

The time course of psychological stress as revealed by event-related potentials.

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Source

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Abstract

Psychological stress is common in everyday life and is believed to affect emotion, cognition and health. Previous brain imaging studies have been able to identify the brain regions involved in the stress response. However, our understanding of the temporal neurological response to psychological stress is limited. The present work aims to investigate the time course of psychological stress induced by a mental arithmetic task, utilizing event-related potentials (ERPs). The elicitation of stress was verified by self-reports of stress and increases in salivary cortisol levels. The subjective and physiological data showed that the stress-elicitation paradigm successfully induced a mild-to-moderate level of psychological stress. The electrophysiological data showed that the amplitude of occipital N1 was more negative in the control task than in the stress task, and the latency of frontal P2 was shorter in the stress task than in the control task. Our results provide electrophysiological evidence that psychological stress occurs primarily at the early stage of cognitive processing.

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