# GENERAL HEALTH PROFILE

*This information is provided for informational purposes only and is not intended to diagnosis, treat, cure, or prevent disease. Abnormal test values falling outside the Normal Range will be printed in bold and noted in the "Flag" column. Abnormal values should be reviewed by your primary physician and a copy of all testing should be included in your medical record for future reference and comparison.*

## Comprehensive Metabolic Panel - *Extensive panel of 14 tests checking current status of your kidneys, liver, electrolytes, blood sugar & blood proteins.*

***Glucose*** - the most common form of sugar in the body. Blood levels of glucose are controlled by insulin, a hormone which is produced by the pancreas. Low glucose levels are usually seen in fasting and starvation states and are characterized by weakness, dizziness, nausea, and sweating. An abnormally high glucose level is indicative of diabetes, but can also be caused by other disorders and diseases. Symptoms associated with high glucose levels include urinating more frequently than normal, constant hunger, and an unquenchable thirst.

***BUN( Blood Urea Nitrogen)*** - This metabolic by-product results from the breakdown of proteins and is normally eliminated by the kidneys. This test is an indirect measurement of kidney function, and high levels of BUN are found in kidney failure or severe dehydration.

***Creatinine*** - a by-product of skeletal muscle metabolism that is eliminated by the kidneys and is a direct measure of kidney function. High values indicate chronic or acute kidney disease.

***Sodium*** - in nature combines with chloride to form salt; in the body is essential for proper water balance, as well as nerve and muscle function. The level of water in the body is regulated through complex mechanisms which sense the sodium concentration in blood as it flows through the kidneys. High or low values of sodium may indicate kidney dysfunction or reflect dietary habits.

***Potassium -*** is the major ion found within the body's cells, and is essential for creating and maintaining electrical fields across cell membranes in muscle, nerve, and heart tissue which allow these organs to function properly. Low values often lead to muscle cramps (also called a "Charlie horse"), and extremely high values can be deadly.

***Chloride*** - in nature this ion combines with sodium to form salt; in the body, chloride helps to control blood acidity and the electrical activity of nerves and muscles. Abnormal levels are found in kidney disease.

***Carbon Dioxide, Total*** - Also known as bicarbonate or CO2. Carbon Dioxide is responsible for maintaining the blood acid-base (pH) balance within its normal range.

***Calcium*** - Essential for the development and maintenance of bones and teeth, calcium also plays a vital role in muscle contraction and the heart. Abnormally high values may result from disorders of the parathyroid glands or bone diseases.

***Protein, Total*** - this reflects an estimate of the total amount of albumin and other proteins found in the blood. Corresponds with the general nutritional state of the body.

***Albumin -*** produced by the liver, albumin is the most numerous of the proteins found in blood and plays a large role in fluid balance within the bloodstream. Levels of albumin correspond to the general nutritional state of the body, and are also decreased in liver disease. Low levels of albumin may cause fluid retention in the soft tissues (edema).

***Globulin*** - this test measures many types of different proteins that can be separated into alpha, beta, and gamma types. Some globulins are formed by the liver while others are formed by the immune system, such as antibodies or immunoglobulins. Globulins also perform many other functions such as binding with hemoglobin or transporting iron and other metal ions.

***Albumin to Globulin (A/G) Ratio*** - abnormal values are used to help differentiate broad categories of potential disorders. For example, a decreased ratio indicates a rise in serum globulins produced by such diseases as multiple myeloma, leukemia, rheumatoid arthritis, systemic lupus erythematosus, or others. A larger than normal ratio resulting from increased albumin levels can indicate severe dehydration.

***Bilirubin, Total*** - a brown-yellowish pigment found in bile which results from the metabolic breakdown of hemoglobin in the liver. Bilirubin gives stool its color. Elevated levels are characterized by jaundice and may indicate liver disease, blood disorders, or gallbladder dysfunction.

***Alkaline Phosphatase*** - is an enzyme found in two main subtypes: one that is produced by the bones and the other which is produced by the liver. High levels are normally found in children whose bones are growing, but in adults the same levels may indicate liver disease.

***AST (Asparagine Aminotransferase)*** - another enzyme found chiefly in the liver. Abnormally high levels of AST are found in liver diseases such as cirrhosis and hepatitis.

***ALT (Alanine Aminotransferase)*** - a specialized protein called an enzyme which is found mainly in the liver and the kidneys. Low levels of ALT are normally found in the blood, but when the liver is damaged ALT levels in the bloodstream rise. This test is a sensitive indicator of liver disease, especially damage caused by alcohol and other drugs.

## Lipids (Cholesterol)

Measures the amount of fats (or lipids) in the blood. Abnormal results are correlated to an increased risk of coronary artery disease, heart attack, and stroke. This test series is excellent for monitoring improvement in cholesterol levels with diet and exercise.

***Cholesterol, Total*** - is a very important lipid which is used to build cell membranes and also serves as a precursor molecule for all of the steroid hormones made in the body. Although cholesterol is produced by the body, most of it comes from dietary sources.

***Triglycerides*** - measures the concentration of fat molecules in the blood stream. Although triglycerides are the body's primary source of stored energy, high levels lead to fatty deposits and plaque formation in the walls of arteries (so-called "hardening of the arteries" or atherosclerosis).

***HDL (High Density Lipoprotein) Cholesterol*** - the "good" cholesterol, helps remove bad (LDL) cholesterol from the body by binding with it in the bloodstream and carrying it back to the liver for disposal. A high level of HDL cholesterol is associated with a lower risk of developing heart disease and stroke.

***VLDL (Very Low Density Lipoprotein) Cholesterol*** - the "very bad" cholesterol. Elevations of VLDL in the bloodstream are associated with an increased risk of atherosclerosis and coronary artery disease.

***LDL (Low Density Lipoprotein) Cholesterol*** - sometimes called "bad" cholesterol, this molecule collects inside the walls of the arteries and often contributes to the formation of plaque. The higher the LDL concentration, the greater the risk of developing coronary heart disease. This value is calculated by taking the total cholesterol and subtracting the HDL component and a fraction of the triglycerides; if the triglycerides are too high then an accurate LDL value cannot be estimated. In these cases a follow-up VAP Cholesterol Profile is recommended.

***TC/HDL Ratio*** - Your TC/HDL Ratio is your total cholesterol divided by your HDL cholesterol. Some health care professionals may use this ratio to assess risk for developing heart disease. Lower ratios are associated with lower risk.

## Thyroid Stimulating Hormone (TSH)

***Measures the hormones produced by the thyroid gland which is crucial in regulating many bodily functions, including basic metabolism.***

**TSH (Thyroid Stimulating Hormone)** - Hormone produced by the pituitary gland. "Tells" the thyroid gland how much thyroid hormone is needed by the body at any given time. Abnormally high levels indicate a low- or non-responsive thyroid.

Thyroid disease is broadly classified into two types: **Hypothyroidism** resulting from too little circulating thyroid hormones and characterized by fatigue, weight gain, constipation, depression, hair loss, and mental or memory impairment; **Hyperthyroidism** resulting from too much thyroid hormone causing nervousness, irritability, weight loss, frequency of bowel movement, impaired fertility, fatigue, muscle weakness, poor appetite, and menstrual disturbances.

## Complete Blood Count (CBC)

This panel quantifies the amount and volume of red blood cells as well as the number of white blood cells and platelets. Also provides information on various types of blood and bone marrow disorders such as anemia, leukemia, and bleeding problems. This panel is composed of the following subtests:

***WBC (White Blood Cell) count -*** White blood cells destroy bacterial, viral, and other infectious organisms by multiplying and engulfing the offending agents. High concentrations of WBC's (20,000 or greater) are indicative of acute infection or leukemia; low WBC counts are seen in advanced infections and AIDS.

***RBC (Red Blood Cell) count -*** red blood cells contain hemoglobin and are responsible for transporting oxygen to the body tissues.

***HGB (Hemoglobin)-*** a pigment molecule which contains iron atoms and is responsible for giving blood its' red color. Hemoglobin binds oxygen molecules in the lungs and then distributes them to the cells throughout the body.

***HCT (Hematocrit)-*** a ratio of the cellular portion of blood to the fluid portion, or plasma. The plasma carries proteins, clotting factors, and many other molecules such as nutrients and metabolic waste byproducts.

***MCV, MCH, MCHC*** - also known as red blood cell indices. These measurements reflect the average red blood cell volume, and the concentration of hemoglobin contained in each. Abnormalities reflect abnormally large or small red blood cells and can be produced by various nutritional deficiencies and disease states.

***RDW (Red Cell Distribution Width)*** - calculates the variation in size from the biggest red blood cell to the smallest red blood cell measured. High RDW's are found in certain types of anemias.

***Platelet count*** - tiny cell fragments in the blood that clump together to produce a blood clot when exposed to certain molecules, damaged arterial walls, or cholesterol plaque buildup. Low platelet counts can cause bleeding disorders.