Psychophysiological and Specific Fine Motor Skill Modifications in a Checkpoint Action

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Abstract

In last years, the insurgency attacks on task forces bases and checkpoints have been common. The study of psychophysiological response of soldiers in these asymmetrical and non-controlled situations remains a challenge. The present research aimed to analyze the psychophysiological response and the variations in specific fine motor skill after a checkpoint simulation which included surveillance, unexpected attacks, and melee combat. Psychophysiological parameters—heart rate, blood glucose, pressure, oxygen saturation, and lactate, legs’ strength, skin temperature, cortical activation, anxiety,—as well as fine motor skills were analyzed in a sample of 24 professional Spanish Army soldiers (35.67 ± 6.62 years, 177.21 ± 7.37 cm, 82.29 ± 11.02 kg, 26.17 ± 2.82 BMI, 15.25 ± 7.44 years of experience in their unit) before and after a checkpoint simulation. The checkpoint surveillance operation produced a significant increase (p < 0.05) in rated perceived exertion, heart rate, blood lactate concentration, legs’ strength and somatic anxiety, and a significant decrease in blood oxygen saturation and skin temperature values. We concluded that results were consistent with an activation of sympathetic nervous system, triggering a fight-flight response, a chain of intense psychophysiological reactions and a misinterpretation of perceived exertion. Results may help predicting soldiers’ physical and operative behavior in real situations.

Keywords:
Psychophysiology, Lactate, Stress, Anxiety, Military