

Revisiting the "21-Foot Rule"

The Tueller Drill is often evoked as justification by officers after a shooting...But is it scientifically defensible?

by Ron Martinelli



Photo: Martinelli & Associates

For decades now many American officers have heard use-of-force instructors discuss the "21-Foot Rule" during 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.

The 21-foot rule was developed by Lt. John Tueller, a firearms instructor with the Salt Lake City Police Department. Back in 1983, Tueller 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 toward the officer in attack mode. The training objective was to determine whether the officer could draw and accurately fire upon the assailant before the suspect stabbed him.

After repeating the drill numerous times, Tueller—who is now retired—wrote an article saying it was entirely possible for a suspect armed with an edged weapon to fatally engage an officer armed with a handgun within a distance of 21 feet. The so-called "21-Foot Rule" was born and soon spread throughout the law enforcement community.

But is the "21-Foot Rule" a forensic fact or a police myth?

Reactionary Gap

Tueller designed his firearms action-reaction experiment as a training device to help his students better understand the concept of the "reactionary gap." The reactionary gap is a human factors formula that compares action vs. reaction. In humans, sudden action is usually faster than a defensive response or reaction. The closer an assailant is to an officer, the less time an officer has to defensively react to any aggressive action the assailant makes.

Tueller has said in video interviews 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 past 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 an officer-involved shooting case where an officer with a carbine shot and killed a suspect armed with a knife from a distance of more than 150 feet and attempted to use the "Tueller Drill" as his defense.

Instructors and experts also seem to have forgotten that the original scenario of Lt. Tueller's drill 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 officers already had their guns out of their holsters and were either at the "low ready" position or directly aimed at the suspects who were either armed with knives or furtively reaching into their waistbands.

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 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.

The Variables

Psychophysiology—This is the study of how the brain influences and affects 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 an officer experiences a threat, it takes on average .58 seconds to experience the threat and determine if it is real. It then takes on average .56 to 1.0 seconds to make a response decision. Humans have five possible responses to threat: defend (fight), disengage (retreat), posture (yell, point a finger, act aggressive), become hypervigilant (panic, confusion, freezing, using force excessively), and submit (surrender).

When a human is threatened, the brain automatically infuses the body with adrenalin (stimulant), endorphins (pain blockers), and dopamine (euphoric pain blocker). The body uses 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 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). This ultimately negatively affects our chances of surviving a violent encounter.

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.

Equipment and competency—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 his or her holster system and combat shooting style are also critical human factors in that 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 (non-timed, standing, and shooting without moving) can hit the 9 and 10 rings far more often than not from the five-yard line. However, research of actual OIS incidents has shown that officers can only accurately hit their moving assailants 14% of the time in life-or-death situations from distances of only two to 10 feet. On the other hand, assailants were able to successfully engage and hit officers 68% of the time within those same distances.

Perception lag—Once the average officer gets on target, it takes him or her .56 seconds to make a decision to commence shooting. However, it then takes that same officer .25 to .31/100ths of a second per trigger pull to fire. As the deadly force scenario rapidly evolves, it takes that same officer on average .5 to .6 seconds to realize that the threat has passed and to stop shooting. This is because of a psychophysiological dynamic referred to as "perception action-reaction lag time."

The reason why some suspects are found to have entry wounds in their sides and backs when the officers who shot them say the suspects were facing them when they fired is often the perception action-reaction lag time and the manner in which information was processed by the officers' brains. This is pretty sophisticated information for a criminal or civil jury to understand and consider.

Fantasy or Forensic Fact

The fields of contemporary police practices and applied sciences are rapidly changing. 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 to non-forensic, speculative dogma that often goes unchallenged and becomes widely accepted as fact.

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

Whether the "21-Foot Rule" is an applicable defense in an officer-involved shooting actually depends upon the facts and evidence of each case. The shooting of a knife-wielding suspect at less than 21 feet by an experienced, competent, and well-equipped officer who has the tactical advantage of an obstruction such as a police vehicle between herself and her attacker might be inappropriate. But the shooting of a knife-wielding assailant at more than 21 feet by an inexperienced officer, wearing a difficult holster system, with no obstructions between herself and the attacker might be justified.

As the 1989 U.S. Supreme Court ruling in *Graham v. Connor* (490 U.S. 386, 109 S.Ct) 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.

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