

Highly Realistic Scenario Based Training Simulates the Psychophysiology of Real World Use of Force Encounters: Implications for Improved Police Officer Performance

Judith P. Andersen, Ph.D.; Marian Pitel, B.Sc. Hons.; Ashini Weerasinghe, B.Sc. Hons.; & Konstantinos Papazoglou, M.A.

University of Toronto, Mississauga Campus, Mississauga, Ontario, Canada

Abstract

Much police 'Use of Force (UOF)' training focuses on range shooting, classroom-based learning, and minimal exposure to realistic scenarios. Consequently, police officers may not be prepared for real-world critical incidents, due to lack of experience making UOF decisions during high stress. This study compared two SWAT ("Special Weapons and Tactics") teams (n=24) to examine the best-simulated physiological stress responses in real-world law enforcement UOF encounters. Results revealed officer physiological stress to highly realistic scenario training was significantly correlated to the stress responses of active duty police officers. Stress responses during classroom-based scenario trainings were minimal, and not significantly related to stress responses experienced during realistic training scenarios or activity duty emergency calls.

Keywords: SWAT officers, stress, physiological reactivity, performance, critical incidents

Introduction

Police work is defined by public service duties, peacekeeping interventions, and at times, the management of high-risk encounters that require the application of use of force techniques. The International Association of Chiefs of Police (IACP, 2001) defines use of force (UOF) as the “amount of effort required by police to compel compliance by an unwilling subject” (p. 1). Efforts may include non-lethal UOF techniques such as Tasers and OC (“oleoresin capsicum”) spray, or lethal force such as the use of a firearm. Typically, UOF decisions must be made rapidly and the officer must consider the appropriateness of the UOF option given their training and the governing laws of their region (IACP, 2001). Use of force incidents are not nearly as frequent as other daily activities of a police officer, much of police training focuses on UOF techniques, given the serious potential of lethal UOF encounters (Morrison & Garner, 2011) and liability (Lee & Vaughn, 2010).

Historical Trends in Use of Force Training

Morrison and Vila (1998) reviewed the historical record of how handgun qualification and training has become a central focus of UOF training. Shooting proficiency remained a central focus of police UOF training in the 21st century. Morrison and Garner (2011) presented an extensive analysis of police performance in live, real-world UOF incidents that resulted in an officer firing a weapon. The authors reviewed data that showed the “bullet hit percentages (i.e., the percentage of shots fired that strike)” ranged between 15% and 40% including large cities such as New York City, Chicago, and Metro-Dade Florida where officers – presumably - receive more extensive weapons training than smaller municipalities or rural areas (Morrison & Garner, 2011, p.344-45). Morrison and Garner (2011) concluded that low shooting accuracy may be attributed to the use of non-evidence based, non-standardized UOF training not linked to real world performance outcomes. In a survey study of Washington State police departments and UOF instructors, Morrison (2006) indicated recent police academy graduates displayed adequate skills, but lower ratings in terms of tactical and UOF decision-making.

Association Between Police Training and Real World Exposures

Research has highlighted that current police UOF training may not result in improved field accuracy. Specifically, training practices may not simulate the conditions an officer experiences in real-world encounters (Andersen, Papazoglou, Arnetz, & Collins, 2015a; Andersen et al., 2015b; Morrison & Vila, 1998). To begin measuring real-world stress physiology among police officers, Anderson and colleagues (2002) monitored the heart rate (HR) of police officers during 76 full shift ride-alongs. They found that officers experienced the highest levels of stress arousal prior to and during exposure to potential critical incidents (Anderson, Litzenberger, & Plecas, 2002). The average resting HR for officers during their shifts was 82 beats per minute (BPM). However, HRs rose significantly with potential encounters. For example, Anderson reported the following HR averages for a variety of police actions: hand on gun, no suspect (134 bpm); holster snap open, no suspect present (131 bpm); hand on gun, suspect present (134 bpm); holster snap open, suspect present (131 bpm); talking to suspect (134 bpm) (Anderson et al., 2002). The study by Anderson and colleagues (2002) sheds light on cardiovascular reactivity during police encounters with the public; however, no actual UOF encounters were reported. Research reports on police officer HR reactivity during *real world*, active-duty UOF encounters were not available in the literature, prior to the current study.

Foundational research in the area of police performance revealed that high physiological stress arousal during critical incidents may shape the outcome of the incident, either for good or bad (Arnetz, Arble, Backman, Lynch & Lublin, 2013; Arnetz, Nevedal, Lumley, Backman & Lublin, 2009). Aspects of the fight or flight response can be detrimental to a UOF decision-making during critical incidents – these detriments include: perceptual distortions (i.e., tunnel vision and auditory exclusion), reduced motor dexterity, and impaired cognitive function (Johnson, 2008). While classroom instruction is generally effective in providing officers a repertoire of situation-specific actions and decisions, simulated crisis scenarios allow officers to take what they learn in the classroom and actively practice the application while experiencing the perceptual, motor, and cognitive deficits that can occur in real life (Andersen & Gustafsberg, 2016). In high-realism training scenarios, officers are placed in physical contexts that look, sound, and feel authentic (e.g., utilizing actors, simulated injuries, weapons, and level of danger). Simulated UOF encounters should evoke a stress profile similar to the stress reactivity pattern of an officer encountering a real-life critical incident. Consequently, measurement of officers' stress reactivity provides objective physiological evidence of the realism of the scenarios (Andersen et al., 2015a; Andersen et al., 2015b). Given the complexities of UOF actions in real-world incidents, evidence supports the investigation of UOF training techniques that mimic, as realistically as possible, real-world UOF encounters (Morrison & Garner, 2011).

Evidence supporting high realism scenario-based training comes from both the self-reports of officers and officer improvements in use of deadly force (Fletcher, 2009; Oudejans, 2008; White, Carlson, & Wilbourn, 1991). For instance, Oudejans (2008) found that realistic training under stress led to the improvement of pistol shooting performance among police officers. Researchers have shown police officers' report enhanced learning when exposed to dynamic, high-realism scenarios compared to low-realism or non-dynamic scenarios (Taverniers, Smeets, Van Ruysseveldt, Syroit, & von Grumbkow, 2011). Undeniably, there is emerging interest in the effectiveness of reality-based training to facilitate learning among police officers. However, research is limited on high-realism UOF training among patrol police, and even less in regards to the training of SWAT police officers. The term SWAT ("Special Weapons and Tactics") will be used throughout the manuscript for ease of reference.

The current project

The current project examined what type of UOF training more closely simulated physiological reactivity shown in live police incidents among SWAT officers. Comparisons in police officer's physiological stress response arousal were made between classroom-based auditory exposure to UOF incidents, highly realistic scenario-based UOF training, and real world UOF encounters. The hypothesis was examined that the physiological stress response arousal observed in live action, scenario-based training would be more strongly associated with real world stress response reactivity than classroom-based auditory UOF training. Physiological arousal was operationally defined as maximum HR during the simulated critical incident, and the difference between resting HR and maximum HR (absolute value).

Methods

Participants

SWAT officers from two different teams were observed (n=24). For this study, one team of SWAT officers (n=7) were located in a large metropolitan city in Canada. These officers

were monitored during an entire shift for 11 active duty days (SWAT-active duty). The comparison team, a group of SWAT officers in Finland (n=17) (SWAT-training) were observed during an intensive week (i.e., five days) of advanced tactical training at the Police University College of Finland training center. All participants willingly participated in the current study and signed the relevant research study consent form. The University of Toronto Ethics Review Board and the Director of the Finnish Police University College approved this research study.

Procedures

During all training and active duty hours, all participants were fitted with a Zephyr Bioharness chest band that recorded ambulatory physiological data. For the remainder of the paper, the term “chest band” will refer to the Zephyr Bioharness chest band used in the study (<http://www.zephyranywhere.com>). The chest bands monitor and record reliable physiological threat responses with accuracy, comparable to medical grade and lab-based physiological equipment. This lightweight band is worn around the chest, next to the skin, and collects HR reactivity and recovery, among other physiological measures.

SWAT-active duty officers wore the chest band during all active-duty days while on base and during emergency call-outs. Officers recorded daily activities in their police notes. Researchers did not accompany officers into the field; rather they later used the SWAT officers’ notes to associate the occupational events with hand-recorded physiological profiles.

SWAT-training officers attended an intense, tactical training week that lasted five days and was comprised of two components: auditory critical incident exposure (on headphones) and reality-based scenario training simulating live-action critical incidents. The critical incident scenarios occurred in the simulated town of the Police University College of Finland. Actors were employed to make the critical incident scenarios as realistic as possible.

Measures

Cardiovascular reactivity to stressful critical incidents has been used as an objective measurement of police officers’ threat responses to high stress incidents (Andersen & Gustafsberg, 2016; Arnetz, et al. 2009). Common cardiovascular measures include maximum HR, not due to physical activity, and the recovery of HR following critical incidents. These cardiovascular measures have been used consistently in police research (Andersen et al., 2015b; Arnetz et al., 2013). In the current study, the following parameters were considered as depicting stress-related HR reactivity: i) Maximum HR (HRmax): the highest point reached by a participant’s HR during exposure to either a training scenario or a real-world critical incident, ii) Difference between HRmax and resting HR (HRdifference): the absolute value (in BPM) difference between the participant’s HRmax during the critical incident and participant resting HR (60-85 BPM).

Results

Demographics

All SWAT-active duty officers were male, aged 36-50 years (Mean=42) with similar years of experience (Mean=7.92) and body mass index (BMI) (Mean = 28.64) (Table 1). The SWAT-training team officers were all males, aged 28-41 years (Mean=33.53) with similar years of experience (Mean=9.99) and BMI (Mean=27.28) (Table 1). There was a significant age difference between the two groups. In comparing the ages of each groups, an independent

samples t-test revealed that the SWAT-active duty officers had a significantly higher age compared to the SWAT-training officers, $t(21)=-3.41$, $p<0.01$ (Table 1). In comparing the BMI of each group, an independent samples t-test revealed no significant difference, $t(21)=-1.36$, $p>0.05$ (Table 1). In comparing the years of experience for each groups, an independent samples t-test revealed no significant difference, $t(20)=2.07$, $p>0.05$ (Table 1).

A graphical representation of HR reactivity comparing classroom, realistic, and real-life critical incidents are displayed in Figures 1-4. The right vertical axis of Figures 1-4 depict the officer's 'activity level.' Whereas HR is depicted on the top line of the horizontal axis, activity level is the bottom line on the horizontal axis. Activity level of .2 is equivalent to standing or light walking. Activity level of .8-1 indicates faster movement, like jogging.

Evidence of Scenario Realism Based on Physiological Reactivity

An independent samples t-test was performed comparing the difference between classroom scenarios and real-life scenarios. The independent samples t-test revealed a significant difference between the average HRmax of the classroom scenarios ($M=117.14$, $SD=11.78$) and real-life scenarios ($M=146.00$, $SD=8.72$), $t(21)=-5.46$, $p<0.01$ (Table 2). Similarly, an independent samples t-test showed a significant difference between the average HRdifference of the classroom scenarios ($M=37.61$, $SD=11.22$) and real-life incidents ($M=71.18$, $SD=6.99$), $t(21)=-6.82$, $p<0.01$ (Table 2).

In comparing realistic training scenarios and real-life incidents, an independent samples t-test revealed no significant difference between the average HRmax of the realistic training scenarios ($M=148.80$, $SD=11.60$) and real-life incidents ($M=146.00$, $SD=8.72$), $t(11)=-0.61$, $p>0.05$ (Table 2). Similarly, an independent samples t-test indicated no significant difference between the average HRdifference of the realistic training scenarios ($M=69.10$, $SD=10.10$) and real-life incidents ($M=71.18$, $SD=6.99$), $t(12)=0.55$, $p>0.05$ (Table 2).

Further, t-test analyses were performed to examine the relationship between classroom and realistic training scenarios. A between group t-test revealed a significant difference between the average HRmax of the classroom scenarios ($M=117.14$, $SD=11.78$) and the realistic training ($M=148.80$, $SD=11.60$), $t(16)=-10.64$, $p<0.01$ (Table 2). Similarly, a between group t-test revealed that there was a significant difference between the HRdifference of the classroom scenarios ($M=37.61$, $SD=11.22$) and realistic training ($M=69.10$, $SD=10.10$), $t(16)=-10.28$, $p<0.01$ (Table 2).

Discussion

The current study examined SWAT officer's physiological arousal during training and real-world UOF incidents. The purpose of this research was to determine which type of UOF training more closely mimicked physiological reactivity experienced in live UOF police incidents. This is the first known study to compare objective measures of stress response reactivity among SWAT officers undergoing various UOF training programs. As hypothesized, physiological stress response arousal observed in high realism scenario-based training was significantly correlated (e.g., statistically similar) with the physiological arousal displayed in real world UOF encounters among SWAT officers. Physiological arousal experienced in classroom-based training was not significantly correlated with high realism UOF training or real world UOF encounters. The results suggest two implications: first, high realism scenarios provide officers the opportunity to experience how physiological arousal may impact the outcome of the UOF encounter, and second, officers are afforded the opportunity to learn to perform optimally in spite of high physiological stress responses.

Despite the lack of association between classroom and high realism training, it should be noted that classroom training did stimulate an engagement of the stress response system (>100BPM). Based on field observations of police performance, scholars have noted that HR arousal between 115 and 145 seems ideal for optimal performance (Siddle, 1995). Foundational research in the development of police tactical training outlines a number of components critical to acquiring, retaining, and applying skills during highly threatening encounters (Driskell & Johnston, 1998). Specifically, skills must first be introduced and rehearsed in a non-stress environment, followed by increasing levels of stress and threat until the skill can be performed optimally during high intensity encounters (Driskell & Johnston, 1998). Graduated training is particularly important for learning skills that require motor movements, such as UOF tactics (Olson, 1998). Classroom audio exposure to critical incident training may prove useful as an important first step in the process of advanced UOF skill development. Indeed, researchers studying mental imagery and audio exposure to critical incidents have reported improvements in performance among police recruits during a critical incident simulation (Arnetz, et al., 2009).

The results of this observational study suggest that active duty SWAT officers are operating, on average, at the top of the ideal range of arousal (146 BPM). Future research is needed to understand if reducing physiological arousal among active duty officers improves performance in real world UOF encounters. Stress arousal does not seem to be a function of years of training. The active duty officers in this study had many years of elite training and years of service, yet stress responses between 160 and 180 BPM were observed during real life UOF incidents. Future research is needed to understand if optimal performance can be reached at higher levels of stress responding (between 160-180 BPM). Particularly given that research has shown that when HR exceeds 170 BPM, perceptual distortions (e.g., tunnel vision, auditory exclusion), freezing, and possible irrational behaviour are highly likely to occur (Siddle, 1995).

Another important area for future research is the long-term health outcomes associated with repeated exposure to high physiological stress responses. Longitudinal research studies conducted with front line officers demonstrated elevated risks of chronic disease such as cancer, diabetes, and heart disease (Charles et al., 2007; Violanti, 1983; Violanti et al., 2005). However, physiological arousal associated with UOF encounters may not be detrimental to health. For instance, an officer may be able to perform optimally during active duty encounters and may not experience excessive stress when responding to a critical incident.

Limitations

The current observational research study is limited, but it is, to the authors' knowledge, the first of its kind. The objective, repeated measures of physiological arousal gathered in an ecologically valid environment strengthen confidence in the observations reported here. Of note, the Canadian officers were on average 8 years older than the Finnish officers. Heart rate is known to increase as a function of age; however, the 8-year difference between the two SWAT teams studied had minimal impact on HR. The lack of significant difference in resting HR and peak HR reactivity to UOF encounters indicates age was not a predictive factor explaining the relationship between classroom, realistic, and real-world UOF exposures.

Implications

The current author's prior work demonstrated that when SWAT officers are provided with individualized feedback on physiological reactivity during UOF training, they report high levels of motivation to engage in resilience training to improve stress responses to occupational

exposures (Andersen et al., 2015b). Based on a series of observational and experimental studies on police stress and performance, researchers are developing evidence based resilience interventions to improve UOF decision-making (Andersen & Gustafsberg, 2016). The results of the current research suggest that police organizations considering new training programs may want to consider the following: classroom training may be a foundational first step to introducing officers to police critical incidents. However, despite the cost and time investment that highly realistic scenario training may require, this method provides officers an opportunity to experience and prepare for real world encounters.

Acknowledgements

The authors would like to express their gratitude to the following individuals for their remarkable support in the successful completion of the present study: Mr. Kimmo Himberg, Director of Police University College of Finland; Dr. Mari Koskelainen, D.Clin.Psych., Clinical Psychologist at the Police University College of Finland; Mr. Markku Nyman, M.Sc., Psychologist at the Police University College of Finland; Mr. Harri Gustafsberg, M.Sc., former Chief Inspector of the National Police of Finland; Ms. Pamela Adjei, Ms. Farva Batool, Mr. Andrew Daoust, Ms. Michelle Jasinski, Ms. Tammy Kim, and Ms. Natalie Stuewe, Undergraduate Research Assistants at the University of Toronto – Health Adaptation Research on Trauma (HART) research lab.

About the Authors:

Professor Judith P. Andersen is a health psychologist who specializes in the psychophysiology of stress and stress related mental and physical health issues. Professor Andersen has more than a decade of experience working with populations exposed to severe and chronic stress, combat soldiers, and police. Currently, Professor Andersen is the director of the Health Adaptation Research on Trauma (HART) Lab at the University of Toronto. Professor Andersen's on-going research projects include measuring mental and physical health changes associated with resilience training among police and Special Forces teams in Ontario, the U.S., and Europe (proresilience.org). Prof. Andersen is the primary contact for this article. Correspondence can be sent to: judith.andersen@utoronto.ca

Marian Pitel is a recent graduate of University of Toronto, and holds an Honours Bachelor of Science in Psychology. She is currently a research volunteer at Dr. Judith Andersen's Health, Adaptation, Research on Trauma Lab (HART lab) at University of Toronto, Mississauga Campus, supporting the lab's several police projects. Correspondence can be sent to: m.pitel@mail.utoronto.ca

Ashini Weerasinghe is an epidemiology master's degree candidate at the University of Toronto. She holds an Honours Bachelor's (B.Sc. Hons) degree in biology & psychology and worked as a research assistant during her undergraduate degree at the Health Adaptation Research on Trauma (HART) Lab at the University of Toronto. Correspondence can be sent to: ashini.weerasinghe@mail.utoronto.ca

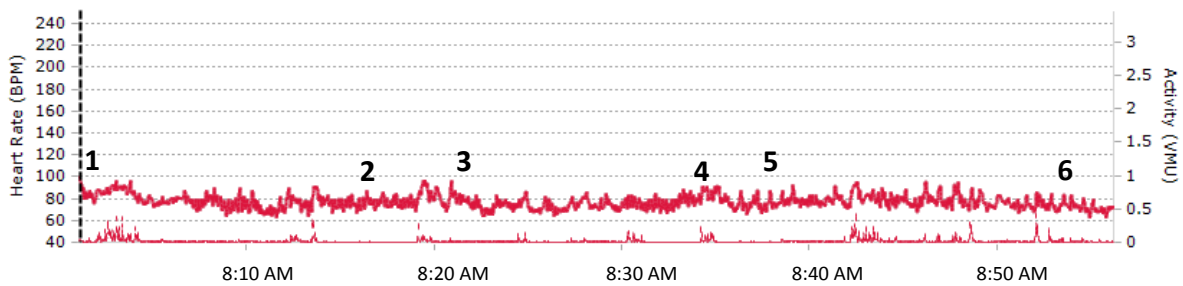
Konstantinos Papazoglou is a psychology doctoral (PhD) candidate (clinical and forensic area) and a Vanier Scholar at the University of Toronto (UofT). He is a former Police Captain of the Hellenic Police and he holds a master's degree in mental health counseling from New York University (NYU). Currently, he works with Professor Judith P. Andersen at the University of Toronto focusing his research work on stress, trauma prevention, and resilience promotion among police. As part of his doctoral clinical placement at the UofT-affiliated clinic, CAMH-PTP, he conducts assessments and provides treatment to officers suffering by trauma and stress-related issues. He has presented his research in many scientific venues (e.g., American Psychological Association, Academy of Criminal Justice Sciences) and received many awards (e.g., American Psychological Association – Criminal Justice Section Outstanding Doctoral Research Award, American Psychological Foundation – Levinson Award). Correspondence can be sent to: kons.papazoglou@mail.utoronto.ca

References

- Andersen, J. P., & Gustafsberg, H. (*in press*). A training method to improve police use of force decision making: a randomized controlled trial. *Journal of Police Emergency Response*. Open Access.
- Andersen, J. P., Papazoglou, K., Arnetz, B. B., & Collins, P. I. (2015a). Mental preparedness as a pathway to police resilience and optimal functioning in the line of duty. *International Journal of Emergency Mental Health and Human Resilience*, 17(3), 624-627. doi: 10.4172/1522-4821.1000243
- Andersen, J. P., Papazoglou, K., Koskelainen, M., Nyman, M., Gustafsberg, H., & Arnetz, B. B. (2015b). Applying resilience promotion training among Special Forces police officers. *SAGE Open*, 5(2). doi: 10.1177/2158244015590446
- Anderson, G.S., Litzenberger, R., & Plecas, D. (2002). Physical evidence of police officer stress. *Policing: An International Journal of Police Sciences & Management*, 25(2), 399-420. doi: 10.1108/13639510210429437
- Arnetz, B.B., Arble, E., Backman, L., Lynch, A., & Lublin, A. (2013). Assessment of a prevention program for work-related stress among urban police officers. *International Archives of Occupational and Environmental Health*, 86, 79-88. doi: 10.1007/s00420-012-0748-6
- Arnetz, B.B., Nevedal, D.C., Lumley, M.A., Backman, L., & Lublin, A. (2009). Trauma resilience training for police: Psychophysiological and performance effects. *Journal of Police and Criminal Psychology*, 24, 1-9. doi: 10.1007/s11896-008-9030-y
- Charles, L. E., Burchfiel, C. M., Fekedulegn, D., Vila, B., Hartley, T. A., Slaven, J., ... & Violanti, J. M. (2007). Shift work and sleep: the Buffalo Police health study. *Policing: An International Journal of Police Strategies & Management*, 30(2), 215-227. Doi: <http://dx.doi.org/10.1108/13639510710753225>
- Driskell, J. E., & Johnston, J. H. (1998). Stress exposure training. In: J. A. Cannon-Bowers & E. Salas (Eds.), *Making decisions under stress: Implications for individual and team training* (pp. 191–217). Washington, DC: American Psychological Association.
- Fletcher, J. D. (2009). Education and training technology in the military. *Science*, 323(5910), 72–75. doi: 10.1126/science.1167778

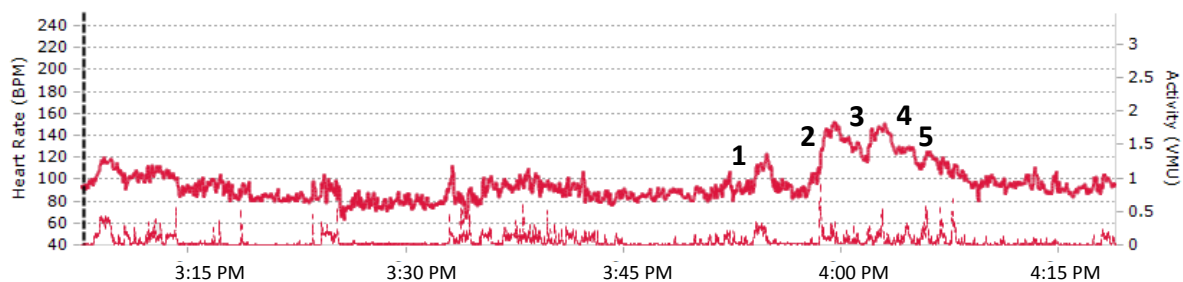
- International Association of Chiefs of Police (IACP) (2001). Police use of force in America. Retrieved from <http://www.theiacp.org/Portals/0/pdfs/Publications/2001useofforce.pdf>
- Johnson, B.R. (2008). *Crucial elements of police firearms training*. Flushing, NY: Looseleaf Law Publications.
- Lee, H., & Vaughn, M. S. (2010). Organizational factors that contribute to police deadly force liability. *Journal of Criminal Justice, 38*(2), 193-206. doi:10.1016/j.jcrimjus.2010.02.001
- Morrison, G. B. (2006). Police department and instructor perspectives on pre-service firearm and deadly force training. *Policing: An International Journal of Police Strategies & Management, 29*(2), 226-245. doi: 10.1108/13639510610667646
- Morrison, G. B., & Garner, T. K. (2011). Latitude in deadly force training: Progress or problem?. *Police Practice and Research, 12*(4), 341-361. doi: 10.1080/15614263.2011.563968
- Morrison, G. B., & Vila, B. J. (1998). Police handgun qualification: practical measure or aimless activity? *Policing: An International Journal of Police Strategies & Management, 21*(3), 510-533. doi: 10.1108/13639519810228804
- Olson, D. T. (1998). Improving deadly force decision making. *FBI Law Enforcement Bulletin, 67*(2), 1-9. Retrieved from <https://www2.fbi.gov/publications/leb/1998/febleb.pdf>
- Oudejans, R. R. D. (2008). Reality-based practice under pressure improves handgun shooting performance of police officers. *Ergonomics, 51*(3), 261-273. doi: 10.1080/00140130701577435
- Page, K. S., & Jacobs, S. C. (2011). Surviving the shift: Rural police stress and counseling services. *Psychological Services, 8*(1), 12-22. doi: 10.1037/a0021796
- Siddle, B. K. (1995). *Sharpening the warrior's edge: The psychology & science of training*. Millstadt, IL: PPCT Research Publications.
- Taverniers, J., Smeets, T., Van Ruysseveldt, J., Syroit, J., & von Grumbkow, J. (2011). The risk of being shot at: Stress, cortisol secretion, and their impact on memory and perceived learning during reality-based practice for armed officers. *International Journal of Stress Management, 18*(2), 113-132. doi: 10.1037/a0023742
- Violanti, J. M. (1983). Stress patterns in police work: A longitudinal study. *Journal of Police Science and Administration, 11*(2), 211-216. Retrieved from <https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=90022>
- Violanti, J. M., Fededulegn, D., Hartley, T. A., Andrew, M. E., Charles, L. E., Mnatsakanova, A., & Burchfiel, C. M. (2005). Police trauma and cardiovascular disease: association between PTSD symptoms and metabolic syndrome. *International journal of emergency mental health, 8*(4), 227-237. Retrieved from: <http://europepmc.org/abstract/med/17131769>
- White, C. R., Carson, J. L., & Wilbourn, J. M. (1991). Training effectiveness of an M-16 rifle simulator. *Military Psychology, 3*(3), 177-184. doi: 10.1207/s15327876mp0303_4

Figure 1.
Classroom Audio Scenario: Confrontation with a Mentally Ill Gunman



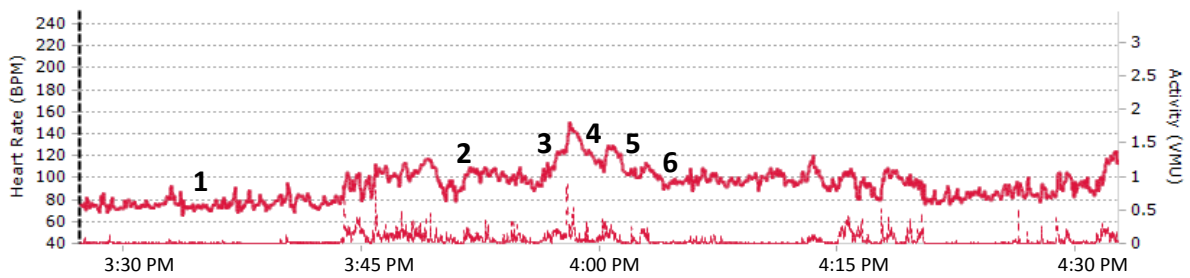
Description of Activities:

- 1-2: Officer receives instructions and information regarding upcoming simulation.
- 2-3: Officer engages in Scenario 1 at the "Basic" level.
- 3-4: Officer receives feedback from trainer and psychologist.
- 4-5: Officer engages in Scenario 2 at the "Advanced" level.
- 5-6: Officer receives feedback from trainer and psychologist.

Figure 2**.Realistic Training Scenario: Officers Confront Criminals while Passengers Flee Bus****Description of Activities:**

- 1-2: Officer prepares for the scenario.
- 2-3: Officer opens bus door, passengers all exit rapidly.
- 3-4: Officer confronts and arrests fleeing criminals with team.
- 4-5: End of scenario. Officer receives feedback.

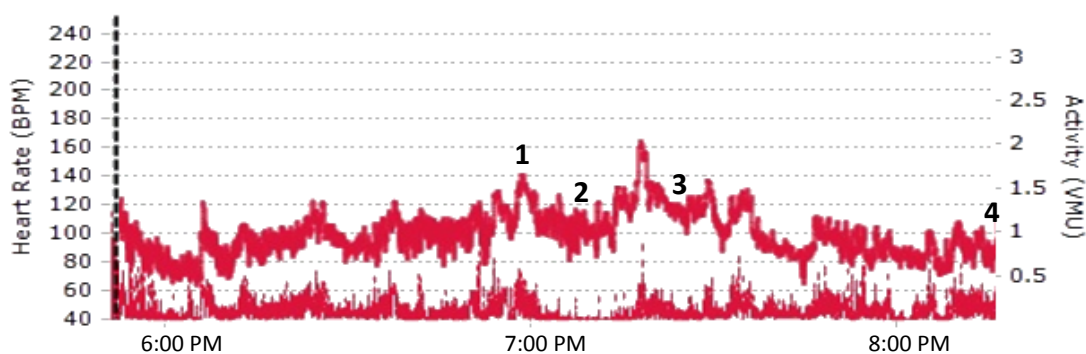
Figure 3.
Realistic Training Scenario: Apartment Entry and Suicide Intervention



Description of Activities:

- 1-2: Officer prepares for the scenario.
- 2-3: Officer climbs ladder to enter the apartment.
- 3-4: Officer confronts and shoots (blanks) at criminal.
- 4-5: Officer confronts suicidal man.
- 5-6: End of scenario.

Figure 4.
A Police Officer During an Active-Duty Critical Incident



Description of Activities:

1-2: Tactical briefing. Officer headed to the target address as the driver.

2: Standby (roughly 15min) because of movement in front of target address.

2-3: On scene, officer found 2 males in garage – Officer aimed their rifle at target male in rear seat of vehicle. Male did not show his hand – officer yelled to show hand (twice), and they complied (secured) Officer entered house and found mother with 5-6 kids who yelled at the officer and blocked the stairway to the upper level. The officer yelled at them to be quiet and sit down, they complied. Officer went outside for security.

3-4: Officer returned to the station. End of shift.