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# The effect of alcohol on implicit and explicit measures of cognitive control

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## Abstract

Alcohol seems to have a detrimental impact on control processes, as shown by deficient conflict monitoring (Curtin & Fairchild, 2003) and error adaptation (Ridderinkhof et al., 2002). We aimed to extend these findings by investigating the effect of alcohol on two distinct manifestations of cognitive control. A conflict selection task was administered, in which participants had to respond to Stroop stimuli appearing from two categories. One category (i.e. low-conflict category) was associated with 80% congruent Stroop trials and 20% incongruent Stroop trials, while for the other (high-conflict) category this congruent/incongruent proportion was reversed. The placebo group showed context-specific control throughout the experiment, as expressed by a larger Stroop effect in the low- compared to the high-conflict category (i.e. CSPC effect). In contrast, participants in the alcohol group did not show this CSPC effect at first, however, at the end of the experiment a significant CSPC effect was demonstrated. Furthermore, in some blocks of the experiment, participants were asked to choose between the two categories. The alcohol group developed a bias away from the high-conflict category, thus implementing cognitive control by means of selecting the most optimal task strategy. Surprisingly, the placebo group did not show this low-conflict preference, which possibly reflects a compensatory effect. The results indicate the dissociable effects of alcohol on implicit (i.e. CSPC effect) and explicit (i.e. choice bias) measures of cognitive control.

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