Boulder Community Health

PATIENT EDUCATION

Blood Tests

Below is a brief description of some common lab tests.

Blood Test	Details
Complete Blood Count (CBC)	
White Blood Cells (WBC)	White blood cells are part of your immune system, which fights infections and diseases. Abnormal white blood cell levels may be a sign of infection, blood cancer, or an immune system disorder.
Red Blood Cells (RBC)	Red blood cells carry oxygen from your lungs to the rest of your body. Abnormal red blood cell levels may be a sign of anemia, dehydration (too little fluid in the body), bleeding, or another disorder.
Hemoglobin (HGB)	Hemoglobin is an iron-rich protein in red blood cells that carries oxygen. Abnormal hemoglobin levels may be a sign of anemia other blood disorders.
Hematocrit (HCT)	Hematocrit is a measure of how much space red blood cells take up in your blood. A high hematocrit level might mean you're dehydrated. A low hematocrit level might mean you have anemia. Abnormal hematocrit levels also may be a sign of a blood or bone marrow disorder.
MCV, MCH, MCHC, RDW	These tests measure size and makeup of the red blood cells. They can help to determine the cause of anemia.
Platelets	Platelets help your blood to clot. Abnormal platelet levels may be a sign of a bleeding disorder (not enough clotting) or a thrombotic disorder (too much clotting).
Lymphocytes, Monocytes, Neutrophils, Eosinophils	Different types of white blood cells. Their levels may be used to evaluate allergic reactions or determine if an infection is caused by a bacteria, virus, or parasite.
Lipid Panel	
Cholesterol & Triglycerides	These are the two main groups of fat in the blood. Increased levels of either may lead to arteriosclerosis (hardening of the arteries), diabetes, or thyroid, liver, or pancreatic disease.
High-Density Lipoprotein (HDL)	This is the “good” cholesterol. The higher the value, the lower the risk of developing heart disease.
Low-Density Lipoprotein (LDL)	This is the “bad” cholesterol. The higher the value, the higher the risk of developing heart disease.
Very-Low-Density Lipoprotein (VLDL)	This is the “bad” triglyceride. The higher the value, the higher the risk of developing heart disease and/or pancreatitis.

C – Reactive Protein (CRP)	A protein present in the blood when certain inflammatory processes are occurring, it can help to predict heart disease. Recent illness or tissue injury, and chronic inflammation from arthritis can increase CRP levels and falsely influence the risk rating for heart disease from this test.
Metabolic panel	
Sodium, Potassium, Chloride	These are electrolytes, which are minerals in the body. Abnormal electrolyte levels may be a sign of dehydration, kidney disease, liver disease, heart failure, high blood pressure, or other disorders.
Carbon Dioxide	Helps to detect, evaluate, and monitor electrolyte imbalances.
Glucose	Glucose is a type of sugar that the body uses for energy. Abnormal glucose levels in your blood may be a sign of diabetes.
Urea Nitrogen (BUN)	A waste product of the liver excreted by the kidneys. High values may indicate kidney malfunction and/or dehydration.
Creatinine	This is a waste product of muscle metabolism that is excreted by the kidneys. It is elevated in kidney disease, muscle wasting disease, and sometimes the day after strenuous physical exercise.
BUN/Creatinine Ratio	This ratio helps determine the type of kidney failure.
Calcium	Abnormal calcium levels in the blood may be a sign of kidney problems, bone disease, thyroid disease, cancer, malnutrition, or another disorder
Albumin, Globulin, & Total Protein	Abnormal results are an indicator of under nutrition, liver or kidney disease, cirrhosis, multiple myeloma, sarcoidosis, amyloidosis, lupus, and/or major infections.
AST & ALT	Injury to cells releases these enzymes into the blood. Liver disease and heart attacks, as well as serious physical injury can cause elevation of these values.
Alkaline Phosphatase	A bone and liver enzyme. High values are associated with liver and gall-bladder disease.
Bilirubin	The primary pigment in bile, it builds up when the liver is functioning poorly or when some other disorder reduces the normal flow of bile. It can also be increased when there has been destruction of red blood cells.
Prostatic Specific Antigen (PSA)	PSA is released into a man's blood by his prostate gland. Healthy men usually have low amounts of PSA in the blood. Levels can be elevated with age, an injury, sexual activity (ejaculation), inflammation of the prostate gland, or prostate cancer.
Thyroid Stimulating Hormone (TSH)	This is the test of choice for evaluating thyroid function and/or symptoms of hyper or hypothyroidism.
Hemoglobin A1c	This is a blood test that provides information about a person’s average levels of blood glucose, also called blood sugar, over the past three months. The result provides information to help manage diabetes.

Sources: National Institutes of Health, 2022; Cleveland Clinic, 2024 & 2022; National Library of Medicine, 2024

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