Androgen Analysis as a Possibile Measure to Increase Breeding Success in White Rhinoceros

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Androgens play a major role in social and sexual behavior of mammals. They mediate sexual behavior and affect the likelihood of mating. An understanding of the interaction between androgens, environmental factors and behavior is critical for the captive management of white rhinoceros as the breeding program suffers from low success. Zoological gardens are making great efforts to breed their populations, but artificial insemination or embryo transfer face restrictions from a lack of basic information on the reproductive biology of the species. The purpose of this study was to validate a non-invasive method for monitoring testosterone levels in the blood in order to link mating and reproductive behavior to testosterone profiles of the rhinoceros.

The study was conducted on a South African game farm. Five territorial males were monitored continuously over a period of two years. Fecal samples were collected twice per week. Application of GnRH was used to verify the noninvasive method. The reproductive behaviour of the white rhinoceros showed to be influenced seasonally, with increasing androgen concentrations in spring. Testosterone secretion increased by the presence of a reproductive female. Sexual stimulation is discussed to serve as a tool to increase mating activity in captive male white rhinoceros.

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