

## **Hemolytic Anemia of the Basenji Dog**

***(Also known as Pyruvate Kinase Deficiency Hemolytic Anemia)***

This is quoted from "A Review of Hemolytic Anemia," by Russell V. Brown, Ph.D., 1983

"There are two types of anemia that have been found in the Basenji. One is a nonhereditary type called autoimmune anemia. This happens when the dog produces antibodies that will attack its own red blood cells. This can be treated, by giving drugs like steroids, to shut down the immune system temporarily. Transfusion of blood can be given to keep the red cell count up. As the antibodies in the blood go down in number the anemia becomes less severe. Dogs that would have died have recovered with proper treatment.

The other type of anemia is, of course, the hereditary type, where the red cells have a genetically controlled defective pyruvate kinase activity. This is not a curable anemia. Removal of the spleen & transfusions may prolong life, but the enzyme defect is permanent.

Because of the short life span of red cells in the dog with hemolytic anemia, the bone marrow must replace the red cells more rapidly than normal. The bone marrow is not capable of this with mature red cells, so immature red cells (erythroblasts or eritculocytes) are released into the blood..."

### *Pyruvate Kinase Deficiency Hemolytic Anemia per VetGen*

"Pyruvate kinase deficiency in Basenji dogs is an inherited lack of an enzyme (pyruvate kinase) in the red blood cells of an affected animal. This enzyme is required for red blood cells to survive for a normal length of time in the blood of the animal, and when it is missing, the red blood cells break down and are destroyed prematurely. This leads to lifelong anemia in the affected animal. The symptoms of anemia are lack of energy, low exercise tolerance, easy fatigability, and probably reduced fertility.

This disease is inherited as an autosomal recessive. This means that affected animals have two doses of the mutant gene. Dogs that have one mutant and one

normal gene are called carriers. Carriers are not ill (they do not have anemia), but can produce affected offspring if mated to another carrier."

Due to the ability to test for this condition, there should never be another HA basenji born. Please test your dogs before breeding. Please note - in 2003 there has been at least one known HA carrier born - so the disease is still out there and if not tested for or responsibly bred away from, it could still be a problem in some lines. Visit the Orthopedic Foundation for Animals ([offa.org](http://offa.org)) and search to see if any basenji you are interested in has been genetically cleared for this disease.

For a list of where testing can be obtained: <http://www.offa.org/dnaother.html>