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The Effects of Alcohol on the Amygdala

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THE EFFECTS OF ALCOHOL ON THE AMYGDALA

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Alcohol is a widely abused substance that results in a great deal of detrimental effects on society, resulting in about 5% of all deaths in the US. The overall cost of alcohol abuse in the US (including cost of treatment, loss of productivity, crimes and accidents associated with alcohol) has reached \$85.8 billion dollars. Given the social and economic ramifications associated with alcohol abuse, numerous studies have focused on the neuropsychological effects of alcohol. It has become clear that even low to moderate levels of alcohol can result in cognitive impairments, including deficits in emotional processing. For instance, alcohol has been shown to disrupt fear conditioning to an auditory tone that has been associated with an aversive stimulus. The most likely target of alcohol's disruption of affective (emotional) processing is a temporal lobe structure called the amygdala, which is essential for the processing of both positive and negative affective information. However, little research has been conducted to determine whether the direct action of alcohol in the amygdala results in cognitive impairments. The purpose of this experiment is to determine if alcohol's ability to disrupt the processing of emotional/affective information is due primarily to alcohol's actions in the amygdala. This will be accomplished by training rats on a behavioral task measuring memory for different levels of sweetness. After learning the task, alcohol will be infused directly to the amygdala to determine whether alcohol significantly impairs behavioral performance.