The Missing Link in Cognition: The Role of Self in Neural Processing

The Missing Link in Cognition," a 2005 Oxford University Press publication, brought together prominent scholars like Endel Tulving to underscore the significance of self in cognitive research. This presentation will detail our findings on the neural correlates of self using various neuroimaging techniques, including fMRI, MEG, and TMS. Our studies revealed heightened activity in the anterior cingulate cortex (ACC) and posterior cingulate cortex (PCC) during processing of self-related information compared to non-self-related information. We also investigated the temporal dynamics of self and non-self differentiation in neural processing. Furthermore, we explored the connection between overactive self-referential thoughts (rumination) and structural brain changes. Rumination, characterised by repetitive, self-focused negative thinking, is a key symptom of Major Depressive Disorder (MDD). Our research aimed to elucidate the relationship between this cognitive pattern and alterations in brain structure. This work contributes to our understanding of the neural basis of self-referential processing and its potential role in psychopathology.