



ABSTRACTS

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G-STEM Cohorts

Research Project Name

1. The Effects of Maternal Rank has on Infant Outcomes.....
..... Amani Lee
2. Is rank associated with the stress levels and social interactions of female green monkeys?
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The Effects of Maternal Rank has on Infant Outcomes

Written by: Amani Lee

Maternal characteristics and their relationship with infant outcomes have been investigated in many species, including primates. However, most research has typically focused on select primate groups such as rhesus and Japanese macaques. Studies suggest that maternal rank can influence the offspring's social behavior, its future rank, and even its chances of survival in the environment. Therefore, the goal of this study was to investigate the relationship between maternal rank and the social behaviors of a group of infant green monkeys (*Chlorocebus sabaeus*) living in Barbados. Using naturalistic observations and focal sampling techniques, four mother- infant pairs, living in a free-ranging social group were observed over the course of three weeks. Each mother-infant pair was observed for a total of five hours, and behaviors related to infant affiliation, aggression, stress, and solitary behavior were collected. Maternal rank was determined by food displacement tasks, and the mothers were classified as either high or low ranking. Results revealed that infants of low ranking mothers exhibited more stress than infants of high ranking mothers. These results are congruent with those reported in other studies, and further suggest that even at a few weeks of age, maternal rank is associated with stress in infants. The long-term implications of these results will be discussed.

Is Rank Associated with the Stress Levels and Social Interactions of Female Green Monkeys?

Written by: Gaina-Yvan Pierre

Social hierarchies serve similar functions in various primate species, particularly with regard to social order and dominance maintenance. Differences in dominance style elicit unique patterns of social behavior among female non-human primates. While some females aggressively assert their dominance, others inherit their rank or engage in various affiliative behaviors to increase their status. Furthermore, differences in dominance maintenance and hierarchal stability produce varying degrees of stress and agonistic behavior among female primates. The present study examined whether differences in rank influenced the expression of affiliative, agonistic, and stress-related behaviors, among a group of adult female green monkeys (*Chlorocebus pygerythrus*). A three-week, naturalistic observational study was conducted at the Barbados Wildlife Reserve in Barbados, West Indies. Researchers collected 30 hours of focal observations on 7 adult females. A series of independent samples t-tests were conducted to identify differences in affiliative, agonistic, and stress-related behaviors between high ($n=4$) and low ranking animals ($n=3$). There were no significant difference between high and low ranking animals. However, strong effect sizes were obtained for both aggressive and affiliative behaviors, with high ranking animals exhibiting higher rates of these behaviors towards other animals. Together, these findings suggest that rank may be associated with the social interactions of adult female green monkeys, but a larger sample size would need to be utilized to confirm this. Our results concur with Rowell's (1974) findings which suggest that initiators of agonistic behavior among despotic, adult female green monkeys typically have high ranks.

Bacteria and Viruses In Freshwater: A Historical Record of Past Pollution

Written by: Natasha Spence

The study focuses on the microbial content of four different freshwater sources in Glasgow Scotland. The sources are Kelvin Grove Fountain, Kelvin River, Loch Ness, and a pond near Fort Augustus known as Jenny's Pond. The bacteria in the water were grown, isolated, gram stained, endospore stained, and sequenced using the 16s rRNA. Pollution levels were determined using a colony count ratio grown at 22C (water temperature) and 37C (body temperature). The bacteria were placed on Blood, MacConkey, Mannitol Salt, and Eosin Methylene blue Agar. Also viruses were tested using bacteriophage plaque assay. The bacteriophage assay made with the filtered Kelvin water and bacteria DS902, showed 13 plaques on the nutrient agar plate. However, there were no plaques present from the chosen bacteria samples from the Kelvin River. There were also no plaques present from the remaining three water sources. The Kelvin Grove Water Fountain and Loch Ness were not polluted water sources. However, the Kelvin River, Cyprus Duck pond and Jenny's pond were polluted according to the ratio calculated. The Kelvin Grove Fountain had the highest ratio, which was 17.5. Loch Ness also had a high ratio of 13.21. These water sources contained several pathogenic bacteria. The Kelvin River had the lowest ratio, which was 0.8. Jenny's Pond had a low ratio of 5.