Theory of Mind

- Open multi-center intracranial electroencephalography dataset with task probing conscious visual perception
- Individual-level cortical morphological network analysis in idiopathic normal pressure hydrocephalus: diagnostic and prognostic insights
- Foraging animals use dynamic Bayesian updating to model meta-uncertainty in environment representations
- Digital communication and social cognition in adults with frontal lobe epilepsy: A scoping review
- Hubs and interaction: the brain's meta-loop
- Cognitive function and social cognition in adolescents with bipolar disorder: comparison between manic episode and remission period
- Cognitive and social functions of craniopharyngioma and germ cell tumor differ in patients with and without apathy
- Relationship of left piriform cortex network centrality with temporal lobe epilepsy duration and drug resistance

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Theory of Mind (ToM) is a social-cognitive skill that allows the understanding of the intentions, beliefs, and desires of others.

Altuntaş et al. aimed to compare the Theory of Mind (ToM) functions in the siblings and offspring of female Schizophrenia patients in an evaluation of the association between neurocognitive functions and ToM. A battery of ToM tests (Reading the Mind in the Eyes Test, Hinting Test and Faux Pas Test) and neurocognitive tests (Digit Span Test, Corsi Block Test, Digit Symbol Substitution Test, Rey's Auditory Verbal Learning Test, Trail Making Test, The Stroop Test, Wisconsin Card Sorting Test) were used to assess 31 offspring, 29 siblings of female schizophrenia patients and 28 healthy controls (HC). When the ToM functions of the offspring, siblings and HC groups in the present study are compared, no significant difference is identified between the offspring and sibling groups in Hinting, Faux Pas and Eyes tests, while Hinting test performance of the sibling group was significantly lower than those of the HCs. Neurocognitive functions are more affected both in offspring and siblings than HC. Although it was determined that ToM deficits of the patients' relatives were not as prominent as their neurocognitive functions, ToM is an endophenotype candidate in schizophrenia [1)]

There is a distinction between affective and cognitive ToM, with evidence showing that these processes rely on partially distinct neural networks. The role of the cerebellum in social cognition has only been rarely explored. In this study, we tested whether the cerebellum is necessary for cognitive and affective ToM performance. We investigated adults with traumatic brain injury (n = 193) and healthy controls (n = 52) using voxel-based lesion-symptom mapping (VLSM) and by measuring the impact on functional connectivity. First, we observed that damage to the cerebellum affected pure Cognitive ToM processing. Further, we found a lateralization effect for the role of the cerebellum in cognitive ToM with participants with left cerebellar injury performing worse than those with right cerebellar injury. Both VLSM and standard statistical analysis provided evidence that left cerebellar

Crus I and lobule VI contributed to ToM processing. Lastly, we found that disconnection of the left thalamic projection and the left fronto-striatal fasciculus was associated with poor cognitive ToM performance. Our study is the first to reveal direct causal neuropsychological evidence for a role of the cerebellum in some but not all types of ToM, processing. It reinforces the idea that social cognition relies on a complex network functionally connected through white matter pathways that include the cerebellum. It supports evidence that the neural networks underpinning the different types of ToM can be differentiated [2)]

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Altuntaş Ö, Yıldırım EA, Yılmaz G, Cesur E. Comparison of theory of mind and neurocognition in siblings and offspring of female schizophrenia patients. Appl Neuropsychol Adult. 2023 Jan 18:1-9. doi: 10.1080/23279095.2023.2168544. Epub ahead of print. PMID: 36652595.
2)
Beuriat PA, Cohen-Zimerman S, Smith GNL, Krueger F, Gordon B, Grafman J. Evidence of the role of the cerebellum in cognitive theory of mind using voxel-based lesion mapping. Sci Rep. 2022 Mar 23;12(1):4999. doi: 10.1038/s41598-022-09104-0. PMID: 35322157.