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## **Research Brief: The Role of Executive Functioning and Physical Fitness in Remaining Resilient in High Stress Environments.**

Executive functioning is the neuropsychologists' term for the integrative process in the brain, particularly the prefrontal cortex, that helps us make sense of our experience. It involves memory, behavioral regulation, emotional regulation, and cognitive reasoning. It essentially gives us the ability to know what is going on around us and inside us, thereby conferring some sense of control.

Research Contact:  
Don Bosch  
Senior Advisor, Director of Risk  
Environment Psychology, and Director  
of Research  
Headington Institute  
(626) 229 9336 (office)  
[dbosch@headington-institute.org](mailto:dbosch@headington-institute.org)  
[www.headington-institute.org](http://www.headington-institute.org)

Executive functioning is known to become vulnerable to decline in the face of chronic stress and traumatic events. This can lead to poorer memory, less ability to shift attention and utilize learning strategies, and less behavioral and emotional control. For humanitarian aid workers operating in higher risk environments these decreased abilities could make a bad situation even worse if they are unable to maintain some personal control in, for example, an illegal checkpoint. It therefore becomes rather important for us to understand what we can do to improve our ability to maintain executive functioning in these situations.

It is likely that this decline in executive functioning is the partially the result of being in a state of allostatic load (see the Headington video: Understanding Allostatic Load), where stress hormones keep circulating in our bodies with little to no relief. These stress hormones, while initially good in that they prepare us to engage a challenge or respond to a danger, backfire on us when they don't turn off after the challenge has been met or danger escaped. The chronic stress, traumatic events, lack of sleep, and long work hours often encountered in the field make it more difficult for us to turn off these hormones setting up a vicious cycle.

So what do we do about this? The current study, while limited due to the small number of participants, did arrive at a tentative suggestion. The study found that when under stress physical fitness was associated with better executive functioning. To quote the study: "For humanitarian aid workers, the relationship between physical fitness and executive functioning may lie in a psychological to physiological feedback loop where physical stress symptoms can be managed by self-regulation of emotions, as is thought to be the case for police officers. Humanitarian aid workers who are in good shape physically may therefore be better able to engage in active coping skills when under stress instead of simply reacting to the situation."



For readers familiar with my previous posts or workshops, these results should come as no surprise. A growing body of research in neuroscience supports the value and necessity of physical exercise in maintaining good brain health. The current study adds to the importance of maintaining good physical condition, especially if you are in a high risk environment.

~ Donald S. Bosch, Ph.D.

Kyle Nixon, Donald Bosch, Stacy Amano, Andries Dreyer, Anne Nolty, Is Executive Functioning related to Resilience in Humanitarian Aid Workers? Presented at the International Neuropsychological Society, Boston, 2016