

## Emotion-Cognition Interaction: Working Memory and Transient Emotional Interference

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Humans possess a unique ability to sustain goal-directed attention for extended periods of time regardless of incoming distractions. One example is maintenance and manipulation of information in working memory (WM), which involves a constellation of brain areas including the dorsal-parietal network. However, there are times when it is critical for humans to rapidly disengage internally focused attention and attend to relevant environmental stimuli, including those that might be task-irrelevant but survival relevant. Previous work has shown that a functional region at or near the temporo-parietal junction (TPJ) is a part of a system involved in detecting task-relevant information. Furthermore, it has been hypothesized that TPJ acts as a possible ‘circuit-breaker’ of the sustained, goal-directed system when re-allocation of attention is warranted. However, previous investigations have not addressed the question if TPJ plays a part in helping reorient attention when emotionally salient, but task irrelevant information is presented. We used event-related functional neuroimaging at 3T to examine whether TPJ is responsive to task-irrelevant emotionally salient distraction. Furthermore, we investigated whether TPJ responsiveness across different distracter types (i.e. emotional and task-relevant) was moderated as a function of WM load. The results suggest that TPJ’s role in integrating attentional and cognitive processes might also extend to emotional processing, and that the role of TPJ as a “circuit-breaker” varies as a function of memory load. Furthermore, these studies will shed light on the mechanisms that govern the interaction between goal-focused processes and allocation of attention to emotionally salient events in the environment.