stress/Excess cortisol Poor diet Infections Obesity Liver, Kidney or Pancreas issue Thiamine (Vitamin B1) Need  <i>Associated with Diabetes, Type 1 &amp; 2, Metabolic Syndrome, and Insulin Resistance</i>
<b>HEMOGLOBIN A1C</b> Shows the average levels of blood glucose in a 2 to 3 month period before the test. Hemoglobin A1C helps monitor long-term blood glucose control.	4.9 - 5.3 mmol/mol	5.30	Borderline High	High blood sugar ( <i>hyperglycemia</i> ) Insulin resistance Prediabetes or Diabetes
<b>INSULIN (fasting)</b> Measures the level of the hormone insulin, which enables cells to take in glucose. <i>It's like the "key" that fits into the lock on the cells to allow glucose in.</i>	2- 6 µIU/mL	24.30	High	Insulin Resistance Prediabetes/Diabetes Obesity PCOS Infections/Toxins/Glyphosate Birth control Poor Diet Stress Lyme Disease
Proteins + Kidneys	Range	Results		Root Cause Clues
<b>PROTEIN (Total)</b> Proteins are large molecules composed of amino acids. Protein does the majority of work in cells and is crucial to the structure, function, and regulation of the body's tissues and organs. <i>Very little to do with how much protein you are EATING.</i>	6.9 - 7.4 g/dL	6.80	Low	Diet low in protein ( <i>need for amino acids</i> ) Inflammation Chemicals/Toxins/Glyphosate/Herbicides/Pesticides/Chronic Infections Low stomach acid Digestive dysfunction Liver or Kidney stress Hyperthyroid or Hyperadrenals Thiamine (Vitamin B1) Deficiency
<b>ALBUMIN</b> 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.	4.1 - 5.0 g/dL	4.70	Normal	
<b>GLOBULIN</b> Globulins constitutes the body's antibody system and are made either by the liver or immune system. They help fight infection and transport nutrients. Most often this markers gives us insight into digestive function.	2.4 - 2.8 g/dL	2.10	Low	Leaky Gut Digestive distress Stress/Anxiety Low Immune Function Liver/kidney issues
<b>A/G RATIO</b> Ratio of albumin to globulin	1.4 - 2.4	2.20	Normal	
<b>URIC ACID</b> Uric acid is a waste product found in blood. It's created when the body breaks down chemicals. Uric acid provides insight into kidney function, inflammation, metabolic function and deficiencies. It is an antioxidant and low levels can result in oxidative stress; high levels can cause gout.	3.0 - 5.5 mg/dL	5.20	Normal	
<b>BUN (UREA NITROGEN)</b> Blood Urea Nitrogen (BUN) is the ratio between the production and clearance of urea in the body. BUN helps us measure kidney function and digestion, hydration status, and functions of pancreas, liver and pituitary.	12 - 18 mg/dL	9.00	Low	Too little protein in diet Liver issue Pancreas issue B6 need Enzyme need ( <i>to absorb nutrients</i> ) Too much water ( <i>hyperhydration</i> ) Malnutrition ( <i>not enough calories or lack of absorption</i> )
<b>CREATININE</b> Creatinine is a breakdown product of creatine phosphate from muscle and protein metabolism removed by the kidneys.	0.7 - 1.1 mg/dL	1.00	Normal	
<b>BUN/Creatinine RATIO</b> Ratio of albumin to globulin	10:20	9.00	Low	Too little protein in diet Digestive issues Liver stress Hypothyroid Kidney stress Pituitary dysfunction

<p><b>eGFR</b> The eGFR is a calculated estimate of the kidney's Glomerular Filtration Rate using four variables of age, race, creatinine and gender to estimate the kidneys' function.</p>	> 90.0	80.00	Low	<p><b>Loss of Kidney Function</b> &lt; 90: mild loss &lt; 60: moderate loss &lt;15: kidney failure</p> <p><i>More sensitive than BUN and creatinine since these do not increase until &gt;50% of total loss</i></p>
<b>Inflammation</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<p><b>Hs-CRP</b> Primary inflammation marker; will usually increase immediately in times of inflammation. Produced in the liver in response to inflammation; indicative of generalized inflammation in the body.</p>	< 1 mg/L	1.65	High	<p><b>Inflammation is usually not THE problem, but a RESULT of the problem</b></p> <p>Infections /Toxins: Viral, Mold/Mycotoxins, Lyme/Bacteria, Parasites Heavy Metals Oxidative Stress Estrogen Dominance Ppor sleep Chronic Stress PCOS Radiation EMF Long Term Mental/Emotional Stress Poor Diet Poor Air Quality Mineral Imbalances Post COVID vaccine</p>
<p><b>HOMOCYSTEINE</b> A molecule formed from the incomplete metabolism of methionine, B6, B12 and B9 deficiencies cause methionine to be converted to homocysteine. This marker can point to inflammation, anemia and disease risk most often.</p>	4 - 7.2 umol/L	6.80	Normal	
<p><b>ESR (Sed Rate)</b> ESR is based on the fact that certain blood proteins are altered by inflammatory conditions, causing aggregation of the red blood cells.</p>	0- 10 mm/hr	6.00	Normal	
<b>Liver Function</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<p><b>BILIRUBIN</b> Bilirubin is formed from the breakdown of hemoglobin from red blood cells by the reticuloendothelial cells of the spleen and bone marrow. It is transported from these cells to the liver where it is made water-soluble and excreted via the gallbladder in the bile. Yellow in coloration, bilirubin is then filtered out of the blood by the liver and excreted in stool by the intestines. Bilirubin tests are done when a disease or blockage of the liver is suspected</p>	0.2 - 1.0 mg/dL	0.30	Normal	
<p><b>ALKALINE PHOSPHATASE</b> One kind enzyme found in your body, generated most commonly in the liver, bones, and placenta. Its main function is to assist in the breakdown of proteins. These tests are typically ordered as an assessment of a liver or bone disease. Low levels can point to mitochondria dysfunction and high levels can point to liver/biliary tract issues or other root causes at play.</p>	70 - 100 IU/L	67.00	Low	<p>Zinc deficiency Mitochondrial dysfunction or Adrenal hypofunction Excessive Vitamin D supplementation Hypothyroidism Very low fat or protein in diet</p>
<p><b>AST (SGOT)</b> Aspartate aminotransferase (AST/SGOT) is an enzyme that breaks down proteins for energy. It is found mainly in the liver and heart, but also in many other tissues, including the skeletal muscles, red blood cells, kidneys, and the brain. <i>It is located in skeletal system and liver mainly.</i></p>	10 - 26 IU/L	25.00	Normal	
<p><b>ALT (SGPT)</b> Alanine Aminotransferase or (ALT/ SGPT) is an enzyme your body needs to break down proteins into energy. Most of it is found in the liver— an enzyme produced by the liver and is used to facilitate chemical reactions in the body. ALT is an enzyme <i>present in high concentrations in the liver</i> and to a lesser extent skeletal muscle, the heart, and kidney.</p>	10 - 26 IU/L	35.00	High	<p>Liver stress or severe biliary issue (<i>gallbladder</i>) Cardiovascular insufficiency or Heart Problem Excessive muscle breakdown or turnover Infections- Parasites, liver flukes, Lyme co-infections, heavy metals, viral load Inflammation Poor diet</p>
<p><b>GGT (GGPT)</b> 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.</p>	13 - 30 IU/L	15.00	Normal	
<p><b>LDH</b> Lactate dehydrogenase (LDH) represents a group of enzymes that are involved in carbohydrate metabolism. It helps the process of turning sugar into energy for your cells to use. LDH is present in many kinds of organs and tissues throughout the body, including the liver, heart, pancreas, kidneys, skeletal muscles, brain, and blood cells. If it is too low, usually someone will not be good at fasting, nor should they until this marker is normal.</p>	140 - 200 IU/L	203.00	High	<p>Liver Stress Inflammation Tissue damage Viral infection (EBV, HIV, HPV) Hypothyroid</p>
<b>Electrolytes</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>

<p><b>SODIUM</b> Most of the body's sodium is found in the fluid outside of the body's cells, where it helps to regulate the amount of water in the body.</p>	137 - 142 mmol/L	140.00	Normal	
<p><b>POTASSIUM</b> Potassium is found mainly inside the body's cells. A small but vital amount of potassium is found in the plasma, the liquid portion of the blood. Potassium plays an important role in regulating muscle contraction. Monitoring potassium is important as small changes in the potassium level can affect the heart's rhythm and ability to contract.</p>	4.0 - 4.5 mmol/L	4.10	Normal	
<p><b>CHLORIDE</b> Chloride is regulated by the kidneys and is involved in regulating the acid-base balance in the body. Chloride is an important molecule in the production of hydrochloric acid in the stomach. It also helps point to stress levels.</p>	100 - 106 mmol/L	106.00	Borderline High	Acute Stress/Hyperadrenals Dehydration Diabetes Kidney issue Aspirin excess
<p><b>CARBON DIOXIDE (CO2)</b> The main job of bicarbonate (or total CO2, an estimate of bicarbonate), which is released and reabsorbed by the kidneys, is to help maintain a stable pH level (acid-base balance) and help maintain electrical neutrality. Bicarbonate also plays an important role in the transport of CO2: much of the CO2 produced by the body's tissues is transported in the blood as bicarbonate to the lungs, where it is exhaled.</p>	25 - 30 mmol/L	21.00	Low	Anxiety/stress Shallow breathing Liver Stress Need for Antioxidants  <b>Metabolic Acidosis</b> (excess acid in the body) caused by: Stress Toxins/Infections/Radiation/Inflammation Foods (ones that are excess acid producing) Ketone buildup (lowers blood pH) from poorly controlled diabetes Dehydration Kidney/Liver Issues Electrolyte Imbalances
<p><b>CALCIUM</b> Calcium is a mineral used by our bodies in a variety of physiological functions including the construction and maintenance of bones, which is where most of our calcium is stored. Calcium plays many roles in the body including teeth and bone health, clotting, neurotransmitter function, muscle contraction and enzyme activity. Calcium levels are principally regulated by the Parathyroid Hormone (PTH) and Vitamin D. <b><i>This value is typically a reflection of the factors influencing calcium metabolism rather than dietary calcium intake.</i></b></p>	9.2- 9.8 mg/dL	9.40	Normal	
<p><b>PHOSPHOROUS</b> Together with calcium, phosphorus is essential for healthy development of bones and teeth. Phosphorous, like calcium, are regulated by parathyroid hormone (PTH). Phosphorus is a mineral involved in DNA and RNA synthesis, part of ATP, helps activate enzymes. 85% of phosphorus in the body is stored in the bones. The remaining 15% is scattered in tissues throughout the body. Phosphorus is absorbed in the gut, stored in the bones, and removed by the kidneys.</p>	3.0 - 4.0 mg/dL	3.50	Normal	
<b>Infection Markers</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<p><b>WHITE BLOOD CELLS (WBC)</b> WBCs fight infections. They are an army of soldiers that produce, transport, and distribute antibodies as part of the immune process and response. Each type of infection marker (soldier) plays a different role in protecting the body from foreign pathogens such as viruses, bacteria, parasites, etc.</p>	5.5 - 7.5 k/cumm	8.70	High	Acute Stress/Injury Acute Infections (Bacterial, Fungal, Viruses, Parasites)
<p><b>NEUTROPHILS</b> Neutrophils are WBCs that are vital to the immune system. They help fight against infections and prevent inflammation. <b>They specialize in bacterial</b>, but also fight viral Loads. Neutrophils decrease during immune deficiency.  Neutrophils provide the first line of defense of the innate immune system by phagocytosing, killing, and digesting bacteria and fungi.</p>	40 - 60%	59	Normal	
<p><b>LYMPHOCYTES</b> Lymphocytes are your soldiers that <b>fight viral infections and produce antibodies</b>, which help your body stop and remove foreign invaders such as bacteria, viruses, fungi, parasites, and toxic chemicals. They also play an important role in immune function/inflammation. <b>Lymphocytes live in lymph nodes</b>, but also in the bloodstream and all over the body.</p>	24 - 42%	28	Normal	
<p><b>MONOCYTES</b> Monocytes are the largest type of WBC and act as the body's second line of defense and protect against viral, bacterial, fungal, and parasitic infections. They kill microorganisms, ingest foreign particles, remove dead cells and boost the immune response.</p>	0 - 6.9%	8	High	Present infection ( <i>Parasites, Bacteria, Viruses, Mold, etc.</i> ) Autoimmune or Immune Deficiency Chronic Inflammation <i>Monocytes may elevate or spike in recovery phase of an infection</i>
<p><b>EOSINOPHILS</b> Eosinophils are WBCs that fight infections like parasites. They help with allergies, inflammation and Mast Cell Activation Syndrome (MCAS) to a degree.</p>	0 - 2.9%	4	High	Parasites Asthma Eczema/Atopic Dermatitis MCAS/Inflammation (signs of histamine, living in mold) Addison's Disease Eosinophilic Esophagitis

<b>BASOPHILS</b> Basophils are WBCs that play a role in inflammation and defend against parasites, allergic reactions, tissue damage and autoimmune diseases.	0 - 1%	1	Borderline High	Inflammation Parasites Asthma Active Allergic Response/Histamine Excess/MCAS
<b>Red Blood Cells + Indices</b>	<b>Range</b>	<b>Results</b>		<b>Root Cause Clues</b>
<b>RED BLOOD CELLS (RBC)</b> 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.	3.9 - 4.5 m/cumm	4.79	High	Stress ( <i>infections, lifestyle, over-exercising, etc.</i> ) Dehydration Asthma Lung, Liver Heart or Kidney Issue
<b>HEMOGLOBIN</b> Hemoglobin is a molecule that carries oxygen in red blood cells	13.5 - 14.5 g/dL	14.50	Borderline High	Stress Asthma High Altitude or Sleep Apnea Smoking Dehydration
<b>HEMATOCRIT</b> The hematocrit measures the percentage of the volume of red blood cells in a known volume of centrifuged blood.	37 - 44%	44.00	Borderline High	Stress Asthma High Altitude or Sleep Apnea Smoking Dehydration
<b>MCV</b> MCV indicates the red blood cell SIZE.	83 - 90 fL	92.00	High	Need for Vitamin B9 or B12 Vitamin C need Hypothyroid Liver Issues Alcoholism/Drugs/Smoking
<b>MCH</b> MCH is the average weight of hemoglobin per red blood cell.	27 - 31.9 pg	30.30	Normal	
<b>MCHC</b> MCHC measures the average concentration of hemoglobin in the red blood cells.	32 - 35 g/dL	33.00	Normal	
<b>MPV</b> MPV stands for mean platelet volume. An MPV test measures the average size of your platelets. including living at a high altitude or following a vigorous exercise routine.	9.6 - 10.4 fL	-	#N/A	
<b>RDW</b> RDW indicates the degree of abnormal variation in the size of red blood cells.	12 - 13%	12.20	Normal	
<b>PLATELETS</b> Platelets are necessary for blood clotting, vascular integrity, and vasoconstriction	150 - 350 k/cumm	285.00	Normal	
<b>Iron Panel</b>	<b>Range</b>	<b>Results</b>		<b>Root Cause Clues</b>
<b>IRON (Serum)</b> We need iron to make red blood cells (RBC). Iron is also an important part of hemoglobin, a protein in your blood that helps carry oxygen from your lungs to the rest of your body.	80 - 130 µg/dL	61.00	Low	Iron Anemia or Iron Bio-Unavailability ( <i>stored in body</i> ) Need for Vitamin C ( <i>helps with iron absorption</i> ) Low HCL Chronic Inflammation/Diseases/Immune Challenges Internal Bleeding or did while on menstrual cycle ( <i>menstruating</i> ) Lack of Iron-rich Foods- <i>vegan/vegetarians</i>
<b>FERRITIN</b> Ferritin is a protein that serves as the body's main iron storage. The greatest concentration of ferritin is typically within the cells of the liver and immune system.	50 - 100 ng/mL	61.00	Normal	
<b>TIBC</b> An approximate estimation of the serum transferrin-- a protein that carries most of the iron in the blood. TIBC is not an exact measurement of transferrin because not all of the body's iron is bound by transferrin.	250 - 350 µg/dL	268.00	Normal	
<b>UIBC</b> Measures the reserve capacity of transferrin, the portion of transferrin that has not yet been saturated with iron. Therefore, UIBC also reflects transferrin levels.	120- 300 µg/dL	207.00	Normal	
<b>Lipid Panel</b>	<b>Range</b>	<b>Results</b>		<b>Root Cause Clues</b>

<p><b>CHOLESTEROL (TOTAL)</b> Cholesterol is a steroid that is the backbone for all steroid hormones, like adrenal and sex hormones and vitamin D. Too much can block arteries and too little can lead to hormone imbalance. The body produces it and people also consume it through their food.</p>	160 - 200 mg/dL	200.00	Borderline High	<p>Poor Diet/Sedentary/Obesity Blood Sugar Issues, Insulin Resistance or Diabetes Infections/Toxins/Oxidative Stress Liver or Gallbladder Issue Hypothyroid</p> <p><b>Is Cholesterol Bad?</b> Cholesterol is NOT the enemy. Your body needs cholesterol to make hormones, cell membranes and brain cells. Without enough cholesterol, your testosterone levels would drop and your sex drive and function would plummet. Eight out of the 9 doctors who write the National Cholesterol Guidelines receive money from the pharmaceutical industry and 2/3 of all medical research is funded by those companies. The market for statin drugs is over \$25 billion per year and is the largest drug company in the world.</p>
<p><b>TRIGLYCERIDES</b> Triglycerides are composed of fatty acid molecules that enter the bloodstream from the liver or diet. It is a type of fat and the primary way our bodies store unused energy. While triglycerides are necessary for a healthy life, excessive amounts can put you at a higher risk for developing cardiovascular disease. It is a great marker to assess liver function and can even help point to potential root causes or immune challenges when too high or too low.</p>	80 - 100 mg/dL	111.00	High	<p>Poor Diet Insulin Resistance Liver Issues Hypothyroid Poor Fat Digestion Kidney Issue Alcoholism Birth control pills</p>
<p><b>HDL</b> HDL transports cholesterol from the peripheral tissues and vessel walls to the liver which is why it is known as the "good cholesterol" to protect against atherosclerosis. This marker however, if too high, can point to immune challenges.</p>	40 - 60 mg/dL	37.00	Low	<p>Sedentary/Obesity/Diet/Poor Lifestyle Liver Issue Kidney Issue Heavy Metals Chemicals Mold/Mycotoxins Oxidative Stress or Inflammation Hyperthyroidism</p>
<p><b>LDL</b> LDL transports cholesterol and other fatty acids from the liver to the peripheral tissues. It is known as "bad cholesterol" because of this process of bringing cholesterol from the liver to the peripheral tissue.</p>	70 - 99 mg/dL	143.00	High	<p>Poor Diet, Sedentary, Obesity Infection/Toxin/Inflammation Blood Sugar Issues, Insulin Resistance, Diabetes Liver or Gallbladder Issue Kidney Issue</p>
<p><b>VLDL</b> VLDL is formed in the liver and transports triglycerides, phospholipids, protein and cholesterol. This is a good diet marker indicator; if someone is taking excess carbs/sugar this number tends to elevate above normal. VLDL contains more triglycerides while LDL contains more cholesterol.</p>	0 - 15 mg/dL	20.00	High	<p>Poor Diet or Poor Fat Digestion Sedentary/Obesity/Diabetes/Insulin Resistance Liver Issue Thyroid Issue Inflammation + Infection</p>
<p><b>TOTAL CHOLESTEROL/HDL RATIO</b> The ratio of total cholesterol to HDL is a better predictor for CVD. A high cholesterol/HDL ratio increases risk of CVD. Every increase by 1.0 increases risk of heart attack by 50-60%.</p>	0 - 3	5.41	High	<p>Increased risk of CVD Every increase by 1.0 increases risk of heart attack by 50-60%</p>
<p><b>LDL/HDL RATIO</b> The calculation of the LDL cholesterol to HDL cholesterol ratio provides another good assessment tool for CVD. An increased ratio of LDL/HDL= higher risk. A low ratio of LDL/HDL= low risk.</p>	0 - 2.34	3.86	High	<p>Increased ratio = higher CVD risk</p>
<b>Thyroid Panel</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<p><b>TSH</b> TSH (thyroid-stimulating hormone) is produced by the anterior pituitary to control the thyroid gland's production of T4, storage of T4, and the release into the bloodstream. It is NOT an actual thyroid hormone, but instead responsible for the signaling system. Fluctuates throughout the day and is only the signal; doesn't reflect how much hormone is being produced and utilized. Will not tell us how well her body is producing, converting and using the hormones.</p>	1.5 - 3.0 µIU/mL	2.05	Normal	
<p><b>TOTAL T4 (THYROXINE)</b> T4 is the inactive form of thyroid hormone. It must be converted to T3 before the body is able to use it. Total T4 is bound and unbound.</p>	6 - 12 µg/dL	7.00	Normal	
<p><b>FREE T4</b> Represents unbound T4.</p>	1.0 - 1.6 ng/dL	1.06	Borderline Low	<p>Iodine Need Hypothyroid Infection/Pathogens</p>
<p><b>Total T3 (TRIIODOTHYRONINE)</b> Triiodothyronine (T3) is a hormone produced by the thyroid. Total T3 measures both unbound and bound T3 in the blood.</p>	90 - 170 ng/dL	128.00	Normal	
<p><b>FREE T3</b> Free T3 is the active thyroid hormone and is unbound in the blood.</p>	3 - 3.5 pg/mL	3.50	Borderline High	<p>Iodine Need Infection/Pathogen</p>

<b>Free T4 / Free T3 Ratio</b> <i>converted to pmol/L for both; If FT4/FT3 &gt; 4: possible conversion issues in the liver</i>	< 4	2.54	Normal	
<b>REVERSE T3</b> Reverse T3 is an inactive form of thyroid hormone. Most is produced from the conversion of T4 in the peripheral tissues. Reverse T3 is the break that slows down ATP cellular production (aka energy). Higher levels of reverse T3 can decrease the effect of thyroid hormone.	10 - 20 ng/dL	13.50	Normal	
<b>FREE THYROXINE INDEX (FTI)</b> FTI is a calculated measurement used to determine how much Free T4 is available.	1.7 - 4.5	1.70	Borderline Low	Selenium or Iodine need Hypothyroid
<b>T3 UPTAKE</b> T3 uptake is a test that measures the binding capacity of the (TBG) hormone. It has little to do with T3 levels and is usually more reflective of nutrient deficiencies.	28 - 35%	24.00	Low	Selenium or Iodine need Hypothyroid
<b>TPO ANTIBODIES</b> Thyroid peroxidase (TPO) is an enzyme inside the cells of the thyroid that attaches iodine to tyrosine. The presence of TPO in your blood suggests that the cause of thyroid disease is an autoimmune disorder.	0 - 6.8	0.00	Normal	
<b>THYROGLOBULIN ANTIBODIES</b> Immune cells that attack the thyroglobulin protein in the thyroid. The presence of Thyroglobulin antibodies in your blood suggests that the cause of thyroid disease is an autoimmune disorder.	0 - 0.9	20.50	High	Autoimmune response in body Gluten sensitivity
<b>IODINE INDICATOR (TT3/RT3 RATIO)</b> Can give us clues about your iodine status	10-14	9.48	Low	Conversion Problem in the Liver ( <i>mold/chemicals/metals/infection</i> ) Selenium or iron deficiency Excessively high estrogen which will suppress T3 formation
<b>Vitamins + Minerals</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<b>MAGNESIUM</b> 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 as a blood clotting mechanism. Responsible for over 300 enzymatic processes.	2.2 - 2.5 mg/dL	-	#N/A	
<b>VITAMIN D (25-Hydroxy (OH))</b> Vitamin D is incredibly important in the body. Vitamin D is a fat-soluble vitamin the body needs to build up bones and helps absorb calcium in the gut. There is a connection between vitamin D and keeping calcium and phosphorus in balance so someone can have the right amounts to mineralize bones. Vitamin D also helps support immune balance. Vitamin D as 25-Hydroxy (OH) helps assess calcium levels, potential autoimmune, liver issues, fatty acid issue, etc	50 - 100 ng/mL	-	#N/A	
<b>Additional Markers</b>	<b>Range</b>		<b>Results</b>	<b>Root Cause Clues</b>
<b>SPECIFIC GRAVITY</b> This measures your kidneys' ability to balance water content and excrete waste.	1.005 - 1.3	1.02	Normal	
<b>pH (URINE)</b> The pH is the measurement of how acidic or alkaline your urine is.	6.5 - 7.5	6.00	Low	More Acidic Liver or Kidney Stress Poor Diet Mold or Heavy Metals
<b>GASTRIN</b> Hormone that stimulates release for HCL from stomach.	45 - 90 pg/ml	19.00	Low	Low stomach acid Decreased output of bile from gallbladder Low pancreas function