

PED 129

Class 5 – Effects of Stress on Performance (I)

Autonomic Nervous System

- Parasympathetic Nervous System (PNS)
 1. Non-Stress environment
 2. Controls critical survival mechanisms (visual acuity, etc.)
- Sympathetic Nervous System (SNS)
 1. Activated by perception of imminent deadly force threat
 2. “Fight or flight” system

Survival Stress

- Definition of Stress: “...the process that involves the perception of substantial imbalance between [environmental] demand and response capability, under conditions where the demand has important consequences” (Martens, 1977)
- Perceptions that increase survival stress
 1. A deadly force threat perception
 2. The threat is within close proximity
 3. The time needed to control the threat is minimal
 4. Lack of confidence in one’s ability to respond to the threat
 5. Lack of experience with the type of threat

The SNS and Tactical Performance

- Hormonal-Induced Physiological Changes
 1. Increased adrenal activity (SNS trigger)
 2. Increased heart rate

3. Increased respiration rate
 4. Vasoconstriction of the extremities
 5. Pupil dilation
- Motor Performance Changes
 1. 115 bpm – loss of fine motor skills
 2. 145 bpm – loss of complex motor skills
 3. 150 bpm – enhancement of gross motor skills
 - Visual Performance Changes
 1. Binocular dominance (“tunnel vision”)
 2. Peripheral vision loss
 3. Depth perception loss
 4. Near vision loss
 5. Night vision loss
 - Auditory Changes: auditory exclusion (“stress-induced deafness”)
 - Cognitive Deterioration
 1. 400% increase in reaction time
 2. Inhibition of horizontal decision making (analyze threat-formulate response)
 3. Hypervigilance (irrational behavior)
 - a. Flight
 - b. Fight (untrained behavior)
 - c. Submissive behavior (surrender)
 - d. Fixation (“freezing”)
 - e. Feedback loop (repetitive actions)