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AN ELECTROMYOGRAPHIC ANALYSIS OF THE EFFECTS OF COGNITIVE FATIGUE ON REACTIVE AND PROACTIVE ACTION CONTROL

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Content

Complex activities require a sustained mental effort that causes cognitive fatigue. This fatigue may be the source of errors by disrupting action control. In this study, we examined its effects on reactive and proactive action control. Two groups performed a Simon task (a conflict task) after completing a fatigue-inducing task (a dual task combining a 2-back task and a parity judgment task, Borragàn et al., 2017) in which the cognitive load was high or low. In order to measure reactive and proactive control, we evaluated the correction rate, distributional analyses and the Gratton effect based on electromyographic analyses. We observed that fatigue have only impaired proactive control. Participants in the high load condition were less able to adjust their behavior after observing a conflict. These results are in line with previous studies which posit a change to less demanding strategies when participants became mentally fatigued.

Keywords : Mental workload, Acute stress, Emotion, Fatigue