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

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Objective: Individuals with Autism Spectrum Disorder (ASD) or Early-Onset Psychosis (EOP) both experience substantial difficulties with social cognition (Spek et al. 2012; Lanillos et al. 2020); however, the impact of therapy and medication use on their social cognition has not yet been examined (Lai et al. 2014; Schiffman et al. 2018). This project will explore the effects of the history of therapy and medication use as moderating variables between neural architecture and social cognition performance.
Participants and Methods: T1-weighted imaging data were acquired on a 3T Siemens scanner for 51 ASD and EOP participants (Mean Age = 16.33), with 41 individuals endorsing history of therapy and 23 endorsing history of medication use across groups. Cortical thickness was calculated using FreeSurfer imaging analysis software (v5.3; Fischel et al., 2002) for social brain regions including inferior parietal lobe (IPL), middle temporal lobe (MPL), caudal anterior cingulate cortex (cACC), rostral anterior cingulate cortex (rACC), fusiform gyrus, precuneus cortex, and insular cortex. The Awareness of Social Inference Test (TASIT; McDonald et al., 2006) was administered to assess social cognition performance. After controlling for individuals that had a history of both therapy and medication use, Pearson's correlations were utilized to examine the relationship between cortical thickness and social cognition performance in ASD and EOP patients. The PROCESS Procedure moderation analysis in SPSS was utilized to determine if history of therapy or medication use moderated the relationship between cortical thickness and social cognition performance (Hayes, 2018).
Results: Across groups, there was a negative association between an individual's cACC thickness and TASIT Do score (r = -.415, p = .005) as well as the total TASIT score (r = -.325, p = .031). Additionally, there was a positive association between an individual's precuneus cortical thickness and their TASIT Say score (r = .440, p = .003). Results of the moderation analyses revealed that lack of medication use was associated with greater rACC thickness and higher TASIT Say score (R^2 Change = .1281 mm, p = .0191). Additionally, lack of past therapy experience was associated with greater insular thickness and higher TASIT Think scores (R^2 Change = .1957 mm, p = .0033). Conversely, past therapy history was associated with greater fusiform gyrus thickness and higher TASIT Say score (R^2 Change = .1115 mm, p = .0262).
Conclusions: Our results suggest that for individuals without a history of therapy or medication use, higher cortical thickness of the rACC and insula support better social cognition performance; whereas for individuals with past therapy experience, higher cortical thickness of the fusiform cortex underlies better social cognition performance. Collectively, these findings suggest that an individual's history of therapy or medication use may be relevant variables to consider when examining the relationship between neural cortical thickness and social cognition performance in these neuropsychiatric conditions.

Categories: Neuroimaging
Keyword 1: neuroimaging: structural
Keyword 2: autism spectrum disorder
Keyword 3: psychosis
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51 Optimizing the Mapping out of Neurocognitive Functioning in Glioblastomas in the Era of Intraoperative Mapping in Surgical Resection

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Objective: Glioblastomas, Grade 4 astrocytomas, comprise about 60% of all astrocytomas and have a median survival rate between 14 and 16 months. The extent of resection impacts the prognosis, with an eloquent balance of preserving the patient's functional status. As preoperative imaging and intraoperative techniques improve to maximize safe operative resection, thorough

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