Cognitive control and reward-based decision-making

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Research in my lab investigates the neural mechanisms that give rise to successful cognitive control: the ability to regulate thoughts and actions in an intelligent, goal-directed manner. We have argued that such mechanisms, which involve a network of brain regions centered on the lateral prefrontal cortex, are highly flexible, shifting between a proactive (i.e., anticipatory and sustained) mode, and a reactive (i.e., transient and stimulus-triggered) mode. Thus, the theoretical framework suggests the importance of examining temporal dynamics in the neural mechanisms of cognitive control.

I will discuss recent studies examining the influence of these mechanisms of cognitive control on reward-based decision-making, focusing on: a) the effects of motivational incentives; b) decisions about delayed monetary and liquid rewards (i.e., inter-temporal choice, delay discounting); and c) decisions about the subjective value of cognitive effort.