

Hyper-Stress Induced Diminishment of Cognitive Abilities:
A Review of Observed Tendencies and Recommendations for More Effective Management

Abstract

Abstract: Emergency Responders are well trained professionals with the specialized technical and professional knowledge to deal with a wide range of emergencies, dangers and disasters. In general research and experience in the field has shown that Emergency Responders are a resilient group of professionals. These professionals typically understand the challenges of their work and effectively manage the demands and stresses they face. However, one key ability essential for sustained highly effective performance is decision making during these hyper-stress contexts. The emergency context hyper-stress induced diminishment of cognitive decision making abilities is one challenge that is less typically recognized or understood. The observed tendencies for diminishment of cognitive decision making abilities in these situations frequently play a crucial role in the success or failure of successfully managing the emergency response.

Initial and moderate levels of physical and psychological pressures of emergency situations can make emergency responders more attentive, energized, and motivated and focused. However, beyond certain optimal threshold levels too much stress, also known as hyper-stress, of emergency contexts can create dysfunctional physical and mental impacts. Among the most significant repercussions of hyper-stress is the impact on the cognitive capabilities and decision-making during periods of extreme stress. This presentation summarizes the physical and psychological impacts of emergency and crisis contexts. In addition it provides a review of a number of observed hyper-stress induced diminished cognitive abilities, most of which negatively impact decision making during emergency contexts.

There are a variety of reasons that stress reactions occur. Although not everyone reacts to a specific "stressor" in the same way, the most common physical effects of stress are the same in most people. Our bodies are designed to react to stress in an age-old way called the "fight or flight" mechanism. This means we are hardwired to deal with urgent, emergency situations by either fighting or running away. Now, while this worked like a charm when we had to fight off wild animals, or run from them if weren't strong enough to fight them, it doesn't work so well when our stress comes from the breakup of a relationship, losing our job, or experiencing financial hardship.

The physical effects of stress on our body are universal. Our system is flooded with adrenaline, cortisol, and other stress-related hormones. The effects include: (a) elevated heart rate; (b) elevated blood pressure; (c) muscles tense up; and, (d) breathing becomes fast and shallow. These changes put a huge amount of pressure on our bodies, including the cardiovascular, respiratory, gastro-intestinal, nervous, musculoskeletal, and endocrine systems.

Our stress reactions reflect our physiological arousal or readiness to respond to demands or dangers in our environment. Through thousands of years of evolution, our stress reactions developed into an integrated finely tuned emergency response system. In response to a potential danger or threat, our stress arousal mobilizes our bodies for action, sharpens our thinking and focuses our attention. We also quickly make several appraisals of a potential threat to our safety: (a) Is the danger real? (b) Have we been in this situation before? (c) If so, how did we cope? (d) Is help available? and, (e) Is there a vulnerable person who needs help?

In most instances, Emergency Responders will have the necessary personal and work resources to meet the demands and dangers of life and emergency work. However, there are two stressful processes that may wear down even the most resilient Emergency Responder or team. First, occupational health research indicates that persistent occupational stress in an unresponsive, unsupportive environment erodes the wellbeing of professionals. Secondly, emergencies and disasters may also become extreme traumatic events that challenge the coping resources of emergency responders. Without preparation and support, traumatic and or persistent stress will eventually lead to wear and tear on one's health and disrupt one's family and work life, even in the most resilient person.

There are certain emergency event conditions that may increase the level of stress for an individual. Common stress reactions during or immediately after emergencies and disasters tend to be experienced as mild or transient in emergency professionals. The stress response becomes problematic when symptoms last too long or interfere with daily life. Early recognition of the signs and symptoms allows you to take steps to eliminate and reduce the source of stress and to initiate stress coping measures. It also enables co-workers and managers to be aware of workplace stress levels and when to offer support to their peers.

Experiencing or witnessing life threatening events another type of occupational risk is traumatic stress. This refers to stress that occurs following the direct experience or witnessing of life-threatening events. Other factors may further exacerbate the impact of traumatic stress.

Traumatic events may lead to a condition known as Traumatic Stress Disorder or Post Traumatic Stress Disorder (PTSD). PTSD includes the experience of: (a) intrusive reactions such as difficulty stopping one's thinking about the event; (b) avoidance reactions, that is avoiding people and reminders of the event, including feeling numb or detached; and (c) physical arousal reactions such as easily startled, jumpy, hyper vigilant, irritable and having trouble relaxing.

Hyper-stress induced diminishment of cognitive abilities is influenced by the duration and intensity of the traumatic event and the availability of supportive resources affect stress reactions and the natural recovery time for the emergency responders. Health professionals who specialize in traumatic stress can often help people with persistent signs of post-traumatic stress. The topic of when to seek health services will be discussed later in this guide. Key psychometric changes include: (a) changes in perception; (b) cognitive capacity; (c) memory; (d) recall; (e) self-monitoring; (f) reaction time; (g) concentration; (h) diminished logical reasoning; and, (i) implicit temporal processing. Recommendations for more effective management and response to these factors, including steps to prevent, inoculate, enhance stress resiliency, and better manage hyper-stress for emergency responders.

Resilience is an acquired ability to overcome adversity using practical skills and social support. Resilience includes several capacities: having effective problem solving and communication skills; being able to manage strong feelings and impulses; believing in oneself as a capable person; and having a sense of optimism. These are skills that can be learned and developed. Most importantly, resilience requires having relationships in which one feels supported and valued. Research indicates that these resiliency skills and capacities are often found in Emergency Responders.

There are several personal action steps that can be taken to prepare for or reduce stress before the disaster. Maintaining a healthy and balanced lifestyle is an excellent stress prevention and

management measure. There are also certain items that should be considered warning signs that increase the risk of health problems of which one should be on the lookout.

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