What's with those Blood Tests???

When your veterinarian sends your greyhound's blood to the lab he is most commonly asking the lab to run a CBC (Complete Blood Count). This common analysis covers these items:

RBC – Red Blood Cells
Hgb – Hemoglobin
PCV/HCT – Packed Cell Volume/Hematocrit
WBC – White Blood Count

For a more in-depth look, usually to determine kidney/liver functions, the veterinarian may also ask for a "Chem Panel". This will give them information about:

T.P. – Total Protein and Globulin
Creatinine
T4 (Thyroid)

If you don't understand what your veterinarian has ordered, ask!

Greyhound blood work has enough differences from "other dog" blood work to sometimes make it deceiving "normal" or "abnormal" if one isn't familiar with these differences. The salient differences are discussed below.

RBC, Hgb, and PCV/HCT

Greyhounds:
RBC: 7.4-9.0
Hgb: 19.0-21.5
PCV: 55-65
Other Dog Breeds:
RBC: 5.5-8.5
Hgb: 12.0-18.0
PCV: 37-55

Greyhounds have significantly more red blood cells than other breeds. This elevates parameters for RBC, hemoglobin, and PCV/HCT, and is the reason greyhounds are so desirable as blood donors. Most veterinarians are aware of this difference.

Never accept a diagnosis of polycythemia – a once-in-a-lifetime-rare diagnosis of pathologic red cell overproduction – in a greyhound.

Conversely, never interpret a greyhound PCV in the 30s–40s as being normal just because it is for other dogs. A greyhound with a PCV in the 30s–40s is an anemic greyhound. Here in Arizona, a greyhound PCV less than 50 is a red flag to check for Erhlichia.

WBC

Greyhound: 3.5-6.5
Other dogs: 6.0-17.0

Other greyhound CBC changes are less well known. The greyhound's normally low WBC has caused more than one healthy greyhound to undergo a bone marrow biopsy in search of "cancer" or some other cause of the "low WBC".

Platelets

Greyhound: 80,000-200,000
Other dogs: 150,000-400,000

Likewise, greyhound platelet numbers are lower on average than other breeds, which might be mistakenly interpreted as a problem. It is thought that greyhound WBCs, platelets, and total

protein may be lower to physiologically “make room” in the bloodstream for the increased red cell load. Compounding these normally low WBC and platelet numbers is the fact that Ehrlichia, a common blood parasite of greyhounds, can lower WBC and platelet counts. So if there is any doubt as to whether the WBC / platelet counts as normal, an Ehrlichia titer is always in order. The other classic changes with Ehrlichia are lowered PCV and elevated total protein. But bear in mind that every greyhound will not have every change, and Ehrlichia greyhounds can have normal CBCs.

T.P. and Globulin

Greyhound TP: 4.5-6.0
Other dogs TP: 5.4-7.8
Greyhound Globulin: 2.1-3.2
Other dogs Globulin: 2.8-4.2

Greyhound total proteins tend to run on the low end of normal – T.P.s in the 5.0s and 6.0s are the norm. While the albumin fraction of T.P. is the same as other dogs, the globulin component is lower.

Creatinine

Greyhound: 0.8-1.6
Other dogs: 0.0-1.0

Greyhound creatinines run higher than other breeds as a function of their large lean muscle mass. A study at the Auburn University of Veterinary medicine found that 80% of retired greyhounds they sampled had creatinine values above the standard reference range for “other dogs”. As a lone finding, an “elevated creatinine” is not indicative of impending kidney failure. If the BUN and urinalysis are normal, so is the “elevated” creatinine.

T4 (Thyroid)

Greyhound: 0.5-3.6 (mean 1.47+/-0.63)
Other dogs: 1.52-3.60

These figures are from a University of Florida study of thyroid function in 221 greyhounds – 97 racers, 99 broods, and 25 studs – so it included bother racers and “retired”. While greyhound thyroid levels are a whole chapter unto themselves, a good rule of thumb is that greyhound T4s run about half that of other breeds.

Urinalysis

And lastly, the good news – greyhound urinalysis is the same as other breeds. It is normal for males to have small to moderate amounts of bilirubin in the urine.

Sources: M.R. Herron, DVM, ACVS, Clinical Pathology of the racing Greyhound, 1991. C. Guillermo Couto, DVM, ACVIM, “Managing Thrombocytopenia in Dogs & Cats,” Veterinary medicine, May 1999. J. Steiss, DVM, W. Brewer, DVM, E. Welles, DVM, J. Wright, DVM, “Hematologic & Serum Biochemical Reference Values in Retired Greyhounds,” Compendium on Continuing Education, March 2000. M. Bloomberg, DVM, MS, “Thyroid Function of the Racing Greyhound,” University of Florida, 1987. D. Bruyette, DVM, ACVIM, Veterinary Information Network, 2001.