Are the effects of response inhibition on risk taking long-lasting?

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Defining Response Inhibition, Risk Taking, and Aims of Research

Response inhibition refers to the ability to suppress an automatic or prepotent response. Being able to successfully inhibit inappropriate responses or actions is often considered to be an important part of intelligence, as well as impacting upon an individual's ability to function in everyday life. As such, deficits in response inhibition have repeatedly been found to be associated with high levels of impulsivity and various psychopathological disorders, including ADHD, personality disorders, addictions, and pathological gambling.

Previous research has suggested that deficits in response inhibition are associated with pathological gambling. This has commonly been theorised to be due to deficits in self-regulatory behaviour, including inhibition. Recent research has suggested that it may be possible for response inhibition to be trained in order to reduce gambling behaviours. These studies have consistently found short-term improvements in gambling behaviour (i.e. people become more cautious and are less willing to gamble). However, when participants returned 24 hours later, performance had returned to baseline level. It's speculated that this could be due to the stimuli in the training task not being related to gambling, and that stronger salience could produce long-lasting effects.

As such, this study aimed to determine if salient stimuli could result in long-term improvements in gambling behaviours. Firstly, it was hypothesized that inhibition training improves gambling behaviour in the short-term. Secondly, it was hypothesized that only inhibition training with salient stimuli has a long-term effect on gambling behaviour. Thirdly, it was hypothesized that better inhibition is associated with slower responses in gambling.

Methodology

A total of 73 participants took part in the study. All participants spoke English and had normal or corrected-to-normal vision.

All participants were required to complete the Behavioural Inhibition Scale (BIS) as a measure of impulsivity, and the Balloon Analog Risk Task (BART), a task where participants were required to inflate balloons on a computer. By inflating the balloon more, participants stood to earn more (imaginary) money, but the balloon was also at increased risk of popping. After this, the participants were divided into three groups: experimental, where participants completed a go/nogo task that had gambling-relevant stimuli; control, where the go/nogo stimuli were not salient; and baseline, where participants did not complete a go/nogo task. Upon completing the go/nogo task, participants completed the BART again, and then

returned at the same time the next day to complete the BART for a third and final time. Participants were then debriefed after testing was completed. The entire procedure took approximately 2 hours (spread over two days) to complete.

Findings and conclusions

It was found that the inhibition training task did not have an effect on risk taking behaviour in the short-term or in the long-term. Practice effects and the development of a strategy on the BART may explain these findings. However, it was found that accuracy on the inhibition training task significantly correlated with speed on the BART, and speed and performance on the BART were significantly correlated. This suggests that the better an individual is at response inhibition, the more time they take making decisions in risky situations, which leads to less risky behaviour.