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Schema-Induced Emotional Arousal Enhances Task Performance: A Pupillometric Investigation of Top-Down Cognitive Influence

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Abstract

In some cases, cognitive function can change owing to external factors without physiological effects. This is considered to be influenced by emotional arousal caused by schema activity. This study analyzed the relationships between emotional arousal and task performance to determine whether schema can lead to emotional arousal and enhance task performance. Emotional arousal was assessed based on pupil dilation using eye tracking, and task performance was measured based on reaction times to the stimuli. No main effect of condition on reaction time was observed. However, the experimental results showed that the larger the pupil dilation, the shorter the reaction time, but only when schema activation stimuli were present. These findings suggest that schema-induced emotional arousal may improve performance without the intake of substances with physiological effects. This may also offer insight into mechanisms underlying the placebo effect, though further investigation is required.