

## Understanding the impact of acute stress on the explore-exploit dilemma

When agents are tasked with choosing between multiple options, an agent must effectively balance the knowledge of their current choice with the potential of the other available choices. That is, the agent must properly balance sticking with what they know (exploit) and choosing less certain but potentially more rewarding options (explore). This trade-off is known as the explore-exploit dilemma. While prior work has shown that acute stress may modulate the explore-exploit dilemma by reducing exploratory behaviour, there has been a dearth of research examining the explore-exploit dilemma under acute stress. To investigate this problem further, participants were exposed to either an acute or placebo stressor, after which they completed a learnable two-armed bandit task while EEG data was collected. Importantly, the results show evidence of concomitant behavioural and neural changes to the explore-exploit dilemma under acute stress. Thus, these findings may provide neural evidence for why acute stress modulates the explore-exploit dilemma. While these findings are promising, this talk will conclude with a discussion of some concerns with conducting research on the impact of acute stress on cognition.