

PED 129

Class 6 – Effects of Stress on Performance (II)

Energy Sources During Combat

- Metabolic Systems

1. ATP/PC System: burns ATP/PC adenosine triphosphate/phosphocreatine; can function at 100% of power capacity
2. Lactic Acid System: burns lactic acid; can function at max 55% of capacity
3. Aerobic System: burns O₂, carbs, and free fatty acids; max 31% capacity

- Contribution of Metabolic System Activation to Combat Performance

1. ATP/PC System: 0-10 sec (adenosine triphosphate/phosphocreatine)
2. Lactic Acid System: 10-120 sec
3. Aerobic System: ≥120 sec

- Contribution of Anaerobic & Aerobic Mechanisms to Maximal Sustained Efforts (Baechle, 1994)

Duration of Effort (sec):	0-5	30	60	90
Intensity (% max output):	100	55	35	31
% Anaerobic Effort:	96	75	50	35
% Aerobic Effort:	4	25	50	65

- Implications of Baechle's Research

1. Combat fitness requires proportional aerobic/anaerobic development
2. Combat skills must be based on simple gross motor skills
3. Confrontations lasting longer than 15-30 seconds will likely escalate

Parasympathetic Nervous System Backlash (Siddle & Grossman, 1997)

- Perceptions that activate the PNS
 1. Perception that threat has diminished
 2. Perception of injury
 3. Trauma to vital physiological systems
 4. Exhaustion of aerobic and anaerobic systems

- Hormonal-Induced Physiological Changes
 1. Dizziness resulting from sudden drop in blood pressure & heart rate
 2. Excessive bleeding resulting from vasodilation of the extremities
 3. Symptoms of shock (paleness, nausea, excessive sweating, clammy skin)
 4. Overwhelming exhaustion
 5. Excessive muscle tremors