

Choosing to choose: Neural Mechanisms Underpinning Levels of Volition

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Abstract

Voluntary action entails decision-making guided by endogenous intentions, yet the neural correlates of varying levels of volitional freedom remain underexplored. This fMRI study examined 39 participants performing a task with three conditions: (1) cued Go/NoGo, (2) 2-choice Go (left/right), and (3) 3-choice Go/NoGo (left, right, or NoGo). Behaviorally, reaction times increased with greater volitional freedom, indicating higher cognitive demands. BOLD analyses showed dlPFC activation for choices (2-choice Go > cued Go), supporting its role in higher-order cognition. Greater volitional freedom (3-choice Go > 2-choice or cued) further engaged the right insula and SMA, the latter likely reflecting the sequencing of decisions about whether to act and, if so, which action to select. The left insula was activated across all choice conditions relative to cued. These results advance our understanding of voluntary decision-making by showing distinct neural activation patterns underlying varying levels of volitional freedom.