

New study may "radically alter" how police deadly force is viewed (Parts 1 & 2)

Part 1 of a 2-part series

The story is a frequent staple of the evening news. An officer shoots and kills a minority subject who turns out to be...unarmed. Protests explode, and the familiar litany is again asserted: racial bias by the cops underlies many of these inflammatory events.

Now a new study by a member of the Force Science Research Center's national advisory board confirms what law enforcement officials have argued all along: Such controversial shootings aren't about race. What really prompts an officer to pull the trigger in circumstances that are rapidly evolving and uncertain is the suspect's behavior.

"That's the bottom-line finding," researcher Tom Aveni told Force Science News. "If you confront a police officer in what appears to be a felonious context, it's the way you act that will get you shot-not your race. And that's true regardless of the officer's sex, age, experience, or type of duty location."

In fact, Aveni was able to pinpoint specific body-language that tends to be associated with the decision to shoot.

Moreover, among less important factors that also influence decision-making, even a suspect's clothing and age are likely to be more compelling than his or her ethnicity in determining officers' reactions.

Aveni's conclusions come from his detailed analysis of the reactions of 307 officers who engaged armed and unarmed suspects in simulated confrontations designed to accurately reflect conditions under which officer-involved shootings often occur. Founder of the consulting and training organization The Police Policy Studies Council in addition to serving on FSRC's board, Aveni funded the project largely from his own pocket. He also received some financial aid and substantial logistical assistance from the Michigan Municipal Risk Management Authority, an insurer of law enforcement agencies.

The full report of his findings, titled "A Critical Analysis of Police Shootings Under Ambiguous Circumstances," can be found at: www.theppsc.org

"This is a very significant, first-of-its-kind investigation," says Dr. Bill Lewinski, executive director of FSRC at Minnesota State University-Mankato. "Tom Aveni has measured critical variables in shooting situations that other researchers have ignored completely. As a result, his findings are far more realistic and meaningful in identifying the factors that truly drive deadly force decision-making."

Aveni himself believes the study potentially will "radically alter the way police use of deadly force is examined in the future."

PROJECT ORIGIN. Something of a dual motivation propelled him into the study, which was "years in the making," Aveni says. For one thing, he was intrigued by an assertion made by the ACLU some years ago that 25% of all suspects shot by police are "unarmed and not-assaultive." And he was also curious about research concerning the "disproportionate" use of deadly force by officers against racial minorities.

"Race has been explored extensively as a factor" in police shootings, Aveni says, particularly in those where no suspect weapon is found after the smoke clears. "The implication has been that the police are racist" and that negative stereotyping causes them to overreact with excessive force in circumstances where, in fact, no lethal threat exists.

As Aveni reviewed existing research, he found that studies on the subject seemed invariably to explore the matter "without meaningful context." They merely reported gross numbers without "delving deeply into the generally overlooked critical micro-behavioral components that are the very essence of the police decision-making process."

Consequently, if minorities indeed are disproportionately targeted in "ambiguous" shootings where a deadly threat is not clearly confirmed before an officer fires, "one is left to wonder why."

With the cooperation of 6 law enforcement agencies in Michigan-3 municipal police departments and 3 sheriff's departments, representing urban, suburban, and rural jurisdictions-Aveni set about to "better understand the behavior of officers forced to make critical, split-second decisions that may result in the taking of a life."

TESTING FORMAT. A troupe of actors from a local theater, representing a diversity of races, sexes, ages, and attire, were videotaped depicting subjects at a furniture store location. They performed specifically prescribed reactions as if interrupted by an officer responding to a purported robbery-in-progress, a burglar alarm activation, or a possible mugging-in-progress.

Using a mix of players, clothing, and reactions, 80 different scenarios were taped. These were then projected in random order on a laser-based IES Interactive Training MILO system. Participating officers, also diverse as to race, gender, age, experience, agency affiliation, and assignment, then were randomly exposed, one at a time, to 3 different scenarios with 3 different outcomes: a suspect who intends to surrender empty-handed, a suspect who intends to surrender with a non-weapon object (cell phone, flashlight, police ID wallet) in hand, and a subject determined to shoot.

All scenarios were taped in low-light conditions, to "inject more ambiguity into the situations" and to reflect the fact that more than 70% of police shootings of unarmed subjects occur in settings with unfavorable illumination.

"Realistic uncertainties like officers regularly encounter on the street were built into all the scenarios," Aveni explains. Officers were told that the robbery-in-progress report, for example, had come via a 911 hang-up; no further details available, including no

description of the offender and no information on whether a weapon is involved. When the participating officer "arrives" at the scene, viewing things from the camera's perspective, an unidentified subject bursts out of the front door and starts to run away.

When an officer responds to the burglar alarm, he or she spots a subject trying to crowbar a side door. The subject drops the bar, eliminating the only potential weapon-that's visible, at least.

In the possible mugging scenario, officers were told only that they are doing business checks in an industrial park at 0100 hours. Yelling that suggests a "verbal altercation" is heard. The camera leads the participating officer around a visual obstruction, where he or she then sees one individual pushing another against a wall; again, no explanation immediately available.

Officers stood about 15 feet away from the action. They were told to react to what they saw on the screen as they would on the street. Most immediately issued loud verbal commands: "Police! Don't move!" or "Show me your hands!" or both. In each scenario, the subject "responded" by standing with back to the officer, hands out of sight at waist level. "This added to the 'threat ambiguity' of each situation," Aveni says.

Each subject had been coached to look back over his or her shoulder at least once during the encounter, as if taking a "target glance" at the participating officer. Then, unexpectedly, the subject abruptly turned to the left, toward the officer. Hands were kept at waist level at least through the first half-turn, and then they moved up somewhat as the turn was completed.

Subjects who were armed (1/3 of the scenarios) fired a .38 Special S&W M640 revolver, loaded with full-flash Hollywood blanks. The participating LEOs were warned that if someone on screen shot at them first, a modified paintball apparatus beside the simulator screen would also begin firing foam-rubber balls at them. "This factor was injected into the study in the hope that it might diminish participant apathy or complacency," Aveni explains.

The scenarios lasted, at maximum, about 30 seconds apiece. All the "confrontations" were videotaped to allow minute analysis later.

RESULTS. Aveni found that of the 307 LEOs participating, 38%-nearly 4 in every 10-shot unarmed subjects depicted in the scenarios (in all, 117 such subjects got shot). Some officers shot more than one suspect who turned out not to have a weapon. Carefully tabulating and analyzing details of the officers' actions to illuminate the percentage, he reached several important conclusions:

What didn't matter. "No significant correlation existed between the officers' actions and the suspects' race," Aveni says. "Likewise, there was no significant correlation between what the officers did and their own gender, age, experience, or type of jurisdiction in which they worked-urban, suburban, or rural.

"Statistically, there was a significant correlation in black officers shooting unarmed subjects. But with only 9 African-American LEOs participating in the study, that number may be too small to warrant firm conclusions."

What did matter. The strongest correlation was found between the subjects' actions and the officers' decision to shoot. Also significant, though of somewhat lesser influence, was the type of crime believed to be involved in the scenario and 2 attributes of the subject—age and attire.

Aveni explains: "Officers were more likely to shoot in the robbery scenario than in the possible mugging and more likely to shoot in the mugging scenario than in the apparent burglary-in-progress."

The nature of the crime involved, he says, clearly affected the officers' "vigilance and situational readiness." Responding to the reported robbery, they were more likely to have their sidearm drawn quickly and pointed at the suspect when verbal commands were issued, compared to the spontaneously discovered possible mugging and the alarm activation call (a frequent false run in police work) where their readiness was "measurably worse."

Also, officers were "more likely to shoot when the subject was young and also when the subject was wearing scruffy 'punk' clothing rather than 'business' attire."

Predictably, officers overwhelmingly shot at suspects when suspects shot at them. But many also fired "preemptively," before a weapon could actually be discerned, resulting in rounds being delivered to unarmed subjects. "The major influence here was how the subject behaved," Aveni says. Particularly involved was what he calls "the acting quotient."

Acting quotient. All suspects in the scenarios followed the same choreographed pattern of movement: With their back to the participating officer, they initially kept their hands at waist level, glanced over their shoulder, then turned without warning to face the officer, concealing their hands until well into the turn.

Aveni had not anticipated that the actors would perform with different levels of energy and conviction. Yet some performed more "convincingly" than others, and that proved to be a key component of the research.

"The subjects most likely to get shot," Aveni says, "displayed a high-level 'acting quotient.' They performed with unchoreographed nuances. That is, they made their moves with vigorous intensity and speed, versus tepidly. They kept their hands low, rather than high. They tended to crouch partially or fully as they turned instead of remaining upright, and they fully or partially clenched their hands, rather than keeping them open."

Such energetic movement in a setting where a serious crime appears to be involved "is much less likely to be viewed as innocuous," Aveni says. "A suspect's intensity had much

to do with whether an officer felt compelled to pull the trigger before the circumstances became manifest. It became one of the most reliable predictors of whether a person got shot."

Time pressure. For their own safety, officers had little time to react. Even with "tepid" movements, the suspects' hands came around "almost always too fast to determine" the true nature of any object being held or whether the hands were, in fact, empty, Aveni says.

As the hands typically swung through an arc of 4-5 feet, the officers' eye movement inevitably lagged behind, so that the action was perceived "as a blur or a smear of motion. Judgment about what, if anything, the suspects held could not be made with certainty until the hand movement stopped. When a suspect had a gun, that was too late."

With an officer behind the reactionary curve, Aveni says, "the lag time can allow the suspect to fire one or more shots before the officer can shoot back." Indeed, in the study armed suspects were able to shoot first 61% of the time.

From a critical juncture in a scenario, an officer typically had "1/3 of a second or less" to decide whether to use deadly force or risk being shot, Aveni claims.

"Those officers who managed to shoot armed suspects before the suspect was able to fire seemed to have elected to use deadly force before it could be clearly determined that the suspect did, in fact, have a handgun. The officers decided to fire either before the suspect started to turn or at the earliest possible moment turning was perceived.

"This tends to explain why a significant percentage of unarmed subjects, who intended to surrender with or without innocuous objects in hand, also were shot."

All unarmed role players in the scenarios were told to culminate their movements in the "surrender" position: hands held at sternum height or above, palms facing forward, fingers pointed "mostly upward."

Aveni reports that "92% of the unarmed subjects who were shot during the study were in the 'surrender position' " at the time the officers' shots reached them.

Lewinski offers some pertinent observations. First, he says, "time pressure is notorious for significantly increasing errors in judgment. That's true not just in officer-involved shootings but also in activities that are not life-threatening, such as fingerprint analysis. As time tightens, the incidence of false-positive and false-negative decisions expands."

Time plays into these situations in another critical way, too, Lewinski explains. "A passage of time necessarily occurs between the instant an officer makes a decision to shoot and the instant his rounds impact. Force Science research has clearly established that if a suspect is moving, his position will be different when a bullet strikes than it was when the decision was made to shoot.

"This can account for subjects being shot in the surrender posture. They weren't necessarily in those 'no-shoot' postures when the officer's shooting decision was made."

Aveni's study further revealed "a common tendency" for officers to continue shooting once they started. Aveni offers 2 explanations: 1) "it takes time to 'apply the brakes' of a neuromuscular response" like firing a gun. Studies by FSRC have shown that officers, on average, fire 2 or more shots after they've received a visual cue that shooting should end; 2) the scenarios Aveni used did not have a branching capability, so the suspects did not fall when "hit." Thus, "any officer trained to 'fire until your foe falls' would likely continue shooting."

Lewinski elaborates. "In the midst of shooting to save their lives, officers often can't see where their bullets are striking. They rely on highly detectable visual cues that the subject has ceased being a threat, such as the suspect dramatically thrusting his or her arms overhead or collapsing.

"Even then, officers often will continue to shoot because of the perception-reaction lag time, resulting in bullets hitting the body as the suspect falls."

Agency differences. Marked differences in performance were evident among the 6 departments that participated in Aveni's study. At the "highest-frequency" end of the scale, nearly half the officers from one agency shot unarmed suspects. The lowest frequency was compiled by an agency whose participating officers shot unarmed suspects 24% of the time. The rest ranged from 39% to 44%.

"The question will undoubtedly arise: 'What noted differences were there between the agency with the lowest frequency of mistake-of-fact shootings and the agency with the highest frequency?' " Aveni observes, noting that both these agencies patrol urban jurisdictions.

"The answer, simply put: 'It was a difference in training.' "

[In Part 2 of our report, we'll explore what that difference is, as well as other implications that Aveni's findings have for officer survival, training, investigations, policy-making, and courtroom defenses.]

What the new study of shootings of unarmed suspects means to you

Part 2 of a 2-part series

[**Editor's note:** In [Part 1](#) we reported on a ground-breaking new study by researcher Tom Aveni on why and under what circumstances officers shoot suspects who end up not to be armed. Here we offer some of the significant implications of Aveni's findings. Aveni is founder of The Police Policy Studies Council and serves on the national advisory board of the Force Science Research Center at Minnesota State University-Mankato.]

As we detailed in Part 1, Tom Aveni's unique study confirms that shootings of unarmed subjects during police confrontations typically do not result from racial bias by the officers involved. Instead, such controversial, "mistake-of-fact" events occur because certain "compelling" behavior by suspects leads officers to believe they are about to be attacked and, under tremendous time pressure, they shoot "preemptively" to defend themselves, before the presence of a deadly weapon can actually be confirmed.

Aveni's findings about the dynamics of these situations have important implications for officers, trainers, shooting investigators, administrators, and police defense attorneys. In an exclusive interview with Force Science News, he explained some of the practical conclusions to be drawn from his data. For a comprehensive report of Aveni's study, "A Critical Analysis of Police Shootings Under Ambiguous Circumstances," go to: www.theppsc.org.

Officer safety. One of the interactive videotaped scenarios Aveni used in testing more than 300 officers from 6 law enforcement agencies involves what looks like a mugging-in-progress that a patrol officer happens upon late at night. The apparent perpetrator suddenly spins toward the camera (the "responding" officer) with something in his hand. Often in the testing he was shot-although the object he held in some scenarios was revealed to be a police ID wallet with metal badge.

The lesson could be life-saving: If you get involved in an arrest while off-duty or working undercover and are challenged by an arriving officer who doesn't know you're a cop, react with great caution and no sudden, energetic moves. Aveni's research established that the unarmed subjects most likely to be shot during his study were those who turned toward an officer abruptly and quickly, sank into a crouch, and thrust clenched hands up from waist level as they spun around.

Hand posture is critical. "Even with rapid movement, an open hand is perceived as much less threatening because it is almost immediately recognized as empty and thus weaponless," Aveni says. "A clenched hand exudes ambiguity. It is much less likely to be view innocuously, especially in the context of possible criminal activity." In debriefs after the testing, more than 70% of the officers said their decision to shoot was influenced by a suspect turning toward them with "something" in his or her hand.

Most important: follow the responding officer's directions. "Noncompliance with verbal commands," Aveni says, "was one of the most consistent factors" cited as a precursor to a shooting decision. "From that frame of reference, potentially aggressive actions made subsequently by a suspect would understandably be perceived as threatening."

Dr. Bill Lewinski, executive director of the Force Science Research Center, agrees. "In the friendly-fire cases I'm familiar with, noncompliance was the primary factor in an off-duty or undercover officer getting shot.

"In a sense, the officer becomes a victim of a treacherous psychology. Although the responding officer is not aware of the plainclothes officer's status, the challenged officer

is thinking of himself as part of the law enforcement team. In that mental state, he may ignore commands because he does not perceive them as relevant to someone 'on the same team.'

"To guard your safety in such a situation, you need to consciously force yourself to view the setting from the perspective of officers arriving with little concrete information."

Training. Officers from the best-performing agency in the study shot unarmed subjects 24% of the time. The other agencies had "frequency" scores of nearly 40% or more, with participants from one agency shooting nearly half of the unarmed suspects they confronted in the scenarios. "These distinct differences," Aveni states, "seem directly attributable to training."

"The agency with the lowest percentage of officers shooting unarmed suspects apparently had the most rigorous scenario-based training regimen. Virtually every participant from that agency had been through one or more force-on-force training sessions in the previous 12 months. Scenario-based training was evident in the other departments, too, but it seemed much more intermittent. That's the only factor that clearly stood out from all others."

"The role of training cannot be emphasized enough," Lewinski stresses. "The more practice an officer has, the faster he or she is able to jump to important elements of a situation and read them accurately. The highly trained officer knows what to look for amid a situation that may seem chaotic to lesser-trained ones. This includes better anticipating what a suspect's movements will be and more quickly determining what reaction is necessary."

"Good training also produces better emotional control. The highly trained officer tends to make better decisions because he can focus on what he needs to do rather than on reacting impulsively or emotionally, such as recoiling or freezing up from fear."

Even within the confines of the study, Aveni says, repeated exposure to challenging scenarios seemed to have an impact. "Participants were more likely to shoot in their first scenario than in their second, and more likely to shoot in the second than in the third, even though the scenes were randomly sequenced, with no consistency in the apparent crime depicted or in the order in which armed or unarmed subjects were presented."

"There are serious training implications in this since officers seem to begin to become a bit less impulsive with more scenario exposures."

In analyzing videotapes made of officers' responses, Aveni noted other issues that, as a trainer, you may want to evaluate in your own program.

- A vertical barricade was provided for officers to use as "cover" while addressing the testing scenarios. Most of the officers took advantage of it, but "there was a wide degree of variance in how early or late in each scenario they elected to use

cover and to what degree they used it effectively. Many participants exposed far too much of themselves" from behind the barricade.

Lewinski observes: "Training needs to place more emphasis on teaching officers how to make better use of cover and also on how to assess cover earlier in their contacts. In the midst of a life-threatening action-reaction incident is not the time to start thinking about cover."

- "Many participating officers were seen 'covering-down' on suspects with their muzzles pointing directly at 'center mass,' " even though they had not yet made a decision to shoot. "This may diminish reaction time by about one-tenth of a second," but it produces "serious trade-offs" that bear consideration, says Aveni, a firearms expert who has trained more than 12,000 law enforcement and military personnel.

"A handgun presented to eye level occludes vision of almost everything from the suspect's sternum down," he explains. "A suspect's hand and arm movement are then difficult to impossible to discern. There might be serious threat identification issues with this approach.

"Also by truncating reaction time by elevating the muzzle before committing to fire, you also truncate the amount of time available to stop an erroneous 'threat reflex' impulse. So truncated reaction time can be a double-edged sword.

"Recent trends in active-shooter training have led to SWAT tactics trickling down to patrol officers, including the 'muzzle-dominance' technique. But we need to remember that this runs contrary to the universally embraced firearms safety protocol of never pointing your weapon at anything you're not willing to destroy."

- Aveni also advises that the currently popular concept of "stress inoculation" in training be "approached with caution. A disproportionate number of 'aggressive' training scenarios may begin influencing reactions in officers akin to 'fear-biting' in K-9s.

"Scenario-based training should be geared toward 'conflict resolution,' not just gun-fighting skills. It should proportionately reflect the duties and conflicts your officers are most likely to encounter on the street. You may not want your officers to be 'warriors' per se, but they must be rational decision-makers."

Lewinski adds: "A vital emphasis of stress inoculation must be on developing emotional control and better decision-making, not just on improving physical performance skills. If that isn't at the core of your program, you're missing the key value of this type of training."

Departmental Policy. "Policy has been much touted as a means of moderating undesirable behavior," Aveni points out, but his research suggests that "it is investment in

training that yields the best results." The agencies in his study showed wide differences in the proclivity of their officers to shoot unarmed subjects, yet there generally were "no substantive differences" in their policies regarding use of deadly force.

One agency had a restriction others did not. That department requires its personnel to complete a use-of-force report whenever they unholster their handguns. Some officers from that agency "literally waited to draw until they came under fire" in scenarios where the offender shot at them. "A common response in debriefing younger, less experienced officers was that they were concerned about having their personnel files reflecting frequent usage of force when in reality 'force' was never used," Aveni says.

It's important to note that while that attitude has "demonstrable occupational safety implications," Aveni's research established that their slowness to unholster "didn't seem to influence the overall judgment" of that agency's officers. As a group, they had the second highest rate (44%) of shooting unarmed suspects.

Aveni observes: "Even the best intentions have demonstrable occupational safety implications."

Aveni believes his study results support the "almost universal embrace of the 'imminent threat' standard in deadly force policies," in contrast to the more restricting and currently less popular "immediate threat" standard. However, he expresses concern that under pressure to diminish the frequency of shootings, policy-makers may be tempted to unreasonably tighten the limits of "may-shoot" situations.

Given the prevalence with which officers in the study "found themselves firing at suspects only after the suspect had already turned and fired at them," Aveni suggests that a "practical and altogether reasonable interpretation" of what an officer might do when, for instance, confronted by a noncompliant robbery suspect, would be to preemptively shoot as the suspect initiates a turning motion toward the officer.

"This will likely be construed as 'controversial' in some quarters," he admits, "but this study's findings certainly suggest that such latitude is both reasonable and necessary" for an officer's protection.

Investigations. The study offers some perspective on the current "raging controversy about whether officers should be permitted to view dash-cam video of their incident before being compelled to provide an oral or written statement to agency investigators," Aveni says.

In his project, participants could review their videotaped responses before completing a debriefing form. All wanted to see the footage in which they had used deadly force, but they were typically less interested in revisiting encounters in which they did not shoot.

Interestingly, "when they did not review a video replay of their performance, they usually had difficulty remembering many of the situational and behavioral elements that had been

embedded in the scenarios," Aveni says. This resulted in their incompletely answering questions on the debrief form that were linked to important elements in the scenarios.

"At the time they were 'confronting' suspects in the scenarios, they usually had to make their shooting decisions in less than one-third of a second," Aveni says. "They had difficulty remembering everything they'd been exposed to in such compressed, intense time periods" unless they had a chance to see the action replayed in a calmer setting.

"We might assume that what an officer is able to process consciously and then recall unaided may be a mere fraction of what he or she has processed subconsciously. Obviously, there are implications in this for real-life officer-involved shooting investigations."

Indeed, Lewinski says, this is why FSRC supports officers being shown videotape from dash-cams and Tasers and also returning to the scene of shootings with their attorneys to experience walk-throughs, "provided that the goal is to impartially mine the officers memories and not try to entrap them with what they can't recall."

A significant number of participants said that the time of day or lighting conditions depicted in the scenarios may have played a role when they decided to shoot, Aveni notes. By design, all test scenarios were filmed under low-light conditions "to increase realism and incident ambiguity." To what extent an officer in a troublesome confrontation "can accurately discriminate a handgun from a cell phone, flashlight, or wallet held by a suspect at night is a source of concern," Aveni says.

He recommends that investigators "seriously consider taking detailed light measurements" when a low-light officer-involved shooting has occurred because the amount of illumination available "may have a direct bearing on an officer's visual acuity during an extreme encounter."

Officer defense. Aveni hoped from the beginning that his study would help to better define how a "reasonable officer" might act in uncertain circumstances that result, ultimately, in the shooting of an unarmed individual. With the data now in and minutely analyzed, he believes his findings do just that and that they may "radically alter the manner in which police use of deadly force is examined in the future" by review boards and in court in many "contentious" shootings.

"The officers and agencies that participated in this research are representative of good law enforcement professionalism. The officers-reasonable men and women-were placed in the kinds of situations from which mistake-of-fact shootings commonly evolve.

"The results have great exculpatory value. They clearly identify the variables that prompt officers to shoot in tense, rapidly evolving, uncertain circumstances, and those factors put the burden for what happens right where it belongs-squarely on the suspect's behavior.

"If a subject does the wrong things at the wrong time, a reasonable officer is likely to pull the trigger, believing his own life to be in peril."