

A Glance at Anemia in Cats

Cats tend to be prone to anemia because of their low blood volume and the short lifespan of the feline RBC (70 days). Compensatory mechanisms enable anemia tolerance in chronic conditions, with signs apparent mostly in acute cases.

Nonregenerative anemia tends to be chronic, usually caused by primary bone marrow disorders or systemic bone marrow suppression. Anemia of inflammatory disease and chronic kidney disease (CKD) are common causes of chronic anemia. Pure red cell aplasia is caused by selective erythroid bone marrow depletion. Less common are myeloproliferative disorders or myelophthisis. Regenerative anemia from blood loss is common (especially after trauma), as is hemolysis. Aggregate (as opposed to punctate) reticulocytes reflect active regeneration; a rising reticu-

loocyte count may not be evident for 3–5 days and peaks at 5–7 days. PCV may take 2–3 weeks to normalize after bleeding.

Signs (eg, pallor, weakness, jaundice, fever, pica, tachycardia, heart murmur, tachypnea, splenomegaly, hepatomegaly) are largely based on anemia severity, commonly classified as *mild*, *moderate*, *severe*, or *very severe* (PCV <10%). Nonregenerative anemia is characterized by minimal anisocytosis, polychromasia, and low reticulocyte count with normocytic/normochromic erythrocytes. Treatment includes addressing primary or secondary disorder, blood transfusions as needed, and oxygen supplementation for cats with acute signs.

■ Commentary

In humans, chronic anemia can lead to fatigue, nausea, dizziness, and weakness,

suggesting that these signs may be true for cats. This may be especially important in CKD cases, where up to 40% of cats with end-stage disease may be anemic. Careful attention to diet, husbandry, and clinical changes (eg, poor hair coat, pallor, weakness) must be paid when determining if anemia treatment is warranted. Although vitamin or iron therapy has not been shown to improve chronic anemia in certain disease states, benign supplementation may help improve some aspects of quality of life.—*Heather Troyer, DVM, DABVP, CVA*

■ ■ Source

Diagnostic approach to anaemia in cats. Tasker S. *IN PRACT* 34:370-381, 2012.

Omega-3 Fatty Acid Supplementation: Choose Wisely



Adiponectin has antiinflammatory and profound insulin-sensitizing and lipid-lowering effects through actions on the skeletal muscle and liver. Sixty-two client-owned dogs with varying BCSs (median, 5.5; range, 4–9) were studied to determine associations between serum concentrations of omega-3 polyunsaturated fatty acids or body condition and serum concentrations of adiponectin, leptin, insulin, glucose, or triglyceride. For 3 months before the study, the dogs were exclusively given nutritionally balanced commercial foods and no dietary supplement products

or medications besides routine anthelmintics. Fasted serum samples were taken for total lipid determination; fatty acid analysis; and concentrations of adiponectin, leptin, insulin, glucose, and triglyceride.

Serum concentrations of docosapentaenoic acid (DPA) were positively associated with adiponectin and leptin concentrations and negatively associated with triglyceride. A positive association existed with serum concentrations of α -linolenic acid and triglyceride. There was significant positive association with percentage body fat and concentrations of leptin, insulin, or triglyceride, and with insulin resistance. Age was positively associated with leptin, insulin, and triglyceride concentrations and negatively associated with concentrations of adiponectin. DPA may increase adiponectin and leptin concentrations and decrease triglyceride concentrations in healthy dogs.

■ Commentary

This study emphasized why generic fish oil or omega-3 fatty acid supplement are less than optimal. There was a positive relationship between serum DPA and hormones adiponectin and leptin. DPA, a metabolite of eicosapentaenoic acid (EPA), is rarely found in supplement products. The study also measured serum alpha linolenic acid, common in supplements, but found no significant relationship with adiponectin or leptin. Hence a dietary supplement recommendation for omega-3 fatty acids should specifically state that the product contains EPA. Not all fish, omega-3, or flaxseed oil products contain EPA.—*Rebecca Remillard, PhD, DVM, DACVN*

■ ■ Source

Effect of omega-3 polyunsaturated fatty acids and body condition on serum concentrations of adipokines in healthy dogs. Mazaki-Tovi M, Aboud SK, Schenck PA. *AM J VET RES* 73:1273-1281, 2012.