E.08.025

EFFECTS OF AMYGDALOID LESIONS ON CONTEXTUAL FEAR CONDITIONING IN TWO NEW LINES OF RATS SELECTIVELY BRED FOR HIGH AND LOW CONDITIONED FREEZING

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Rats selectively bred for high or low emotionality represents an important tool to investigate the role of genetic variables in the occurrence of different anxiety disorders. In the present study, albino rats were selectively bred for differences in defensive freezing behavior to contextual cues previously associated with footshock, an animal model of general anxiety disorder. Results indicated that these two new lines of rats, named Carioca High Freezing (CHF) and Carioca Low Freezing (CLF), presented a reliable difference in conditioned freezing after 3 selected generations. Males from both lines consistently presented more freezing than females. A reliable difference between CHF and CLF male lines was detected in the third (S3) generation ($t(74)=4.47$; $p<0.001$). This same pattern was observed among females. A reliable difference between CHF and CLF lines within females was detected in S3 ($t(80) = 5.31$, $p <0.001$) but not in S1 ($t(74)=0.55$; $p>0.5$) or S2 ($t(67)=0.92$; $p>0.3$). Overall, males rats froze 59.9% (+ 2.03) while the females froze 50.9% (+ 1.90). A student t-test indicated a significant difference between these two groups ($t(446) = 3.24$; $p<0.01$). These results represent the first attempt to successfully select rats with reliable differences in conditioned freezing and extend previous report, which also found a bidirectional short-term selection of this conditioned response among mice (Ponder et al.: Genes, Brain and Behavior, Nov;6(8):736-49, 2007). A second study employed male rats from the fourth generation to investigate the participation of the amygdala during contextual fear conditioning in CHF and CLF lines. Results indicated that post-training amygdaloid electrolytic lesions led to similar disruption in conditioned freezing behavior in both lines of animals. The analyses revealed that amygdaloid lesion led to a reduction of 60.6% in the CHF and 63.0% in the CLF lines. These results are discussed in terms of possible neural circuitry involved in defensive freezing behavior.

Palavras-Chave**:** Anxiety; Selected Lines; Amygdala

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