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Project Summary 2017 – ISAE Regaional

Laboratory lighting is poorly suited to rodent natural preference for low light. Some laboratories reduce light levels by using intracage shelters made of red tinted plastic. Red tinted plastics decrease light intensity and change light spectrum, which may impact rodent welfare. Tickling is a habituation technique that can be used to measure rat positive affect via production of 50-kHz vocalizations and improve rat welfare. When tickled, rats produce 50-kHz ultrasonic vocalizations indicative of positive affect. We hypothesized that altering cage environment by manipulating light intensity and spectrum will alter rat affect as measured through tickling.

Albino and pigmented rats were bred in either red or clear colored caging with low or high light intensity. We housed same-sex pairs of offspring in the same cage color and light intensity as they were reared. Overall, these treatments were applied in a factorial design: 2 cage colors, 2 lighting intensities, 2 strains, and 2 sexes (48 rats). Three days after weaning, rats were tickled 2 minutes daily for 7 days, and ultrasonic vocalizations were recorded.

All rats in red cages produced more positive vocalizations at 200 lux than 25 lux. Regardless of cage color, albino rats produced more positive vocalizations at 200 lux than at 25 lux. These results are surprising considering historical rat preference for low light. Our results suggest that interactions between cage color, lighting intensity, and strain can influence rat vocalizations which may indicate a change in rat welfare.

The Center for Animal Welfare Science facilitated the oral presentation of this work at the International Society of Applied Ethology North American Regional Conference in Ames, Iowa. While presenting my research, I gained valuable feedback from audience members and made connections with leading researchers in applied animal behavior.

LaFollette, M.R., Swan, M.P., Gaskill, B.N. 2017. It's no laughing matter: cage color and light intensity alter rat affect. *International Society of Applied Ethology North American Regional Conference.* May 12 – 13, Ames, Iowa, USA.