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Alcohol Impairs Memory for Reward Value

Eizabeth Buss

Illinois Wesleyan University

Kate Palmer

Illinois Wesleyan University

Joe Williams, Faculty Advisor

Illinois Wesleyan University

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Poster Presentation 4

ALCOHOL IMPAIRS MEMORY FOR REWARD VALUE

Elizabeth Buss and Kate Palmer and Joe Williams*

Department of Psychology, Illinois Wesleyan University

Previous studies have suggested that alcohol can impair emotional processing. One significant component of emotional processing that may be affected by alcohol is memory for reward value. To test this hypothesis, rats' memory for sugar content in food was assessed. The task involved two phases for each trial: a sample phase and a choice phase. The sample phase consisted of the rat retrieving a piece of cereal with either a positive or negative reward outcome depending on sugar content. During the choice phase, the positive stimulus was followed by a food reward placed in a second arm of a radial arm maze, which the rat learned to retrieve. No reward followed the negative stimulus and the rat learned to simply wait for the next trial. After learning the task, varying doses of alcohol and a saline control were injected systemically in each rat just prior to completing the task. Results were based on the difference of choice phase response time between positive and negative stimuli. A significant impairment in performance occurred after the 0.75 g/kg alcohol injection, suggesting that alcohol does negatively affect reward-based memory. Combined with the results from a previous study on the effects of amygdala lesions on the same task, the current results suggest that alcohol's impairment of reward value memory may be due to a disruption of amygdala functioning. Future studies will address this possibility.