Study confirms: Force-on-force benefits top traditional target training

In the first study of its kind, researchers have confirmed that force-on-force training is significantly superior to traditional firearms practice in at least three important ways:

1) Force-on-force (FoF) scenarios that enable "suspects" to shoot at trainees generally stimulate a stronger physiological stress reaction in targeted officers

2) They expose how badly officers' shooting accuracy is likely to suffer in an actual gunfight

3) They more strongly motivate officers to take training seriously and to adopt protective tactics on their own volition.

In light of their scientific documentation, the researchers conclude in a newly published paper that FoF handgun practice is "a potent training tool to prepare armed officers for performance in a stressful real-life environment."

"This study," says Dr. Bill Lewinski, executive director of the Force Science Institute, "provides reassuring support for progressive trainers who are already engaged in reality-
based instruction and should also prove valuable to those who are trying to persuade their agencies to upgrade and modernize outmoded firearms programs."

FSI was not involved in this research, although some of the Institute's work is referenced in the recent paper.

URBAN COMBAT "MISSION". The study was conducted by Dr. John Taverniers, head of psychology for the department of behavioral sciences at the Royal Military Academy in Belgium, and Pieter De Boeck, a military and social sciences expert at that country's Infantry School.

Their subject pool was comprised of 20 "healthy military men," ranging in age from 25 to 36, with four to 10 years of service. All were "in full preparation for operational duties abroad," having received specialized training in urban combat. Two had previously been involved "in real-life shooting incidents."

Working alone, each volunteer was assigned to clear a four-room house and an alleyway in which "two 'aggressive criminal elements' were entrenched." Each participant was to complete this four- to six-minute "mission" twice, several days apart--and with an important variant.

One time through, they were told in a briefing that their adversaries would be depicted by two "traditional" cardboard targets. But the other time, they'd be operating in a dynamic FoF environment, with live "aggressive opponents" armed with 9mm pistols that fired marker ammunition. These "suspects," the volunteers were warned, would "probably try to retaliate when confronted."

The participants were instructed to respond in the same manner both to the paper targets and the live threats: double taps to center mass with marker rounds from their "standard issued" handgun.

FOF VS. PAPER. In conjunction with the experiment, the volunteers answered subjective questions about their stress expectations and experience; multiple saliva samples were taken for stress-related hormone analysis; and their movements, including shooting responses and tactical behavior, were videoed throughout the mission for detailed examination later.

Across the board, the researchers report, the results from the FoF phase of the experiment proved superior from a training perspective. Specifically, the researchers noted the following:

• Anticipated distress. Right after their preliminary briefings, the volunteers were asked to rate on a scale of 0 to 10 the level of distress they anticipated during the upcoming
exercise. On average, the prospect of facing live adversaries was perceived as over 1.5 times more distressing than confronting cardboard targets, even before any action began.

- Saliva sampling. Salivary samples taken throughout the experiment revealed a "significant" increase in the volunteers' secretion of stress-related biomarkers during the FoF phase, compared to baseline and cardboard-target measurements. This evidence of a physiological stress impact was more than 2.5 times greater for FoF than for the conventional targets, on average.

- Stress perception. Immediately after completing their missions, participants were asked to rate the maximum stress they experienced on a scale of 0 to 10. Results again showed "significantly more subjectively experienced stress in the FoF condition."

- Shooting accuracy. While stress increased in the FoF phase, shooting accuracy--an "essential performance characteristic"--suffered a "significant" and "ominous" decline upon the first encounter with a live opponent. On average, the volunteers' accuracy dropped by 30% when shooting in the FoF mode.

- Corrective behavior. Perhaps most important, the study revealed that the prospect or reality of Simunition rounds flying their way prompted participants "on their own accord" to improve their tactics and training commitment. Examination of the videotapes, for example, showed that they "chose to expose significantly less" body surface from behind cover when facing live adversaries in the FoF mode than when confronting cardboard targets. "This finding suggests a more realistic approach" and a "desirable surge" of training "seriousness" in the FoF condition, leading to "a desirable improvement" in training "earnestness" and commitment, the researchers report.

The research team does not recommend the abandonment of conventional target training. "Cardboard-target practice is the obvious means for skill acquisition in the early and mid-stages of training," their paper explains. But to better prepare officers to perform well under the stress of life-threatening situations, they need to advance to a more sophisticated and realistic rehearsal level.

"Of course," Lewinski told Force Science News, "even force-on-force training cannot match the intensity of a truly life-or-death encounter. But with repeated exposure to good force-on-force scenarios, officers are forced to acknowledge the adverse effect of high stress and they can gradually learn to perform reliably and use it to enhance their performance."

The Belgian study, titled "Force-on Force Handgun Practice: An Intra-Individual Exploration of Stress Effects, Biomarker Regulation, and Behavioral Changes," appears in the journal Human Factors. A free abstract can be accessed at http://hfs.sagepub.com/content/56/2/403, where the full study is available for a fee.
II. How cops die: 15-year recap important for training

Knowing how cops die is the foundation for teaching them how to survive. So a recently published, 15-year analysis of the ways and means by which U.S. LEOs are feloniously slain is worth close study by every trainer and every officer.

A team from the Center for Injury Research and Policy at the Johns Hopkins Bloomberg School of Public Health in Baltimore dug into the details of the "occupational homicides" of nearly 800 officers killed in the line of duty between 1996 and 2010.

The results, writes lead author Dr. David Swedler, "should inform officer training and policies, as well as procedures used when interacting with suspects, especially when firearms are involved."

To understand the incident-by-incident circumstances of LEO fatalities, including "officer characteristics, encounter scenarios, weapons used, and perpetrator information," Swedler's team meticulously parsed the death narratives collected in the FBI's annual "Law Enforcement Officers Killed and Assaulted" reports across the study period.

Excluding the 72 LEOs killed in the 9/11 terrorist attacks as a skewing aberration, the team reports these findings, among others, that "can be important in helping agencies to adjust training and service procedures":

- The most frequent situations victim officers were dealing with when slain were disturbance calls (23%), vehicle stops (17%), and investigations (17%). These were the "only scenarios to occur more than 60 times throughout the study period," the researchers note.

- Of the disturbance-call cases, "the assailant was waiting to ambush the responding officer" nearly 30% of the time, frequently with a long-gun.

- Vehicles (about 5%) were a distant second to firearms (over 90%) as the weapon most favored by attackers. Least likely was a fatal unarmed attack (0.03%).

Note: Ken Murray, whose excellent book Training at the Speed of Life is referenced in the study's bibliography, is widely recognized as the premier authority on FoF training. For more information on his classes, access the website for the Armiger Police Training Institute at: www.armiger.net

Our thanks to Chris Lawrence, a faculty member for the certification course in Force Science Analysis, for alerting us to this study, as well as to the one reported below.
• One in 10 officer homicides was perpetrated by the officer's own weapon. Citing other research findings, Swedler's group observes that "LEOs underestimate the frequency of [gun] 'takeaways' " and of "homicides committed with service weapons."

• A majority of fatal wounds (55%) were to the head or neck "where body armor protection is less likely," with nearly 30% to the upper torso. (This correlates with a study by the Force Science Institute of inexperienced shooters who were role-playing suspects in a series of experiments. The vast majority aimed for the head--with surprising accuracy--rather than the torso, researchers found. See Force Science News #66, transmitted 2/26/07.)

• Among the cases where the data is known, 7% of slain officers were not wearing body armor.

• More than one officer was killed or wounded in 30% of the cases.

• More than one assailant was involved in 17% of fatal encounters. Among attackers, 37% were either under the influence of drugs or alcohol or were "known drug offenders."

• During the study period, officer killings peaked in 2001 and then experienced a steady decline. Even so, the "occupational injury fatality rate for LEOs in the U.S. is three to five times the national average of private sector employees," the study reports. American LEOs trail only cab drivers, gas station attendants, and liquor store employees for being most at risk of being murdered while working.

The researchers' findings were published in the journal Injury Prevention, under the title "Occupational homicide of law enforcement officers in the US, 1996-2010." To read a free abstract or download the full study for a fee, go to: http://injuryprevention.bmj.com/content/20/1/35.long

III. Our readers write about post-OIS protocol & delayed interviews

In response to a letter from a California detective [FSN Transmission #256, 5/22/14], recommending that the area around an officer-involved shooting scene should be re-canvassed for possible witnesses at the time of a walk-through of the incident:

Tips & cautions about conducting re-canvasses
I was the lead investigator in over 100 OIS incidents and the primary support investigator in over 30 more. While I agree with the absolute necessity of re-canvassing, the shooting officer or his/her attorney should not take part in any re-canvass. More witnesses may indeed be found but their credibility at trial will be immediately suspect if they are found by the shooting officer or his/her attorney.
As much as possible, the walk-through should be done under the same conditions as when the OIS occurred. Day of the week and time of day are most important. People are creatures of habit. The witness who was getting off a bus to head home when he saw what happened before, during, or after an OIS on a Monday will quite likely be on that same bus every subsequent Monday.

Canvassing for video cameras is every bit as important as canvassing for witnesses. I can think of a half-dozen times when a plaintiff's attorney tried to characterize an OIS investigation as slipshod by asking, "You didn't find ANY video cameras that could have recorded what REALLY happened? How hard did you look?" Few things will illustrate investigative thoroughness as well as an investigator who can respond by referring to "pages X through Y of my investigative file where both positive and negative canvass results are documented."

Extend canvasses for witnesses and cameras as far out from the OIS scene as practical. It may happen only once in a 30-year career but finding a video of a deceased OIS subject brandishing a gun at someone just minutes before being shot by police is golden.

Spcl. Agt. Robert Hunt (Ret.)
Illinois State Police

Responses to the Force Science Institute position paper recommending at least a 48-hour delay before taking an officer's official statement after a shooting [FSN Transmission #254, 4/22/14] include the following, edited in some cases for brevity and clarity:

Should deeper study of sleep guide interview timing?
In the 30+ post-shooting debriefs I've done of LE and private citizens, to a person each has reported significant sleep disturbance post-shooting for days or, in a couple of cases, for weeks. In those cases, the officers had to resort to sleep inducing medication, which of course, has its own effect on episodic reconstruction.

If REM activity is defined as the occurrence of restorative sleep, then perhaps immediately post-shooting, a baseline sleep study should be performed so as to more objectively gauge when an officer is competent physiologically to give a report.

Dr. H. Anthony Semone
Police psychologist
Certified, Force Science Analysis
Wyndmoor, PA

Worth distributing to prosecutors
In Connecticut after a fatal police incident, the State's Attorney is in charge of the investigation and responsible for subsequently issuing a report.
Your article describes my long-standing belief about interviewing involved officers and is worth passing on to our attorneys.

Chief Insp. James M. Hankard
Office of the Chief State's Attorney
Rocky Hill, CT

Inexplicable behavior justifies time to decompress
I was interviewed by an outside agency a short time after being involved in my third OIS. At that time I was a union steward who preached Garrity to other officers. However, I was easily talked out of invoking it by my union rep over the phone.

Even though I was certain it was a justified shooting, I still cannot believe that I allowed myself to give a statement without Garrity protection. I believe this supports your views on allowing time after an incident to decompress.

Sgt. Kim Fowler (ret.)
Stevensville, MI

Why do officers get special treatment?
How is it justified to wait to interview officer(s) when this practice is not done in any other shooting incident? Citizens are not afforded the opportunity to go home and get some rest, walk through the scene, view videos, etc. Your thoughts?

Lt. S. A. Kenney
Professional Standards
Wichita (KS) PD

Dr. Bill Lewinski, FSI's executive director, responds:
Attorneys I work with say that unless you have grounds to arrest someone that subject can leave and go home, rest, walk through the scene if it's a public area, view videos of the incident on the news, confer with their criminal buddies, etc. They don't ever have to talk to you.

If you have grounds to arrest them, their attorney will likely have them invoke the right to remain silent, they will bond out, and then do all of the above, including going back to the scene if they want to and if it's a public area.
Only the officer may be restricted from all of the above and compelled to give a statement under Garrity, if that is administered as part of an investigation by the department.

The position one takes about how officers should be handled seems to come down to this issue: is the involved officer a primary suspect in a criminal act, or is the officer, who has acted under color of authority, been trained, and is performing a duty assigned by society, a victim of an attempted murder who was defending him/herself against an assault?

Departments, investigators, even the public appear to fall on one side or the other, and the philosophical approach that is embraced has a significant effect on policy and post-shooting procedures.

[Have a question or comment to share with Force Science News? Feel free to e-mail us at: editor@forcescience.org.]