Blood Analysis and Testing

The Key to a Healthy Pet is Early Detection and Prevention of Disease

The gradual onset of health problems in an apparently health pet often goes unnoticed. There are many conditions that, if diagnosed early, can be completely reversed or controlled for extended periods of time.

Regular dental care, vaccinations, control of parasites and a balanced diet are important for good health care. Laboratory testing for the early detection of changes in the health status of your pet is also important.

Laboratory tests are an important means by which your veterinarian can diagnose blood disorders, kidney and liver disease, diabetes, infection, cancer, thyroid disease and other hormonal problems. The promotion of quality pet health care through a wellness program can add years of vitality and extend your pet's life.

Complete Blood Count (CBC) **WBC** **Neutrophils** **Monocytes** **Bands** **Eosinophils** **Lymphocytes** **Basophils**	These numbers tell how many of each type of white blood cell are present and whether or not they appear normal. White blood cells help fight infection. It is important to know whether the count is low, normal or high. White blood cell numbers can increase in response to inflammation and infection. In leukemia, which is a cancer of the blood system, either the numbers of white blood cells are increased or their appearance is abnormal, or both. White blood cell numbers can decrease with severe infection or with bone marrow disorders.
PLATELETS	Platelets help with blood clotting. It is important to make sure that these numbers remain normal or close to normal.
Red Blood Cells (RBC) **Packed Cell Volume (PCV)** **(estimate of RBC count)** **Hemoglobin** **MCV** **MCH** **MCHC** **RBC Morphology**	Tests to evaluate red blood cell number (to look for anemia). These tests help tell which type of anemia is present. (Size/shape/volume)
ALT **ALP** **GGT**	Liver enzymes. These tests help indicate that here may be a problems with the liver. They may also be abnormal with inflammation of the pancreas.
TOTAL BILIRUBIN	A test for jaundice. Increased levels usually indicate a liver disorder (with or without concurrent disease of the pancreas) or damaged red blood cells.
TOTAL PROTEIN **A/G RATIO** **ALBUMIN** **GLOBULIN**	Protein levels. Albumin maybe decreased with disorders of the intestine, kidneys, liver or decreased nutrient intake. The globulin level may also decrease due to intestinal disease and may increase in response to inflammation.
CREATININE **BUN** **PHOSPHORUS**	Test of kidney function (should be run in conjunction with urinalysis for the most accurate assessment of kidney function).
CALCIUM **CALCIUM/PO4 RATIO**	Elevated calcium levels can be a sign of a wide variety of diseases. Possible causes are lymphosarcoma (a type of cancer) and hyperparathyroidism.
GLUCOSE	Blood sugar. Increased levels may indicate diabetes. In cats, elevations may occur in conjunction with stress. A subnormal level may occur with several disorders, including liver problems, sever infection, certain types of cancer, Addison's disease (a disorder of the adrenal glands), and malnutrition.
SODIUM **POTASSIUM** **NA/K RATIO** **CHLORIDE**	Important body electrolytes. It is especially important that potassium levels be monitored in sick animals and in animals with decreased kidney function or adrenal disease.

Other Tests

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CPK	Muscle enzyme. Consistently increased levels (>2000) indicate muscle injury or inflammation.
T4	Thyroid test. In cats we look for levels above normal (hyperthyroidism) and in dogs we look for subnormal levels (hypothyroidism). This is a screening test. If the result is abnormal, more detailed thyroid testing may be necessary to determine the best course of treatment.
Complete Urinalysis **Color** **Appearance** **Specific Gravity** **Occult Blood** **WBC/HPF (White blood cells)** **RBC/HPF (Red blood cells)** **PH** **Protein** **Glucose** **Ketones** **Bilirubin**	Urinalysis is a very important means of evaluating overall kidney function, especially when done in conjunction with blood tests. Urinalysis is also a key test for determining if there is a urinary tract infection or if there is inflammation in the urinary bladder. Urinalysis also helps to confirm, along with blood tests, whether or not an animal has diabetes (with diabetes, either sugar or both sugar and ketones are present in the urine). ***Note**: In cats over 8-10 years of age with kidney failure, urinary tract infections, when present, are often "silent." This means that frequently there are no signs of any abnormality such as straining to urinate, urinating more frequently, or presence of blood in the urine. If a urinalysis reveals bacteria in older cats, a **urine culture** should be done. Blood tests, blood pressure, and standard urinalysis should be part of a routine health check for all older cats, as well as for any older cat that is ill.
Urine Cortisol : Creatinine Ratio	A screening test for Cushing's disease in dogs (abnormal adrenal gland function)
Urine Culture and Sensitivity ***Antibotics:*** **Amikacin** — **Clindamycin** **Amoxicillin** — **Enrofloxacin** **Ampicillin** — **Furadantin** **Clavamox** — **Sulfa drugs** **Carbenicillin** — **Tetracycline** **Cephalexin** — **Tobramycin**	Urine culture testing determines whether or not there is a bacterial infection in the urinary tract. Sensitivity testing determines which antibiotics will likely work best in clearing infection. By determining which bacteria are involved and which antibiotics are most indicated, we have a better chance of controlling the infection more quickly and completely.
Fecal Tests	**Tests for parasites** Fecal tests are done to evaluate for presence of intestinal parasites (e.g., *Giardia*, roundworms, hookworms, whipworms, coccidian). It is important to check periodically for parasites (once to twice a year depending on the animal's environment), even if stools are consistently normal. Parasites can cause significant intestinal problems in both animals and humans (some parasites can be transmitted from animal to humans). Test for parasites are done routinely in animals with abnormal stools. Specific treatment is prescribed based on results.
T4 by Equilibrium Dialysis	This is a confirmatory test for the presence of thyroid disease.

Family Pet Animal Hospital

1401 W. Webster Avenue • Chicago, Illinois 60614 • 773.935.2311 • FAX 773.935.4528 • www.FamilyPetAnimalHospital.com

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