

# Explanation of Blood Tests

## The Blood Tests

The following is a list of the tests performed, with some indication of their significance, and further guidance as to consulting your physician. Your test profile may or may not include all of the tests described here.

**GLUCOSE** is a measure of blood sugar and is one of the tests for diabetes. Glucose will often be high if you have eaten or had anything, other than water, to drink before your blood was drawn. If the value is more than 180 mg/dL you should consult your physician, even if you know you have diabetes. Low values may be a cause of weakness or dizziness.

**CHOLESTEROL AND TRIGLYCERIDES** are fatty substances in the blood which are evaluated together with the high density lipoprotein (HDL) cholesterol. The cholesterol to HDL ratio (Risk Ratio) gives a measure of your risk of coronary heart disease (CHD). Triglyceride values may be high if you have eaten within 12 hours of having blood drawn. You should consult your physician if the level is over 500 mg/dL. Low values of triglyceride or cholesterol are beneficial. Your results have been compared with normal values for your age and sex.

**HDL CHOLESTEROL** is the "good" cholesterol. Higher values mean less risk of CHD.

**TOTAL PROTEIN AND ALBUMIN AND GLOBULIN** measure the major proteins in your blood. Low values suggest poor nutrition or kidney disease. High total protein values may be seen in some diseases with an abnormal immune response, some tumors or dehydration.

**A/G RATIO** is a measure of the relative amounts of blood proteins.

**SODIUM, POTASSIUM, AND CHLORIDE** are electrolytes in the blood primarily controlled by the adrenals and kidneys. Abnormalities suggest dehydration, kidney disease, adrenal disease, vomiting, diarrhea, or some other metabolic disease. Abnormal potassium levels are significant. Patients taking diuretics (water pills) often get low potassium levels and should definitely contact their physician if the potassium is 3.3 mg/dL or less.

**CALCIUM AND PHOSPHORUS** are minerals in the blood controlled by the parathyroid glands and kidneys and are mainly involved in the bone formation. Calcium is affected by marked changes in the albumin. You should consult your physician for any elevated calcium, especially if associated with a low phosphorus.

**ASPARTATE AMINO TRANSFERASE (AST)** is an enzyme whose main sources are the liver, skeletal muscle and the heart. AST elevations are often seen in alcoholism. Mild elevations may be seen with aspirin usage. Low values are not of significance. You should consult your physician for elevations, or if more than one enzyme (AST, Alkaline Phosphatase or LDH) is elevated.

**ALANINE AMINOTRANSFERASE (ALT)** is also an enzyme found in a wide variety of tissues and organs with high activity localized in the liver. Elevations are associated with the liver disease, infectious mononucleosis, acute infarction, skeletal muscle disease, acute pancreatitis and patients receiving heparin therapy. Levels greater than 400 U/L are usually associated with liver disease or skeletal muscle injury.

**ALKALINE PHOSPHATASE** is an enzyme found in bone, liver, intestines and placenta. It is elevated in children, following

strenuous exercise, or when there is bone injury. It is characteristically high when there is obstruction of the flow of bile out of the liver. Low values are not of significance. You should consult your physician if significantly elevated, or if AST or LDH are also elevated.

**BILIRUBIN (TOTAL)** is a pigment formed from the breakdown of red blood cells, which is excreted by the liver. It may be elevated with increased red blood cell breakdown or liver damage. You should consult your physician for elevated values, especially if AST or Alkaline Phosphatase are also elevated. Low values are not of significance.

**CREATININE AND BLOOD UREA NITROGEN (BUN) AND BUN/CREATININE RATIO** are waste products primarily excreted by the kidneys. BUN may be slightly elevated in people on a high protein diet or having exercised heavily. Both tend to be elevated in kidney disease and if either are elevated, you should consult your physician. Low BUN values may be seen in liver disease. Minor abnormalities of BUN/creatinine ratio with normal BUN and Creatinine values are of no significance.

**URIC ACID** is a waste product excreted by the kidneys. High values are characteristic of gout, but may be seen in arthritis, kidney disease, and massive breakdown of cells in the body and should be elevated by your physician. Low values are probably not of significance.

**WHITE BLOOD CELL COUNT (WBC)** measures the number of white blood cells in the blood. The may be elevated in infection and leukemia and low in bone marrow damage due to chemicals, drugs, etc. You should consult your physician for abnormalities.

**MEAN CORPUSCULAR VOLUME (MCV)** is a measure of the size of the red blood cells. Small cells are seen in iron deficiency and some hereditary defects, both usually associated with anemia. Large cells are seen in the anemia due to some vitamin deficiencies and in the rapid replacement of red blood cells by the bone marrow. Both should be evaluated by your physician.

**MEAN CORPUSCULAR HEMOGLOBIN (MCH)** is a measure of the amount of hemoglobin in each cell and abnormalities will almost always be associated with other abnormal results.

**MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION (MCHC)** measures the concentration of hemoglobin in the red blood cells. It is low in iron deficiency and some other anemias. Abnormalities will almost always be associated with other abnormal results.

**PLATELETS** are part of the clotting process of blood. Low or high values should be interpreted by a physician.

**THYROID STIMULATING HORMONE (TSH)** is a hormone produced by the thyroid gland which functions to control the body's rate of metabolism. Abnormal levels of TSH may reflect thyroid malfunction and require further evaluation to determine whether a hypothyroid, hyperthyroid, or euthyroid (normal) state of the gland is occurring.

*Please Note*

*It is not possible to diagnose any disease or disorder with laboratory tests alone. Only with a complete patient history, physical examination and laboratory workup will your physician be able to make an accurate diagnosis.*

*"Lab Tests Online" is a very good public resource on clinical lab testing.*

## Your Test Results:

A series of blood chemistry tests and blood cell counts has been performed on your blood sample. The report of these test results shows you and your physician whether the results are normal or abnormal. Abnormalities of your test results might be due to several factors other than significant disease. For instance:

- You may have eaten something within 8 hours before your sample was obtained.
- You may be on some medication which affects some of the test results.

## Abnormal Results:

If you have not already done so, you should consider consulting your physician by telephone or in person for all results which are outside the normal range given. When you consult your physician, be sure to tell the physician all drugs, vitamins, pills, cough syrup or prescriptions that you have taken prior to the blood test.

