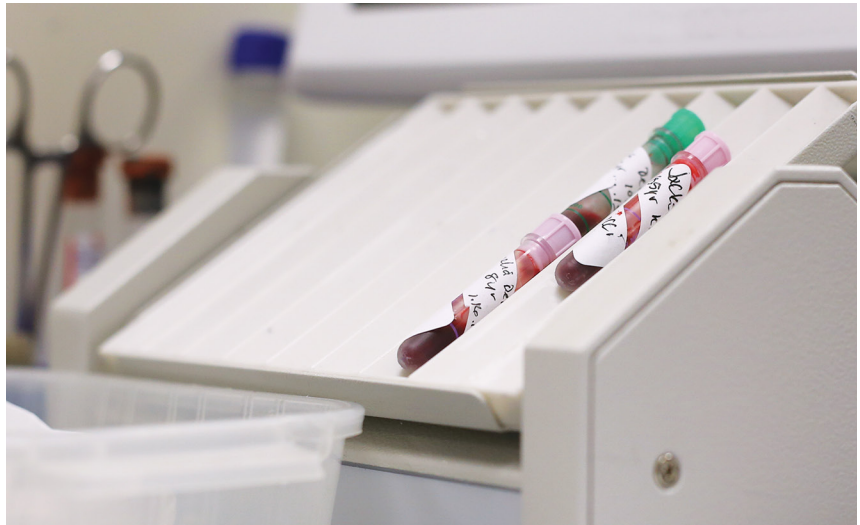


## Reticulocytosis in the Absence of Anemia

Reticulocytes are immature, anuclear RBCs that contain ribosomal RNA and mitochondria, which can be stained with new methylene blue. In erythropoiesis, reticulocytes are the last precursor to mature erythrocytes. Most often, reticulocytosis in the absence of anemia (RAA) is associated with a recent anemia or hemolysis that has resolved, or it occurs in response to hypoxia. In recent years, some laboratories have noticed a possible increase in RAA.

This study, which evaluated RAA prevalence in dogs presented to a Canadian veterinary teaching hospital, attempted to identify factors associated with RAA. Authors found that RAA prevalence remained about the same from 2000 to 2006, then increased significantly from 2006 to 2012. After 2006, the 853 dogs identified as having RAA were more likely to have microcytosis and a lower mean corpuscular volume as compared with dogs identified with RAA before 2006 ( $n = 182$ ). Dogs with RAA evaluated after 2006 were also more likely to have osteoarthritis and to have taken NSAIDs, omega-3 fatty acids, and glucosamine. Additionally, dogs with RAA had significantly lower mean iron concentration and percent transferrin saturation and significantly higher total iron-binding capacity.

These data suggest that the increased RAA rate in dogs could be secondary to a combination of risk factors, including increased NSAID use, that may result in chronic blood loss.



## Reticulocytosis in a nonanemic dog should prompt the veterinarian to search for evidence of hemorrhage.

### Commentary

Reticulocyte counts have traditionally been performed only when anemia was present. However, with the advent of automated hematology instruments, reticulocyte counts can easily be performed as part of routine hematologic evaluations whether or not anemia is present. This paper demonstrated a potential benefit of performing a reticulocyte count in blood from nonanemic dogs. Reticulocytosis in a nonanemic dog should prompt the veterinarian to search for evidence of hemorrhage, especially if the mean corpuscular volume is low-normal or decreased. However, it should be noted that a compensated hemolytic anemia may also have a reticulocytosis, with the

hematocrit within the reference interval. In this instance, mean corpuscular volume would be normal or increased. Finally, the spleen has a higher reticulocyte concentration than peripheral blood; consequently, splenic contraction in response to sympathetic stimulation (excitement or exercise) may produce a transient reticulocytosis.<sup>1</sup>

—John W. Harvey, DVM, PhD, DACVP

### Reference

1. Horvath SJ, Couto CG, Yant K, et al. Effects of racing on reticulocyte concentrations in Greyhounds. *Vet Clin Pathol*. 2014;43(1):15-23.

### Source

Pattullo KM, Kidney BA, Taylor SM, Jackson ML. Reticulocytosis in nonanemic dogs: increasing prevalence and potential etiologies. *Vet Clin Pathol*. 2015;44(1):26-36, 2015.