

A Guide to Common Medical Terms and Lab Tests

A1C

This is a blood test given to diabetics to determine how well their condition is under control. It is a very effective tool in monitoring Diabetic control as it shows the amount of glucose in your blood over the last six or more weeks. Insurance companies do not routinely test for A1C unless there is an abnormal glucose level.

Reference Range: 0-6%

Influential Factors: Hemolysis or Sickle cell abnormalities.

Albumin

The most abundant protein in the blood. Albumin nourishes tissues and transports nutrients throughout the body, as well as helping to keep the integrity of the vessel walls. It is made in the liver and is very sensitive to liver damage. Albumin levels can also be elevated in cases with kidney damage, malnourishment, or dehydration.

Reference Range: 3.4-5.4 (u/l)

Influential Factors: increased amounts of steroids, androgens and insulin.

Alkaline Phosphatase

A test in the basic liver panel. It is an enzyme that helps cells work. High concentrations can be found in bone producing cells and in the liver.

Reference Range: 20-125 (u/l)

Influential Factors: Pregnancy and not fasting before the test. Kids tend to have elevations especially during the developmental years. Medications do not typically affect the results.

ALT, AST

See Liver Function Tests.

Bilirubin

A pigment produced when the liver processes waste products. When red blood cells are removed from the bloodstream, hemoglobin, the molecule in red cells that carries oxygen, is broken down into bilirubin. The bilirubin is carried to the liver and excreted into the intestine as a component of bile. The liver is responsible for removing bilirubin from the blood. When bilirubin levels are high, a condition called Jaundice occurs which causes yellowing of the skin and eyes.

Reference Range: 1.0 mg

BUN

Blood urea nitrogen. A measure primarily of the urea level in blood. Urea Nitrogen is a metabolic by product in the liver from the breakdown of blood, muscle and protein. It is cleared by the kidney and diseases which compromise the function of the kidney will frequently lead to increased blood urea nitrogen levels. Blood urea nitrogen can be measured from a simple venipuncture specimen. Abnormal elevation in the blood urea nitrogen can indicate renal disease, dehydration, congestive heart failure, gastrointestinal bleeding, starvation, shock or urinary tract obstruction (by tumor or prostate gland). Low BUN level can indicate liver disease, malnutrition or a low protein diet.

Reference Range: 7 - 20 mg/dl (milligrams per decilitre).

Influential Factors: High protein diets

Cholesterol

Cholesterol is a fatty substance that is an important part of the outer lining of cells in the body of animals. Cholesterol is also found in the blood circulation of humans. The cholesterol in a person's blood originates from two major sources, dietary intake and liver production. Dietary cholesterol comes mainly from meat, poultry, fish, and dairy products. After a meal, cholesterol is absorbed by the intestines into the blood. The liver is capable of removing cholesterol from the blood circulation as well as manufacturing cholesterol and secreting cholesterol into the blood circulation. There are two types of cholesterol in the body, LDL and HDL. LDL cholesterol is known as "bad" cholesterol since it is associated with an increased risk of coronary artery disease. HDL is called the "good cholesterol" because HDL cholesterol particles prevent atherosclerosis by extracting cholesterol from the artery walls and disposing of them through the liver.

Reference Range: 140-240mg/dl

Influential Factors: Not fasting before a test.

Cholesterol Ratio

The total cholesterol to HDL cholesterol ratio (total/HDL) is a number that is helpful in predicting atherosclerosis. The number is obtained by dividing total cholesterol by HDL cholesterol. (High ratios indicate higher risks of heart attacks, low ratios indicate lower risk).

High total cholesterol and low HDL cholesterol increases the ratio, and is undesirable. Conversely, high HDL cholesterol and low total cholesterol lowers the ratio, and is desirable. The best ratio would be 2 or 3 or less than 4, however, average is 4.5.

Creatinine

A chemical waste product of muscle metabolism that is transported by the bloodstream, filtered by the kidneys and eliminated in the urine. It can be measured to assess overall kidney function. An abnormally elevated blood creatinine level is seen in those individuals with kidney insufficiency and kidney failure. Creatinine has been found to be a fairly reliable indicator of kidney function. As the kidneys become impaired the creatinine will rise. Abnormally high levels of creatinine thus warn of possible malfunction or failure of the kidneys, sometimes even before a patient reports any symptoms. It is for this reason that standard blood and urine tests routinely check the amount of creatinine in the blood.

Reference Range: 0.6 to 1.2 milligrams (mg) per deciliter (dl) in adult males and 0.5 to 1.1 milligrams per deciliter in adult females.

Influential Factors: Drugs, kidney disease, muscle injury

Fructosamine

Fructosamine is a measurement of a person's average blood sugar concentration from the most recent two or three weeks. This is an indicator of diabetes and/or the level of control of diabetes.

Reference Range: 1.8-2.5 mmol/l

Influential Factors: hemolysis

GGTP or GGT

Gamma Glutamyl Transpeptidase is an enzyme that is measured as part of liver function tests. This enzyme is very sensitive to changes within the liver and can indicate a number of conditions such as alcoholism, cirrhosis, hepatitis, carcinoma and jaundice. This test should be used with other liver studies such as ALT and AST.

Reference Range: 0-65 U/L

Influential Factors: medications, tobacco use, build, alcohol use.

Globulin

A class of simple proteins that occur widely in plant and animal tissue. It is found in the blood and contains antibodies, other proteins and enzymes.

Reference Range: 1-4.5 g/dl

Glucose

It is the end product of carbohydrate metabolism and is the chief source of energy for living organisms, its utilization in the body is controlled by insulin. Glucose is commonly called sugar and is a major source of energy in the human body. The measurement of glucose is used in the diagnosis and management of diabetes. By measuring glucose we can see how well the body is able to regulate and breakdown sugar for energy.

Reference Range: 65-125 mg/dl

Influential Factors: Stress, trauma, heart attacks, caffeine

HDL

Abbreviation for High Density Lipoprotein which is a part of the lipid panel. HDL carries excess cholesterol away for disposal, so a higher level (up to 75 mg) is considered a positive risk factor. HDL levels should be evaluated as part of the entire lipid panel and not as an individual finding.

Reference Range: 31-85 mg/dl

Influential Factors: Alcohol use, tobacco use and exercise.

Hepatitis

Inflammation of the liver from any cause. Hepatitis is most often viral, due to infection with one of the hepatitis viruses (A, B, C, D, and E) or another virus (such as those that cause infectious mononucleosis, cytomegalovirus disease, or yellow fever). The main nonviral causes of hepatitis are alcohol and drugs. Hepatitis is a major public health problem. Approximately 400 million people have hepatitis B and 170 million have hepatitis C. Both cause chronic liver infection that can be fatal. Hepatitis B and C are implicated in 80% of cases of liver cancer, the fourth leading cause of cancer deaths in the world.

Hepatitis A is a virus that causes liver disease. The condition affects between 125,000 and 200,000 people in the U.S. each year. This form of hepatitis never leads to a chronic infection and usually has no complications. The liver usually heals from hepatitis A within two months. However, occasional deaths from hepatitis A have occurred due to massive liver infection. Hepatitis A can be prevented by vaccination. Casual contact, as in a school, office, or another work setting, does not spread the virus. The symptoms and signs tend to appear abruptly and may include fatigue, loss of appetite, nausea, diarrhea, abdominal pain, fever, and jaundice (yellowing of the skin and eyes) and dark urine. Symptoms usually last less than 2 months. A few persons are ill for as long as 6 months. Recovery is usually complete. The diagnosis of hepatitis A is confirmed by a blood test (IgM anti-HAV).

Hepatitis B is inflammation of the liver due to the hepatitis B virus (HBV). This form of hepatitis causes liver damage. Most people recover from the virus within 6 months, but sometimes the virus will cause a lifelong, chronic infection, resulting in serious liver damage. Each year, between 200,000 and 300,000 people in the U.S. may become infected. Once infected, a person can spread the virus even if they do not feel sick. It was once thought to be passed only through blood products. It is now known that hepatitis B can also be transmitted via needle sticks, body piercing and tattooing using un-sterilized instruments, the dialysis process, sexual and even less intimate close contact, and childbirth. Symptoms include fatigue, jaundice, nausea, vomiting, dark urine, light stools. Diagnosis is by blood test. Treatment is via anti-viral drugs and/or hepatitis B immunoglobulin. HBV infection can be prevented by the hepatitis B vaccine, and by avoiding activities that could lead to getting the virus.

Hepatitis C is inflammation of the liver due to the hepatitis C virus (HCV). It is one of the most common causes of liver disease in the U.S., Hepatitis C is the number one reason for liver transplant. At least 80% of patients with hepatitis C develop a chronic liver infection. This disease infects approximately 2.7 million people in the U.S. It often does not show any symptoms. No vaccine is yet available to prevent hepatitis C, which is usually spread by blood transfusion, hemodialysis, and needle sticks. HCV causes most transfusion-associated hepatitis, and the damage it does to the liver can lead to cirrhosis and cancer. Transmission of the virus by sexual contact is rare. At least half of HCV patients develop chronic hepatitis C infection. Diagnosis is by blood test. Treatment is via anti-viral drugs. Chronic hepatitis C may be treated with interferon, sometimes in combination with anti-virals. There is no vaccine for hepatitis C.

Reference Range: Results are either negative or positive

Influential Factors: False negative may appear if disease is in incubation period.

HIV

Human immunodeficiency virus (HIV) is a virus that attacks the immune system, making it difficult for the body to fight infection and disease. HIV is the same virus that also causes acquired immunodeficiency syndrome (AIDS). However, having HIV does not mean you have AIDS. AIDS is the last and most severe stage of the HIV infection. Some people live with HIV for years or even decades before the condition progresses to AIDS. Once HIV enters the body, it infects a type of white blood cell called CD4+ cells. These white blood cells are an important part of the immune system that helps you fight infections. As CD4+ white blood cells are attacked and destroyed by HIV, the immune system becomes less able to fight infection and disease. All insurance Companies test for HIV as part of their normal lab profile.

Reference Range: Negative or Positive

Influential Factors: False negative may occur if test is done too soon after exposure.

LDL

Low Density Lipoprotein is part of the regular lipid panel along with cholesterol, HDL, and triglycerides. It is a risk factor for heart disease. LDL is a carrier of cholesterol and is considered bad because it deposits cholesterol into the walls of blood vessels.

Reference Range: 0-160 mg/dl

Influential Factors: Recent illness, Not fasting before blood is taken, pregnancy, stress

Liver Function Tests

ALT, AST, SGOT, SGPT are simple blood tests to determine the presence of certain liver enzymes in the blood which may indicate liver damage. The tests measure some of the most sensitive liver enzymes which are called aminotransferases. Under normal circumstances, these enzymes reside within the cells of the liver. But when the liver is injured, these enzymes are spilled into the blood stream.

AST (SGOT) is normally found in a variety of tissues including liver, heart, muscle, kidney, and brain. It is released into serum when any one of these tissues is damaged. For example, its level in serum rises with heart attacks and with muscle disorders. It is therefore not a highly specific indicator of liver injury.

ALT (SGPT) is, by contrast, normally found largely in the liver. This is not to say that it is exclusively located in liver but that is where it is most concentrated. It is released into the bloodstream as the result of liver injury. It therefore serves as a fairly specific indicator of liver status.

Reference Range: AST (SGOT) is from 5 to 40 units per liter of serum (the liquid part of the blood). ALT (SGPT) is from 7 to 56 units per liter of serum.

Influential Factors: Medications such as those used for pain relief, cholesterol or seizures, also antibiotics and cardiovascular medications.

PSA

PSA is a protein produced by the prostate gland. Although most PSA is carried out of the body in semen, a very small amount escapes into the blood stream. The PSA test is done on blood. Since the amount of PSA in blood is normally minute, the PSA test requires a very sensitive method based on monoclonal antibody technology. PSA in blood can be by itself as free PSA or it can join with other substances in the blood as bound PSA. Total PSA is the sum of free and bound forms. This is what is measured as the standard PSA test. A test for PSA may be used to screen for cancer of the prostate and to monitor treatment of the disease. Most insurance companies do not test for PSA unless the applicant is over 50. The amount of PSA in the blood normally increases as a man's prostate enlarges with age. It is also increased by inflammation of the prostate gland (prostatitis) and by prostate cancer.

Reference Range: 0-4.0 ng/ml

Influential Factors: Various chemotherapy drugs, extreme amounts of bike riding, testing within six weeks of prostate manipulation.

SGOT

Serum Glutamic-Oxaloacetic Transaminase or ALT. See Liver Function Tests

Triglycerides

The major form of fat. A triglyceride consists of three molecules of fatty acid combined with a molecule of the alcohol glycerol. Triglycerides come from the food we eat as well as from being produced by the body. Triglyceride levels are influenced by recent fat and alcohol intake, and should be measured after fasting for at least 12 hours. A period of abstinence from alcohol is advised before testing for triglycerides. The word "triglyceride" reflects the fact that a triglyceride consists of three ("tri-") molecules of fatty acid combined with a molecule of the alcohol glycerol ("-glyceride") that serves as the backbone in many types of lipids (fats). When you eat a high-calorie meal, your body uses the calories it needs for quick energy and converts the excess into triglycerides that are stored as fat to use as energy later. In normal amounts, triglycerides are essential to good health.

Reference Range: 10-190 mg/dl

Influential Factors: Not fasting, alcohol consumption, disease