

Conditional Responding is Impaired in Chronic Alcoholics

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Bechara (2003) describes a model for disturbances in executive functions related to addiction. This model involves deficits in decision-making and in suppressing pre-potent representations or response patterns. We tested this model in 29 individuals with long-term heavy alcohol dependency and compared their performance with that of 20 control subjects. Only individuals without memory impairment, with normal intelligence and normal visual response times were included. We examined word fluency, object alternation, spatial stimulus-response incompatibility, extra-dimensional shift learning and decision-making using the Gambling task. We subtracted the performance in a control condition from that of the executive condition, in order to focus specifically on the executive component of each task. Only the object alternation and incompatibility tasks revealed significant differences between the group of alcoholics and the control group. Moreover, response times in the object alternation task correlated with duration of alcohol dependency. The results do not argue in favor of a specific deficit in decision-making or in shifting between relevant representations. We conclude that long-term alcohol abuse leads to an impairment in conditional responding, provided the response depends on former reactions or the inhibition of pre-potent response patterns. 20
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Introduction

In recent years, neuropsychological aspects of addiction have received considerable interest. Bechara (2003) gives a comprehensive review of the kinds of executive function disorders, which may contribute to substance dependency. According to his view there are two different kinds of impairment related to addiction. The first concerns the correct representation of gains and losses in ill-defined or partly stochastic environments. Individuals have to weigh the direct and indirect future consequences of choices between action alternatives. Healthy individuals learn to avoid choices that are risky in the long run, although these choices may be superior in terms of short-term reward. Substance dependent individuals may fail to anticipate the future consequences of their behavior. They may be unable to develop a cognitive and/or affective balance of short-term and long-term consequences. This kind of deficit is related to a lack of emotional threat aroused by an internal representation of future events, maybe due to a loss of specific affective states as such. 35
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Received 4 October 2004; accepted 19 January 2005.

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