

Quantifying Stress in Training

Inducing the level of stress experienced on the street

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We know the importance of training in police work as it relates to our survival.

Anyone who is not familiar with the axiom, *The way you train, is the way you fight*, has probably been hiding underneath a rock somewhere in the mountains.

Stress influences the way we react to situations on the street. What we as trainers need to understand, and subsequently structure our courses to combat, is to somehow replicate that stress, and train our officers to win, in spite of the deleterious effects that stress has on our performance.

In 1998, Bruce Siddle conducted research involving officers in an identical training scenario with various stressors included. There are not many studies of this kind, since controlling all of the variables and quantifying results is an enormous task. Nevertheless, Siddle embarked on this ground breaking journey, and titled the work, *Combat Human Factors: Triggering the Survival Circuit.*

In the study, he discussed a great many things, to include how we shoot. He compared and contrasted Isosceles and One Hand Point shooting, as they relate to close quarter combat. These two types of shooting styles were developed in the 1920s, the purpose of which was to promote quick response type shooting without using the sights. The two systems have been tested and refined since then, and have been proven to be highly effective techniques for survival. Interestingly, after Siddle's study was conducted of the officers involved in a stress-induced scenario, more than half resorted to an Isosceles/Modified Isosceles stance, i.e., squared up to the threat, even though the vast majority of the participants in the study were trained to shoot in the asymmetrical Weaver stance, which is a bladed technique.

In Siddle's research, his methodology included utilizing a **PRISim** Video-Based Judgment Simulator, with a **ShootBack Cannon**, installed in a trailer. Capable of firing a .68 caliber nylon ball at 120 feet per second, the officers' stress response was elevated, knowing the bad guy was actually able to shoot at them and hit them if they were not tactically sound. A single identical scenario was utilized for each officer, and a dispatcher was placed in the trailer to simulate real-time response and interaction. An air horn was sounded by a team member at a certain point during the scenario as well.

What distinguishes this work from others is that previous studies were never able to confirm whether survival stress had actually been induced, nor were researchers ever able to quantify the test subjects' actual performance against their perceived performance. Siddle therefore controlled as many environmental variables possible, and tracked physiological and cognitive changes as they occurred. He tracked heart rates,



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Does your training reflect reality in any way? If not, you're remiss in your duties.

and by using blood samples, he measured changes in stress hormones and linked them to performance. He further had participants complete post-event surveys, and then compared them with real-time video playback of the subjects' performance.

The huge differentiator in Siddle's work is the blood analyses. It demonstrates, unequivocally, what happens to our Sympathetic Nervous System when we're exposed to a life-threatening event. A myriad of psycho-physiological effects occur, which include increased heart rate, adrenaline, and high levels of stress hormones, such as Cortisol, epinephrine, and norepinephrine. We also know that combat motor skills are affected, resulting in auditory exclusion and tunnel vision, to name just two. Siddle was joined by Dave Grossman in several studies involving combat-induced stress. The pair concluded that whenever a tremendous amount of stress is placed on the officer, there exists a huge potential for memory problems. They labeled this phenomenon, *Critical Incident Amnesia*. Siddle's research bears this out.

After the **PRISim** scenario was complete, the officers were questioned about their performance. Comparing those responses to a review of the actual video produced a huge disparity between perceived performance and actual performance. The stress hormones increased, Cortisol an average of 18.15%, peaking as much as 206.41%. Epinephrine rose an average of 131.83%; norepinephrine an average of 66.26%. These high hormone levels impacted memory function.

To illustrate how increased levels of stress hormones can influence an officer's memory, Siddle asked each officer to describe their reaction to the threat on the screen. Half the participants responded that they saw the threat developing and reacted automatically. This was somewhat higher than the researchers believed to be true, based upon the researchers' observations. Researchers also felt that the number of officers who said they saw the threat develop but were slow to react, 38.1%, was slightly less than reported. Almost 12% of officers reported they were totally startled by the threat, but again, researchers felt that number was almost double than the number reported.

The officers were queried regarding their initial response to the event. A large number, 88.10%, said they reacted based on their training. This number was much higher than the 66.67% indicated by the researchers. Surprisingly, while nearly 5% said their response to the scenario was fear, the researchers felt that number was three times higher, at 16.67%.

Regarding auditory exclusion, recall that an air horn was sounded at some point during the scenario. The research indicated that almost 40% of the officers actually heard it and reacted to the stimulus, while 58% did not hear it. Those numbers are interesting, since a post-video survey question specifically asked if they heard any audio stimulus besides voice and weapon fire. The responses amounted to only 2.38% of participants who said they heard the air horn, even though almost 98% denied hearing the stimulus, many of them did, and either failed to realize it or forgot they heard it.

Data regarding the use of gun sights during the gunfight, indicated that only 30% of the officers reported being able to see their front sights. Of that number, only 25% reported actually using them. Researchers reviewing the footage indicated that 31.25% appeared to use their sights, which closely correlates to the participants' survey responses. Therefore, between 68-73% of the officers **did not use their sights** while engaged in the gun battle.

Findings with respect to the use of sights, begs the question: "How accurate are the officers when facing an adversary with a gun?" The obvious answer is not very accurate, and the officers' perception of their performance is quite disparate when compared to actual results. An average of 12.71 shots were fired per scenario; the rounds hit their mark an average of 3.3 times. The overall accuracy was computed to be 24.41%, which equates to one out of every four shots fired hits the bad guy. Of course, we're talking averages. Some of the officers hit almost 90% of their shots, yet others had no hits at all. A surprising 8% of officers failed to fire a single shot.

When asked about their shooting performance, the officers' perception exceeded the reality of what actually happened. Most felt they fired an average of 8.26 shots per scenario, and of those shots fired, 53% of them were felt to be accurate. The reality is 98% scored lower than their perception; 15% felt they hit the bad guy more times than they even fired. About 17% had no idea of how many rounds hit the bad guy. The most interesting statistic to be gleaned from the officers' memory of the shooting event is that only 12.90% correctly identified the number of rounds they fired during the scenario.

The above data, as well as the entire Siddle study, is a priceless resource for trainers. We need to endeavor to create the type of training that will maximize the limited time we have, to allow our officers to experience what they're likely to encounter on the street. It's been said that police work is hours of boredom, interspersed with moments of sheer terror. We need to train for those moments.

Stay safe, brothers, and sisters!

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