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Shots in the Back — Are They 'Legal'?

An Explanation for Self-Defense

There are occasional self-defense shootings in which the assailant presents with entrance wounds in the back, yet the defender is certain that force was used justifiably to stop a real threat to the defender's life. How can this be explained, and how can it be demonstrated to a jury? Simply because a bullet entry wound was in the back does not foreclose an effective self-defense claim. This scenario is better documented in law enforcement shootings. However, it is far from unknown in defensive shootings involving members of the public and is just as valid for them.

The Incident

In a 2016 case, a homeowner (call him Smith) was charged with homicide for having shot an intruder (call him Jones) in his home. It was my job as an expert to explain to the jury how the homeowner could have been justified in the use of lethal force when the intruder died from a bullet that entered the intruder's back.

The short version of my reconstruction of the incident is that the homeowner knew an intruder was in the house who had made a forcible entry (indication of criminal intent with potential for violence). The armed homeowner

entered his home, searched for the intruder, and encountered the intruder at a distance of about 10 feet. The intruder made a sudden move that the homeowner interpreted as an attack, but which was the beginning of a spin towards a large window that the intruder had opened as an escape route. When the intruder made the sudden move, the homeowner discharged a round from his 9mm pistol. The round connected with the intruder as he spun away from the encounter. The 9mm bullet entrance wound was in the intruder's back.

The homeowner was charged with homicide and claimed self-defense.

How could it be explained to uninformed members of the jury and to the court that Smith could have used lethal force justifiably even though the fatal entrance wound was in Jones' back? The intruder was apparently trying to escape and no longer threatening the homeowner with serious bodily injury or loss of life, which is the usual criteria in law for use of lethal force in self-defense. For a compelling demonstration to the jury, it was necessary to test this scenario at a shooting range, with appropriate timing and live ammunition. It was also necessary to videotape and document the tests for demonstration to the jury. What follows is extracted from my expert report, albeit with the names changed for privacy reasons.

What Is Reaction Time and Why Does It Matter?

The Force Science Institute ("FSI") located at Mankato State College in Mankato, Minnesota, has done groundbreaking research, mostly in a law enforcement context, about use of force issues. One aspect of use of force that FSI has researched is the timing of an encounter that justifies a response of lethal force. Some aspects about

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the mechanics and human physiology of that combination have long been known. Some remained to be discovered or demonstrated through testing by FSI.

There is some time lag between an external stimulus to human action and the resulting action itself. Although the timing can be different with an audible stimulus and a visible stimulus, this discussion will focus on a visual stimulus. For a person to respond to a visual stimulus, several sequential things must happen.

First, the person must look at and see the visual environment. The person must see whatever the stimulus may be, and that visual image must be registered by the photoreceptor cells of the retina, transmitted to the optic nerve, and transported to the brain. That happens quickly, but it does take time. Suppose that the test stimulus is a light changing from green to red, and we identify the time it takes to get that image to the brain as the “apprehension time.”

Then, the brain must interpret the image. That is, the brain must say, “Hey, there was a green light shining, but it went out and now there’s a red light shining.” That happens quickly, but it also takes time. This is the “interpretation time.”

In the next step, the brain must figure out what the information means and decide what to do with it. It could take days or weeks before the brain makes any decision about what to do with visually received information (e.g., responding to a letter). Or, there could be an urgent, pre-planned response: Send a signal to the leg to stomp the foot on the brake pedal. Still, an analysis must be conducted about what to do with the information, and a decision must be made before any response is possible. No matter how well pre-planned, this process also takes time. It takes longer with an unanticipated stimulus. Let’s call this the “decision-making time.”

Next, the brain must send a coordinated signal to the parts of the body necessary to carry out any instructions from the brain in response to the initial stimulus. And, the nervous system must carry the impulses to the correct parts of the body for action. For example, maybe the brain must send a coordinated instruction to all the muscles of the right leg and right foot for the foot to lift, move, and stomp down on a brake pedal. It will take time to formulate and send that complex set of signals, and for the signals to travel to the necessary body parts. Call this the “instruction time.”

Finally, the necessary body parts must get into action and actually follow the instructions sent out over the neural

links by the brain. Muscle cells must contract in a coordinated and effective way. Of course, that takes time too. Call this the “performance time.”

Each of these steps can usually be completed in a fraction of a second, but these fractions necessarily add up. Adding up the apprehension time, interpretation time, decision-making time, instruction time, and performance time cannot be eliminated, although with training and practice the time can be reduced. People with decent vision and reflexes will usually take most of a second to complete this process, even with a pre-planned response. Younger people will generally be quicker. As people age, this process takes more time. All of this has been studied and measured.

Researchers have also measured exactly how long it takes an assailant to snatch a concealed firearm from a waistband and fire a fatal shot.

People in the law enforcement world have long said, “Action beats reaction.” This is a recognition that the amount of time it takes an assailant to snatch and fire a gun is less time (quicker) than the time it takes an officer to recognize the evolving threat and respond effectively. The FSI was the first to put all this together scientifically and document what experienced officers already knew. Researchers conducted valid experiments and published their findings in peer-reviewed publications.

What FSI learned and documented is that if a defender is faced with a potentially hostile person and the person makes a sudden move (a “furtive move”), the defender dares not wait to see what might evolve out of the move. If the defender waits until he sees



Figure 1

3-D mannequin target mounted on turning operator

a gun emerge from the person’s waistband, the defender may be dead. It is simply too late at that point for the defender to draw his own gun and fire before being seriously wounded by the potentially hostile person.

That is the reason a smart police officer may already have drawn his firearm and will instruct the other person to “move *very slowly*.” That is the reason a surviving police officer will take cover if possible. That officer may fire his pistol upon any sudden movement.

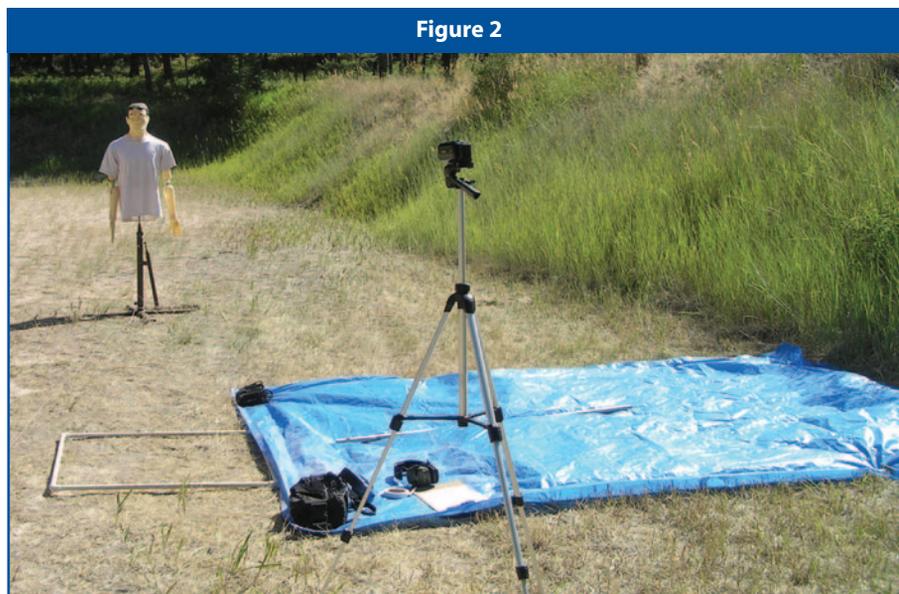


Figure 2

Setup for turning target testing

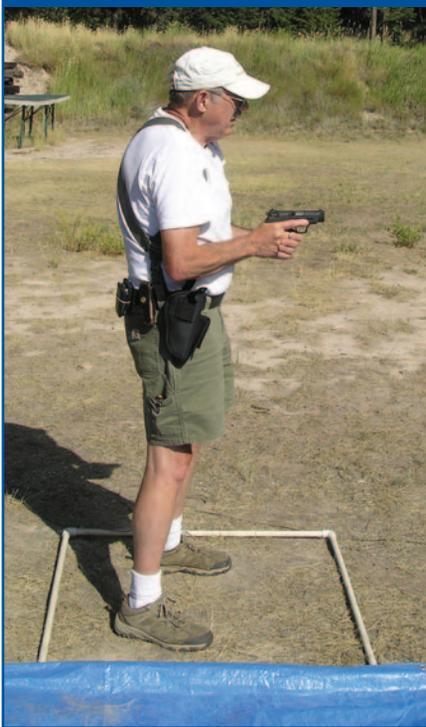
Figure 3



Demonstration of "sighted in" position

FSI also documented another timing issue known by experienced police officers. Not only can a suspect snatch a gun and kill an unprepared officer before the officer can respond, but the same suspect can also spin 180 degrees just as quickly. This is where understanding the timing becomes important.

Figure 4



Demonstration of "low ready" position

Consider this scenario. Imagine that a police officer (or non-police defender) is confronting a suspect. Sensibly, the officer has his gun drawn, pointing at the suspect. The officer issues the command to "Freeze!" Upon hearing that command, the suspect makes a sudden and violent movement. The officer makes the immediate and tactically correct decision that the movement may be a physical assault to capture the officer's gun, or it could be the suspect snatching his own gun. After a one-third or one-half second of processing, the officer's brain dispatches the signal down his neural pathways to his trigger finger, telling his finger to contract on the trigger of his pistol.

This signal is just racing past the officer's elbow when the visual images coming into the officer's brain suggest that the suspect is not actually attacking but is in the process of spinning around, maybe to escape. About the time that the signal to fire passes the officer's wrist, his brain gets around to sending a follow-up signal to the trigger finger to *not* contract. This signal to *not* fire must follow the same pathway as the signal to fire just did, at the same speed. By the time the message to not fire is clearing past the brain stem at the base of the brain, the signal to fire clears the knuckles and is contracting the muscles of the trigger finger. When the officer's firearm discharges, the signal to not fire is still somewhere near the officer's shoulder, flashing its way to intercept the trigger finger contraction.

While this is going on, the suspect has spun 180 degrees, and the officer's bullet enters the suspect's back. Finally, FSI has brought the science of human neurophysiology to the issue to explain how this can happen and does happen.

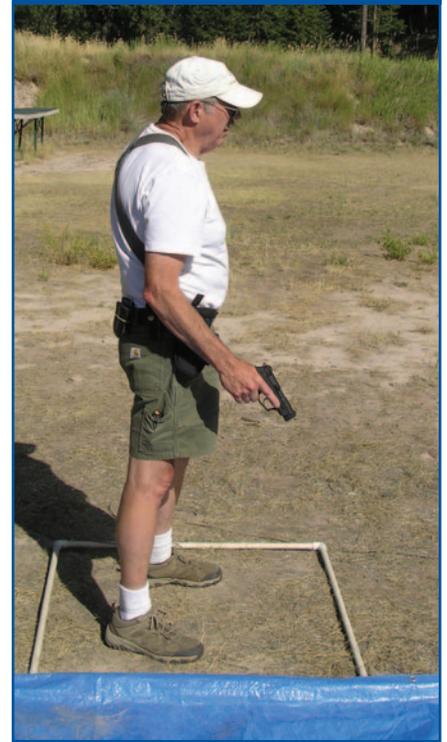
Back to the Incident in Question

Is there an explanation for how the entrance wound in Jones was in the back, but Smith could still have used lethal force in an allowable manner? Certainly. Can this be demonstrated to the jury? Yes.

Both actors in this drama were psychologically jacked up and totally on edge. Both were probably pumped full of adrenaline.

Jones knew he was engaged in criminal activity, and there would be a high price to pay if he were caught. He was a burglar. It is likely that he saw and/or heard Smith drive up and get out of his vehicle. He may have seen that Smith was armed. When Smith entered the house through Jones' point of forcible entry (front door), he

Figure 5



Demonstration of pistol "at side"

inadvertently blocked Jones' primary escape route. According to Smith, he observed Jones trying to get to the back door in the kitchen, but when Smith issued the verbal command to "stop," Jones bolted instead. Now Jones was trapped, and he knew it. By that point, Jones was in overdrive and redlined. After the incident, it was discovered that Jones had spent time in prison and swore that he would never go back. With the knowledge that Smith was armed, Jones found himself in a literal life-and-death situation, on life-and-death overdrive.

Smith entered his home knowing that some person was inside committing a crime. A strange car was outside, and someone had kicked in the front door. In the kitchen, Smith had his first encounter with Jones. Jones was larger, stronger, younger, and probably faster than Smith. Smith would have known that if it came to unarmed combat, Jones would have a considerable advantage. Also, for practical and proper tactical reasons, Smith had to assume that Jones would in no way limit his criminality to felony burglary. Rather, to be tactically sound, Smith had to assume that Jones would be willing to maim or kill in order to avoid interdiction or capture. Thus, Smith was ramped up psychologically, also in overdrive.

It was while both men were in this hyper state that they had their final confrontation at a distance of about 10 feet. Jones came into Smith's view because

Smith moved into a position where he could see Jones, not because Jones moved into Smith's line of vision. The layout of the house dictates this. This made the appearance of Jones more sudden than if Jones had moved into Smith's view.

In this totally hyper state for both, Smith moves into a position where Jones is visible. For a fraction of a second, both freeze. At that point, Jones makes a sudden move. Smith's brain registers that sudden movement and his brain interprets it as "I'm being attacked," which is an essential and tactically correct decision if he wants to survive. Smith's brain sends the signal to his arms and hands to raise his pistol and squeeze the trigger.

That signal is racing down Smith's neural pathways. The signal to raise the pistol and fire is just passing Smith's elbow when his eyes and optic nerve begin sending information to his brain that Jones may not be attacking, but may be spinning around. About the time the signal to fire the pistol is passing Smith's wrist, his brain sends out a follow-up message to the hands and finger to *not* shoot. But, it is just too late for that second signal to catch up with the first. The shoot signal gets to Smith's hand and the pistol fires. At this point, Jones has spun nearly 180 degrees and the bullet enters Jones' back.

Who Is at Fault?

Was Smith justified in applying lethal force? Yes. At the moment he made the decision to fire and the brain sent the message, Smith was in fear for his life

from a known criminal. The intruder was younger, larger, stronger and desperate to avoid capture, and he was trapped with no obvious route of escape.

It is not Smith's fault that Jones triggered Smith's decision with a sudden movement. That was Jones' mistake. It is not Smith's fault that the sudden move by Jones turned out to be the beginning of a spin and not an attack. That sudden move was Jones' mistake. And, it is not Smith's fault that Jones could turn faster than Smith could send the recall signal. That is just human neurophysiology, as has been demonstrated scientifically.

A Known Phenomenon

This phenomenon of timing with a quickly turning assailant is a well-known subject for self-defense instructors, self-defense experts, and defense attorneys who handle self-defense cases. However, it is not generally known by the public (i.e., jury pool), and often not known among police officers and prosecutors.

In the book *Deadly Force: Understanding Your Right to Self-Defense*,¹ Massad Ayoob discusses this at some length in the chapter titled "Shot in the Back."

Testing the Phenomenon

I determined to test this phenomenon for myself. A piece of shooting range equipment I manufacture causes a target to rotate through 180 degrees. I mounted a 3-D mannequin target on one of my units and dressed the dummy in a clean T-shirt.

I took a video of this unit at 30 frames per second. I rotated the target so I could play it back one frame at a time, count the frames from beginning of the turn to end of the turn, and thereby get an accurate time for the turning of this device. I also took a video of myself turning quickly, for the same purpose. I learned that the turning target speed and my turning speed were effectively the same (20 frames or 0.66 seconds), which agrees exactly with the Tobin and Fackler study cited by Ayoob.² I assumed this would be so because it was an intentional design feature of the equipment I manufacture, but I captured the video of both just to prove the similarity in turning speed and to have the proof available as needed.

Next, I took this unit and the video camera to the shooting range to test some other subjects and their ability to engage this turning target. The shooters fired as they stood seven yards from the target.

I captured data from a total of 10 shooters of various experience levels, ages, gender, and backgrounds. All test subjects had some experience and/or training. Some had a lot.

I had each shooter try the challenge beginning in three different starting positions. These three starting positions were "sighted in," "low ready," and "at side."

1. Sighted in — pistol in a two-handed grip, pistol held at eye level, sights on the target.
2. Low ready — pistol in a two-handed grip, pistol held at abdomen level, pointed down range (the classic "search position").
3. At side — pistol in a one-handed grip, held at side, pointing 45 degrees down.

According to my reconstruction of the incident, my interviews and in my judgment, the low ready position is the most like Smith's position at the moment of encounter.

The pistol used by my volunteer test subjects was the same as the one used in and recovered from the Smith incident. The only difference was the serial number.

In each position, the shooter had the pistol in this condition: magazine inserted, chamber loaded, safety off, not decocked, finger off the trigger and on the pistol frame above the trigger guard. For this make and model of pistol, this condition of the pistol is the one in which the pistol is most quickly ready to fire. The pistol needs only the trigger pressed with a light, single-action stroke to fire.

Figure 6



Pistol from the incident (left) and pistol used in tests (right).

This Star 9mm pistol can be kept in a surprising number of conditions. The pistol has an exposed hammer and a combined safety and decocking lever. The decocking lever brings the hammer to rest in the forward position. The safety moves the rear of the firing pin forward of the rear face of the firing pin stop, making it impossible for the hammer to contact the firing pin. Other than that, this pistol's features are standard for a self-loading pistol.

It is believed the condition used for the test is the condition the Smith pistol was in at the time of the confrontation in the Smith home. This is the condition in which the pistol may be fired most quickly. Any of the other conditions would take longer to fire. For this reason, it is the condition for the pistol used by volunteers in the tests. Volunteers were instructed to begin with their trigger finger on the frame, above the trigger and trigger guard, but not on the trigger, which is a standard firearm safety practice.

The test subjects were told that as soon as they detected movement from the mannequin target, they should fire one shot at the center of mass (center of chest) of the target. When the subjects started at the low ready, all subjects raised the pistol to eye level before firing. When they started with hand at side, most raised the pistol into a two-hand grip at eye level before firing, although a few fired with only one hand on the pistol.

Test Results

While I believe some version of the classic low ready "search position" is the one Smith found himself in at the moment of final encounter with the intruder, I tested all three of the positions listed above. To score the test shooters, I examined the mannequin after each shot to determine the angle of bullet passage through the mannequin. I scored each shot according to whether the mannequin was fully facing the test shooter, 1/4 of a turn away, 1/2 of a turn away, 3/4

turned away, or fully turned away from the test shooter when the bullet passed through the mannequin. After each shot, I put a square of white tape over any entrance and exit holes so the bullet path would be obvious for subsequent shots. Here is the result of the testing:

1. Sighted in. None of the volunteers were able to trigger a shot while the front of the target was facing them. Four of 10 triggered a shot when the target was 1/4 of a turn away. Five of 10 triggered a shot when the target was 1/2 turned away. One of 10 triggered a shot when the target was 3/4 turned away.
2. Low ready (the assumed position of Smith during the incident). Ten out of 10 volunteers tested made their shot after the turning target had fully turned away.
3. Pistol at side. Ten out of 10 volunteers tested made their shot after the turning target had fully turned away.

It is no surprise that those volunteers who were able to trigger a shot when the target was only 1/4 turned, and only from the sighted-in position, were the more experienced shooters. Those included one Army veteran recently returned from multiple tours in Iraq and Afghanistan, and a competitive pistol shooter with years of experience in the sport of practical pistol (a sport that develops and requires speed and accuracy with handguns).

For a target turning at the same speed I can turn, and with the test subjects starting in the most likely start position, the low ready "search position," *all* of those tested shot the mannequin in the back. That is, the mannequin had spun a full 180 degrees by the time *every* person fired a single shot. That means 10 out of 10 tested subjects got hits on the back of the

turning dummy target when shooting as quickly as possible, triggered by sudden movement. Three of the subjects shoot competitively in the sport of practical pistol, all subjects had some firearms training, and one was a recent Iraq veteran. All volunteers were recruited at a shooting range, so all had some interest in firearms. All the test subjects probably had skills and abilities at least equal to Smith's, and probably superior to his.

Low ready video

<http://marbut.com/expert/video/>

Pointed down video

<https://youtu.be/nsAqfB6R0mA>

Pointed in video

<https://youtu.be/d2OQUVYZobE>

Conclusion

Yes, there is a perfectly reasonable explanation, even if not obvious, for why the entrance wound in Jones can be in the back and Smith can still be said to have used lethal force in a justifiable manner. That explanation has been documented, explained, and demonstrated in the testing performed, recorded, and described.

Thanks to Ty Marbut for video editing and production.

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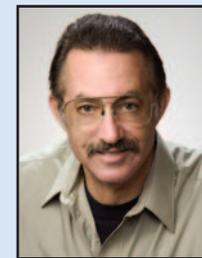
Notes

1. MASSAD AYOUB, DEADLY FORCE: UNDERSTANDING YOUR RIGHT TO SELF DEFENSE (2014).

2. E.J. Tobin & M.L. Fackler, *Officer Reaction-Response Time in Firing a Handgun*, 3(1) WOUND BALLISTICS REVIEW 6 (1997). ■

About the Author

Gary Marbut is accepted in state and federal courts as an expert concerning self-defense, use of force, firearm safety, and related topics. He is president of the Montana Shooting Sports Association and is the author of *Gun Laws of Montana*.



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Author's Note: The scenario described in the article is drawn from an actual case in which I served as an expert. The reader should view the linked videos of the test subjects shooting. In compiling and editing these videos, I did some things to make them more understandable by the viewer. First, I included a few seconds of the test subject engaging the turning mannequin at real-time speed — unedited except for clipping the segment from longer periods of inactivity. However, this happens so quickly for each shooter that it is difficult to see exactly when the shot breaks in relation to the turning mannequin. Thus, for each test subject, I repeated the shot with a short, slow motion clip including when the actual shot was fired. Also, I paused the slow motion video at the exact moment that the gunshot broke so that the viewer can see the extent to which the mannequin was turned at the instant of the shot.