LABORATORY EXPLANATIONS TO BE USED WITH YOUR ACCOMPANYING TEST RESULTS

Healthwaves Corporate Wellness Team

Wellness Screenings

Abnormal results should be reviewed by your personal physician.

SMAC (Chem Panel)

ABOUT THESE LABORATORY EXPLANATIONS:

Test Results and Reference Ranges: The reference ranges on your Laboratory report reflect the age and sex information you provided. Blood test results are known to fluctuate from day to day. This results from changes in the individual and from laboratory variation. As a result of this, a test may be outside the reference range (abnormal) at one time and not another. If you are concerned about those results outside normal reference ranges, please contact your physician. Interpretation by your physician is vital in the assessment of all laboratory data based on individual variation. If there were no test results outside the reference range, all your test results were considered "Normal" for your age and sex.

AN IMPORTANT NOTE...

It is important that you realize that it is not possible to diagnose or define any disease or problem with one blood test alone. The program was designed as a screening only; we make every effort to supply you with appropriate but general health information and rely on your good judgement and conscientious attention to follow-up with a physician as recommended for any abnormal results. As always, if you are not feeling well you should consult with your family doctor. Laboratory screening cannot detect every health problem, and is not a substitute for a checkup by your family physician. The test(s) you ordered may not contain all of the items listed here.

Please keep a copy of these tests with any other information pertaining to your health. You may be able to use this report for a baseline for comparing future laboratory tests.

GLUCOSE (BLOOD SUGAR) This is a screen for diabetes and other possible conditions. Glucose is the chief source of energy for all living organisms. A high blood glucose, in someone who has fasted for 8 hours, can suggest diabetes, and the doctor may wish to do some further testing. A low glucose level may mean too much insulin in your blood or hypoglycemia. There can be numerous causes of abnormal glucose levels and abnormal results should be discussed with your physician.

FRUCTOSAMINE (replaces pbg) This test helps confirm the glucose result you have today. Fructosamine reflects time-integrated glucose concentrations over a 2 to 4 week period, while the old PBG test reflected concentrations over 7 to 15 days. The combination of the Fructosamine result and the glucose result provide a better indicator of your body's glucose metabolism than either test alone.

UREA NITROGEN (BUN) BUN is a waste product derived from protein breakdown and is excreted by the kidneys. High levels of BUN can result from a poorly functioning kidney, dehydration, or blood loss. A low BUN level may be caused by liver disease, a low protein diet, or too much water intake.

CREATININE The blood concentration of creatinine depends upon the amount of muscle that you have and the ability of your kidneys to excrete the creatinine. High levels of creatinine usually indicate a deterioration in kidney function.

GFR ESTIMATED (GLOMERULAR FILTRATION RATE) GFR is a measure of how well your kidneys filter wastes from your blood. The wastes in your blood come from the normal breakdown of tissues and from foods/beverages you consume. Waste in your body is sent in the blood, to your kidneys, where it is excreted into the urine. If your kidneys do not remove these wastes, they build up in your blood and can become toxic to your body. The average GFR decreases with age, however, a value below 60 can suggest possible kidney damage. Other conditions that alter GFR include high protein (albumin) in your urine, diabetes mellitus, and high blood pressure. Please consult your doctor if your GFR is out of range.

BUN/CREATININE RATIO This ratio aids a doctor in determining if the high BUN level is caused by a kidney problem or, alternatively, from blood loss into the gut.

URIC ACID Uric Acid is the end product of the breakdown of purines in your body. Purines are an important component of proteins. High levels of uric acid may cause gout or kidney stones. The level of uric acid in the blood is affected by a diet rich in purines such as red meat. Also, stress, alcohol, and certain diuretics may raise the level.

SODIUM This electrolyte plays an important role in salt and water balance in your body. A low level in the blood can be caused by too much water intake, heart failure, or kidney failure. A low level can also be caused by loss of sodium in diarrhea, fluid or vomit. A high level can be caused by too much intake of salt or not enough intake of water..

CHLORIDE Is usually associated with a high or low level of sodium or potassium. See sodium explanation.

CALCIUM Calcium is one of the most important elements in the body. Low levels of calcium are associated with malnutrition. High levels can be caused by bone disease, excess intake of antacids and milk (this is often seen in people with ulcers), excess intake of vitamin D, and hyperparathyroidism. The parathyroid gland is the main regulator of calcium in the body.

PHOSPHORUS/PHOSPHATE Phosphorus is closely associated with calcium in bone development and is primarily important for muscle and nerve function. Very low levels of phosphate in the blood can be associated with starvation or malnutrition and can lead to muscle weakness. High levels are usually associated with kidney disease.

LABORATORY EXPLANATIONS TO BE USED WITH YOUR ACCOMPANYING TEST RESULTS

CHOLESTEROL (TOTAL) This is a blood fat shown to be associated with an increased probability of heart disease in some people. Total cholesterol values can vary substantially due to natural biological variation of cholesterol in the person tested and analytical variability of laboratory instrumentation. Analysis of the different types of cholesterol (HDL, LDL) and/or a repeat test is usually necessary for accurate cholesterol determination. Desirable level: less than 200 mg/dL. Borderline: 200–239 mg/dL. High risk: 240 mg/dL or greater.

TRIGLYCERIDES This is another of the blood fats and is also thought to be associated with an increased probability of heart disease. This test also, if abnormal, should be discussed with your physician. This may also be elevated in the 200–600 range due to eating within 8 hours of blood drawing. If you were not fasting and your result is in this range, a repeated fasting evaluation should be obtained.

HDL CHOLESTEROL High density lipoprotein (HDL) cholesterol is the "good" cholesterol. One of the important roles of HDL cholesterol in your body is to carry cholesterol away from your arteries to your liver. The more HDL cholesterol you have, the more cholesterol can be carried away and not clog your arteries.

TOTAL CHOLESTEROL/HDL RATIO This number is obtained by comparing the total cholesterol level to the HDL cholesterol level. The higher this number, the greater the risk of coronary heart disease. A high HDL cholesterol will result in a lower ratio, which means a lower risk. This could be true even if the total cholesterol level may be high. It is this ratio that appears to best measure the lipid associated risk of developing coronary heart disease.

LDL CHOLESTEROL Low density lipoprotein (LDL) cholesterol is the "bad" cholesterol. It is related to your intake of fats and cholesterol and is thought to be a contributor to atherosclerosis.

NON-HDL CHOLESTEROL Is a new parameter to the lipid profile. It is a secondary lipid-lowering target for patients with high triglycerides (≥ 200 mg/dl).

VLDL CHOLESTEROL Little is known about this type of cholesterol (Very Low Density Lipoproteins) which helps carry other types of blood fats.

Liver Enzymes

Elevations of the following liver enzymes are common and can result from excessive consumption of alcohol, some medications, or fatty infiltration of the liver due to diabetes or obesity.

ALKALINE PHOSPHATASE Elevations in this value are indicative of possible liver, bile duct, or bone disorders. Values are always elevated in adolescence when bones are still actively growing.

GGT This enzyme is found primarily in the liver. Elevations are frequently seen from excessive alcohol consumption, certain medications, liver disease, and bile duct disease.

ALT (SGPT) This is another test of liver function. Elevations should be discussed with your physician and confirmed with a second blood test.

AST (SGOT) This test, if elevated, may indicate possible liver disease, heart or muscle disease. Recent vigorous exercise can elevate it. Your physician should be consulted.

LACTIC DEHYDROGENASE (LDH) LDH is an enzyme found in all tissues of the body so that a high level in the blood can result from a number of different diseases. Slightly elevated levels in the blood are common and usually do not indicate disease. The most common sources of LDH are the heart, liver, muscles, and red blood cells.

TOTAL/DIRECT BILIRUBIN Bilirubin is the pigment in the blood that makes the plasma or serum part of your blood yellow. Bilirubin comes from the breakdown of old red cells in the blood. A high bilirubin level in the blood can be caused by too many red cells being destroyed (hemolysis), by liver disease, or by a blockage of bile ducts. Prolonged or continuing high levels of bilirubin result in jaundice, characterized by a yellowing of the whites of the eyes and skin. Direct bilirubin is a specific form of bilirubin that is normally not found in the blood. However, in liver disease, some of the direct bilirubin leaks into the blood. Therefore, even a slightly high level of direct bilirubin indicates a problem with the liver cells.

Nutrition and Iron

TOTAL PROTEIN Mainly made up of albumin and globulins, a low total protein count may suggest liver disease, while elevated levels are seen in dehydration, chronic infections, and some cancers.

ALBUMIN Albumin composes ⅔ of the total protein in the blood and functions to keep water inside the blood vessels. Low levels result from malnutrition, too much water in the body, liver disease, kidney disease, severe injuries such as burns or major fractures, and slow bleeding over a long period of time.

GLOBULIN Globulin works to fight infections by aiding in the blood clotting and unclotting processes. If your globulin level is abnormal, please consult your physician for further testing of individual proteins.

ALB/GLOB RATIO This ratio compares the level of albumin to the level of globulin in your blood. Results should always be more than 1.0. Less than 1.0 may be indicative of liver disease and should be discussed with your physician.

IRON The body must have iron to make hemoglobin and to help transfer oxygen to the muscles. Iron, if low, may be helpful in explaining the presence of anemia. An excess of iron can cause injury to various organs and joints.

TOTAL IRON BINDING CAPACITY (TIBC) Iron is transported in your blood bound to a protein called transferrin. Transferrin transports the iron in your body from the iron storage sites to where it is needed. A low TIBC suggests malnutrition or iron excess. A high TIBC suggests iron deficiency because the iron is not attaching to the transferrin.

TRANSFERRIN % SATURATION This percent is obtained by comparing the iron level to the TIBC level. It is a simple way to compare the amount of iron in the blood to the capacity of the blood to transport iron.

Screenings provided by: Healthwaves 444™ Corporate Wellness Team

www.healthwaves.com | 480.968.1886

IMPORTANT: These are screening tests only and values can fluctuate from day to day. This is not a substitute for a checkup by your family physician. We make every effort to supply you with appropriate, but general health information and rely on your good judgement to follow-up with a physician as recommended for any abnormal results.