

Cognitive performance improvement in Canadian Armed Forces personnel during deployment

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Resilience is the ability to adapt and strive under adverse situations. Operational stressors linked to deployment such as isolation, increased workload, sleep deprivation and exposure to life-endangering situations, among others, can decrease resilience and thereby reduce cognitive capabilities of military personnel. We tested the cognitive functioning of Canadian Armed Forces (CAF) military troops (n = 85) using the Cambridge Neuropsychological Test Automated Battery prior to and during their deployment to Afghanistan in October 2013. The Attention Switching Task [AST] and Spatial Working Memory [SWM] tests measured executive functioning; the Stop Signal Task [SST] assessed decision making and impulse control; whereas the Reaction Time [RTI] test measured reaction and movement time providing information about attention, focus, and fine motor control. Two tailed *t*-tests were performed to compare the performance before and during deployment. In general, participants improved their performance in all domains during deployment, as compared to the pre-deployment values. At both time points, compared to the literature data, the participants demonstrated higher scores in AST and RTI and sub-optimal performance in SWM and SST. The significant improvement in cognitive performance during deployment can be explained by strong soldiers' morale focusing on the success of the military mission. Nevertheless, in some cases, the enhanced cognitive performance had a negative impact on emotional stability; further analysis of the emotional cost of cognitive improvements is currently underway. Future research should also focus on biological stress-coping mechanisms and social support during deployment (Makhani et al, 2015).

Reference:

Makhani A, Akbaryan F, Cernak I. 2015. Cognitive performance improvement in Canadian Armed Forces personnel during deployment. *Journal of Military, Veterans, and Family Health* 1: 59-67.