



TMO MEDICAL, PC

YJH MEDICAL, PC

Todd M. Orszulak, D.O.

Yahya J. Hashmi, M.D.

Maureen L. Westgarth, FNP-BC

4515 Military Road, Niagara Falls, New York 14305

236-7880 phone

236-7885 fax

Explanation of Lab Results

****As you review your test results you may have some questions, please feel free to send us an email. This document is a reference tool to help you better understand your lab results & not to be used for diagnosis****

CBC: complete blood count, composed of the following:

White Blood Cells: Infection fighting cells. They can be low or high due to infection & other diseases.

Red Blood Cells: Cells that transport oxygen throughout our body. If you are regularly low you may have anemia.

Hemoglobin: Protein that is responsible in helping the red blood cell transport oxygen throughout the body. It is the key indicator of anemia.

Hematocrit: Is the ratio of red blood cells to the volume of blood, another indicator of anemia.

MCV: Can help to determine if there is an iron deficiency or other vitamin deficiencies.

MCH: The average mass of hemoglobin per red blood cell.

Platelets: Help to prevent bleeding.

Bands: Immature white blood cells that fight bacterial infections. However, it is not normal to see a high level of bands.

Neutrophils: Type of white blood cells that fight bacterial infection.



Lymphocytes: Part of your white blood cells that fight viral infections.

Monocytes: Portions of broken down white blood cells, showing resolving infections.

Eosinophil: Part of the white blood cells that generally occur in allergic reactions.

Basophils: Part of your white blood cells involving allergic reactions.

CMP: comprehensive metabolic panel, composed of the following:

Glucose: Also known as blood sugar, we monitor this level fasting & non-fasting. It helps us to determine if further testing is needed to diagnose diabetes.

Urea Nitrogen: Related to kidney function and can be elevated if a patient is mildly dehydrated or because of muscle break down from aggressive exercise habits.

Creatinine: Related to kidney function. Some prescription medications or over the counter creatinine supplements can increase this reading.

Sodium: The concentration of salt in the body. This number can be mildly high & related to dehydration or the use of diuretics.

Potassium: An electrolyte that can cause muscle cramping or heart problems. The numbers may be low with the use of diuretics, it can be high related to other prescription medications.

Chloride: An electrolyte that may be high related to dehydration.

CO₂: An acid/base balance in the body, mild abnormalities are not of concern as it may represent a dehydration or starvation state when the blood was drawn.

Anion Gap: It is the difference of sodium & potassium, it is only of concern if the CO₂ is significantly abnormal.

Calcium: Not related to dietary calcium (calcium you eat), it is related to the parathyroid function.

Total Protein: Protein within the body. Elevated levels can be the body's immune response & further lab testing may be needed.

Albumin: Protein in the body. Reflects overall nutritional status.

AST: A liver function test.



ALT: A liver function test.

Alk Phosphate: A liver function. Elevation can indicate liver injury or obstruction of bile flow.

Total Bilirubin: A liver function. Elevation can indicate liver injury or obstruction of bile flow. A chronic mild elevation is not of concern.

GFR: Kidney function, also known as glomerular filtration rate and is used to stage chronic kidney disease.

Lipid Panel: Cholesterol is the measure of cardiac & stroke risk which measures total cholesterol and provides readings broken down into 3 subgroups: LDL, HDL, Triglycerides.

LDL: Also known as “Bad Cholesterol” and our goals depend on your cardiac risk factors. If you are a diabetic or have known heart disease we would like your cholesterol to be less than or equal to 70, otherwise we like to see LDL cholesterol less than 100 on average. Following a low fat/low cholesterol diet on a regular basis & cardiovascular exercise 30 minutes a day 3-4 days a week can help to keep your LDL cholesterol down.

HDL: Also known as “Good Cholesterol” and our goal is over 45. Research does show that high HDL is heart protective, especially if your number is over 60. HDL can be increased by aerobic exercise & maintaining a healthy body weight.

Triglycerides: Are mainly composed of natural fats & oils in the blood. They are easily affected by lifestyle changes such as diet, exercise & weight loss. When triglycerides are over 150, there is a higher risk for a patient developing heart disease & stroke.

Thyroid Panel: This is the measure of thyroid function.

TSH (thyroid stimulation hormone): Indicates thyroid function. It is a pituitary hormone that stimulates the thyroid gland to produce T4 which stimulates the metabolism of T3 which then stimulates metabolism in almost every tissue of the body.

T4 (Thyroxine): A hormone produced by the thyroid gland.

PSA: Known as the prostate specific antigen and is a screening test for prostate cancer. An abnormal number is above 4.0, but smaller increases can be of concern as well. There are many different guidelines on PSA screening, including whether it should be done at all. We screen all male adults ages 40 years to 75 years annually.



Vitamin D: An important vitamin necessary for bone strength. Low levels may cause fatigue, can be improved by a prescription or over the counter supplement which can be determined by your provider.

Total Testosterone: The main sex hormone in males, blood test can help to determine low levels of the hormone in patients with complaints of fatigue, poor energy or sexual dysfunction.

CK or CPK: A muscle enzyme that is monitored when on certain cholesterol medications. Mild elevations may be related to good exercise habits, muscle break down or chronic inflammation in the muscles.

ESR: Also called a sed rate. If elevated it may represent chronic inflammation or infection.

Magnesium: An electrolyte that can be related to muscle cramping or abnormal heart rhythm.

Amylase: A pancreatic enzyme that helps to determine inflammation of the organ.

Lipase: A pancreatic enzyme that helps to determine inflammation of the organ.

Urine Culture & Sensitivity: A common urine test looking for infection & appropriate antibiotic sensitivity to treat the infection if one is present.

Urine Microalbumin: A urine test looking for protein in the urine which can signify damage of the kidneys related to elevated blood sugar readings/diabetes.

HgbA1C: A test that gives an average glucose reading over about a 3 month time span. Your typical goal should be < 7.0% if you are a diabetic.

B 12: A vitamin important in the formation of red blood cells and nerves. Low B12 levels can lead to anemia or neuropathies.

Fecal Globin Immunochemistry: A test that can detect blood in fecal samples. This can help to evaluate lower gastrointestinal disorders.

Uric Acid: Produced from the natural break down of the body's cells & from food eaten. Kidneys filter most uric acid, but if they are unable blood uric acid levels rise which can cause a condition called Gout.

Hepatitis C Antibody (Ab): A test to diagnose a viral Hepatitis C infection. The CDC (Center For Disease Control) recommends that anyone born between 1945 and 1965 should be screened one time in their adult life.



ANA: Used as a screening test for connective tissue disease.

CRP (C-Reactive Protein): An acute phase protein which is elevated with inflammation.

Ionized Calcium: Determines the exact amount of calcium in the body.

Parathyroid Hormone: Parathyroid gland regulates the calcium levels in the body.

Lactate Level: Measure of the level of tissue oxygenation.

D-Dimer: Helps to determine if there is the presence of a blood clot.

PT/PTT/INR: Test for clotting factors.

Ferritin: Helps to determine if iron levels are low.