

Psychophysiological response to disorientation training in different aircraft pilots

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Abstract

Disorientation is one of the most important hazards in flights, but there is a need for a deeper analysis of its effect on the psychophysiological response of pilots. This study aimed to analyse the effect of disorientation training in cortical arousal, autonomic modulation, muscle strength, and perception. We analysed 39 male pilots of the Spanish Army and Air Force (27 Helicopter Pilots, 7 Transport Pilots and 5 F-18 Fighter Pilots) before and after disorientation training. Disorientation training produced an increase in perceived stress and effort in Helicopter Pilots (HP) and Transport Pilots (TP), and lower Heart Rate Variability (RMSSD) in all pilots. Rating of Perceived Exertion (RPE) and Handgrip Strength were more negatively affected among HP than in TP. RPE was more negatively affected in HP than among Fighter Pilots (FP). Forced Vital Capacity (FVC) and Forced Expiratory Volume in 1 s (FEV1) were significantly higher in FP (FVC $5.44 \pm .407$ l, FEV1 $4.57 \pm .407$ l) than in HP (FVC $4.73 \pm .547$ l, FEV1 $3.79 \pm .712$ l). Disorientation training affects the psychophysiological response of pilots, and different responses are depending on each job profile. These results could help to improve specific training for better preparation of pilots that face disorientation threats.

Palabras clave

Disorientation, Pilots, Autonomic modulation, Cortical arousal, Spirometry, Training