Dunkin Veterinary Hospital CICERO, IL [www.dunkinvethospital.com](http://www.dunkinvethospital.com)

Understanding Your Dog/Cat’s Blood Work:

**CBC VALUES**
**Red Blood Cells (RBC)** - Responsible for carrying oxygen and carbon dioxide throughout the body.  High red blood cell numbers usually indicate dehydration but can also indicate uncommon diseases that cause an excess production of red blood cells from the bone marrow. Iron deficiency will lower RBC count. In more reduced count, it may indicate hemorrhage, parasites, bone marrow disease, B-12 deficiency, folic acid deficiency or copper deficiency some immune diseases and toxin ingestion. RBC's live for 120 days so an anemia of any kind other than hemorrhage indicates a long standing problem.
**Hematocrit (HCT) or Packed Cell Volume (PCV)** - Provides information on the amount of red blood cells (RBC's) present in the blood. The hematocrit is a calculated percentage of red blood cells in the circulation. It gives similar information to the red blood cell count but the value is expressed as a percentage. The other part of the blood is serum, containing enzymes, proteins, electrolytes, etc. Decreased levels means anemia from hemorrhage, parasites, nutritional deficiencies or chronic disease process, such as liver disease, cancer, etc. . . . Increased levels are often seen in dehydration, some infection.
**Hemoglobin (Hb) -** The essential oxygen carrier of the blood. Decreased levels indicate the presence of hemorrhage, anemia, and iron deficiency. Increased levels indicate higher than normal concentrate of RBC, B-12 deficiency (because there are fewer cells).
**Mean Corpuscular Volume (MCV)** - This is the average size of the red blood cells. A high MCV usually indicated certain vitamin deficiencies. A low MCV indicated iron deficiency.
**Mean Corpuscular Hemoglobin (MCH)** is an abbreviation for mean corpuscular hemoglobin. This is the average weight of hemoglobin in each red blood cell and is different than hemoglobin circulating in the blood. A high MCH indicates poorly oxygenated blood. A low MCH indicates iron deficiency.
**Mean Corpuscular hemoglobin Concentration (MCHC)** - is an abbreviation for mean corpuscular hemoglobin concentration. This is the average percentage of hemoglobin in each red blood cell. A high MCHC indicates that there is too much hemoglobin in the red blood cell, indicating a high iron level since an important component of hemoglobin is iron. Iron excess is just as damaging to the body as iron deficiency. A low MCHC indicates anemia.
**Reticulocytes -** Immature red blood cells. Decreased count is usually associated with anemia. Increased count is associated with chronic hemorrhage or hemolytic anemia.
**Platelets (PLT)** - Play an important role in blood clotting. Decrease in number occurs in bone marrow depression, autoimmune hemolytic anemia, systemic lupus, severe hemorrhage or intravascular coagulation. Increased number may occurs with fracture or blood vessel injury, or cancer
**White blood cells (WBC)** - Elevated white blood cell counts indicate infection, inflammation and some forms of cancer or leukemia. Low white blood cells counts can indicate viral infections, bone marrow abnormalities or overwhelming infections and sepsis (blood poisoning). In this situation, the white blood cells are concentrated in the area of infection and are not circulating in the blood, resulting in a low count.

**BLOOD CHEMISTRIES:**

**Albumin (ALB):** A protein which is produced by the liver. Reduced levels of this protein can point to chronic liver or kidney disease, intestinal disease, or intestinal parasites.

**Alanine Aminotransferase (ALT):** An enzyme that becomes elevated with liver disease or injury.

**Alkaline Phosphatase (ALKP):** An enzyme produced by the cells lining the bladder and its associated ducts. Elevated levels can indicate liver disease or Cushing’s syndrome.

**Amylase (AMYL):** An enzyme produced by the pancreas. The pancreas secretes amylase to aid in digestion. Elevated blood levels can indicate pancreatic and/or kidney disease.

**Blood Urea Nitrogen (BUN/UREA):** BUN is produced by the liver and excreted by the kidneys. Abnormal levels can indicate dehydration, and liver & kidney abnormalities.

**Calcium (Ca ++):** Increased levels can be seen with diseases of the parathyroid gland and kidneys or as an indicator of certain types of tumors.

**Chloride (Cl-):** A component of stomach acid. If there’s a large loss of chloride, the blood may become more acidic and prevent certain necessary chemical reactions from occurring in the body.

**Cholesterol (CHOL):** Elevated levels of cholesterol are seen in a variety of disorders, including genetic disease, liver and kidney disease and hypothyroidism.

**Creatinine (CREA):** Creatinine is a by-product of muscle metabolism and is excreted by the kidneys. Elevated levels can indicate kidney disease or urinary tract obstruction.

**Gamma-glutamyl Transferase (GGT):** An enzyme found in most tissues, including the liver. It is elevated in disease of the bile ducts and in some liver diseases.

**Globulin (GLOB):** Globulins are important in the immune response. High levels can help to indicate autoimmune disease, kidney disease, liver disease, and certain infections.

**Glucose (GLU):** High levels can indicate diabetes. In cats, high levels can indicate stress, which can merely be a result of the trip to the vet. Low levels can indicate liver disease, infection, or certain tumors.

**Lipase (LIPA):** An enzyme that plays a large role in the digestion, transportation and processing of fats. Lipase levels are elevated in cases of pancreatitis.

**Phosphorous (PHOS):** Elevated phosphorous can be an indicator of kidney disease.

**Total Bilirubin (TBIL):** Bilirubin is a breakdown product of hemoglobin and is a component of bile. Bilirubin is secreted by the liver into the intestinal tract. Blood bilirubin levels are useful in diagnosing anemia and problems in the bile ducts.

**Total Protein (TP):** The level of TP can detect a variety of conditions including dehydration and diseases of the liver, kidney or gastrointestinal tract.

**Potassium (K+):** Electrolyte balance is vital to your pet’s health. Abnormal levels can be life threatening. Electrolyte tests are important in evaluating vomiting, diarrhea, dehydration and cardiac (heart) symptoms.

**Sodium (Na+):** If a pet becomes dehydrated because of vomiting, diarrhea, or inadequate fluid intake, the sodium levels can be abnormally high or low, which can cause confusion, weakness, or lethargy.

**Urea Nitrogen to Creatinine Ratio (BUN/CREA):** An elevated ratio is useful in diagnosing gastrointestinal bleeding, while a decreased ratio can indicate liver disease and malnutrition.

**Albumin to Globulin Ratio (ALB/GLOB):** Both of these are serum proteins. A high ratio can indicate nephrosis and liver dysfunction where a low ratio can indicate chronic infection, liver and kidney disease, and autoimmune disorders.

**Serum Osmolality (OSM):** This test measures the amount of chemicals dissolved in the serum of the blood. It can indicate dehydration or over hydration.

**Sodium Potassium Ratio (Na+/K+)**: Increased or decreased ratios can indicate an electrolyte imbalance. A decreased ratio can also indicate Addison’s disease.