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## COMUNICAÇÕES ORAIS – ETOLOGIA APLICADA

### **Capuchin monkeys' behavioral profiles and their relation to coping strategies**

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Individual differences are a hotly debated theme in modern biology; and it has been proposed that the animal personality can influence the way an individual animal cope with stress. Capuchin monkeys (*Sapajus libidinosus*) is a omnivorous species with a large neocortex index and rich repertoire. In this work, we tested the hypothesis that different Genus Normative Behavior (GNB) profiles would have different relations with the total of fast (>3 seconds) and slow (<3 seconds) Behaviors Potentially of Stress (BPIS) exhibitions. From a sample of 31 captive brown capuchin monkeys housed at Natal and Cabedelo rescue centers, and João Pessoa zoo, we registered over 170 hours of instantaneous behavioral records. PCA (Principal Component Analysis) of the animals' GNB yielded four factors, labeled as 'Feeding/Sexual', 'Sociability', 'Exploration', and 'Activity'. We then compared these factors with the mean frequencies of fast and slow BPIS through a partial Pearson correlation (controlling for hierarchy) using a bootstrap with 1000 samples. As expected, the 'Activity' axis correlated positively with fast BPIS ( $r = 0.363$ ;  $p = 0.049$ ), and negatively with slow BPIS ( $r = -0.553$ ;  $p = 0.002$ ). We also found a negative trend between 'Sociability' and fast BPIS ( $r = -0.351$ ;  $p = 0.057$ ). Our results corroborate models indicating that individuals cope with stress differently, using either a more proactive strategy (fast BPIS and being more active) or a more reactive strategy (slow BPIS and being more inactive) when facing chronic stresses of captivity.

**Keywords.** Behavioral profiles, coping strategies, welfare



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## COMUNICAÇÕES ORAIS – FISIOLOGIA DO COMPORTAMENTO

### **Coping with crowding: Cortisol levels of captive brown capuchin monkeys (*Sapajus libidinosus*) in zoos and rescue centers**

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Highly altered environments can trigger physiological responses in order to adapt the organism to a new condition. Cortisol levels is a common indicator of physiological stress in mammals. Capuchin monkey (*Sapajus* spp) is the second most common primate found in zoos and rescue centers in Brazil, with an estimated captive population of 250 individuals. In this work, we tested the hypothesis that increased crowding and exposure to visitors leads to increased levels of fecal glucocorticoid metabolites (FGM) in brown capuchin monkeys (*S. libidinosus*). We collected data on 24 males and 25 females, distributed in 13 groups allocated on rescue centers and zoos of northeast Brazil (RN, PB and BA). Fecal samples (N= 1810) were hydrolyzed and dosed in a competitive ELISA assay for fecal glucocorticoid metabolites (FGM) (intra and inter CVs were 0.18 and 0.19, respectively). We employed SPSS 21 program for a linear regression model selection. Best model (AIC= - 219,371) kept all variables as significant, with strong and positive influence for population density ( $r = 0,592$ ;  $p < 0,001$ ;  $b_1 = 0,248$ ), moderate and negative influence for “access to visitors absent” ( $r = 0,312$ ;  $p < 0,001$ ;  $b_{2\text{absent}} = -0,230$ ) and very weak positive influence for “sex” ( $r = 0,096$ ;  $p = 0,041$ ;  $b_{\text{male}} = 0,094$ ). Using MFG levels as an indicator allostatic load, our data confirms that: individuals living in captivity are in low welfare conditions, sexes do not differ much in their MFG levels, crowding is a strong stressor for capuchin monkeys, and exposure to humans is a further challenge animals must cope with. This suggest that individuals living in Zoos can be more stressed than those living in CETAS.

**Keywords.** *Sapajus*, physiological stress, captive environment