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HEART RATE RESPONSE OF SPECIAL WEAPONS AND TACTICS TEAM OPERATORS DURING ACTIVE SHOOTER TRAINING SCENARIOS

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Abstract

Simulated active shooter scenarios (SASS) provide special operations teams (SOT) with an opportunity to maintain their skills and receive team feedback in order to optimize their performance. Although research on heart rate (HR) changes in the law enforcement officer (LEO) population is novel, there is virtually no information available examining these differences within SOT groups during these types of scenarios. **PURPOSE:** To utilize HR analysis to identify and quantify the physical demands of SASS among SOT members **METHODS:** Seven (n=7) SOT members volunteered to participate in this research. HR was monitored for each SOT member during SASS. **RESULTS:** During SASS it was discovered that HRavg ranged between 45–60% of APMHR and average HRmax ranged between 68–94% of age predicted maximum heart rate (APMHR). **CONCLUSION:** SASS can be very physically demanding events that may elicit maximal or near maximal heart rate responses. Therefore, it may be in the best interest of the TSAC-F, physical fitness lead, etc. to account for these intensities when prescribing exercises.

Introduction

- Between the years 2000-2018, 277 active shooter incidents were reported in the United States alone. According to the Federal Bureau of Investigation, 884 individuals were killed and 1,546 others wounded as a result of these incidents.

- Special Operations and Tactics (SOT) teams consist of law enforcement officers with specialized training that exceed those provided to general duties officers. SOT teams are deployed in high-risk scenarios in which the opportunity for serious injury and mortality are likely, such as an active shooter.

- Thus, preparing SSOT officers to endure the physical rigors of these events is imperative for operational success. For these reasons, developing a metabolic profile for these events is of interest to strength and conditioning professionals aiming to improve tactical performance among SOT team members.

Purpose

The purpose of this study was to utilize HR analysis to identify and quantify the physical demands of SASS among SOT members

Methods

Seven male (age: 38.97 ± 9.17; ht: 177.99 ± 6.45 cm. wt: 88.83 ± 13.55 kg) SOT members volunteered to participate in this research. SOT members performed three SASS involving breaching, casualty extraction, and seeking cover while wearing personal protective equipment (PPE). Participants were outfitted with heart rate (HR) monitors and average heart rate (HRavg) as well as maximum heart rate (HRmax) data were collected and recorded for the scenario performed.
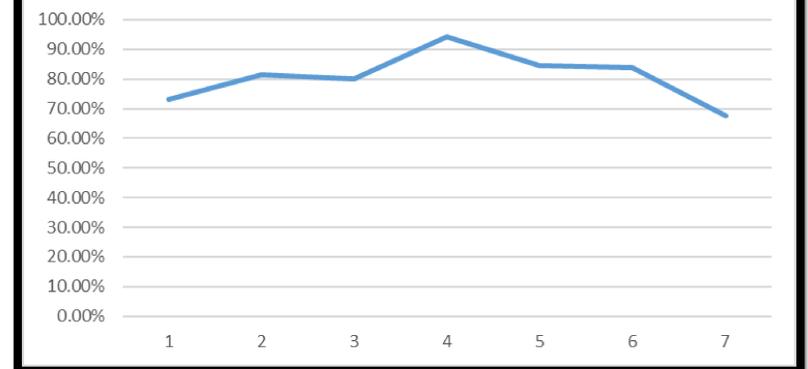

Figure 1: Sample HR Data from SOT Member
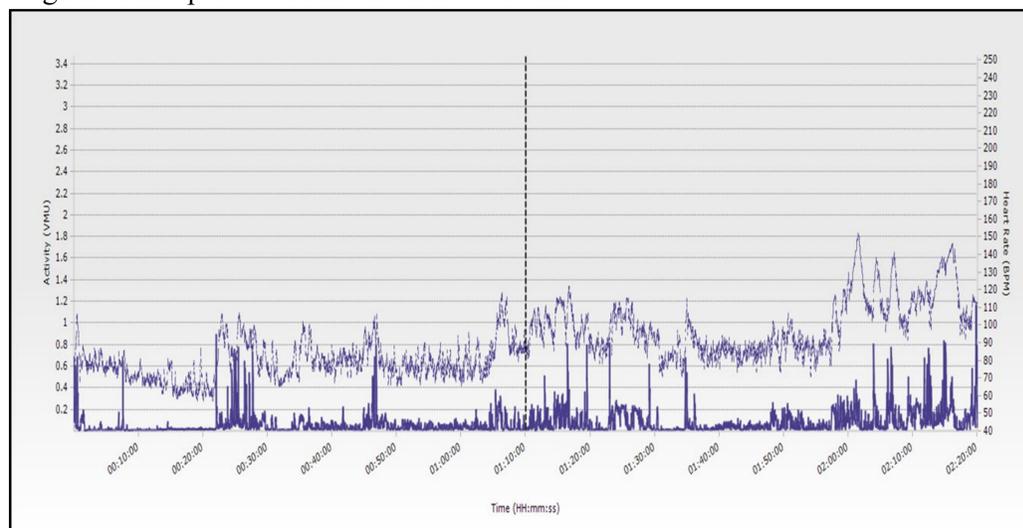
Results

During SASS it was discovered that HRavg ranged between 45-60% of APMHR and average HRmax ranged between 68-94% of APMHR.

Fig. 2: Perentage of Peak HR Attained during Active Shooter Scenerio by SSOT Team Member

Conclusions

SASS can be very physically demanding events that may elicit maximal or near maximal heart rate responses. Therefore, it may be in the best interest of the TSAC-F, physical fitness lead, etc. to account for these intensities when prescribing exercises.

Practical applications

Based on the metabolic demands of these events and the individual SOT members capabilities, this information can be used to develop strength training and conditioning programs to optimize performance during active shooter scenarios.

References

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