

ENERGETICS: THE LINK BETWEEN FORAGING AND REPRODUCTIVE STRATEGIES IN MALE RHESUS MACAQUES

J.P. Higham¹, M. Heistermann², D. Maestriperi¹

¹*University of Chicago, Chicago, Illinois, USA*, ²*German Primate Center, Göttingen, Germany*

Presenter's Email: jhigham@uchicago.edu

In many catarrhine species living in multi-male multi-female groups, male behavioral reproductive strategies are costly, with males forgoing feeding opportunities to undertake mate guarding and consortship behaviors. As a consequence, male body condition typically deteriorates through the breeding season. Though numerous studies have quantified the benefits of such behaviors, showing that they increase paternity likelihood, quantifying the direct costs of such strategies in free-ranging primates has proved more difficult. In rhesus macaques, it has been suggested that male reproductive strategies are linked to their foraging strategies, with energetic status determining differences in the relative abilities of males to sustain reproductive activity throughout the breeding season (endurance rivalry). In turn, these differences may be key in understanding the variety of male strategies employed (e.g. mate-guarding, sneaking matings etc.), and their flexibility of use within and between males. Using a combination of behavioral observations of male mating and feeding, measures of urinary c-peptide of insulin, and androgen and glucocorticoid values, we test the following predictions: 1) that mate-guarding is energetically costly, and that males mediate these costs through flexibility in mating and feeding behavior; 2) that male nutritional status and body condition determine whether they can sustain mate-guarding throughout the breeding season, with highly successful but costly mate-guarding strategies demonstrably too metabolically expensive to be sustainable for some males, and alternative reproductive tactics enforced in part by metabolic constraints. Such research in non-human primates allows comparative consideration of relationships between energetics and reproduction during human evolution.

Keywords: energetics, foraging, reproductive strategies, urinary c-peptide