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The influence of short-term firefighting activity on information processing performance

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This study examined the following: effects of simulated firefighting (FF) activities under heat stress on sustained attention; whether incident rehabilitation (IR) influences performance; and relationships between performance, affect and personality. Firefighters performed ~18 min of FF. Attention, physiological, perceptual and psychological assessments were made before and after FF, IR and recovery. IR had no effects. Self-rated Energy increased, Tiredness decreased and Anxiety increased immediately post-FF; all returned to baseline 120 min post. The immediate effect of FF was faster reaction time (RT) followed by slowing after recovery. Perceived Energy at baseline was associated (p-values < 0.05) with faster and Tiredness with slower post-FF RTs; Accuracy was unaffected. Conscientiousness was negatively associated with RT before and 120 min following FF. RTs were faster following FF, accuracy was unchanged. Higher baseline Energy/lower Tiredness were associated with faster, less variable RTs at baseline and post-FF. Those with higher Conscientiousness had faster RTs. Research should further investigate higher-level cognitive processing following, or ideally during, FF.

Practitioner Summary: This study examined the effects of simulated firefighting (FF) activities on sustained attention and affect. Energy and Anxiety increased, Tiredness decreased immediately post-FF. The immediate effect of FF was faster reaction time (RT) followed by slowing after recovery; accuracy was unaffected. Higher baseline Energy/lower Tiredness were associated with faster, less variable RTs.

Keywords: cognitive processing; reaction time; firefighting; anxiety; energy