

SP

ANIMAL KEEPERS' FORUM



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RHINO TRACKS

by

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&

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Greetings from the home of the World
Champion Denver Broncos!! We know
you are all working hard to dig up infor-



mation from last month's survey of rhino illnesses. In the meantime, we would like this column to be used as a bulletin/update on rhino happenings in our community. We received several queries at the National Conference about the relationship between the unusual physiology of black rhino red blood cells (RBC's) and the unusual diseases found in the black rhino. The topic will therefore, be addressed in this issue.

The following is a summary of a bulletin "Notification to veterinarians regarding acute hemolytic anemia in the African black rhinoceros," by Dr. Donald E. Paglia, M.D. of UCLA:

Dr. Paglia demonstrated that normal black rhino RBC's had a marked sensitivity to oxidant stress. He believes that this sensitivity can be attributed to very low concentrations of adenosine triphosphate, (ATP) within the erythrocytes. His research found that ATP concentrations in black rhino RBC's were approximately 2-5% of the amount normally found in humans and most other mammals. Amazingly, it appears that such low ATP levels are probably normal for the black rhino.

Due to the fact that ATP is responsible for providing cellular energy for neutralizing oxidizing agents, black rhino RBC's would clearly be highly susceptible to oxidant stress. It appears likely that this situation is a main contributing factor in hemolytic anemia and perhaps other diseases seen in the black rhinoceros. Dr. Paglia compared hemolytic episodes in rhinos to similar hemolysis in humans which is induced by an enzyme deficiency acted upon by oxidizing agents.

On this basis, Dr. Paglia advised that it would be prudent to treat all rhinoceroses in the same manner as these deficient humans. With humans, rigid precautions are taken to protect them from "potential initiators of hemolysis."

Dr. Paglia recommended that special precautions should be taken to avoid exposing rhinos to the following:

"Pharmaceuticals indicted in the induction of hemolysis in humans":
Antimalarials, sulfonamides, sulfones, nitrofurans, acetanilid, chloramphenicol, and some Vitamin K analogues.

Drugs associated with hemolysis, but role unknown: aspirin, phenacetin, aminopyrine, acetaminophen, probenecid, Vitamin C, dimercaprol, p-aminosalicylic acid and L-DOPA.

(NOTE: some of these products are used as they are in some cases, reasonable for use with rhinos or may be the only available option for treatment.)

Food: Fava beans, certain oak and red maple leaves, wild onions, and feed or browse contaminated with insecticides, herbicides or chemical fertilizers.

Chemical agents: wood preservatives (esp. creosote), rodent control poisons or other pesticides, strong cleansers (esp. those containing naphthalene).

Infections: Viral (esp. leptospirosis), bacterial and rickettsial infections.

(NOTE: To the best of our knowledge, there has not been an episode of hemolytic anemia in black rhinos since vaccination for leptospirosis began.)

Please continue to compile data on rhino illnesses and send them to your species information coordinator. If you have bulletin or update information please send it directly to "Rhino Tracks"/ Christine Bobko, 2900 E. 23rd Ave., Denver, CO 80205

Information Please

We're looking for anybody who has any experience with neurological problems in any lemur species, especially with toxoplasmosis and baylisascaris. Please contact: Jeannette Beranger, Roger Williams Park Zoo, Elmwood Ave., Providence, RI 02905; (401) 785-3510.



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