

Department of Psychology

Zoe A. Klein

Mentor: Russell D. Romeo

The Effects of Stress on Play and Home Cage Behaviors
in Adolescent Male Rats

One prominent feature of adolescence is the high frequency of social play. Social behaviors, such as play, appear necessary for proper social and emotional development, as animals socially isolated during adolescence display various behavioral dysfunctions in adulthood. The present set of experiments sought to understand how stress affects various behaviors in group housed adolescent animals. In the first experiment, normative data on social and non-social behaviors of Sprague-Dawley male rats were collected during pre-adolescence (28 days), mid-adolescence (35 days), late-adolescence (42 and 49 days), and post-adolescence (77 days). We found age had a significant effect on the frequency of play and social investigations, with 28 and 35 day old animals having a higher frequency than older animals. The next experiment investigated the effects of an acute 30 min restraint stress during adolescence (28, 35, 42, and 49 days of age) and found a complete inhibition of play and reduced social investigations following the stressor. A subsequent study found that stress suppressed play behavior and social investigation for only a transient period (1 hour) following termination of the stressor. The last experiment examined the effects of chronic stress (30 min restraint every other day) throughout adolescent development. We found that play was largely unaffected by chronic stress, while the frequency of social investigations decreased. Together, these data indicate that both acute and chronic stress affect social behaviors during adolescence and may have implications for why stress experienced during adolescence can often lead to social and emotional dysfunctions in adulthood.