



# Understanding Your Chemistry Report

Values that are outside the expected ranges may indicate possible problems that require medical evaluation, may reflect a non-fasting state, or may mean that there was a processing error.

**CONSULT YOUR DOCTOR WITH ANY QUESTIONS, AND MAKE AN APPOINTMENT FOR FURTHER EVALUATION IF YOUR DOCTOR INDICATES THAT THIS IS NECESSARY.**

## LIPIDS & CARDIO-METABOLIC PROFILE

**CHOLESTEROL** - A blood fat that is strongly related to arteriosclerosis and heart disease. High values require physician referral and eating a low fat diet (especially saturated fat) and exercise regularly.

**GLUCOSE** - Blood sugar. High levels are observed in diabetes. Glucose levels are altered by diet and medication. Normal ranges are given for fasting specimens. Low sugar levels may be found in diseases of the endocrine glands or may be related to faulty insulin response. If your value is over 140, even if you had recently eaten, consult your doctor. Even if you know you have diabetes, it is important to report an elevated sugar level to your doctor.

**HDL** - High density lipoproteins are a type of protein and lipid (fat) mixture whose elevation is considered a decreased risk factor for arteriosclerotic blood vessel disease. Increases in HDL's are associated with exercise, increased fitness levels and proper weight management.

**LDL** - Low density lipoproteins are a type of protein and lipid (fat) mixture whose elevation is considered an increased risk factor for arteriosclerotic blood vessel disease. Lowering LDL is considered the primary target of lipid therapy.

**TRIGLYCERIDES** - This term refers to fat in the blood. High triglycerides, like cholesterol, can impair the circulation and be an indicator of other abnormal lipid levels. To keep triglycerides low, get regular, aerobic exercise, maintain ideal body weight, limit alcohol intake, and avoid eating too much sweets and other high sugar/fat foods.

## MINERALS & ELECTROLYTES

**CALCIUM** - A mineral contained in bone and teeth, decreased or increased levels may be associated with disease. Abnormal levels occur with bone disease, poor diet, kidney disease and with defective absorption from the intestine.

**CHLORIDE** - A body salt. Low levels may be found with chronic diarrhea, prolonged vomiting, diabetes and kidney disease. High levels may be seen with hyperventilation and dehydration.

**PHOSPHORUS** - A mineral found in highest concentration in bone. Abnormal levels are observed with kidney, bone, and parathyroid diseases.

**POTASSIUM** - A body salt. Highest concentrations are found inside body cells. Low levels may be found with prolonged vomiting or diarrhea, and administration of diuretics. High levels may be seen with kidney disease, muscle damage or vigorous exercise.

**SODIUM** - A body salt responsible for water balance. High values are seen with dehydration and excess intake. Low values are found with diuretic medication, heavy perspiration, diabetes and kidney disease.

## KIDNEY FUNCTION

**BUN** - Blood Urea Nitrogen is a waste product from the breakdown of protein. BUN is removed by the kidneys. Elevated levels are associated with kidney disease.

**CREATININE** - A waste product that is removed by the kidneys. Increased levels are seen with kidney diseases.

**URIC ACID** - A waste product that is excreted by the kidneys. High levels may indicate gout or rapid cell turnover. High level may cause kidney stones.

## LIVER FUNCTION

**ALKALINE PHOSPHATASE** - An enzyme produced by bone and liver. High levels may be found during puberty when rapid growth occurs and with liver or bone disease.

**BILIRUBIN** - A waste product derived from the breakdown of red blood cells that is excreted in the bile. It may be elevated in diseases involving red cell destruction or in liver disease.

**GGT** - An enzyme similar to SGOT-SGPT with elevations noted in liver disease. GGT is very sensitive to excessive intake of alcohol.

**SGOT-SGPT** - Enzymes produced by the liver and muscles. Increased values may be seen with injury or disease of the liver and muscles. Damage from alcohol and a number of diseases are reflected in high levels and should be evaluated by your doctor.

## ANEMIA AND METABOLISM

**CARBON DIOXIDE** - The end product of metabolism that regulates the acid-base balance of the body.

**ALBUMIN and GLOBULIN** - A measure of the amount and type of protein in your blood. They are a general index of overall health and nutrition. Globulin is the "antibody" protein important for fighting disease. If one of these is high, but all other values are within expected ranges, the result is probably not significant.

**TOTAL PROTEIN** - This represents the combination of albumin and globulins.

**IRON** - Iron is essential for hemoglobin, the oxygen carrying substance in red blood cells. Low levels are observed with anemia and high levels with excessive iron intake and pregnancy. Levels are highest in the morning and fall during the day.

**IRON BINDING CAPACITY & % SATURATION** - Helpful in differentiating a low serum iron level, iron deficiency anemia or inflammatory and neo-plastic disorders.

## BLOOD CELL COUNT

**WHITE BLOOD CELL COUNT** - These blood cells protect the body from disease organism invasion by either directly destroying invading agents through phagocytosis (ingestion) or forming antibodies to destroy them. High levels can be related to bacterial and viral infections, toxic metabolic processes. WBC count is also used in the evaluation of leukemia states. WBC's can increase with stress. WBC's can be at a critical level if less than 2.0 and greater than 20.0.

**RED BLOOD CELL COUNT** - The blood cells associated with hemoglobin (oxygen carrying component of blood). RBC's are sensitive to hydration states and are used to evaluate anemia. RBC's increase with altitude and decrease with bleeding, failure of bone marrow, and can be destroyed during exercise.

**HEMOGLOBIN** - The iron-containing pigment in red blood cells that binds oxygen. Low levels can be associated with anemia.

**HEMATOCRIT** - The percentage of red blood cells in the total blood volume (normal is 40-45%).

**PLATELET COUNT** - blood platelets are not really cells at all, but rather are cell fragments. These small discs are required for blood coagulation (clotting), which prevents excessive blood loss.

## VALUE OF BLOOD CHEMISTRY TESTING

**PLEASE NOTE:** It is not possible to diagnose or treat any disease or problem with a blood test alone. It can help you learn more about your body and detect potential problems in early stages when treatment or changes in personal habits can be most effective.

## Initial classification based on total cholesterol and HDL cholesterol

Cholesterol levels are measured in milligrams of cholesterol per deciliter of blood (mg/dL).

Total Cholesterol Level	Category
Less than 200 mg/dL	Desirable level that puts you at lower risk for heart disease. A cholesterol level of 200 mg/dL or higher raises your risk.
200 to 239 mg/dL	Borderline-high.
240 mg/dL and above	High blood cholesterol. A person with this level has more than twice the risk of coronary heart disease as someone whose cholesterol is below 200 mg/dL.

LDL ("bad") Cholesterol	Category
< 100 mg/dl	Optimal
100-129 mg/dl	Near optimal
130-158 mg/dl	Borderline high
160-189 mg/dl	High
>190 mg/dl	Very high

HDL ("good") Cholesterol	Category
Less than 40 mg/dL (men) Less than 50 mg/dL (women)	Low HDL cholesterol. A major risk factor for heart disease.
60 mg/dL and above	High HDL cholesterol. An HDL of 60 mg/dL and above is considered protective against heart disease.