

WELLNESS SCREEN LAB RESULT EXPLANATION

These screenings are intended to provide information to be used by health care professionals to detect potential problems and help make you more aware of your health. If, after reading this pamphlet, you still have questions concerning your blood chemistry results, please call your personal health care professional.

YOUR BLOOD TESTS

You and your doctor can learn a great deal about your health from a sample of your blood. Sometimes test results will be abnormal before you have any symptoms. If symptoms have developed, laboratory tests help confirm that a problem does exist. A normal test result is just as significant as an abnormal result. When a result is normal, it not only helps you rule out disease, but it also establishes a baseline for you. Each person has their own baseline "normal". A person's own results are the best baseline for monitoring any change that takes place in the future. If any of your values are significantly different than previous results, contact your health care professional.

MEDICATIONS AND FASTING

Non-prescription drugs (aspirin, cold medications, vitamins, etc), prescription drugs, alcohol consumption and your fasting time may affect blood chemistry screening results.

A 12-hour fast is recommended for the most accurate results, to allow your provider to effectively evaluate your health status.



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GLUCOSE is the main source of energy for all living organisms. A high blood glucose (hyperglycemia) in someone who has fasted for 12 hours suggests diabetes, and your provider may wish to do further testing. A low glucose level (hypoglycemia) may mean too much insulin in your blood, or it may mean that the blood specimen was damaged* before testing. *(See hemolysis footnote)

BUN (BLOOD UREA NITROGEN) is a waste product derived from protein breakdown in the liver, and is excreted by the kidneys. When your kidneys are not working well, the level of BUN in your blood will rise. Dehydration, blood loss, high protein diets, and/or strenuous exercise may also cause a high BUN level. A low BUN level may be the result of liver damage, a low protein diet, pregnancy, or drinking too much water.



CREATININE is a waste product by which muscle metabolism is measured. The blood concentration of creatinine depends on the amount of muscle you have and the ability of your kidneys to excrete creatinine. Creatinine is not affected by the protein you consume. High levels in the blood usually indicate decrease in kidney function. High values require evaluation by your health care provider, especially when associated with high BUN results. Low values are not generally considered significant.

BUN/CREATININE RATIO is a calculation determined by comparing the BUN level and creatinine level. Using this calculation, your provider can determine if a high BUN level is caused by kidney damage, dehydration, or gastrointestinal bleeding.



CALCIUM is one of the most important elements in the body. 99% of the calcium in your body is contained in your bones – only 1% is outside. However, that 1% is very important for proper functioning of nerves, enzymes, muscles, and blood clotting. The parathyroid gland (parathyroid stimulating hormone/PTH) is the main regulator of calcium in the body. Low levels of calcium in the blood are associated with malnutrition. High levels can be caused by bone disease, excessive use of antacids and milk, vitamin D overdosing, and hyperparathyroidism.

CHLORIDE is an electrolyte, or a mineral that carries an electrical charge when dissolved in a liquid. The electrolytes in your blood help to control nerve and muscle function, and to maintain the pH of your blood and your water balance. Together, measurement of electrolytes can help diagnose or monitor certain medical conditions including kidney disease, heart failure, liver disease, and high blood pressure.



SODIUM is an electrolyte utilized by the kidneys and adrenal glands. This element plays an important role in the salt and water balance in your body. A low level in the blood can be caused by ingesting too much water, heart failure, kidney failure, or loss of sodium in diarrhea, urine, or vomit. A high level can be caused by an excess intake of salt or an insufficient intake of water. Any values outside the specified reference range should be evaluated by your health care professional.

TOTAL CO² is an electrolyte produced by the body as a byproduct of cellular processes, and is exhaled out while breathing. It also works with other electrolytes (sodium, potassium, and chloride) to maintain electrical neutrality at the cellular level. Dehydration can cause high levels of CO². Electrolytes are an important part of the way your body regulates its fluid balance and pH.

POTASSIUM is an electrolyte found primarily inside cells, helping to maintain water balance inside the cells and help in the transmission of nerve impulses. Low or high levels in the blood are of critical significance. Low levels may be found in patients taking water pills. A low potassium level can cause muscle weakness and heart problems. A high potassium level can be found in kidney disease or in overuse of potassium supplements, or it may mean that the blood specimen was damaged* before testing. Some 'salt' substitutes contain potassium instead of sodium, and excessive use of these substitutes can cause high levels of potassium in the blood. *(See hemolysis footnote).

TOTAL PROTEIN is a measure of the total amount of protein in your blood. A low or high protein level does not indicate a specific disease, but it does mean that some additional tests may be indicated to determine if there is a problem.

URIC ACID is the end product of the breakdown of purines in the body. Purines are an important component of proteins. A high level of uric acid in your blood may cause gouty arthritis or kidney stones. The level of uric acid in the blood is affected by a diet rich in purines – food such as kidney, liver, pancreas, and sweetbreads. Stress, alcohol, and certain diuretics may raise the level. High levels should be evaluated by your health care professional. Low levels are not generally considered significant.



ALBUMIN is an important protein which keeps water inside your blood vessels. Approximately two-thirds of the total protein circulating in your blood is albumin. When your albumin level is too low, water can leak into other parts of your body and cause swelling. A low level of albumin in the blood may indicate malnutrition, too much water in the body, liver disease, kidney disease, severe injury or major bone fractures, or slow bleeding over a long period of time.

GLOBULIN is a group of around 60 proteins in your blood that help to fight infections, and some play an important role in blood clotting. Low levels of globulin may also indicate liver issues. If your globulin level is abnormal, your provider may want to measure some of the individual proteins that make up this group.



ALBUMIN/GLOBULIN RATIO is a calculation of albumin to globulin in your blood. If both albumin and globulin results fall within the specified reference range, then a high or low A/G ratio result is not generally considered significant.

TOTAL BILIRUBIN is the pigment in the blood that makes the plasma part of your blood yellow. When the bilirubin level in your blood is very high, the whites of your eyes and skin may become yellow – this is known as jaundice. Bilirubin comes from the breakdown of old red cells in your blood. A high bilirubin level can be caused by red blood cells destruction, liver disease, or by a blockage of the bile ducts.

ALKALINE PHOSPHATASE is an enzyme** that is found in all body tissues, but the most important sites are bone, liver, bile ducts, and intestinal tract. A high level of alkaline phosphatase in your blood may indicate bone, liver, or bile duct disease. Certain drugs may also cause increased levels. Growing children (because of bone growth) normally have higher levels than adults. Low levels are not generally considered significant. **(See enzyme footnote)

Why are my electrolyte levels high?

Your electrolytes include sodium, potassium, chloride, and CO². These levels fluctuate throughout the day, depending on your activity level, hydration, and metabolism. Slightly high or low values are generally not cause for concern, unless they persist over several days. This is why establishing a baseline is important in evaluating significant changes in your results.

ASPARATE/ALANINE AMINOTRANSAMINASE

(AST/ALT) are enzymes found mainly in the liver. Damage from alcohol, strenuous activity, and a number of diseases can cause high values for both AST (SGOT) and ALT (SGPT), and should be evaluated by your health care professional. Low values are not generally considered significant.

IRON is required for the body to make hemoglobin and to help transfer oxygen to the muscles around the body. If the body is low in iron, all cells, particularly muscles in adults and brain cells in children, do not function well. Too much iron in the body can cause injury to the heart, pancreas, and reproductive organs. Iron excess is found in the hereditary disease hemochromatosis, which occurs in about 3 in every 1,000 people. Any value outside the specified reference range should be evaluated by your health care professional.



IRON SATURATION % refers to the amount of iron present in the blood. Iron is vital for muscle metabolism and oxygen transport. Iron binds in the blood to a protein called transferrin, and then iron is transported throughout the body.

TOTAL IRON BINDING CAPACITY (TIBC) measures how well iron is able to be transported throughout the body by the carrier protein, transferrin. This test is reflective of your body's iron storage capability, and the amount of transferrin available to transport iron in the body. A low TIBC will prevent adequate usage of iron in the body, even if iron levels are within range.

FERRITIN is used as an aid in the distinction of iron deficiency anemia from other types of anemia. Serum ferritin levels are generally proportional to the body's iron store and reflects cellular iron stores. Serum ferritin is the best single test for diagnosis of iron deficiency. It is also used to support diagnosis and to follow therapy of patients with hemochromatosis. *Ferritin is available in the Wellness Panel as a reflex test, and will be performed only if iron levels are significantly high or low.*

I'm concerned about my liver function, which results should I pay attention to?

Liver disease is indicated through several chemistry panel results including: **TOTAL BILIRUBIN, ALK PHOS., GLOBULIN, AST, and ALT.**

Refraining from alcohol consumption and certain drugs can improve liver function. Concerns with results should be discussed with your physician to determine if there are any lifestyle changes needed to address possible liver issues as they arise.

YOUR SCREENING RESULTS

IT IS NOT POSSIBLE TO DIAGNOSE OR TREAT ANY DISEASE OR HEALTH PROBLEMS WITH THIS BLOOD SCREEN ALONE.

It can help you learn more about your body and detect potential problems in early stages when treatment or changes in personal health habits can be most effective.

Screening results that fall outside of Sheridan Memorial Hospital's reference range (range of expected screening values) are separated out from the rest of the results to highlight them. They are printed with an **H (high)** or **L (low)** on the report. The reference range for each test is listed on the right side of your blood report, or by clicking the result value in your Patient Portal. High or low values may indicate:

- Inaccurate results if not fasting for at least 12 hours
- An issue or difficulty during your blood draw, which damages cells*
- Possible problems needing medical evaluation

* Hemolysis is the breakdown of red blood cells. This can be caused by injury or damage to the cells when the blood is drawn, or if the sample is not centrifuged properly. Any damage to red blood cells will increase the amount of certain chemicals present in the blood and may result in falsely elevated levels.

** An enzyme is a catalyst that is needed for a specific chemical reaction to take place in your body.