

Testing Efficacy of Sensory Motor Enrichment in Ameliorating Symptoms of Rett
Syndrome

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Psychology Honors Thesis

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Abstract

Rett Syndrome (RTT) is a genetic, neurodevelopmental disorder that primarily affects girls (Hagberg, Aicardi, Dias, & Ramos, 1983). Between 6-18 months of age, individuals with RTT lose acquired cognitive, motor and social skills such as walking, speaking, and pointing (Naidu, 1997). A mutation of the *Mecp2* gene has been implicated as a cause of RTT (Amir et al., 1999). *Mecp2* gene malfunction leads to low BDNF protein level that is necessary to maintain synaptic connections (Kondo et al., 2008). Mouse models that have displayed RTT-like symptoms after the *Mecp2* gene was knocked out have supported this hypothesis. Research of motor recovery hints that sensorimotor enrichment helps to improve the motor skills of *Mecp2* null mice (Kondo et al., 2008). This study seeks to test the effectiveness of enrichment in the recovery of lost motor skills in the mouse model. However, instead of the standard rotarod testing protocol, we used alternate test batteries modified from research areas such as Parkinson's model (Tillerson & Miller, 2003). Our findings show that sensorimotor enrichment ameliorates the motor deficiencies. In addition, the results suggest that discontinuing enrichment leads to deterioration of motor skills. These results imply that enrichment should be considered as a viable treatment protocol for girls with Rett syndrome.