Decoding Your Pet's Blood Work

A Plain-English Guide for Pet Owners

Your veterinarian hands you a printout covered in abbreviations, numbers, and reference ranges — and it can feel like reading a foreign language. Don't worry. Blood work is one of the most powerful tools your vet has to peek inside your pet's body without a single incision, and this guide will walk you through what those numbers actually mean.

Whether your dog or cat is due for a routine wellness check, being monitored for a chronic condition, or being evaluated before surgery, blood panels are a cornerstone of good veterinary care. Let's break it down.

> 📌 **Important Note**
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> *Normal ranges can vary by species, breed, age, and even the laboratory equipment used. Always discuss your pet's specific results with your veterinarian — this guide is for general education only.*

Part 1: The Complete Blood Count (CBC)

The CBC examines the cells that circulate in your pet's blood. Think of it as a census of the bloodstream.

Red Blood Cells & Related Markers

Red blood cells (RBCs) carry oxygen from the lungs to tissues throughout the body. Several measurements assess how well they are doing their job.

Marker	Typical Range*	What It Measures
Red Blood Cells *RBC*	Dogs: 5.5–8.5 M/µL Cats: 5.0–10.0 M/µL	The actual count of red blood cells. Low values may indicate anemia; high values may signal dehydration or other conditions.
Hemoglobin *HGB / Hgb*	Dogs: 12–18 g/dL Cats: 8–15 g/dL	The protein inside RBCs that carries oxygen. Mirrors the RBC count and helps confirm anemia or polycythemia (too many RBCs).

Marker	Typical Range*	What It Measures
Hematocrit / Packed Cell Volume *HCT / PCV*	Dogs: 37–55% Cats: 24–45%	The percentage of blood volume made up of red blood cells. A quick, reliable way to screen for anemia. Below normal = anemia; above normal = dehydration or RBC overproduction.
Mean Corpuscular Volume *MCV*	Dogs: 60–77 fL Cats: 39–55 fL	Average size of a red blood cell. Abnormally small cells can point to iron deficiency; abnormally large cells can indicate vitamin B12 or folate issues.
Mean Corpuscular Hemoglobin Concentration *MCHC*	Dogs: 32–36 g/dL Cats: 30–36 g/dL	How concentrated the hemoglobin is inside each red blood cell. Helps classify the type of anemia when values are abnormal.
Reticulocytes *RETIC*	Dogs: 0–1.5% Cats: 0–0.4%	Immature red blood cells. Elevated levels mean the bone marrow is working hard to replace RBCs — a sign of active regenerative anemia (a good sign after blood loss).

White Blood Cells

White blood cells (WBCs) are the immune system's front-line soldiers. The CBC reports a total WBC count plus a breakdown (differential) of each type.

Marker	Typical Range*	What It Measures
White Blood Cells *WBC*	Dogs: 6–17 K/µL Cats: 5.5–19.5 K/µL	Total count of all immune cells. Elevated WBCs often indicate infection, inflammation, or stress. Low WBCs may suggest viral disease or immune suppression.
Neutrophils *NEU / NEUT*	Dogs: 3.0–11.8 K/µL Cats: 2.5–12.5 K/µL	The most numerous WBC. These are the first responders to bacterial infection. Extremely high counts can indicate severe infection or, rarely, leukemia.
Lymphocytes *LYMPH*	Dogs: 1.0–4.8 K/µL Cats: 1.5–7.0 K/µL	Critical for long-term immune memory and fighting viral infections. Low lymphocytes are common with stress or steroid use; very high counts may indicate lymphoma.

Marker	Typical Range*	What It Measures
Monocytes *MONO*	Dogs: 0.2–1.5 K/µL Cats: 0–0.9 K/µL	Clean-up crew cells that arrive after neutrophils. Elevated in chronic infections, inflammatory disease, and some cancers.
Eosinophils *EOS / EOSI*	Dogs: 0.1–1.3 K/µL Cats: 0.1–0.8 K/µL	Respond to parasites and allergies. High eosinophils often prompt your vet to look for heartworm, intestinal parasites, or allergic disease.
Basophils *BASO*	Dogs: 0–0.1 K/µL Cats: 0–0.1 K/µL	Rare cells involved in allergic and parasitic responses. Elevated basophils are uncommon and may indicate parasitism or, rarely, a mast cell disorder.

Platelets

Platelets are tiny cell fragments that help blood clot after an injury.

Marker	Typical Range*	What It Measures
Platelets *PLT / PLAT*	Dogs: 175–500 K/µL Cats: 175–600 K/µL	Low platelets (thrombocytopenia) increase bleeding risk and may result from immune disease, tick-borne illness, or bone marrow problems. High platelets are less common but can follow inflammation or iron deficiency.
Mean Platelet Volume *MPV*	Dogs: 7–12 fL Cats: 12–18 fL	Average platelet size. Large, young platelets (high MPV) suggest the bone marrow is ramping up production, often seen when platelets are being destroyed or consumed.

Part 2: The Blood Chemistry Panel

Where the CBC looks at blood cells, the chemistry panel examines the liquid portion of blood (serum) for proteins, enzymes, and waste products — giving your vet a window into organ function.

Kidney Markers

The kidneys filter waste from the blood. When they're struggling, certain markers build up in the bloodstream.

Marker	Typical Range*	What It Measures
Blood Urea Nitrogen *BUN*	Dogs: 7–27 mg/dL Cats: 15–34 mg/dL	A waste product from protein metabolism. Elevated BUN can indicate kidney disease, dehydration, or a high-protein diet. Low BUN may signal liver disease or malnutrition.
Creatinine *CREA / CRE*	Dogs: 0.5–1.8 mg/dL Cats: 0.8–2.4 mg/dL	A muscle waste product filtered exclusively by the kidneys. Creatinine is a more specific kidney marker than BUN — elevated levels strongly suggest reduced kidney function.
SDMA *SDMA*	< 14 µg/dL (dogs & cats)	Symmetric dimethylarginine — a newer, highly sensitive kidney biomarker that can detect a loss of kidney function earlier than creatinine, sometimes by months to years.
Phosphorus *PHOS*	Dogs: 2.5–6.0 mg/dL Cats: 3.1–7.5 mg/dL	Processed by the kidneys and regulated by diet. Elevated phosphorus is a hallmark of kidney disease and can accelerate kidney damage if not managed.

Liver Markers

The liver is the body's processing plant, handling everything from nutrient metabolism to toxin removal. Multiple enzymes and proteins help assess its health.

Marker	Typical Range*	What It Measures
Alanine Aminotransferase *ALT*	Dogs: 10–125 U/L Cats: 10–100 U/L	The most liver-specific enzyme. Elevated ALT indicates damage to liver cells (hepatocytes) from toxins, infection, inflammatory disease, or cancer. Mildly elevated ALT alone is common and not always alarming.
Alkaline Phosphatase *ALP / ALKP*	Dogs: 23–212 U/L Cats: 14–111 U/L	Can be elevated with liver disease, bile duct issues, bone disease, or steroid use (especially in dogs). ALP is less specific than ALT — your vet will interpret it in context.

Marker	Typical Range*	What It Measures
Aspartate Aminotransferase *AST*	Dogs: 15–66 U/L Cats: 18–51 U/L	Found in liver and muscle cells. Elevated AST alongside elevated ALT supports liver involvement; elevated AST with normal ALT may point to muscle damage instead.
Gamma-Glutamyltransferase *GGT*	Dogs: 1–12 U/L Cats: 0–4 U/L	Particularly sensitive to bile duct disease and cholestasis (bile flow obstruction). Elevated GGT in cats is a strong indicator of hepatic lipidosis (fatty liver disease).
Total Bilirubin *TBILI / T.BIL*	Dogs: 0–0.4 mg/dL Cats: 0–0.4 mg/dL	A yellow pigment from red blood cell breakdown, processed by the liver. High bilirubin causes jaundice (yellowing of skin/eyes) and can result from liver disease, bile duct obstruction, or excessive RBC destruction.
Total Protein *TP*	Dogs: 5.4–7.6 g/dL Cats: 6.0–8.8 g/dL	The sum of albumin and globulins. Helps assess liver production capacity, hydration, and immune status. Low total protein may indicate liver disease, malnutrition, or protein loss through the kidneys or gut.
Albumin *ALB*	Dogs: 2.7–4.4 g/dL Cats: 2.2–4.0 g/dL	The main protein in blood plasma, produced by the liver. Low albumin (hypoalbuminemia) leads to fluid leaking into the abdomen or limbs, and suggests liver disease, kidney loss (protein-losing nephropathy), or gut malabsorption.
Globulins *GLOB*	Dogs: 1.6–3.6 g/dL Cats: 2.1–5.3 g/dL	Antibodies and other immune proteins. Elevated globulins can signal chronic infection, inflammation, or certain cancers (like multiple myeloma). Low globulins may indicate immune deficiency.

Electrolytes & Minerals

Electrolytes regulate nerve and muscle function, fluid balance, and acid-base chemistry. Imbalances can have rapid, serious consequences.

Marker	Typical Range*	What It Measures
Sodium *Na+*	Dogs: 144–160 mEq/L Cats: 150–165 mEq/L	The primary electrolyte controlling fluid balance. Low sodium (hyponatremia) can cause neurological signs including seizures. High sodium (hypernatremia) usually reflects dehydration.

Marker	Typical Range*	What It Measures
Potassium *K+*	Dogs: 3.5–5.8 mEq/L Cats: 3.5–5.5 mEq/L	Critical for heart and muscle function. Low potassium (hypokalemia) causes muscle weakness and is dangerous; high potassium (hyperkalemia) can trigger life-threatening heart arrhythmias.
Chloride *Cl-*	Dogs: 109–122 mEq/L Cats: 115–130 mEq/L	Balances sodium and is involved in acid-base regulation. Evaluated alongside sodium and potassium; rarely abnormal on its own.
Calcium *Ca2+*	Dogs: 8.9–11.4 mg/dL Cats: 8.0–11.0 mg/dL	Essential for bone health, nerve conduction, and muscle contraction. High calcium (hypercalcemia) is a common finding in some cancers, hyperparathyroidism, and granulomatous disease.
Bicarbonate / CO2 *HCO3 / CO2*	Dogs: 17–24 mEq/L Cats: 13–22 mEq/L	Reflects the body's acid-base status. Low bicarbonate may indicate metabolic acidosis (common in kidney disease, diabetes); high values suggest alkalosis.

Blood Sugar & Other Markers

Marker	Typical Range*	What It Measures
Glucose *GLU / BG*	Dogs: 74–143 mg/dL Cats: 64–170 mg/dL	Blood sugar. Persistently elevated glucose is the hallmark of diabetes mellitus. Stress alone can cause transient high glucose in cats. Low glucose (hypoglycemia) causes weakness, tremors, and collapse.
Cholesterol *CHOL*	Dogs: 110–320 mg/dL Cats: 65–225 mg/dL	Unlike in humans, high cholesterol in pets is usually secondary to another disease (hypothyroidism, diabetes, or liver disease) rather than diet-driven cardiovascular disease.
Triglycerides *TRIG*	Dogs: 30–300 mg/dL Cats: 10–100 mg/dL	Blood fats. Elevated triglycerides can result from hypothyroidism, pancreatitis, diabetes, or certain inherited conditions. A lipemic (cloudy) blood sample is often the first clue.

Marker	Typical Range*	What It Measures
Amylase *AMYL*	Dogs: 500–2,500 U/L Cats: 500–1,500 U/L	An enzyme produced by the pancreas and intestine. Elevated amylase can suggest pancreatitis but is not very specific — kidney disease can also raise it. Usually interpreted alongside lipase.
Lipase / cPLI / fPLI *LIP / PLI*	Dogs: 100–750 U/L Cats varies	A more pancreas-specific enzyme than amylase. Species-specific PLI tests (cPLI for dogs, fPLI for cats) are the gold standard for diagnosing pancreatitis.

Part 3: Thyroid & Hormone Markers

Thyroid disease is extremely common in older pets, but affects the two species in opposite ways.

Marker	Typical Range*	What It Measures
Total Thyroxine *T4 / TT4*	Dogs: 1.0–4.0 µg/dL Cats: 1.2–4.0 µg/dL	The primary thyroid hormone. In cats, high T4 indicates hyperthyroidism (overactive thyroid) — the most common hormonal disease in older cats. In dogs, low T4 points to hypothyroidism (underactive thyroid).
Free T4 by Equilibrium Dialysis *fT4 ED*	Dogs: 0.8–3.5 ng/dL Cats: 0.7–3.4 ng/dL	A more accurate measure of active thyroid hormone. Useful when total T4 is borderline or when other diseases may be suppressing T4 levels (a phenomenon called the 'euthyroid sick syndrome' in dogs).
Thyroid Stimulating Hormone *TSH / cTSH*	Dogs: 0.01–0.6 ng/mL Cats: not routinely tested	Released by the pituitary gland to stimulate thyroid production. Elevated TSH with low T4 is a classic finding in canine hypothyroidism — combining both tests improves diagnostic accuracy significantly.

Bonus: Urinalysis — The Blood Work Companion

While not a blood test, urinalysis (UA) is almost always run alongside blood work and is essential for a complete picture of kidney and urinary health. Key components include:

Marker	Typical Range*	What It Measures
Specific Gravity *USG*	Dogs: 1.015–1.045 Cats: 1.020–1.060	Measures urine concentration. Dilute urine with abnormal kidney markers confirms the kidneys' inability to concentrate — an important early sign of chronic kidney disease.
Protein in Urine *UPC ratio*	< 0.2 (dogs & cats)	Some protein in urine is normal, but excess protein loss (proteinuria) damages kidneys over time. The urine protein-to-creatinine ratio (UPC) quantifies how much protein is being lost.
Urine pH *pH*	Dogs & Cats: 5.5–7.5	Reflects diet and metabolic status. Abnormal pH values can predispose pets to certain types of urinary crystals and stones.
Sediment (cells, crystals, casts) —	Few to none	Microscopic examination of the urine sediment can reveal white blood cells (infection), red blood cells (bleeding), bacteria, crystals, or casts (tubular damage).

What to Do When Values Are Abnormal

Seeing a value flagged as 'HIGH' or 'LOW' on your pet's lab report can feel alarming, but context is everything. A single abnormal value rarely tells the whole story. Your veterinarian will:

Look at trends over time — a value creeping up across multiple visits is more concerning than a single borderline reading.

Consider the full clinical picture — symptoms, physical exam findings, age, breed, and any medications your pet is taking all influence interpretation.

Recommend follow-up testing — this might include a repeat panel in a few weeks, additional specialized tests, imaging (ultrasound or X-rays), or a referral to a specialist.

Never adjust medications or diets based on lab results alone without consulting your vet first. Some findings (like mildly elevated ALP in a dog on long-term steroids) require no action at all.

💡 Pro Tip: Keep a Copy of Every Lab Report

Ask your vet for a copy of each blood panel and keep them in a folder (physical or digital). Tracking trends over months and years is one of the most valuable things you can do for your pet's long-term health — especially as they enter their senior years.

Questions about your pet's blood work?

Never hesitate to call your veterinary clinic. There's no such thing as a silly question when it comes to your pet's health.