
EFFECTS OF CAPTURE AND TRANSPORT ON CLINICAL CHEMISTRY ANALYTES IN WHITE RHINOCEROSES (*Ceratotherium simum*) TRANSLOCATED FOR OVER 30 HOURS

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Abstract

Translocation is a strategy used for the management of white rhinoceros (*Ceratotherium simum*) populations in Southern Africa.² Capture and transport are part of translocation and expose the animals to a variety of stressors that might ultimately lead to translocation failure.¹

The aim of this study was to establish a more comprehensive understanding of the pathophysiology and “stress” associated with capture and transport of white rhinoceroses. Thirty-two sedated white rhinoceroses were transported over 1,200 km by road from South Africa to Botswana as part of the Rhinos Without Borders project (www.rhinoswithoutborders.com). Paired blood samples were collected from animals at capture and release and investigated for changes in twenty-two selected clinical chemistry analytes. A Wilcoxon rank sum test was used to compare results between capture and release.

All rhinoceroses survived the translocation. Significant ($p < 0.05$) increases in urea, creatinine, sodium, chloride, calcium, aspartate transaminase, creatine kinase, total bilirubin, and decreases in cholesterol, magnesium, phosphorus, potassium, lactate and glutamate dehydrogenase occurred. Similar changes in serum biochemistry have been reported in transported farm-animals and have been attributed to dehydration, metabolic shifts and skeletal muscle damage.⁴ Surprisingly, serum cortisol concentrations were not different at release, possibly indicating efficacy of the sedative drugs used, habituation to transport-stress, or “exhaustion” of the hypothalamic-pituitary–adrenal axis in response to prolonged exposure to stressors associated with translocation.^{1,3} These preliminary results suggest that white rhinoceroses experience significant pathophysiological changes during capture and transport. Potential implications for animal welfare and the animal’s adaptation to novel environments need to be further assessed.

Key words: *Ceratotherium simum*, clinical chemistry, stress, translocation, transport, white rhinoceros

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