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