

Non-Human Primate Neuropharmacology Refinement: Polysomnography and Regional qEEG with Social Housing in ETS 123 Compliant Cages

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INTRODUCTION

Video-EEG with telemetry is an established method for neuropharmacological assessments. Legacy telemetry technologies employed analogue signal with a capture range of 1 meter which was associated with limitations for the application of social housing in European compliant cages. The use of an expanded EEG montage in telemetry polysomnography may enable characterization of regional qEEG differences per vigilance stage.

METHODS

Digital transmitters (DSI L04 and M01) were used to record EOG, EMG, and EEG (Oz-Fz, F3-Fz, and Fp2-Fz) simultaneously. Cynomolgus monkeys (8 males and 8 females) were pair housed during recording in ETS 123 compliant cages. Infrared cameras were used for video-EEG analysis and for vigilance state assessments. Signals were recorded at 500 or 1000 Hz and analyzed for polysomnography and qEEG. The ethogram from animals that were paired for more than 2 months were compared to newly paired (Day 1 and 2 post-pairing) and single housed animals.

Figure 1A - Time spent together and separated during day time after long-term pairing in cynomolgus monkeys.

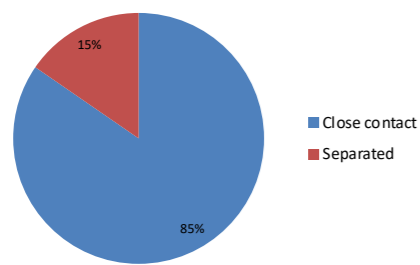


Figure 1B - Time spent together and separated day time for newly paired cynomolgus monkeys.

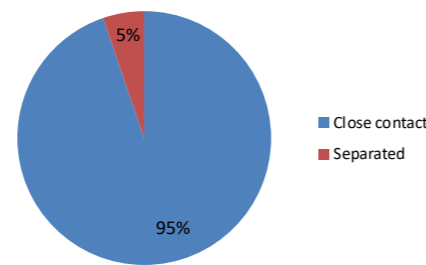


Figure 2A - Time spent in the front and in the back of the cage during day time for single housed cynomolgus monkeys.

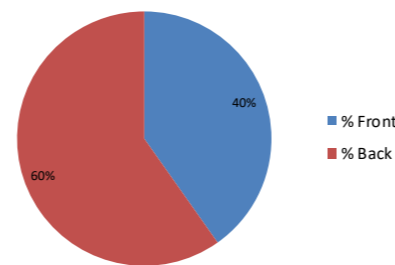


Figure 2B - Time spent in the front and in the back of the cage during day time for newly paired cynomolgus monkeys.

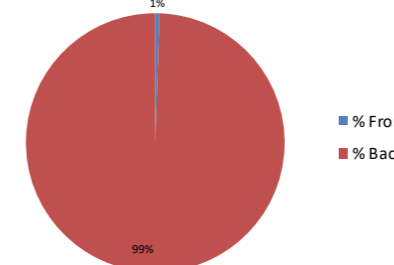


Figure 2C - Time spent in the front and in the back of the cage during day time for long-term pairing in cynomolgus monkeys.

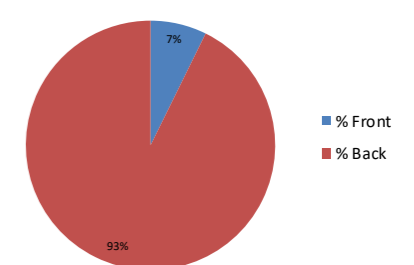


Figure 3A - Selected behaviors during day time in cynomolgus monkeys.

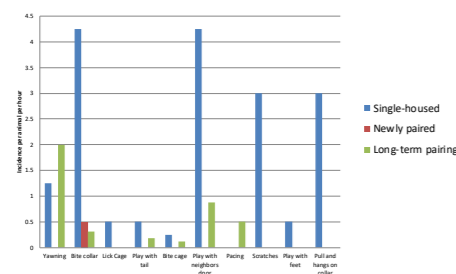


Figure 3B - Selected behaviors at feeding time in cynomolgus monkeys.

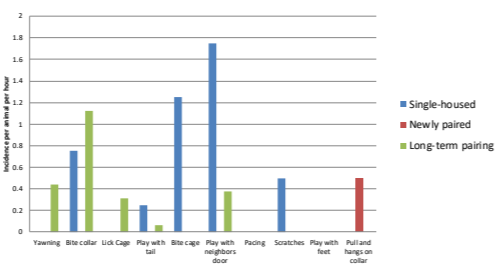


Figure 3C - Selected behaviors during night time in cynomolgus monkeys.

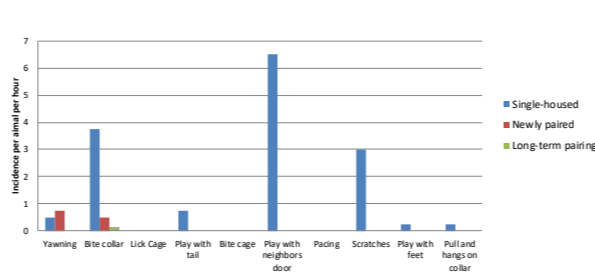


Figure 4A - Selected behaviors during day time in cynomolgus monkeys.

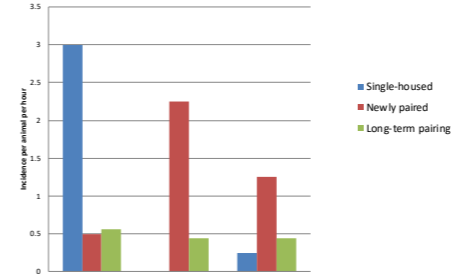


Figure 4B - Selected behaviors during night time in cynomolgus monkeys.

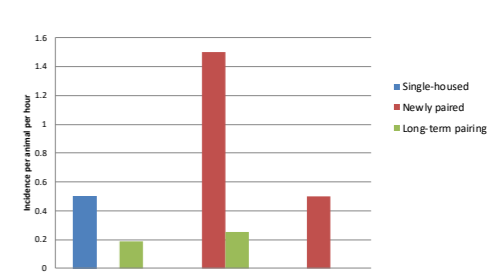


Figure 5 - Summary of repetitive behavior incidence in cynomolgus monkeys.

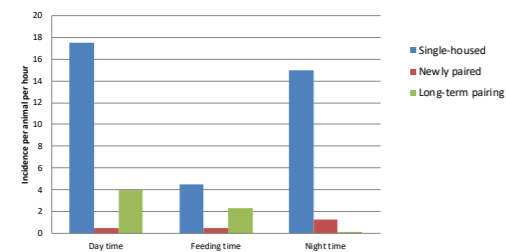


Figure 6A - Power bands during night time wake periods in cynomolgus monkeys.

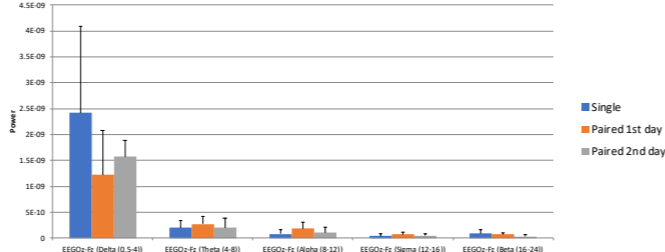


Figure 6B - Beta band during night time wake periods in cynomolgus monkeys.

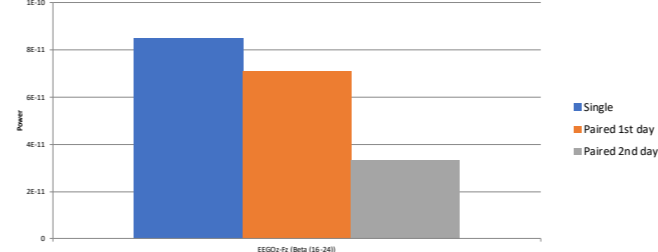


Figure 7 - Polysomnography in cynomolgus monkeys.

