markedly with respect to associated patterns of task-related brain activity. Exploration was associated with activity in brain regions implicated in externally directed, goal-based attentional processing and reward-related uncertainty, mainly tapping bilateral parietal and frontal circuitry, with relatively high consistency across studies. A core explorative network was revealed, consisting of activity in the frontal polar cortex, the dorsal anterior cingulate cortex, the bilateral medial frontal gyrus, the bilateral precuneus, and the bilateral intraparietal sulcus. Secondary and tertiary regions were also detected, including the bilateral anterior insula, the left precentral gyrus, the bilateral superior frontal gyrus, the right inferior frontal gyrus, the left supplementary motor area, the bilateral superior parietal lobule, and the bilateral thalamus. Exploitation was associated with brain regions implicated in internally directed processes including reward valuation, motivation, and memory. Core exploitative activations included the ventromedial prefrontal cortex, the bilateral anterior cingulate cortex, and the bilateral orbitofrontal cortex. Secondary and tertiary activations included the bilateral hippocampus, the left middle temporal gyrus, the bilateral angular gyrus, the left posterior cingulate cortex, the left superior frontal gyrus, and the bilateral superior temporal gyrus.
Conclusions: The exploration-exploitation trade-off provides a novel paradigmatic approach to study adaptive and maladaptive decision-making behaviour in humans. Our findings support the neural dichotomization of exploration and exploitation and illuminate potential neural networks underlying this fundamental feature of decision-making. Understanding these mechanistic networks opens a new avenue of inquiry into decision-making deficits in clinical populations, including neurodegenerative, neurodevelopmental, and neuropsychiatric syndromes.

Categories: Neuroimaging
Keyword 1: decision-making
Keyword 2: neuroimaging: functional
Keyword 3: cognitive neuroscience
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49 Cerebral hemodynamic during motor imagery of self-feeding with chopsticks: Differences between dominant and non-dominant hand

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Objective: Motor imagery is defined as a dynamic state during which a subject mentally simulates a given action without overt movements. Our aim was to use near-infrared spectroscopy to investigate differences in cerebral hemodynamic during motor imagery of self-feeding with chopsticks using the dominant or non-dominant hand.
Participants and Methods: Twenty healthy right-handed people participated in this study. The motor imagery task involved eating sliced cucumber pickles using chopsticks with the dominant (right) or non-dominant (left) hand. Activation of regions of interest (pre-supplementary motor area, supplementary motor area, pre-motor area, pre-frontal cortex, and sensorimotor cortex was assessed.
Results: Motor imagery vividness of the dominant hand tended to be significantly higher than that of the non-dominant hand. The time of peak oxygenated hemoglobin was significantly earlier in the right pre-frontal cortex than in the supplementary motor area and left pre-motor area. Hemodynamic correlations were detected in more regions of interest during dominant-hand motor imagery than during non-dominant-hand motor imagery.
Conclusions: Hemodynamic might be affected by differences in motor imagery vividness caused by variations in motor manipulation.

Categories: Neuroimaging
Keyword 1: brain function
Keyword 2: cerebral blood flow
Keyword 3: neuroimaging: functional connectivity
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50 Therapy and Medication Use Moderating Neural Alterations Underlying Social Cognition Performance in Youth with Autism and Psychosis

https://doi.org/10.1017/S1355617723005994 Published online by Cambridge University Press