

<p><b>ADIPONECTIN</b></p>	<p>Adiponectin is a hormone produced by adipose (fat) tissue that influences metabolism. Typically, as the amount of fat tissue increases, the level of adiponectin decreases. Thus, adiponectin levels are decreased in individuals who are overweight and normal or elevated in individuals who are lean. Adiponectin has anti-inflammatory effects on vascular cells. Researchers have found that centenarians (people over 100 years of age) have higher adiponectin levels than younger people.</p>
<p><b>ALANINE AMINOTRANSFERASE (ALT)</b></p>	<p>Alanine aminotransferase (ALT) is found predominantly in liver and, to a lesser extent, in the kidneys, heart, and skeletal muscle. Its level may be abnormally high in conditions that cause liver damage or after a heart attack. The ALT test is often done to determine liver function in conjunction with other tests, including aspartate aminotransferase (AST), alkaline phosphatase (ALP), and bilirubin. ALT was formerly called serum glutamic pyruvic transaminase (SGPT).</p>
<p><b>ALBUMIN</b></p>	<p>Albumin is a protein made by the liver and, therefore, is a good measure of liver function. When the liver is injured or diseased, it loses its ability to make albumin, resulting in decreased levels. Decreased levels can also be seen in problems with kidney function, which allow albumin to escape into the urine, or be caused by malnutrition or a low-protein diet. Increased levels of albumin can be seen in cases of dehydration.</p>
<p><b>ALBUMIN/GLOBULIN RATIO</b></p>	<p>Calculating the ratio of albumin to globulin in the blood is useful in the evaluation of certain blood and immune system conditions, as well as some liver and kidney diseases. A low ratio may be a result of low levels of albumin due to low production or excessive loss of this protein. An elevated ratio suggests disorders involving low gamma-globulin production.</p>
<p><b>ALKALINE PHOSPHATASE (ALP)</b></p>	<p>Alkaline phosphatase (ALP) is found in many tissues, including liver, bile duct, placenta, and bone. Its level may be elevated in conditions that damage or disrupt the liver, bile ducts, or bone. ALP may also be increased in some normal circumstances, such as, normal bone growth, third trimester pregnancy or in response to a variety of drugs.</p>
<p><b>ASPARTATE AMINOTRANSFERASE (AST)</b></p>	<p>Aspartate aminotransferase (AST) is an enzyme found in liver, muscle, and heart tissues. Increased levels of AST can be seen after a heart attack, liver function (including hepatitis) problems, and injury or disease to the muscles. AST was formerly called serum glutamic oxaloacetic transaminase (SGOT).</p>

<b>BASOPHIL PERCENTAGE</b>	Basophils are a type of white blood cell which make up only 0-2 % of the total number of white blood cells. There are many reasons for basophil levels to increase, including in response to allergens.
<b>BIOAVAILABLE TESTOSTERONE</b>	Bioavailable testosterone includes albumin-bound testosterone and free testosterone. Bioavailable testosterone decreases at a rate of about 2-3% per year. As bioavailable testosterone decreases, some men experience symptoms such as decreased libido and erectile dysfunction.
<b>BLOOD UREA NITROGEN (BUN)</b>	Urea is the major breakdown product of bodily protein and it contains nitrogen. Urea and other nitrogen-rich waste products are normally eliminated from the bloodstream by the kidneys, thus an increased blood urea nitrogen level may indicate impaired renal (kidney) function.
<b>BLOOD UREA NITROGEN/CREATININE RATIO</b>	Calculating the ratio of blood urea nitrogen (BUN) to creatinine may be helpful in distinguishing impaired kidney function due to dehydration from other kinds of kidney damage. This ratio typically increases with dehydration and decreases with other conditions, such as those affecting the kidneys or liver.
<b>CALCIUM (CA)</b>	Calcium (Ca) is an element found in the body that is an important component of bone. It is also important in normal cell function, muscle contraction, heart action, nervous system maintenance, and blood clotting. The parathyroid glands regulate serum calcium concentrations and bone metabolism. In turn, serum calcium concentrations regulate parathyroid hormone (PTH) secretion via negative feedback.
<b>CARBON DIOXIDE (CO2)</b>	Measurement of carbon dioxide (CO2) levels in the blood can help to indicate the blood's acidity. Measurement of CO2 content is part of an electrolyte panel to screen for an electrolyte or acid-base imbalance.
<b>CHLORIDE (CL)</b>	Chloride (Cl) is an electrolyte that is important in water distribution and general cell function. Chloride levels may be abnormal in a variety of metabolic and kidney conditions.
<b>CHOLESTEROL, TOTAL</b>	Cholesterol is a fat-like substance that comes both from the body and from the diet. Cholesterol plays an important role in making some hormones and is a part of the cell membrane. While having enough cholesterol to perform the biological functions of the body is important, too much cholesterol can lead to fatty deposits inside the blood vessels. These deposits can further lead to plaques and narrowing or complete closure of the blood vessel which can cause cardiovascular problems. Fortunately high cholesterol can be treated, both with diet and medications.

<b>CORTISOL</b>	<p>Cortisol, also known as the stress hormone, is a made by the adrenal gland. Cortisol regulates numerous body systems, including the response to infection and inflammation, blood sugar levels, and bone metabolism. Cortisol (hydrocortisone) stimulates conversion of proteins to carbohydrates, raises blood glucose levels, and promotes glycogen storage in the liver. Research shows that cortisol levels decrease as we age.</p>
<b>CREATININE</b>	<p>Creatinine is a protein waste product generated by muscle metabolism and eliminated by the kidneys. Because creatinine is released at a constant rate (depending on muscle mass), its blood level is a good indicator of kidney function.</p>
<b>CREATINE KINASE, TOTAL (CK)</b>	<p>Creatine kinase (CK) is an enzyme found in skeletal muscle, heart muscle, and brain tissue. Its levels are significantly elevated when skeletal or heart muscles are damaged.</p>
<b>C-REACTIVE PROTEIN (CRP)</b>	<p>C-reactive protein (CRP) is produced in the liver. Its levels rise dramatically in the presence of inflammation or infection. CRP has a role in the induction of anti-inflammatory cytokines. As a marker of inflammation, CRP has also been established as an important predictor of cardiovascular risk. CRP levels between 3-10 ug/mL are suggestive of the inflammatory process caused by the formation of atherosclerosis. Levels greater than 10 ug/mL suggest other types of inflammation that can occur with such conditions as arthritis or infection.</p>
<b>DIHYDROEPIANDROSTERONE SULFATE (DHEA-S)</b>	<p>Dihydroepiandrosterone sulfate (DHEA-S) is a hormone produced by the adrenal glands of both men and women. It is converted into estrogen and androgen (sex hormones). Research has shown that levels of DHEA-S decline as we age.</p>
<b>EOSINOPHIL PERCENTAGE</b>	<p>Eosinophils are a type of white blood cell whose levels are most commonly elevated in people with allergies (e.g., hay fever and asthma) and parasitic infections, as well as other disorders. Eosinophils account for 0-7% of circulating white blood cells.</p>
<b>ESTRADIOL</b>	<p>Estradiol is an estrogen hormone. Typically, it is measured to evaluate menstrual and fertility problems and menopausal status. Estradiol levels decrease in women after menopause and in men as they age.</p>
<b>FERRITIN</b>	<p>Ferritin is a protein that stores iron in the blood. A ferritin level is a sensitive indicator of the body's iron stores, thus it can be helpful in the evaluation of anemia or iron overload.</p>

<b>FOLIC ACID</b>	Folic acid (also called folate) is a B vitamin involved in many metabolic reactions in the body, including new cell growth. Folic acid deficiency can cause elevated homocysteine levels, thereby increasing one's cardiovascular risk.
<b>FOLLICLE STIMULATING HORMONE (FSH)</b>	Follicle stimulating hormone (FSH) is a sex hormone produced in the pituitary gland. It controls reproductive functions in both men and women. In women, FSH stimulates the growth of ovarian follicles and the production of estradiol during the first half of the menstrual cycle. FSH levels increase after menopause. In males, FSH stimulates the production of sperm and semen.
<b>GAMMA GLUTAMYL TRANSFERASE (GGT)</b>	Gamma glutamyl transferase (GGT) is a liver enzyme whose levels may be elevated in conditions involving liver damage, particularly obstructive liver disease (e.g., gallstones).
<b>GLOBULIN</b>	Globulins are one of the major families of proteins that exist in the blood. Some of these proteins are produced in the liver and others are formed by the immune system. Globulins are the key building blocks of antibody proteins and play an important role in helping to fight infection. Gamma globulins include immunoglobulin A (IgA), immunoglobulin G (IgG), immunoglobulin E (IgE), and immunoglobulin M (IgM). Other globulins consist of non-antibody proteins, such as alpha-2-macroglobulin (A2M) and alpha-1-antitrypsin (AAT).
<b>GLUCOSE</b>	Glucose, also known as blood sugar, essentially is food for the body's cells, especially the brain. Glucose comes from the food we eat and is helped into the cell by the hormone insulin. Within the cell, glucose is converted into glycogen, amino acids and fatty acids.
<b>GROWTH HORMONE (GH)</b>	Growth hormone (GH) promotes growth during childhood. In the adult, it helps to maintain our tissues and organs. Elevated levels of GH can result in increased bone thickness. Starting around age fifty, levels of growth hormone begin to decline.
<b>HEMATOCRIT</b>	The hematocrit is the percentage of whole blood that comprises red blood cells. It is a measure of both the number and the size of these cells and is expressed as a percentage by volume.
<b>HEMOGLOBIN (HGB)</b>	Hemoglobin (Hgb) is an iron-containing protein that enables red blood cells to carry oxygen from the lungs to body tissues. Without enough hemoglobin, the tissues lack oxygen and the heart and lungs must work harder to try to compensate.

<b>HIGH DENSITY LIPOPROTEIN (HDL)</b>	High density lipoproteins (HDL) are proteins that carry cholesterol through the bloodstream. HDL is thought to remove cholesterol from the blood by carrying it from the tissues to the liver where it is broken down and excreted from the body. Because high cholesterol levels are a significant risk factor for cardiovascular disease, high HDL levels are considered protective, since the higher amount of HDL allows for more cholesterol removal from the body
<b>HOMOCYSTEINE</b>	Homocysteine is an amino acid found in the blood. Elevated homocysteine levels are linked to cardiovascular disease and stroke, even in people with normal cholesterol values. Homocysteine levels can be affected by both diet and genetics. Folic acid and vitamins B6 and B12 have the greatest effect on homocysteine levels and deficiencies of these important vitamins can lead to elevated homocysteine levels.
<b>INSULIN-LIKE GROWTH FACTOR-1 (IGF-1)</b>	Insulin-like growth factor-1 (IGF-1) is a hormone that stimulates growth of various types of cells including muscle, bone, and cartilage. Research has shown that levels of IGF-1 start to decrease in early adulthood and continue to decline continuously as we age.
<b>INTERLEUKIN-6 (IL-6)</b>	Levels of interleukin-6 (IL-6) may be elevated in a variety of inflammatory and infectious diseases. IL-6 stimulates an immune response to trauma that leads to inflammation. Elevated IL-6 levels are strongly associated with cardiovascular disease.
<b>INTERLEUKIN-8 (IL-8)</b>	Interleukin-8 (IL-8) is involved in a variety of inflammatory processes. Levels are typically low and may rise in the presence of a variety of conditions. Elevated IL-8 levels are strongly associated with cardiovascular disease.
<b>LACTATE DEHYDROGENASE (LDH)</b>	Many different types of body cells contain lactate dehydrogenase (LDH), particularly those in the heart, kidney, liver, and muscle. LDH plays an important role in energy production in cells.
<b>LOW DENSITY LIPOPROTEIN (LDL)</b>	Low density lipoproteins (LDLs) are proteins that are cholesterol rich. LDLs carry cholesterol into the peripheral tissues where it can be deposited. High LDL levels are a risk factor for cardiovascular disease because the increased amount of LDL protein increases the body's ability to carry more LDL cholesterol into the blood stream.

<b>LOW DENSITY LIPOPROTEIN/HIGH DENSITY LIPOPROTEIN RATIO (LDL/HDL RATIO)</b>	<p>Calculating the risk ratio of low density lipoprotein to high density lipoprotein (LDL/HDL ratio) is helpful in determining the amount of “bad cholesterol” in relation to the level of “good cholesterol.” A high level of HDL may partially offset the negative effects of a high LDL level in that individuals with ratios of 3 or less have only half the risk of heart disease as does the population at large.</p>
<b>LUTEINIZING HORMONE (LH)</b>	<p>Luteinizing hormone (LH) is a hormone released by the pituitary gland. In women, LH causes ovulation and stimulates the ovaries to produce estrogen and progesterone. In men, LH stimulates the production of testosterone by the testes. Increased levels of LH are associated with aging and are seen primarily after menopause.</p>
<b>LYMPHOCYTE PERCENTAGE</b>	<p>Lymphocytes are a type of white blood cells that identify foreign substances, bacteria and viruses in the body and produces antibodies against them. Lymphocytes are the primary components of the immune system and play an important role in the body’s immune response. Lymphocytes are produced in the bone marrow and are divided into T-cell and B-cell lymphocytes. Lymphocytes account for 19-48% of circulating white blood cells.</p>
<b>MAGNESIUM (MG)</b>	<p>Magnesium (Mg) is a mineral that is found within the cells of the body, with about half the magnesium found inside the bones. Magnesium is critical for almost all metabolic processes because it is involved in the phosphorylation of adenosine triphosphate (ATP). ATP is the main source of energy for the body.</p>
<b>MEAN CORPUSCULAR HEMOGLOBIN (MCH)</b>	<p>Mean corpuscular hemoglobin (MCH) is an estimate of the amount of hemoglobin carried by each red blood cell. Hemoglobin is the iron-binding protein that carries oxygen.</p>
<b>MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION (MCHC)</b>	<p>Mean corpuscular hemoglobin concentration (MCHC) is an estimate of the level of hemoglobin (the iron-binding protein that carries oxygen) in a given number of packed and transfusable red blood cells.</p>
<b>MEAN CORPUSCULAR VOLUME (MCV)</b>	<p>Mean corpuscular volume (MCV) is the average amount of space occupied by each red blood cell.</p>
<b>MONOCYTE PERCENTAGE</b>	<p>Monocytes are a type of white blood cell involved in the immune response to foreign substances. Monocyte levels are often increased in response to infection, particularly chronic infection. Monocytes help to remove necrotic tissues and account for 3-11% of circulating white blood cells.</p>

<b>NEUTROPHIL PERCENTAGE</b>	Neutrophils are a type of white blood cell whose numbers are elevated in the presence of bacterial and other infections as well as other conditions. Neutrophils account for 40-74% of circulating white blood cells.
<b>PARATHYROID HORMONE (PTH)</b>	Parathyroid hormone (PTH) is made by the parathyroid gland and functions to regulate calcium levels in the body. PTH levels usually remain stable as a person ages.
<b>PHOSPHORUS (P)</b>	Phosphorus (P) is an element found throughout the body. Most of the body's phosphorus is bound to calcium in the bones, but about 15% exists in the blood and other soft tissues. Phosphorus is very important in metabolism.
<b>PLATELET COUNT</b>	Platelets are a type of blood cell involved in the blood clotting process. When a blood vessel is damaged, platelets clump together and help to initiate clotting.
<b>POTASSIUM (K)</b>	Potassium (K) is an electrolyte whose levels are tightly controlled throughout the body. Potassium plays an important role in the electrical conduction in nerve, muscle and heart tissues.
<b>PROGESTERONE</b>	Progesterone is an important female sex hormone. It is necessary for proper uterine and breast development and function. Progesterone levels are normally elevated during the reproductive period of a woman's life and become lower after menopause.
<b>RED BLOOD CELL COUNT (RBC COUNT)</b>	Red blood cells carry oxygen from the lungs to body tissues and transfer carbon dioxide from the tissues to the lungs. The red blood cell count (RBC count) indicates the total number of red blood cells in the blood.
<b>RED CELL DISTRIBUTION WIDTH (RDW)</b>	Red cell distribution width (RDW) measures the variability in size of the red blood cell population. When used in conjunction with mean corpuscular volume (MCV), this test is useful in assessing a variety of conditions.
<b>SELENIUM</b>	Selenium is a trace mineral that is a cofactor for reduction of antioxidant enzymes such as glutathione peroxidases and thioredoxin reductase. Selenium also plays a role in proper thyroid gland functioning. Selenium is found in nuts, particularly Brazil nuts, whole grains, garlic, broccoli, meat, fish and eggs.
<b>SEX HORMONE-BINDING GLOBULIN (SHBG)</b>	Sex hormone-binding globulin (SHBG) binds to sex hormones, such as testosterone and estradiol and carries them through the blood. Researchers have found that levels of SHBG start to increase after the fifth decade of life and continue to increase at a rate of about 1.6% per year.

<b>SODIUM (NA)</b>	Sodium (Na) is an electrolyte that is vital to cell functions. Although its levels are tightly controlled throughout the body, sodium levels may be abnormal in a variety of diseases.
<b>TESTOSTERONE, TOTAL</b>	Testosterone is the primary male sex hormone, controlling male sexual development. Testosterone levels increase during puberty to an adult peak. Beginning around the age of 30, a man's total testosterone level will decline. In women, the ovary and adrenal glands secrete small amounts of testosterone. Testosterone levels in women are typically 5% to 10% of those in males.
<b>THYROID STIMULATING HORMONE (TSH)</b>	Thyroid stimulating hormone (TSH) is secreted from the pituitary gland and causes the thyroid gland to produce the thyroid hormones triiodothyronine (T3) and thyroxine (T4). T3 and T4 affect all aspects of metabolism, from body temperature, to how quickly you burn calories, to the rate of hair and nail growth.
<b>TOTAL PROTEIN</b>	Measuring the level of total protein content in the blood is very useful in the evaluation of nutritional status, kidney syndromes, malabsorption, and cancers.
<b>TUMOR NECROSIS FACTOR ALPHA (TNF-ALPHA)</b>	Tumor necrosis factor alpha (TNF-alpha) is produced by various white blood cells. Research has shown that concentrations of TNF-alpha are increased in older individuals.
<b>TRIGLYCERIDES</b>	Triglycerides, a type of fat, are transported through the blood stream by low density lipoproteins (LDL) and very low density lipoproteins (VLDL). They are made by the liver and function as a storage source for energy. When blood triglyceride levels get too high, the triglycerides can be deposited in the fatty tissues of the body. High triglyceride levels are a risk factor for atherosclerosis and cardiovascular disease.
<b>WHITE BLOOD CELL COUNT (WBC COUNT)</b>	White blood cells are the major infection-fighting cells, but are also involved in the immune system responses to foreign bodies and tissues such as allergens and tumors. The white blood cell count (WBC count) measures the total number of white blood cells present in the blood.

**VITAMIN B12**

Vitamin B12 is important for metabolism, the formation of the red blood cells, and the maintenance of the central nervous system. A deficiency in vitamin B12 may occur as a result of an inability to absorb the vitamin from food. It can also occur in strict vegetarians who do not consume any animal foods. Some individuals who develop a vitamin B12 deficiency have an underlying stomach or intestinal disorder that limits the absorption of vitamin B12. Although most people who possess a decreased amount of this vitamin do not demonstrate any symptoms, vitamin B12 deficiency represents a health concern because of the adverse conditions it has the potential to cause. For instance, deficiency of this vitamin can cause elevated homocysteine levels, thereby increasing one's cardiovascular risk.

**VITAMIN D**

Vitamin D is produced in the skin in response to sunlight. It has important effects on calcium and phosphorus levels in the blood. It also supports healthy bones. Researchers believe that vitamin D also helps to protect the body against cancer by promoting the immune systems anti-cancer activities.

**URIC ACID**

Most uric acid produced in the body is excreted by the kidneys. An overproduction of uric acid occurs when there is excessive breakdown of cells or an inability of the kidneys to excrete uric acid.

**ZINC (ZN)**

Zinc (Zn) is a trace element found in the bones, teeth, hair, skin, testes, liver, and muscles and is an activator of certain enzymes such as carbonic anhydrase. It promotes the synthesis of DNA, RNA and protein and maintains normal blood concentrations of vitamin A. Dietary sources of zinc include oysters, animal proteins, beans, nuts, whole grains, pumpkin seeds and sunflower seeds. Research indicates zinc combined with antioxidants may delay the progression of macular degeneration. Research also shows that intake of zinc impedes the onset of the flu. Zinc is also believed to be effective against a variety of pathogens, particularly those that affect the gastrointestinal tract.