

# **Psychophysiological and fine motor skill differences of elite and non-elite soldiers in an urban combat simulation**

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## **Abstract**

Soldiers' training and experience can influence the outcome of military missions, as well as soldiers physical integrity. The aim of this research was to analyze the psychophysiological and specific fine motor skills response of elite and non-elite soldiers in a combat simulation according to current conflict deployment zones. Rates of perceived exertion, heart rate, blood oxygen saturation, blood lactate, hand and leg strength, cortical arousal, anxiety, autonomic modulation and fine motor skills were analyzed in 20 Elite (EG) and 24 non-elite (NEG) soldiers of the Spanish Army, before and immediately after a close quarter combat in an asymmetrical combat maneuver. As a consequence of the maneuver, elite soldiers presented a higher metabolic, cardiovascular and anxiogenic response than non-elite soldiers, as well as an anticipatory anxiety response, showed in the increased sympathetic modulation. Non-elite soldiers improved their fine motor skills after the combat maneuver (-8.34% Vs -11.23% of change in gun reloading time of Elite Group and Non-Elite Group). Finally, experience in international-armed conflicts disposes soldiers toward better self-confidence when facing risk maneuvers ( $p = .001$ ).

**Keywords:** Lactate; HRV; stress; anxiety; military