

Eosinophils - are a type of WBC found elevated in allergic conditions, skin problems, exposure to radiation and leukemia.

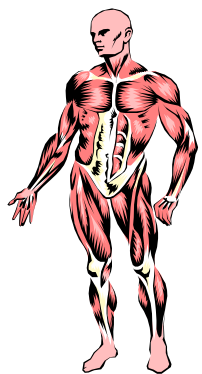
Basophils - are a type of WBC found elevated in intestinal infections, and Hodgkin's disease.

Hematocrit - is a measure of the volume of blood cells in whole blood. Lowered Hematocrit readings would be indicative of anemia. Increased levels may indicate dehydration.

Hemoglobin - Hgb. Is that portion of the red blood cell (erythrocyte) that is responsible for transporting of oxygen. Low Hgb should be indicative of anemia and fatigue.

MCV - Mean Corpuscular Volume is the measurement of the average amount of hemoglobin in a single red blood cell.

MCH - Mean Corpuscular Hemoglobin is the average measurement of the amount of hemoglobin in a single red blood cell.



MCHC - Mean Corpuscular Hemoglobin Concentration is the measurement of the proportion the hemoglobin occupies in the red blood cell.

Platelets - are fragments within the blood that are greatly involved in blood clotting and increased platelets would be seen during menstruation, hemorrhages, and an increased risk for heart disease.

Sedimentation Rate - (Sed. Rate) is the settling rate of the red blood

cells and high Sed. Rates are indicative of anemias, hemorrhage, rheumatic fever, heart attacks, malignancy, tuberculosis and inflammation problems.

Glycohemoglobin (Hemoglobin A1C) - is a measure of the glucose molecules that have attached to some of the hemoglobin molecules during the 120 day life span of the red blood cell. The more glucose present in the blood over an extended period of time, the higher the percentage of glycohemoglobin molecules. This is useful to monitor the long-term control of blood sugar in a patient.

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for an appointment



BLOOD CHEMISTRY TESTING for supplementation

What does it mean to your health?
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what supplements are best for you?



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Laboratory Testing

Today we hear a great deal about "high tech" or the use of high technology in most areas of society. In the fields of health care, the use of high technology is advancing rapidly. Today, many laboratory tests are performed by computers as well as technicians and this is good, however, the use of high technology often neglects the importance of informing the patient of the results and significance of the tests performed. This pamphlet is written to help you gain a greater understanding of the tests routinely performed on blood and urine.

Special note should be made that to varying degrees, laboratories performing blood and urine analysis may use different tests and/or different value measurements. We use 48 tests in our blood panel. You also need to realize that in some situations, one or more tests may indicate a higher or lower than normal value and that may not be indicative of any disease process within the person's body. Thus the best advice is to consult Dr. Lyden or another integrated healthcare physician and not draw any self-diagnosing conclusions on your own. Also, one test can often complement another. For example, IgG Food Sensitivity/Allergy Testing, Vitality & Longevity Assessment Test, Hair Mineral & Toxic Metal Analysis, all have specific values in properly analyzing one's health status and good comprehensive health care evaluation should consist of using tests that not only complement one another but aide in an integrated evaluation of your health.



BLOOD CHEMISTRY TESTS:

Albumin, Serum - is a blood protein and is not commonly found elevated in serum. Albumin is manufactured in the liver and greatly affects tissue fluid levels. Liver disease, dehydration, kidney disease, heart problems and malignancies within the body would be common causes of high serum albumin.

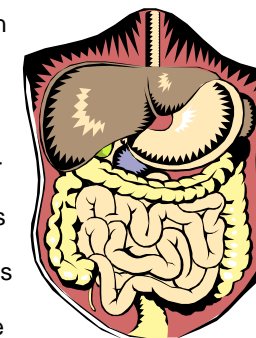
A/G Ratio - Albumin/globulin ratio is a measurement comparing the ratio between albumin and globulin, two major protein subdivisions in our blood. Globulin is related to gamma globulins which are associated with infectious diseases. Increased levels of gamma globu-

lins are related to antibodies. Hepatitis, cancer, leukemia and other infectious disease where large quantities of antibodies are fighting disease organisms will cause the gamma globulin and albumin/globulin ratio to be elevated.

Alkaline Phosphatase (bones) - is an enzyme that is produced by bone cells. Thus any condition wherein bone cell activity is elevated we could expect to see an increase in the alkaline phosphatase levels of the blood. The liver, placenta and intestines also produce small amounts of alkaline phosphatase. Common causes of increased levels of alkaline phosphatase are bone cancer, normal bone development in children, malnutrition, liver and lung problems, bone fractures, hyperparathyroidism and mononucleosis.

Amylase, serum (liver, pancreas) - serum amylase is an enzyme produced by the liver, pancreas, salivary glands and fallopian tubes. Its major role is in the digestion of starch and elevated serum levels of amylase would be indicative of possible problems in the pancreas, kidneys, intestines, liver, salivary glands and gall bladder. Often codeine, opiates and alcohol use will also elevate serum amylase.

Bilirubin, serum (liver) - is a pigment formed as a result of destruction of hemoglobin. Hemoglobin is the oxygen carrying portion of the red blood cells (erythrocytes). When hemoglobin is destroyed, it becomes component of bile called bilirubin. If the bilirubin is not excreted from the body, often the body turns jaundice and takes a golden yellow color in the skin. When hemoglobin is destroyed it normally occurs in the liver, spleen, and bone marrow and thus elevated serum bilirubin levels can be associated with liver, spleen and/or bone marrow problems.



BUN - Blood urea Nitrogen (metabolism, kidneys) - is produced in the liver and is the end product of protein metabolism. The kidneys are designed to excrete BUN and thus a common

cause of increased levels of BUN is kidney problems, starvation, stomach ulcers, high fevers, heart problems, malignancies, and diabetes mellitus.

BUN/Creatinine Ratio - Alteration in the ratio of these tests has been related to posterior pituitary/kidney dysfunction.

Calcium - is an inorganic mineral especially related to the health of bones, blood, skin, heart, teeth and functioning of the nervous system. Some possible causes of elevated blood calcium are high intakes of Vitamin D, hyperparathyroidism, bone cancers. Some possible causes of lowered blood calcium are Vitamin D deficiency, hypoparathyroidism, high fat intake, and inflammation of the pancreas.

Chloride (kidneys) - an important inorganic mineral related to the balancing of body fluids and electrolytes. Some possible causes of increased serum chlorides are dehydration, kidney failure and excessive chloride intake. Some possible causes of lowered serum chloride are diarrhea, vomiting, colitis, swelling and infections.

Cholesterol (fat metabolism) - is not a fat but rather an alcohol-sterol found in the blood and is needed in correct proportions for health. It is called a sterol and enters the body in certain foods or the body has the ability to produce cholesterol. The liver plays an important role in cholesterol as it can produce 80% of your cholesterol and it also stores and regulates cholesterol as the body needs it. Cholesterol is used by

the body in the production of hormones and bile acids for cell membranes.

Some common possible causes of increased serum cholesterol are obstruction of the common bile duct, diabetes mellitus, hypothyroidism, kidney problems, pregnancy, and where a person's pancreas has been surgically removed. Some common causes of a

lowered serum cholesterol are liver problems, anemia, malnutrition, intestinal absorption problems, and in persons taking cortisone.

Creatinine (muscle metabolism) - is related to muscle metabolism. Some common causes of an increased level of creatinine in the blood are starvation, diabetes mellitus, high fever rheumatoid arthritis, muscular dystrophy, hyperthyroidism and a diet high in beef.

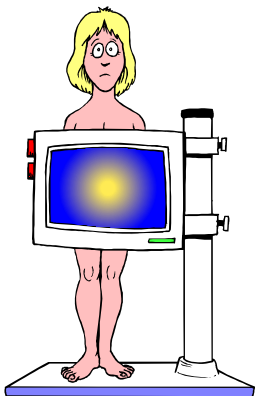
CO2 - Carbon dioxide as Bicarbonate (lungs) - is an end product of metabolism and is excreted by the lungs.

Ferritin - The best marker for iron status in the body. It differentiates between iron deficiency anemias (low ferritin) from anemias due to chronic diseases or inflammatory (swelling) disorders when elevated.

Globulin - An indicator of Immune System Function.

Glucose (pancreas, kidneys) - or blood sugar, is the body's principal fuel for metabolism. The pancreas, kidneys and liver are actively involved in controlling blood glucose levels. Some common causes of an increased

blood glucose or hyperglycemia are overweight, pancreatic infections, pituitary gland problems, excessive amounts of adrenalin administration, burns, shock, and stress. Some common causes of decreased blood glucose (hypoglycemia) are malnutrition, excessive amounts of insulin or insulin sensitivity problems, liver disease and pancreatic gland problems.



HDL (High Density Lipoprotein Cholesterol) - An indicator of how well the body utilizes fats. (Known as the "good" cholesterol.)

LDH - Lactate Dehydrogenase (heart, kidneys, liver) - is an enzyme closely related to the functioning of the heart, liver, kidneys, red blood cells and muscles. LDH is commonly increased in the serum when damage has occurred in any of these organs or tissues.

Magnesium - Alterations in serum levels of magnesium are good indicators of the body's ability to utilize both hormones and minerals, &/or the function of the heart muscle.

Phosphorus (bone metabolism) - is a vital inorganic element that is absorbed in the small intestine and stored in bones until it is needed in the metabolism of fats and carbohydrates. Some common causes of an increase in the serum phosphorus levels are excessive ingestion of Vitamin D, bone diseases, obstruction in the intestines, hypoparathyroidism and healing of bone fractures. Some common causes of lowered levels of serum phosphorus are diabetes mellitus, insufficient intake of Vitamin D, and high intake of fats.

Potassium - is an important inorganic element vital to the

functioning of the heart, brain, kidneys, circulation, bones, hair and muscles. Some common causes of an increase in serum potassium are poor lung function, kidney failure, and adrenal gland malfunctions. Some common causes of decreased serum potassium are starvation, the use of diuretics, stress, diarrhea and lack of proper absorption in the small intestine.

SGPT - Glutamic Pyruvic Transaminase (liver, kidneys) - is an enzyme that is found high in the serum in liver and kidney diseases.

SGOT - Glutamic Oxalacetic Transaminase (heart, kidneys, pancreas) - is an enzyme like SGPT and is related to metabolism and energy. It is found high in heart attacks, heart and pancreas problems as well as muscle disease.

Sodium - Alteration of this electrolyte is a good indicator of adrenal dysfunction and kidney function which in turn regulates fluid balance of the body.

T3, T4, T7, TSH (thyroid stimulating hormone) - are related to the functioning of the thyroid gland and are a major cause of fatigue.

Triglycerides (fat) - are blood fats or esters of glycol and like cholesterol are vital sources of energy for the body. Increased levels of triglycerides are often related to hypothyroidism and digestive enzyme deficiencies and especially the ingestion of refined carbohydrates which in turn is a precursor to LDL and triglycerides.

Total Iron - An indicator of tissue oxygenation and hemoglobin.

Total Protein - The serum levels of protein are good indicators of protein metabolism, and generally reparative ability of the body.

Uric Acid (kidney) - is an end product of purine metabolism. Purines are end products of nucleotides which are derived from the metabolism of protein. If high concentrations of uric acid accumulate, they form uric acid crystals which often end as painful deposits in the toes, heels, knees and fingers. This condition is commonly referred to as gouty arthritis. Thus often an effective way to reduce the serum level of uric acid is by lowering our intake of animal proteins.

HEMAGRAM (CBC) ANALYSIS:

CBC w/ Diff - means a Complete Blood Count with a count of the different types of white blood cells.

WBC - White Blood Cells (leukocytes) are the normal

blood cells that fight infectious attacks on the body. Thus increased counts of WBC's would be indicative of some form of infection within the body.



RBC - Red Blood Cells (Erythrocytes) are the cells that carry oxygen to the body. Certainly if something interferes with the needed quantity of red blood cells, the body will suffer. Anemia is a situation wherein something is causing a loss of the needed number of RBC's and some of the other blood tests can assist in determining the cause of loss or change in the RBC's.

Neutrophils (PMN's) - are a type of WBC found elevated in infections, the cancer leukemia, hemorrhages and poisonings.

Lymphocytes - are the type of WBC that makes antibodies and are found elevated in infections as over-all defenders against disease. Unlike Neutrophils, Eosinophils and Basophils, Lymphocytes are manufactured in the spleen, tonsils and lymph nodes. Lymphocytes would also be in higher concentrations during liver infections, shingles, syphilis, mononucleosis, and Herpes Simplex.

Monocytes - are found elevated in several diseases including Malaria, Typhoid Fever, Mononucleosis, Hodgkin's Disease. →

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