

THE BASIC PROFILE

OR

The ABC's of Diagnostics



Girl and Greyhounds; La Joie de Vivre; Wardle, Arthur (1864-1949)

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When that "basic profile" comes back from the lab, what can it tell you? The highlights in greyhounds are:

The CBC

The CBC (complete blood count) tells how many of each kind of blood cell is circulating. RBCs (red blood cells) contribute to the HCT or PCV (hematocrit or packed cell volume = the concentration of red blood cells in the sample). Hgb is the amount of hemoglobin in the RBCs. These numbers are normally high in greyhounds, low in anemia. MCV, MCH, and MCHC are calculations derived from RBC, PCV, and Hgb.

The WBC (white blood cell) count is a total of the different kinds of WBCs in the sample - segmented neutrophils, bands, lymphocytes, monocytes, and eosinophils. The breakdown of WBCs is called the differential (diff) and by its makeup can indicate a normal dog or possible infection/inflammation. The "diff" gives the doctor clues to what process or disease might be causing an abnormal WBC. WBCs can normally run low in greyhounds.

Platelets are the last component of the CBC. Platelets are the blood cells that form a "platelet plug" to stop the bleeding when you cut your finger. Greyhounds can run under or on the low end of normal platelet counts.

The Chem Panel

The lab uses serum (what is left of whole blood once the cells are removed) to determine approximately 20 "blood chemistries." There are many other tests that can be run on serum. Most "chem panels" include:

Total Protein = the sum total of Albumin + Globulin

Albumin

- a protein made in the liver
- can be lost through damaged kidneys or intestines

Globulin

- a protein produced in response to antigenic stimulation
- increased in chronic infections and some cancers

BUN – blood urea nitrogen

- increased in dehydration or kidney disease
- decreased in liver disease

Creatinine - also increased in kidney disease

- another measure of kidney function less affected by dehydration than BUN
- normally higher in greyhounds than other dogs

ALT (SGPT) - alanine transferase

- released from damaged liver cells

AST (SGOT) - aspartate transferase

- increased in liver damage, muscle damage (including intramuscular injections), or hemolysis (breakdown of RBCs). The hemolysis can be as simple as from a difficult blood draw.

ALKP (SAP) - serum alkaline phosphatase

- increased with liver disease, Cushings, steroids, some cancers & infections. Normally high in young, growing dogs.

T. Bili - total bilirubin

- pigment increased in liver disease or hemolysis which causes dog, serum, and/or urine to turn yellow (jaundice = icterus)

CPK - creatine phosphokinase

- enzyme released from damaged skeletal & heart muscle

Amylase

- digestive enzyme increased in pancreatitis, intestinal disease, or kidney failure

Lipase

- digestive enzyme which is more specific for pancreatitis

Cholesterol

- rises after eating or from pancreatitis, diabetes, hypothyroidism, or glomerulonephritis.
- doesn't clog arteries in dogs.

Glucose - "blood sugar"

- rises in diabetes, pancreatitis, seizures, or severe near-death type stress
- decreased in sepsis, insulinoma tumor, baby pups who don't eat often enough, but most often from sample sitting around too long before centrifuging

Calcium

- increased in lymphoma & other cancers
- decreased in kidney failure, post-whelping seizures, & hypoparathyroidism

Phosphorus

- increased in kidney failure

The electrolytes TCO_2 , Cl^- , K^+ , & Na^+ show a wide variety of derangements in different diseases.

TCO_2 - total carbon dioxide

Cl^- - chloride

K^+ - potassium

Na^+ - sodium

Lastly are 4 calculations:

A/G ratio - albumin/globulin ratio

- albumin should predominate over globulin in the normal dog

B/C ratio - BUN/creatinine ratio

- helps distinguish dehydration from true kidney failure

Na/K ratio - sodium/potassium ratio

- screens for Addison's disease

Anion gap = $(\text{Na} + \text{K}) - (\text{Cl} + \text{bicarbonate})$

- reflects acid/base status

There are many other less important or more obscure possibilities for elevations and decreases in these parameters that were omitted for space and clarity. Many values are only something to worry about if they're either elevated or decreased, but not necessarily both. These are the

basics.