Reward-related neural responses are dependent on the beneficiary

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Abstract

Rewards are primary reinforcers for human behavior. The involvement of the striatum in reward processing has been well established and shown in different studies, using different reinforcers such as money or food (Delgado, 2007). Most previous studies focused solely on neural responses associated with winning for the participant himself. In this study we investigated neural responses during a gambling task in which participants (N=34; 18 females) could win or lose money for themselves, their best friend or a disliked other person. Results indicate that the striatum shows a different pattern of activation for these three people. Winnings for yourself and best friend resulted in activation of the striatum, whereas winnings for a disliked other did not result in an elevated striatum response. Furthermore, the outcomes for best friend and disliked other (both winning and losing) resulted in activation in medial prefrontal cortex (PFC) and the temporal parietal junction (TPJ), regions known to be part of the social brain network. Together, the results show that: (1) striatum activation to winning depends on the receiver of gain, and (2) medial PFC/TPJ activation is most pronounced for friends and others.

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