

Explanation of Laboratory Results

Below are explanations of lab results commonly done. Your lab report may or may not have each of these particular lab values in it. Please consult your doctor for any questions. Reference Range indicates the normal, or safe, range based on sex and age.

LIPID PANEL

Various risk factors, such as age (men 45+ and women 55+), high blood pressure, smoking, family history, and low HDL all increase the risk of developing heart disease and other problems.

LDL Cholesterol Low Density Lipoprotein. The most important component of Cholesterol, also called "bad cholesterol". An increased level has been associated with a higher risk of coronary artery disease. Limiting saturated fat in your diet helps minimize LDL levels. Recommended levels are determined by your number of risk factors as below.

<u>Category</u>	<u>Recommended Range</u>
No risk factors	<130
More than 1 risk factor	<100
Have had a heart attack or have 2 or more risk factors	in 70's range

HDL Cholesterol High Density Lipoprotein, also called "good cholesterol". High levels of HDL decrease the likelihood of hardening of the arteries. Aerobic exercise helps increase HDL. Categories are as below.

<u>Category</u>	<u>Associated Levels</u>
Risk factor for developing heart disease	Low HDL: men<40 and women <46
Protection factor from heart disease	High HDL: >69

Total Cholesterol A fat found in animal products such as red meats, eggs, milk and butter. While it is an essential part of our blood, its elevation has been associated with a higher risk coronary artery disease. Results may be elevated for pregnant women or those in menopause.

Triglycerides Can be found in foods containing fat, from both plants and animals. Can also be derived from sugar and alcohol. High levels are often found in overweight patients. High levels have been associated with a higher incidence of coronary artery disease and heart attacks. Regular exercise and low-fat diet can help lower it.

Cholesterol/HDL Ratio The ratio should be less than 4.0. This ratio can be improved by cutting fats in the diet, avoiding smoking, and by exercising more.

LIVER FUNCTIONS

Bilirubin Evaluates some types of liver function and also red blood cell turnover.

GGT, AST, ALT, Alkaline Phosphatase Liver enzymes. Low levels are acceptable. Elevated levels represent injury to the liver from medication, alcohol, some types of infections, and fatty liver.

BONE HEALTH

Calcium An essential component of bones and teeth. Also necessary for transmission of nerve impulses and for muscle contraction. Your body regulates this very tightly; this is rarely abnormal.

Alkaline Phosphatase While alkaline phosphatase is a liver enzyme; it is also found in bone. Sometimes an elevated level may reflect bone problems such as osteoporosis.

DIABETES TESTING

Glucose Blood sugar. Low levels indicate hypoglycemia. High levels (99 or higher) may indicate diabetes or having recently eaten.

Glycohemoglobin (HgA1C) Measures a three-month average of what your blood sugars are running.

KIDNEY FUNCTION

Creatinine Waste product of muscle breakdown or turnover. One of the main ways of measuring kidney function. Creatine supplements and increased muscle mass can increase the level. Slightly elevated levels can be of importance.

Urea Nitrogen (BUN)	Waste product of protein metabolism. Elevated levels could indicate dehydration. Low levels are acceptable, especially in vegetarians or those with low protein intake. Increasing protein intake can increase levels (protein sources such as meat, poultry, fish).
GFR Estimated	A calculation to detect changes in kidney status. One of the main ways of measuring kidney function.
Uric Acid	Waste product from the breakdown of muscle and fat. May be elevated in gout.
<u>ELECTROLYTES</u>	
Sodium	Affects body water distribution, muscle contractions and nerve conduction. High sodium foods affect blood pressure and thirst. Rich sources of sodium are table salt, canned vegetables, prepared foods, and cured or pickled foods.
Potassium	Helps regulate muscle activity. Potassium levels can be depleted by some medications such as water pills (diuretics). Rich sources are fruits, vegetables, beans, peas, legumes, nuts, seeds, meat, fish and poultry.
Chloride	Affected by fluid balance. Related closely to sodium. This value may be affected if fasting for the blood draw.
Carbon Dioxide	Affected by fluid balance. May show you are retaining water or are dehydrated.
<u>NUTRITION</u>	
Iron	Evaluates the amount of iron in your system. Low levels may relate to anemia.
Total Protein, Albumin, Globulin, A/G ratio	Measures adequacy of nutrition. Helps in the diagnosis of liver disease, protein deficiency, and some other diseases.
<u>COMPLETE BLOOD COUNT</u>	
WBC	White Blood Cell Count. Produced in the body to fight infections. Can be elevated or decreased depending on bacterial or viral infections and some other illnesses.
RBC	Red Blood Cell Count. Carries oxygen to the body's cells.
Hemoglobin (Hg)	The measure of the molecule that carries the oxygen in the red blood cells. Used to determine anemia.
Hematocrit (Hct)	Percentage of the whole blood volume occupied by red blood cells. Used to determine anemia.
MCV, MCH, MCHC, RDW	These are additional ways of measuring the amount of hemoglobin and sizes of the red blood cells.
Platelets	Small cell-like particles in the blood active in clotting.
Automated Differential	When referring to the lab results, refer to the percentage levels only, not absolute levels. Automated differentials look at the types of white blood cells present. There are five different types of white blood cells, each with its own function in protecting us from infection. The differential classifies a person's white blood cells into each type: neutrophils, lymphocytes, monocytes, eosinophils, and basophils.
<u>THYROID</u>	
TSH	Thyroid Stimulating Hormone. TSH is the way your body analyzes the level of thyroid hormone being produced by the thyroid gland. TSH is the hormone released by the brain to "wake up" the thyroid gland to produce more thyroid hormone. If the TSH is high, then your thyroid is under active. If the TSH is low, then your thyroid is over active.
T3, T4	These are the two active forms of thyroid hormone. They can be measured as "free" or "total" forms.
PROSTATE (PSA)	Prostate Specific Antigen. A prostate that is enlarged or has another problem releases PSA into the blood. An elevated PSA does not necessarily mean that you have cancer. But it does mean that there is an abnormality that must be investigated. In some cases, an elevated PSA test can reveal the presence of cancer that the doctor cannot feel on a rectal exam.
VITAMIN D (25. OH)	Low levels of vitamin D are linked to many health issues such as heart disease, stroke, some cancers, and bone loss.
FSH/LH	Follicle Stimulating Hormone and Luteinizing Hormone. Tests for the presence of female hormones. Useful in the diagnosis of menopause.