*Abstract Sample:*

**ROLE OF OXYTOCIN IN RESPONSE TO ACUTE STRESS IN MALES**

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Oxytocin (OT) belongs to a family of peptides that have been identified in all classes of vertebrates and many invertebrate species. It is synthesized in the hypothalamus and released into the bloodstream via the axon terminals in the posterior pituitary or neurohypophysis and it is important for maternal behavior (labor, lactation, social interaction). Although found in about equal concentrations in both sexes, the physiological importance of OT in males is still unclear.

The aim of this study was to investigate the role of OT in the behavioral responses to shaker stress, using oxytocin knockout mice (OTKO) and behavioral tools for assessment of locomotor activity in the open field, elevated plus maze, and levels of plasma corticosterone (Cort). We determined changes in locomotor activity in the open field and elevated plus maze, and levels of corticosterone after 15-minutes acute stress or 7 days of intermittent subchronic stress. The decrease in basic movements and fine movements in the male OTKO–/– group was significantly lower compared to OTKO+/+ and total time in the periphery was just not significant (*p<*0.09). The interaction between stress and genotype was significant in basic movements (*p<*0.05). Similar to the open field test, a decrease in basic movements after stress was observed in the elevated plus maze and had the same pattern, with differences between OTKO–/– lower than OTKO+/+ males. Stress also increased total time in the closed arms in both genders and genotypes. Acute shaker stress significantly increased the levels of corticosterone in both genders, but the response to stress in females was 4-times bigger than in males. No changes were observed between genotypes after 7 days of subchronic intermittent stress, suggesting that oxytocin improved recovery and had an anxiolytic effect only after acute stress.

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