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Research & Training Note: Discussion of the new *Force Science* research study detailed in this transmission has now been added to all upcoming *2012 Force Science Certification Courses*. You can **[CLICK HERE](#)** for a list of remaining '12 Courses or you can e-mail us at: **training@forcescience.org**.

New! Force Science seeks answers to sudden vehicle stop attacks

Field research on a groundbreaking new study on vehicle stop safety has been completed by the Force Science Institute, with specific pointers on how officers can better protect themselves from sudden shooting attacks expected by the end of summer.

Using 94 officers from 17 agencies, the research team conducted a series of test scenarios across a 5-day period earlier this month, seeking to determine:

- exactly how officers spontaneously react when confronted with an unexpected threat to life
- how their impulsive responses compare to their training and to their personal performance expectations
- how memory is affected after a sudden high-stress confrontation and how it might be better investigated
- what might best discourage an assault and what is likely to be the most efficient and safest response if a potentially deadly attack does occur.

"We've gathered a great deal of information that has never been collected before, and we are analyzing it now," says Dr. Bill Lewinski, executive director of FSI, which is funding the study. "Before long, we hope to offer some major insights into how officers can make themselves less vulnerable during one of the most commonplace yet most dangerous law enforcement activities--confronting a motorist for a traffic violation."

Lewinski and Dawn Seefeldt, a research assistant at FSI, designed and guided the research, along with the study's lead investigator, Dr. Robert Pettitt of the Viola Holbrook Human Performance Laboratory at Minnesota State University-Mankato.

OFFICER POOL. Groundwork for the testing was laid by Sgt. Craig Allen and a team of trainers for the Hillsboro (OR) PD, who coordinated volunteers from departments in Oregon and Washington State. The diverse pool included officers of both genders, all ranks (including chief), and a broad range of experience that included conducting traffic stops. Some had survived shootings during their career.

None was told in advance what the research exercise would actually consist of. They were told they would be videotaped during a traffic stop scenario, that they would repeat the scenario a number of times and that each repetition would slightly vary. Each participant, armed with a blank-firing training gun, was to "respond verbally and tactically as they would naturally."

After an initial orientation, the officers proceeded one at a time through a gauntlet of data-gathering "stations." Those awaiting their turn in the hot spot were kept out of earshot and eyesight as the test scenario unfolded.

SURPRISE! First was a vehicle setup inside a large, inactive warehouse facility in Hillsboro. A patrol car was parked behind a red Ford Taurus occupied by a male driver, role-played by Scott Buhrmaster, FSI's vice president of operations. The officers were told that the Ford had been stopped for speeding 10 mph over the limit.

When a whistle was blown by Patricia Thiem, FSI's co-owner and chief operating officer, the volunteer being tested was to advance from the rear of the violator vehicle to one of several taped lines radiating out on the floor from directly below the "B-pillar" (doorpost) on the driver or passenger side. Toeing the assigned line, the officer would be positioned at a particular angle relative to the car and driver. "All angles at which officers customarily stand on both side of the vehicle in real life were covered," Lewinski explains.

Each officer advanced 3 times to converse with the driver. The first 2 times, the violator declared that he was a "sovereign citizen" and therefore not subject to the officer's authority. He produced a flurry of official-looking documents from the "Sovereign Nation" and vehemently argued for about a minute that the officer had no right to stop him or to enforce any law against him.

"On the first approach," Buhrmaster told *Force Science News*, "the officers were pretty much on red alert overall, not knowing what to expect. The second time up, they seemed to be mostly thinking about all the confusing, extremist paperwork I'd given them and how to deal with it."

But then about 15 seconds into the contentious dialog on the third approach, the driver without warning whipped a pistol or revolver from beside his right thigh and blasted full-charge blank rounds at the officer as fast as he could. "With few exceptions, he shot every single one before they could move and he continued to shoot at them as they continued to move," Lewinski reports.

"All were caught completely by surprise," Buhrmaster says. And their reactions ran the gamut of reflexive responses. Some froze in place, some put their hands up, some tried to lunge through the open window to grab the gun, some dropped to a knee before firing back, some back-peddled into what would have been a traffic lane on a real roadway, some scrambled away along the side of the car, and so on.

Their actions were captured by 2 cameras, one at the front of the Ford and the other positioned to record an aerial view, with a microphone planted inside the vehicle. "Dr. Pettitt is analyzing the videos now to identify any dominant patterns of attempted disengagement and to detect any major differences of vulnerability between the various angles," Lewinski says. "But the initial impression is that the officers overwhelmingly remained in the suspect's field of fire even while trying to retreat from the initial assault and in some cases exposed themselves to the additional potential danger of oncoming traffic."

DUCKING SPEED. After the traffic stop scenario, half the officer volunteers went to another data station, where they participated in a movement-timing test. "We wanted to see how quickly officers can get below the window level of a car, where an attacking driver has difficulty readily seeing and targeting them," Lewinski says.

Under the guidance of Jennifer Dysterheft, Pettitt's graduate assistant, the volunteers were timed in moving down from a standing position to where their head was below window level; moving down and retreating; and moving down, retreating, and returning fire.

Multiple means of getting low were tested--"ducking, dropping, dipping, squatting," Lewinski says. Once averages are computed, he explains, the researchers may be able to advise as to whether any variation is practical for officers quickly getting themselves out of a driver's zone of fire.

MEMORY & MORE. Before a final debriefing, Dr. Alexis Artwohl, a faculty member of the certification course in Force Science Analysis, probed all the participants regarding their memories of the attack scenario.

She asked that they describe in writing everything they could remember happening "before, during, and after the assault as fully and in as much detail as possible." In addition, officers responded to specific questions about the driver's words and actions before and after launching the attack, as well as what they themselves had said and done.

"Their responses will be compared to the video and audio recordings to gauge the reliability of memory under sudden stress," Lewinski says.

Among other things on a 3-page questionnaire officers completed, they were asked to sketch the path of travel they used in disengaging, estimate the distance they traveled trying to get away, and note "the precise physical point where your disengagement ended." Some officers were told to draw on a sheet of paper with only the outlines of the 2 cars printed on it. For others, the cars were imposed on a grid of foot-square boxes.

"We'll see if having a precisely scaled grid of the scene as a contextual reference helps increase the accuracy of their drawings," Lewinski says. "If so, this might be a valuable aid to investigators trying to reconstruct a shooting event."

As part of the final phase of the exercise, participating officers were asked whether they had even considered the possibility that someone would try to shoot them during a vehicle stop. If so, had they planned a tactical response and had they actually practiced this reaction mentally or physically on their own or during training.

Comparing these answers to the videotapes will allow researchers to determine how closely the officers' expectations and training matched their actual performance during the scenario, Lewinski says.

All participants also met with Dr. Alexis Artwohl to discuss their experience through the three trials, the reality of how quickly an assault can unfold, and to review footage of their reaction during the shooting trial.

"Preliminarily, I'd say that very few officers actually *practice* disengaging from a deadly attack on a traffic stop," Lewinski says. "They think about it and visualize it but they don't physically practice it."

As a part of analyzing the wealth of data from the Hillsboro tests, a research team at MSU under Dr. Daniel Houlihan, director of the School Psychology Doctoral program, will study the "commands and persuasion techniques" officers used during their interaction with the resistant driver. Their findings will supplement an earlier FSI study on the nature and effectiveness of commands given under stress.

RESULTS COMING. Lewinski predicts that full findings from the new research will be available before the end of this summer, along with recommendations for training and performance based on the implications. He is reluctant to discuss specifics until the data has been thoroughly mined, but he does note that an officer's best protection on a vehicle stop may be to get full view of a driver's hands before advancing toward the window for contact—an old concept but apparently one that bears continual reinforcement.

"In each Hillsboro scenario, the driver kept his right hand down by his thigh every time that an officer came up to deal with him," Lewinski says. "The officers couldn't see the hand from their vantage point, yet the majority did not direct him to make it visible. They saw it for the first time when he pointed the gun at them and fired."

During the scenarios, a crew from the Canadian Discovery Channel was permitted limited access to film some of the exercises, but will not be broadcasting any sensitive findings. This group has reported responsibly on Force Science work in the past and has helped alert the public to the true hazards of policing. When an air date for that program is known, *Force Science News* will announce it and a link will likely be provided to that production.

MORE COVERAGE To read a recent feature article published in The Oregonian newspaper focused on this *Force Science* research you can [CLICK HERE](#) or visit www.oregonlive.com/hillsboro/index.ssf/2012/04/hillsboro_police_and_force_sci.html.

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