WELLNESS LABS

EXPLANATION OF RESULTS

ARKANSAS HEART HOSPITAL®

ALL HEART

BASIC METABOLIC PANEL

BUN – Blood Urea Nitrogen (BUN) is a waste product of protein breakdown and is produced when excess protein in your body is broken down and used for energy.

BUN levels greater than 50 mg/dL generally means that the kidneys are not functioning normally. Abnormally low BUN levels can be seen with malnutrition and liver failure.

Creatinine – a waste product of normal muscle activity.

High creatinine levels are most commonly seen in kidney failure and can also been seen with hyperthyroidism, conditions of overgrowth of the body, rhabdomyolysis, and early muscular dystrophy. Low creatinine levels can indicate low muscle mass associated with malnutrition and late-stage muscular dystrophy.

Glucose – a simple sugar that serves as the main source of energy in the body.

High glucose levels (hyperglycemia) is usually associated with prediabetes and can also occur with severe stress on the body such as surgery or events like stroke or trauma. High levels can also be seen with overactive thyroid, pancreatitis, or pancreatic cancer. Low glucose levels can occur with underactive thyroid and rare insulin-secreting tumors.

Electrolytes – Sodium, Calcium, Potassium, Chloride, and Carbon Dioxide are all included in this category.

Sodium – high levels of sodium can be seen with dehydration, excessive thirst, and urination due to abnormally low levels of antidiuretic hormone (diabetes insipidus) as well as with excessive levels of cortisol in the body (Cushing syndrome). Low levels of sodium can be seen with congestive heart failure, cirrhosis of the liver, kidney failure, and the syndrome of inappropriate antidiuretic hormone (SIADH).

Calcium – high levels of calcium can occur with excessive activity of the parathyroid glands, certain cancers, and a type of inflammation seen in sarcoidosis and tuberculosis. Low levels of calcium can be seen with underactive parathyroid glands, Vitamin D deficiency, and acute pancreatitis.

Potassium – high levels of potassium can be seen with kidney disease, massive destruction of red blood cells, and adrenal gland failure. Low levels of potassium can be seen with excessive levels of the hormone aldosterone.

Chloride – high levels of chloride can be seen with acute kidney failure, diabetes insipidus, prolonged diarrhea, and poisoning with aspirin or bromide. Low levels of chloride can be seen with prolonged vomiting, acute adrenal gland failure, hyperaldosteronism, and SIADH.

Carbon Dioxide (Bicarbonate) – high levels of carbon dioxide can be seen after prolonged vomiting and diuretic therapy, which lead to a decrease in the amount of acid in the body, as well as conditions that increase the amount of bicarbonate in the body such as hyperaldosteronism and rare hereditary disorders that interfere with how your kidneys handle electrolytes. Low levels of carbon dioxide can be seen with conditions that cause the body to produce too much acid, such as uncontrolled diabetes mellitus and poisoning with aspirin, methanol, or antifreeze.

Estimated Glomerular Filtration Rate (eGFR) – assesses kidney function and used to diagnose, state, and monitor chronic kidney disease.
Levels lower than 60 mL/min/1.73m for three or more months are a sign of chronic kidney disease. Levels lower than 15 mL/min/1.73m is a sign of kidney failure and requires immediate medical attention.

LIVER PANEL

Albumin Serum – a protein that is a major component of the liquid part of the blood.
High levels of albumin could be a sign of dehydration or of eating a high-protein diet. Low levels of albumin could be a sign of a low-protein diet or if you have had weight-loss surgery, as well as possible signs of more serious health issues such as liver or kidney disease or Crohn disease.

Alkaline Phosphatase (ALP) – a protein that is found in all tissues of the body, most commonly in the bones, liver, and bile ducts.
High levels of ALP can be a sign of certain cancers or tumors, liver disease, sarcoidosis, rickets, a blocked bile duct, or bone problems such as a fracture. Low levels of ALP can be caused by malnutrition, hypophosphatasia, or Wilson disease.

Aspartate aminotransferase (AST) – an enzyme found in the liver, muscle cells, and heart that is helpful to check for liver damage.
High levels of AST can indicate liver problems such as hepatitis, cirrhosis, and liver cancer as well as mononucleosis, pancreatitis, and muscle trauma.

Alanine aminotransferase (ALT) – an enzyme found throughout the body with high concentrations found in the liver that is helpful to check for liver damage.
High levels of ALT can indicate liver problems such as hepatitis, cirrhosis, and liver cancer as well as mononucleosis, pancreatitis.

Protein Total – a measurement of the amount of albumin and globulins (part of the immune system) in the blood.
High totals of the protein level can indicate an infection (such as hepatitis B or C, or HIV), multiple myeloma, or Waldenstrom disease. Low total of the protein level can be seen in conditions such as malnutrition, severe burns, heavy bleeding, and liver disease.

Bilirubin Total – a waste product caused as the liver breaks down red blood cells.
High levels of bilirubin can result from liver problems such as cirrhosis, liver disease, and hepatitis, as well as problems with the bile ducts, pancreas, or gallbladder.

LIPID PANEL

Total Cholesterol – a measure of the cholesterol components LDL, HDL, and triglycerides.
Optimal total cholesterol level is 200 mg/dL, however values above 200 mg/dL can be considered optimal for those with protective HDL levels.

HDL Cholesterol – a type of lipoprotein often referred to as the "good" cholesterol. It acts as a cleaner by removing the LDL (or bad) cholesterol and taking it back to the liver to be broken down.
High levels of HDL (above 60 mg/dL) are considered a good thing. HDL can be improved by increased intake of "good fats" such as avocado, almonds or walnuts, olive oils, oily fish (salmon, tuna, mackerel, or trout), dark chocolate, omega-3 fatty acids, and flaxseed oil, as well as moderate amounts of red wine and through increased exercise and cutting back or quitting smoking.

Triglycerides – a type of fat found in the blood that is created by any calories from food that the body does not need immediately.
High triglyceride levels can be caused by consuming more calories than are necessary, particularly calories from carbs or fats, and can may be contributed to the hardening of the arteries or thickening of the artery walls, which increases the risk of stroke, heart attack, and heart disease. High levels are often a sign of conditions such as obesity, poorly controlled type-2 diabetes, low thyroid hormone levels, and liver or kidney disease. High levels can also be a side effect of taking medications such as beta blockers, oral contraceptives, diuretics, steroids or tamoxifen.

Triglyceride levels can be improved by weight loss (even 5-10 pounds results in large improvement), avoiding sugary and refined carbohydrates, choosing "good fats", limiting alcohol intake, and increased exercise.

LDL Cholesterol – a type of lipoprotein that is referred to as the "bad" cholesterol because it contributes to plaque build-up that can clog arteries and make them less flexible.
LDL levels can be improved by replacing red meat with fish, turkey, or skinless chicken, decreasing dairy products, limiting saturated/trans fats (fried food, vegetable oils, butter, and pre-made baked goods), eating oatmeal, increase fiber intake, and increased exercise.

OTHER TESTS

Phosphorus – the mineral the body needs to build strong bones and teeth and is important for nerve signaling and muscle contraction.
Kidney, liver, and certain bone diseases can also cause abnormal levels.

Hemoglobin A1C – a test for type-2 diabetes and prediabetes that measures your average blood glucose level over the past three months.
Can be used to diagnose diabetes or see how well a person is managing their diabetes.

C-Reactive Protein – measures the amount of inflammation in the body and can be used to evaluate the risk for developing coronary artery disease.

Free T4 – helps to evaluate thyroid gland function, diagnose thyroid disease, and monitor the effectiveness of treatment.
Low levels can indicate hypothyroidism with symptoms such as weight gain, dry skin, cold intolerance, irregular menstruation, and fatigue. Untreated, it can lead to heart failure, seizures, and coma. High levels can indicate hyperthyroidism with symptoms such as increased heart rate, anxiety, weight loss, difficulty sleeping, tremors in the hands, and puffiness around dry, irritated eyes.

Thyroid-stimulating Hormone (TSH) – screens for and helps diagnose thyroid disorders and monitors treatment of hypo- and hyperthyroidism.

Prostate-specific Antigen (PSA) – tests the protein produced by prostate cells and helps diagnose and follow prostate cancer in men.
High levels have been linked to increased change of prostate cancer.

COMPLETE BLOOD COUNT (CBC)

White Blood Cell (WBC Count) – the body uses these to maintain a healthy state and to fight infections or other causes of injury.
These numbers may shift higher or lower depending on what is going on in the body, such as fighting off bacterial infections, allergies, or viral infections. Certain diseases, such as leukemia, cause white blood cells to increase rapidly, causing an increase in WBC count.

Hemoglobin – the iron-containing protein found in all red blood cells that enables those cells to bind oxygen in the lungs and carry it to tissues and organs throughout the body.
High levels of hemoglobin are produced when too many red blood cells are present and the blood can become thickened, causing sluggish blood flow and related problems.

Hematocrit – measures the proportion of blood that is made up of red blood cells and is used to check for conditions such as anemia. Done in conjunction with the hemoglobin.

Platelet Count – tests for the amount of thrombocytes in blood which is essential for normal blood clotting.
Low platelet levels show that a person could be at risk for excessive bleeding due to the inability to form a stable clot.

Red Blood Cell (RBC) – produced in the bone marrow and released into the bloodstream to help transport oxygen throughout the blood.
High RBC count can interfere with the flow of blood through the veins and arteries. Low RBC count results in anemia and may have symptoms such as fatigue and weakness.

Mean Corpuscular Volume (MCV) – tests the average size of red blood cells.
If results show that the size is too small, it may indicate that a person is anemic. If results show that the size it too big, it may indicate that a person has a vitamin deficiency, liver disease, or hypothyroidism.

Mean Corpuscular Hemoglobin (MCH) – tests the average quantity of hemoglobin present in a single red blood cell.

Results tend to mirror the MCV results since the size of the cell could increase/decrease the amount of hemoglobin present.

Mean Corpuscular Hemoglobin Concentration (MCHC) – average concentration of hemoglobin in the red blood cells.

Low levels of MCHC can result in fatigue or chronic tiredness, shortness of breath, pale skin, easy bruising, dizziness, weakness, or loss of stamina. High levels of MCHC can result in autoimmune hemolytic anemia (condition that occurs when your body develops antibodies that attack red blood cells) or hereditary spherocytosis (genetic disease that affects the red blood cell membrane and makes it more fragile).

Red Cell Distribution Width (RDW) – measures the amount of red blood cell variation in volume and size. Done in conjunction with MCV and MCH.

Lymphocytes, Monocytes, Eosinophils, Basophils, and Neutrophils make up the five different types of white blood cells. The test is done to show if the number of cells are in proper proportion with one another and to diagnose and/or monitor infection, anemia, or leukemia.