

Individual differences in Iowa Gambling Task: possible role of early punishment intensity

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AIMS: Initial intensity of punishment is an important determinant of behavioral suppression. The Iowa Gambling Task (IGT) examines individual differences in decision-making among those with addictions. Individual differences have been associated with differences in prefrontal lobe function. Subjects make a series of 100 choices from four decks of cards associated with varying amounts of hypothetical rewards and punishments. In two decks (risky decks) higher-value short-term rewards are combined with larger-intensity intermittent punishments, while in the other decks (safe decks) lower-value short-term rewards are combined with lower-intensity punishments. Subjects are instructed to earn as much money as possible and that some decks are more advantageous. We hypothesize that some individual differences in risky choice in the IGT may result from differences in initial intensity of punishment.

METHODS: IGT was administered to 12 cigarette smokers. We plan to study 30 subjects. The IGT was completed under ad-lib smoking. Number of choices from the risky decks in trials 1-20 was compared to choices made in trials 81-100 to establish learning. Subjects were divided into high- and low-risk choosers using a median split in number of risky choices made in trials 81-100. Individual differences in intensity of initial punishment was examined by comparing high- and low-risk choosers on amount of money lost in the first two punishments. **RESULTS:**

Number of risky choices decreased between blocks 1 and 5 (12.86 ± 0.89 vs. 7 ± 1.05 , $p < .05$). The median split on risky choices in block 5 resulted in significant differences in number of risky choices between high- and low-risk groups (11.27 ± 0.51 vs. 2.73 ± 0.86 , $p < .0001$). Money lost through the risky decks significantly differed among high- and low-risk groups ($\$9,023 \pm \397 vs. $\$5,119 \pm \801 , $p < .001$). **CONCLUSIONS:** Initial intensity of punishment experienced may contribute to individual differences in IGT performance.