

## THE FORENSIC FORUM<sup>®</sup>

# The 21-Foot Rule: *Forensic Fact or Fantasy?*

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Officers throughout the United States have heard use-of-force instructors discuss the 21-foot rule during their officer safety, firearms and deadly force training. As a use-of-force instructor and a practicing forensic police practices expert, I have also trained and testified to this concept myself.

In 1983, the concept's founder, Salt Lake City P.D. firearms instructor Lieutenant Dennis Tueller (retired) set up a drill where he placed a "suspect" armed with an edged weapon 20 or so feet away from an officer with a holstered sidearm. He then directed the armed suspect to run towards the officer in attack mode. The training objective was to determine whether the officer could draw and accurately fire upon the assailant before being stabbed. After repeating the drill numerous times, Tueller wrote an article wherein he opined that it was entirely possible for a suspect armed with an edged weapon to successfully and fatally engage an officer armed with a handgun within a distance of 21 feet. Hence, the 21-foot-rule concept was born and soon spread

throughout the law enforcement community almost like a virus. It is interesting to note that even Tueller does not know where the term "21-foot rule" came from.<sup>1,2</sup>

Tueller never imagined when he designed his simple firearms training drill that 30 years hence, the 21-foot rule would eventually become a police doctrine that is taught and testified to hundreds of times a year. So, is the 21-foot rule a forensic fact or a police myth?

If we are dealing with critical issues of officer safety and deadly force, it is important that we seek to arrive at the factual basis of any tactic that some consider to be steadfast dogma to see if it can be forensically defended during training and in court.

It is important to keep in mind that Tueller designed his firearms action/reaction experiment as a **training device** to assist his officer students to better understand the concept of the **reactionary gap**. The reactionary gap is a human-factors formula that compares action versus reaction. In humans, sudden action is usually faster than a defensive response or reaction. In training and in actual high-risk encounters with armed and unarmed subjects, the closer an assailant is to an officer, the less time the officer has to defensively react to any aggressive action the assailant makes.

Information I have researched, including actual video interviews with Lieutenant Tueller, indicates that he never designed nor presented his firearms training drill as

an organized, outlined and implemented research project involving the applied sciences of psychophysiology, physics and related human factors. No forensic testing, examination, reconciliation of data or scientific oversight of a research model was ever conducted.

During the 30 years since the 21-foot rule has become informal doctrine within the law enforcement community, I have heard it misstated, misrepresented and bastardized by use-of-force, firearms and police-practices experts from all sides. I actually reviewed the fact pattern of an officer-involved shooting (OIS) case where an officer attempted to use the Tueller drill as his defense after fatally shooting and killing a suspect armed with a knife from a distance of over 150 feet.

Instructors and experts also seem to have forgotten that the original premise of Lieutenant Tueller's drill was that his designed circumstance involved an officer with a **holstered** sidearm drawing and accurately firing his weapon. In the vast majority of officer-involved shootings I have investigated or reviewed, the officer not only already had the gun out of its holster, but was either in the "low ready" position or directly aiming at the suspect, who was either armed with a knife or furtively reaching into his/her waistband.

So what are the **real** forensic facts that might assist officers with their officer safety and deadly force determinations? Actually, there are **no** forensically proven

<sup>1</sup> "The Tueller Drill," video interview for GunWebsites with Lieutenant Dennis Tueller (retired), [www.youtube.com/watch?v=JxeTNnEWmbY](http://www.youtube.com/watch?v=JxeTNnEWmbY), March 25, 2011.

<sup>2</sup> Tueller, Dennis, "How Close Is Too Close?" *SWAT Magazine*, March 1983.



facts that I am aware of that specifically verify or conclusively establish that a suspect armed with an edged weapon will more likely than not be able to seriously injure or kill an officer armed with a sidearm on all occasions and circumstances. The truth is that the 21-foot rule should not be considered to be an absolute rule at all, because there are too many variables involved at this point to call it a “rule.” Let’s discuss them.

### Psychophysiology

This is the study of how the brain influences and effects physiological function. Science tells us that humans possess both a forebrain and a midbrain. The forebrain is where cognitive processing and decision-making take place. The midbrain plays a role in situational awareness, sleep, arousal, alertness, and trained and subconscious memories.

When a human (officer) experiences a threat, on average it takes 0.58 seconds to experience the threat and determine if it is real. It then takes an average 0.56 to 1.0 seconds to make a response decision. In animals the responses are fight, flight or freeze. However, humans have five responses: defend (fight), disengage (retreat), posture (yell, point a finger, act

aggressive), become hypervigilant (panic, become confused, freeze or use force excessively) and submit (surrender).

When a human is threatened, the brain automatically infuses the body with adrenalin (a stimulant), endorphins (pain blockers) and dopamine (a euphoric pain blocker). The body designed these chemicals to help us survive an encounter by making us faster, stronger and more pain tolerant. However, these same chemicals can also significantly diminish our human performance under intense stress by causing such problems as perceptual narrowing (tunnel vision), loss of near vision, and auditory occlusion (reduced hearing) or exclusion (loss of hearing), among others. This ultimately negatively affects our chances of surviving a violent encounter.<sup>3</sup>

Under the intense stress normally associated with deadly force threat scenarios and while under the influence of survival chemicals, the body’s basal metabolic rate, measured by heart rate, blood pressure and respiration, climbs significantly in milliseconds. This dynamic can cause further psychophysiological impairments such as vasoconstriction, which can impair weapon manipulation, cognitive

processing and stress memory recall following an encounter.<sup>4,5,6</sup>

### Equipment and Competency as Reaction Factors

Several factors affect an officer’s survival against an attacker. For instance, an officer or detective whose sidearm is secured in a level III holster will certainly have a slower draw-to-target acquisition time than an officer drawing from a level I holster. An officer’s experience and competency with their holster system and combat shooting style are also critical human factors in an officer’s ability to draw, move off the line of attack and direct accurate fire upon an armed assailant.

### Accuracy of Fire at Close Distances

The average officer in static firearms qualifications (nontimed standing and shooting without moving) can hit the 9/10 rings far more often than not from the 5-yard line. However, research of actual OIS incidents has shown that officers can accurately hit their moving assailants only 14% of the time in life-or-death situations from distances of only 2 to 10 feet! On the other hand, assailants were able to successfully engage and hit officers 68% of the time within those same distances.<sup>7</sup> So the psychophysiological components of actual gunfighting play a critical role in an officer’s survivability within relatively close distances.

### Start Shooting Until Stop Shooting: “Perception Lag Time”

Once the average officer gets on target, it takes them 0.56 seconds to make a decision to commence shooting. However, it then

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“ **The 21-foot rule should not be considered to be an absolute rule at all, because there are too many variables involved.** ”

<sup>3</sup> Sztajnkrzyer, Matthew, M.D., Ph.D., “Understanding and Leveraging the Psychophysiology of Emotional Intensity,” presentation at San Jose (California) Police Department, February 8, 2010.

<sup>4</sup> *Ibid.*

<sup>5</sup> Sharps, Matthew, Ph.D., *Processing Under Pressure: Stress, Memory and Decision Making in Law Enforcement*, Loose Leaf Publishing, 2010.

<sup>6</sup> Schmidt, Richard, Ph.D., “Some Fundamentals of Human Performance: Applications to Police Activities,” presentation at San Jose (California) Police Department, February 9, 2010.

<sup>7</sup> U.S. Department of Justice, Federal Bureau of Investigation, *Violent Encounters: A Study of Felonious Assaults on Our Nation’s Law Enforcement Officers*, Publication No. 0383, 2006.



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takes that same officer 0.025 to 0.031 seconds per trigger pull to fire. As the deadly force scenario rapidly evolves, it takes that same officer, on average, 0.5 to 0.6 seconds to realize that the threat has passed and to stop shooting.<sup>8</sup> This is because of a psychophysiological dynamic referred to as "perception action/reaction lag time." Another question we might ask (but would never know) is whether the officer's brain processed the threat information serially, or if it was parallelly distributed.

to nonforensic, speculative dogma that often goes unchallenged, but becomes widely accepted as fact.

It is my opinion that Lieutenant Dennis Tueller did us all a tremendous service by at least starting a discussion and educating us about action versus reaction and perception/reaction lag. This has certainly saved many lives within our ranks. However, it is also time to move forward with a far more scientific analysis that actually seeks to support or reject this hypothesis.

The question as to whether or not the 21-foot rule is an applicable defense in

force has eloquently stated, each high-risk encounter during a rapidly evolving situation is unique. My sense is that future research may underscore that legal principle with respect to the Tueller drill.

Be safe out there!

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The subject of why suspects are found to have entry wounds in their sides and backs when an officer has asserted that the suspect was facing the officer when fired upon is a byproduct of perception action/reaction lag time and the manner in which information was processed by the officer's brain. This is pretty sophisticated information for a criminal or civil jury to understand and consider.

### Adding It All Up: Fantasy or Forensic Fact?

The fields of contemporary police practices and applied sciences are rapidly changing methods. Applied science, by its nature, supports or rejects hypotheses and theories based upon the reconciliation of scientific statements, facts and evidence. However, law enforcement is more inclined to be archaic and married

an officer-involved shooting is debatable and actually depends upon the facts and evidence of every unique and rapidly evolving deadly force encounter. In some circumstances, shooting at similar distances by experienced, competent and well-equipped officers, within an environment with physical obstructions (such as a police vehicle), might be inappropriate. Whereas, for inexperienced officers wearing a difficult holster system and no obstructions, shooting at distances greater than 21 feet might be justified.

As the 1989 *Graham v. Connor* (490 U.S. 386, 109 S. Ct.) U.S. Supreme Court precedent ruling on use of force/deadly

### About the Author

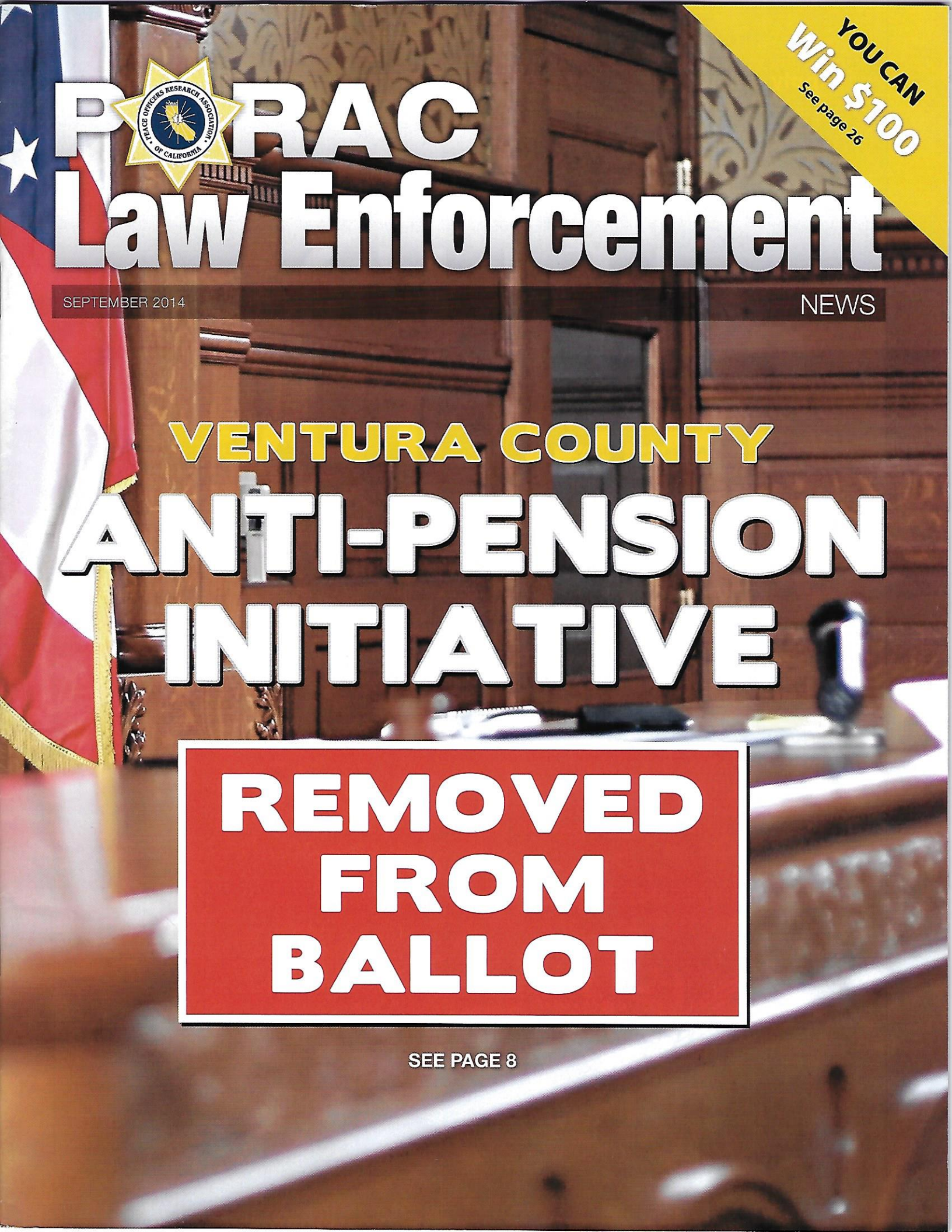
Ron Martinelli, Ph.D., is a nationally renowned forensic criminologist specializing in police death cases, use of force, human factors and psychophysiology. Dr. Martinelli is a retired law enforcement officer who directs the nation's only multidisciplinary civilian forensic death investigation team at Martinelli & Associates, Inc. He can be reached at (951) 719-1450 and [www.martinelliandassoc.com](http://www.martinelliandassoc.com). His firm is presently engaged in a major forensic scientific project reanalyzing the 21-foot rule. If you are interested in volunteering for this important project, please contact his office.

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<sup>8</sup> Lewinski, Bill, Ph.D., Hudson, Bill, Ph.D., "Reaction Times in Lethal Force Encounters, The Tempe Study," *The Police Magazine*, September/October 2003, pp. 26-29.



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