Effect Of Inactivation Of Prefrontal Cortex And Ventral Hippocampus On Encoding And Retrieval Of Memory

Yvonne Nkwen-Tamo and Raymond Kesner
Department of Psychology

This research is aimed to understand whether (PFC) and ventral hippocampus (VCA1) interact in long term memory and possibly encoding when regions are inactivated. Previous studies have shown that PFC and V1 have no effect on each other in memory retrieval. They work independently. A combined lesion and pharmacological inactivation procedure targeting the PFC and V1 will be performed on male Long-Evans rats tested using a modified Hebb-Williams maze. Rats will be injected with Lidocaine 10 min before test on the day of the testing. The number of errors made per day per group will be used as the measure of learning. Encoding will be assessed by the average number of errors made on the first five trials of Day 1 compared to the last five trials of Day 1, while retrieval will be assessed by the average number of errors made on the first trials of Day 2, compared to the last five trials of Day 1. PFC and V1 will process short term memory in parallel, and the use of a compensatory mechanism for each other thus inactivation of either PFC or V1 will produce a deficit in encoding and retrieval of memory.

This research is supported by funding from The National Science Foundation.

Yvonne Nkwen-Tamo is supported by funding from The University of Utah, Undergraduate Research Opportunities Program.