



# One Test is Worth a Thousand Expert Opinions

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***This story contains details and descriptions that might upset some readers.***

In the world of expert witnesses, it is easy to get lost in a sea of words and a battle of confusing arguments. However, there is one thing that has the potential to rise above, and that is a well-developed test. When used properly, testing has the potential to unequivocally support a position that might otherwise be difficult to articulate.

In many violent encounters, witness testimonies are often incomplete, inaccurate or potentially biased; leaving experts to prove or disprove narratives that may represent the foundation of a case. In such instances, experts may go down different roads in a hope to make their case. Some may choose to build a logical argument based on their long and documented experience, or based on a body of literature that support their logic. However, when the situation is complex and literature fails to address the issue head-on, it is often preferable to design a test that's tailor-made to the circumstances at hand, and challenges the hypothesis posed by the testimony under scrutiny. In the end, the goal is always to find the truth, and if published literature or medical exams don't provide absolute certainty about how an incident occurred or what caused a specific injury, then testing is the best option.

As part of a recent case, an investigation had hit a roadblock when trying to verify a man's testimony after he claimed that he had killed a man in self-defence. Key to this investigation was a bullet hole found beneath the carpet, into a nearby floorboard. The suspect's DNA was also found on the bullet, linking it to the one bullet wound sustained by the suspect during the altercation. In typical investigations, the shape of a bullet hole can be correlated to its angle of incidence using known methodologies. However, these methodologies do not take into consideration a bullet that travels through an object before hitting material, and therefore did not apply to this investigation.

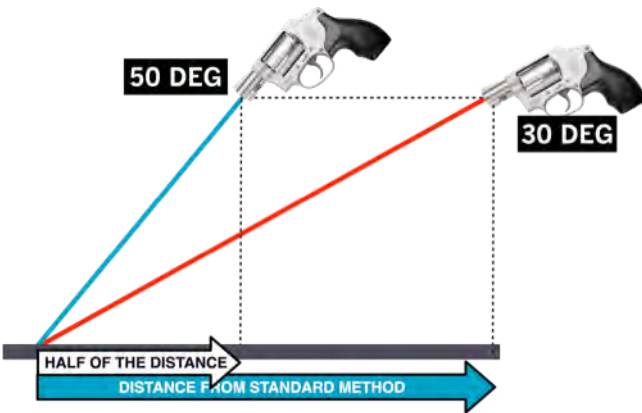
In this case, the bullet was deformed after travelling through a human thigh before impacting a layer of high pile carpet, followed by underlay, and finally stopping in a sheet of plywood. The ellipse method, one of the most used ballistics methods, relies on the smooth and circular cross-section of a bullet in order to draw a correlation between the dimensions of the bullet hole and its angle. Meanwhile, a bullet shot through several inches of muscle is known to deform and lose its smooth profile, thus potentially creating an abnormal bullet hole which invalidates the correlation of the ellipse method for this particular incident.

To gain insight and certainty into the trajectory of the bullet, a test replicating the conditions of the incident was performed. By shooting through a flesh-equivalent, ballistic soap, and varying the angle of a floor sample, it was possible to create a dozen bullet holes and compare them to the bullet hole from the investigation. With the help of statistical methods, we identified the most probable range of angles associated with the shot in question.

How did this information affect our results? By performing this test, the distance between the suspect's leg and the bullet hole was half of the result obtained through a conventional, theoretical method. Basically, this finding placed the suspect in an entirely different room.



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It goes without saying that this finding made a substantial difference when considering the biomechanics of this altercation, the narratives, and eventually determining what appeared to be the only likely position between the suspect and his would-be assailant.

What we have illustrated with the case example is the value of testing as a means to examine a narrative and tackle a case. The context of the method is critical: If the bullet has interacted with anything, you need to move to a ballistic medium (testing) rather than rely solely on published

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literature that may not apply to the situation. This concept applies to all incidents involving injuries: car accidents, knife wounds, falls, etc. The truth behind an incident and cause of injury are important to determine, to ensure the right person is held accountable. If there are differing narratives and medical opinions, or unclear evidence, testing can provide you with confident results to find out what really happened.



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