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Association Between Alcohol-Induced Disinhibition of Attention and Attentional Bias Towards Alcohol-Related Stimuli

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INTRODUCTION

- Attentional bias towards alcohol-related stimuli, described as an increased tendency to focus attention towards alcohol-related cues, is thought to play a role in abuse potential (Field & Cox, 2008). Specifically, a history of heavy alcohol use is thought to result in the ability of alcohol-related stimuli to grab the drinker’s attention, often eliciting approach and consumption behavior.
- Laboratory tasks have been developed to measure attentional bias, including dot-probe and visual probe tasks. Research using these tasks has consistently demonstrated that heavy drinkers display an increased attentional bias towards alcohol-related cues (e.g., Townshend & Duka, 2001). Further, there is some evidence to suggest that attentional bias may increase following a moderate dose of alcohol (Townshend & Duka, 2004).
- Laboratory tasks have also been developed to measure attentional inhibition, and research utilizing these tasks has shown that alcohol impairs the ability to inhibit inappropriate attentional impulses (Abrons et al., 2006).
- Recent models of alcohol abuse have suggested that sensitivity to alcohol effects on mechanisms of attentional bias and inhibitory control might be related (Dawe et al., 2004).

STUDY OBJECTIVE: The present study was designed to test this hypothesis by examining the relation between acute alcohol effects on attentional inhibition and attentional bias.

METHOD

Participants: Thirteen adult drinkers (10 men and 3 women) between the ages of 21 and 28 (mean age = 23.2 years, SD = 2.4) participated in the study.

Attentional bias task: Participants’ attentional bias towards alcohol-related stimuli was assessed with a visual probe task. Two pictures (an alcohol-related image and a neutral image matched for size and shape) were presented side-by-side on a computer screen. Upon offset of the picture pair, a visual probe appeared on either the left or right side of the screen. Participants were required to press a key indicating where it appeared.

RESULTS

- Results demonstrated that individuals who exhibited greater sensitivity to alcohol impairment of attentional inhibition also displayed greater levels of attentional bias in response to the drug. By contrast, no relation between attentional inhibition and attentional bias was observed in the placebo condition.
- The finding that this association was evident specifically in response to alcohol suggests that inhibitory control of attention might play a more pronounced role in attentional bias after a drinking episode has been initiated. Thus, while attentional inhibition might not relate to attentional bias in the sober state, alcohol impairment of attentional inhibition could increase attentional bias after a drinking episode has already begun, possibly promoting excessive consumption within the episode.

ACKNOWLEDGEMENTS

National Institute on Alcohol Abuse and Alcoholism grants R01 AA112895, R01 AA012874, and F31 AA018584

Figure 1. Mean premature saccades on the DOR task under the 0.0 g/kg (placebo) and 0.45 g/kg alcohol dose conditions. Figure 2. Relation between participants’ premature saccades and attentional bias scores under the 0.45 g/kg dose of alcohol. Slope is indicated by least-squares regression line (solid line).