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RELATIONSHIPS BETWEEN REPRODUCTIVE HORMONES AND FEMALE BEHAVIOR IN RHESUS MACAQUES ON CAYO SANTIAGO.

T.M. Mandalaywala[1], J.P. Higham[1], M. Heistermann[2], D. Maestripieri[1]

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

Presenter's Email: tmandalaywala@uchicago.edu

During the ovarian cycle, female primates undergo behavioral changes that are proximately related to changes in underlying physiology, and that may ultimately be selected to indicate reproductive state to conspecifics. Numerous studies of captive populations have presented data on relationships between ovulation and female behavior during the cycle, but such studies are rarer for free-ranging populations. Here, for 23 female rhesus macaques on Cayo Santiago, Puerto Rico, we present data on relationships between female endocrine parameters (estrogen and progestogen levels) measured non-invasively from feces, estimates of the timing of ovulation based on these levels, and social and sexual female behaviors such as aggression, grooming, presenting and copulating recorded during the mating season. Endocrine results showed typical cycling patterns, with estrogen values peaking 3-4 days before a 3-fold post-ovulatory increase in progestogen levels in composite cycles. Our analyses also allowed us to time ovulation to a 2-day window in 11 cycles. We use these endocrine results to investigate whether female behavior varies specifically with the timing of ovulation and the fertile phase, and hence has the potential to indicate the occurrence of ovulation to other individuals. We then investigate inter-individual variation in endocrine and behavior relationships in all 23 females, and determine whether they are affected by factors such as female rank and the presence of bystanders (infants and other females). We finish by comparing our results to studies of captive rhesus macaques, to investigate similarities and differences between the patterns observed in our data and those found in previous studies.

Keywords: female sexual behavior, signaling, reproductive hormones, by-stander effects.