

MINDFULNESS AND MEMORY RETRIEVAL PROCESSES. AN ERP STUDY

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Many studies have shown that mindfulness improves executive control; however, it is unclear what mechanisms are involved in these effects. Based on the Metacognitive Model of Mindfulness (MMM; Jankowski & Holas, 2014) and Attentional Control Theory (ACT; Eysenck et al., 2007) we hypothesized that mindfulness reduces the number of task-unrelated and task-related intrusions. Thus, mindfulness might improve both accuracy of task-performance (effectiveness) and effort put into the task performance (efficiency). To verify this hypothesis we recorded event-related potentials (ERPs) from 31 participants who performed a standard recognition memory task. Participants reported their dispositional and situational mindfulness as well as a number of task-irrelevant (TII) and task-relevant (TRI) intrusions during a task. As expected, mindfulness predicted both TII and TRI – the higher mindfulness was associated with a lower number of intrusions. Also, dispositional mindfulness predicted performance efficiency while situational mindfulness predicted performance effectiveness. Moreover, the amplitudes of three ERP components related to the retrieval of information (the parietal late positive component, the right frontal old/new effect and the late parietal negativity) were associated with the number of intrusive thoughts during task. The results suggested that for subjects with a high level of trait mindfulness, the effort put in correct performance of a task was lower compared to mindless participants; on the other hand, participants which were mindful during a task, made less number of errors than mindless ones. Late ERP components also suggested that mindless people engaged additional processes to compensate problems with retrieving information from memory. In a consequence they accomplish a task in less efficient way than mindful participants. These results confirm implications both of Metacognitive Model of Mindfulness and Attentional Control Theory.