Terminal performance of the Winchester 95gr Ranger-T JHP Fired from a 9mm Police/Ultra handgun in 10% ballistic gelatin blocks

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Introduction

The much-maligned and potentially very effective 'Talon' JHP design is incorporated into this particular bullet, which was originally intended for use in .380ACP cartridges. Known as a 'reverse taper jacket' by Winchester, several sharp and rigid pieces of copper are exposed at the periphery of the expanded bullet upon impact with a fluid medium. Having received much undue bad press by those opposed to civilian self-defense, the 'Talon' line was withdrawn from civilian circulation and renamed 'Ranger-T' in the 1990s. The Ranger-T line of ammunition retains the same spirit of design as the original Talon, with several sharp jacket segments being produced upon impact with the target. Most notable among the differences between the two bullets is the lack of a black-colored molybdenum disulfide-type coating on the Ranger-T series. Potential improvement in muzzle velocity from a handgun by using such coatings should be explored in greater depth in the future, but it is currently considered to have a negligible improvement in this regard.

The sale of the Ranger-T line is restricted to law enforcement dealers, though by some twist of fate, the ammunition can usually be purchased by civilians through a few (and completely legal) channels such as gun shows and internet sales. It must be noted that there is a possibility that the ammunition seen for sale in such a market are factory rejects that failed lot acceptance testing for one or more non-safety issues. These issues can range from a lot of ammo having more than a set number of cartridge cases with dings or other blemishes, to ammunition that fails 'bullet pull' tests for being either too tightly or too loosely crimped and so on. Due to the concern over liability and common decency it is very unlikely that any ammunition manufacturer would knowingly release ammunition known to have critical safety defects.

This particular test was done with a Kahr P380 chambered for the 9x18mm Police cartridge. Although the case length is 'only' 1mm longer than the .380ACP (9x17mm Kurz), this cartridge offers a good deal greater potential for performance out of a 'mousegun' due to its higher chamber pressure and propellant capacity. One cartridge was fired at velocities attainable with a .380ACP pocket pistol, two shots simulating a 50m hit with a nominal 9mm Ultra load, one shot at a velocity obtainable through a 2-inch barrel Ultra gun, another shot at a velocity typical of a +P Ultra from a 2.5" barrel length and a +P shot from what would be a long barrel gun such as the Walther PPK. The gelatin pictures will be labeled as ".380ACP", but the higher velocities obtained in this test should only be attempted in a 9x18mm Ultra or 9x19mm Luger – and not attempted in a .380ACP handgun.

Winchester has, in general, hit a home run with the terminal performance of most of their Talon/Ranger-T line. Almost without exception, ammunition in this product line is loaded very hot and there is a potential for increased wounding effect from the presence of the sharp jacket segments on the edge of the bullet. The downside noted in the testing of this particular cartridge were: moderate functional sensitivity to angle of attack at impact. The positives included: high magnitude of kinetic energy transfer at the shallow depths of penetration and good muzzle velocity out of a 2.5" pocket pistol barrel.

Summary of Results

Figure 1. Impact velocity versus penetration depth in 10-percent ballistic gelatin for velocity greater than or equal to 763 ft/sec and less than or equal to 867 ft/sec

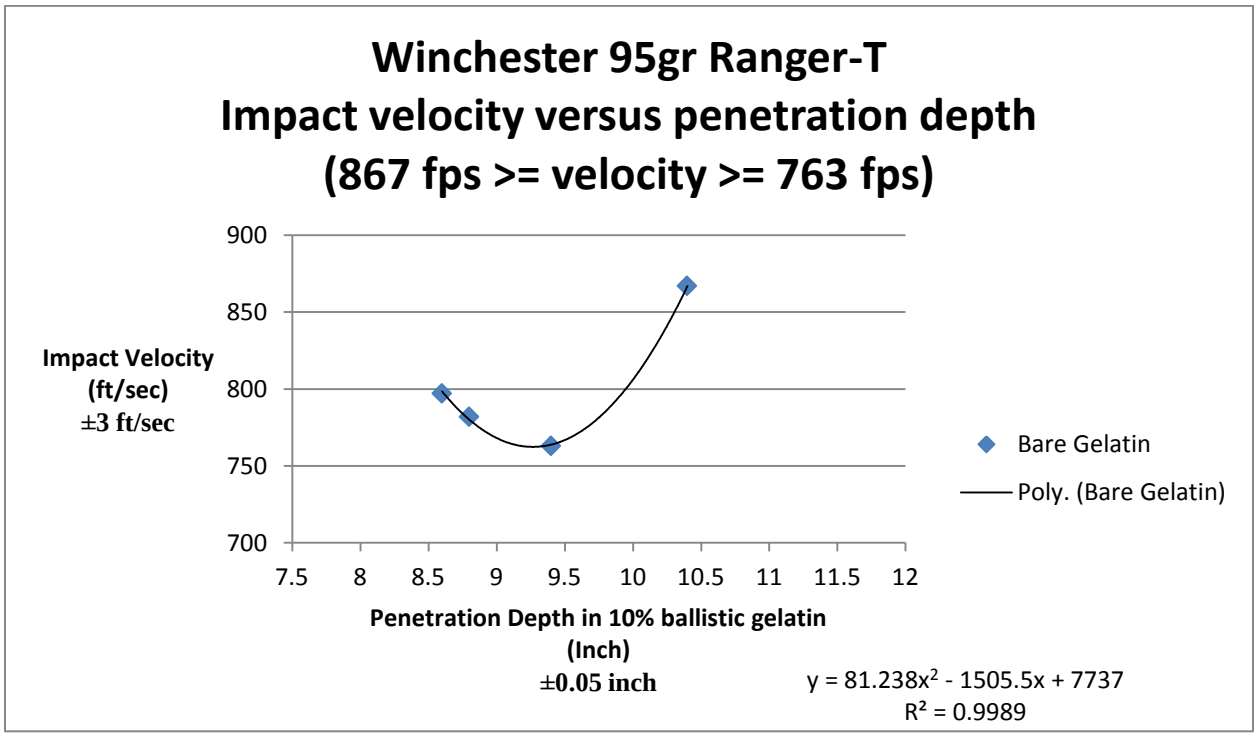
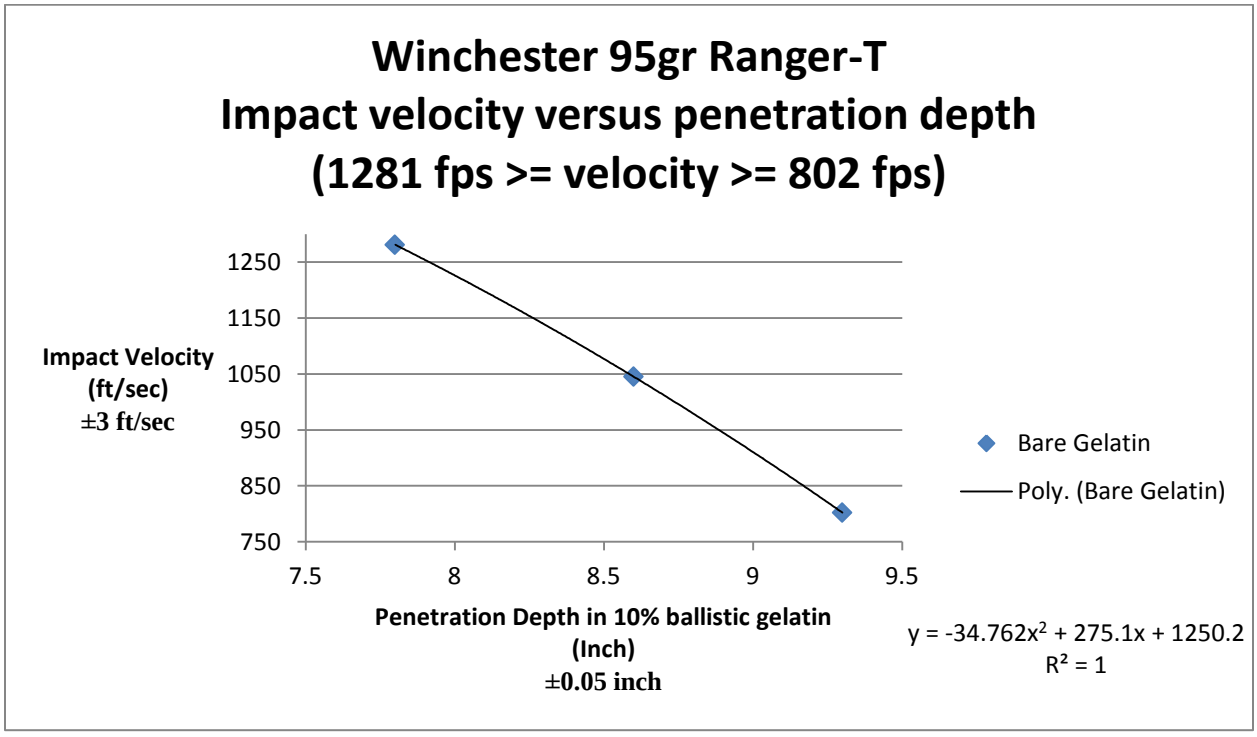


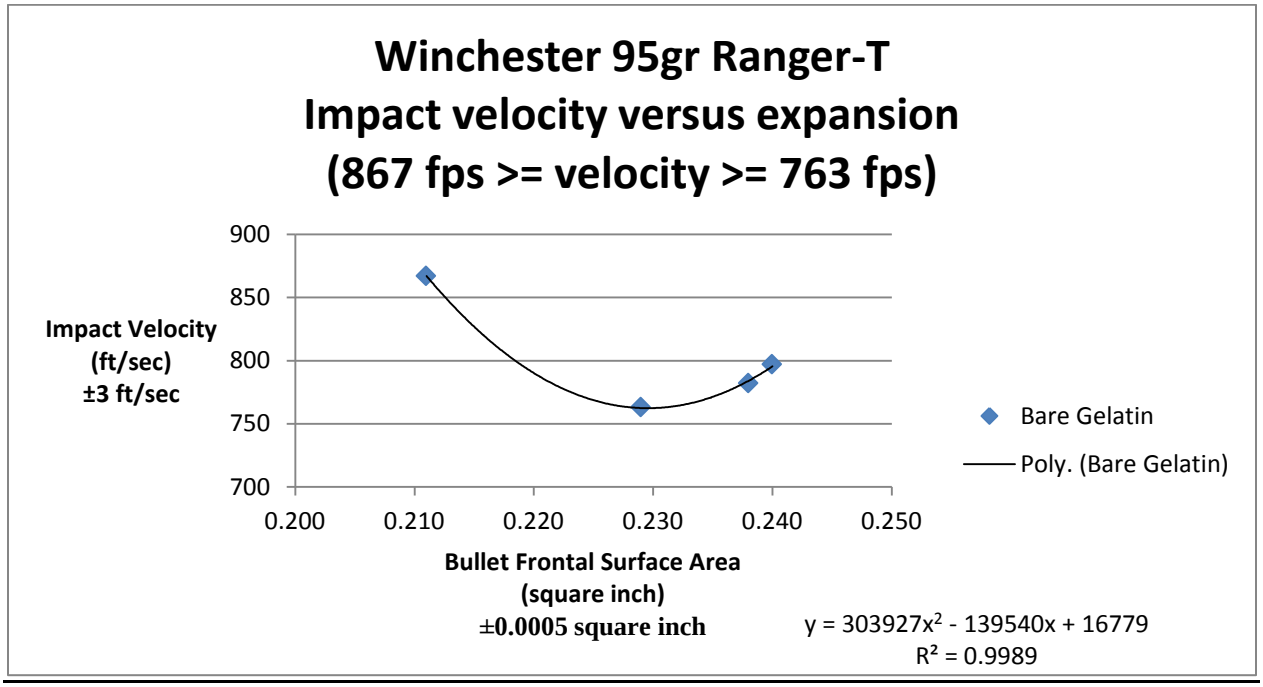
Figure 2. Impact velocity versus penetration depth in 10-percent ballistic gelatin for velocity greater than or equal to 802 ft/sec and less than or equal to 1281 ft/sec

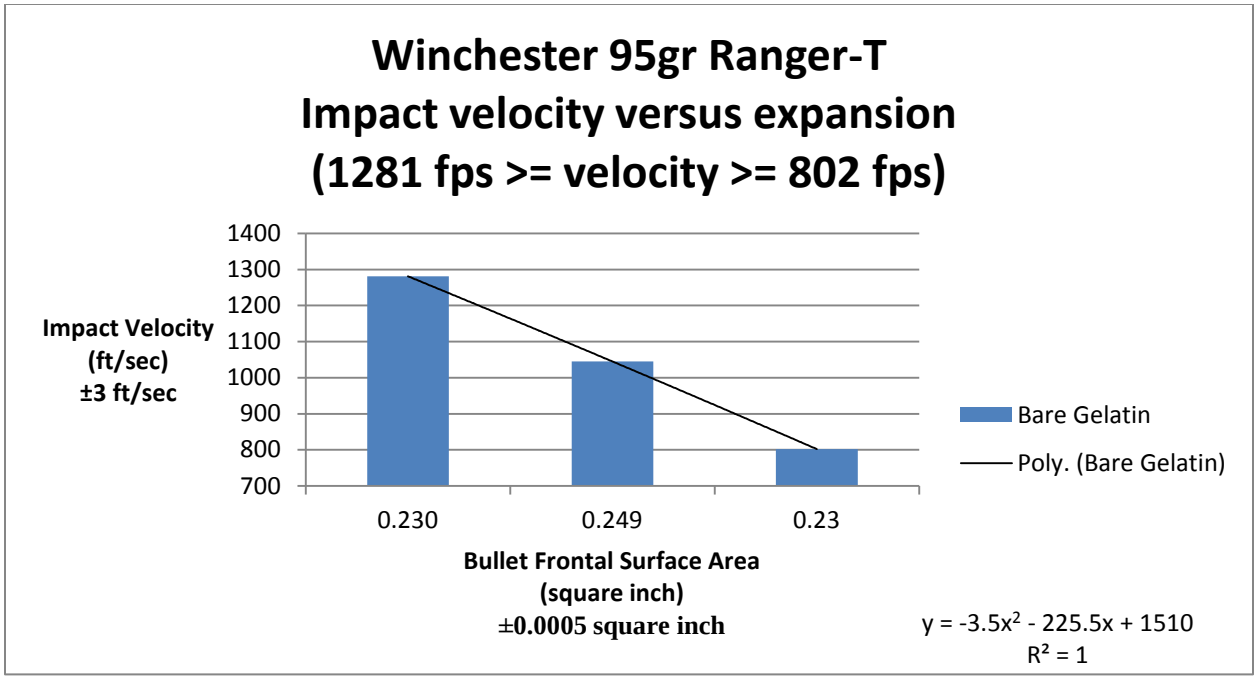


Notes

The broader analysis of velocity extremes in Figure 2 (combined with the average of the low velocity shots) indicates that the tested bullet reaches a steep performance decrease once the impact velocity approaches 1045 ft/sec. At 867 ft/sec impact velocity, excessive angle-of-attack was noted in that one 'petal' of the JHP failed to expand. The next shot higher in velocity, 1045 ft/sec and 1281 ft/sec, witnessed the bullet go through structural failure due to the greater-than-designed-for velocities encountered. Potential causes for the excessive angle of attack-related failure to expand includes damage to the bullet while being removed (by collett) from the host .380ACP cases and perhaps a sensitivity of the design to oblique impact angles.

Figure 3. Impact velocity versus expansion in 10-percent ballistic gelatin for velocity greater than or equal to 763 ft/sec and less than or equal to 867 ft/sec



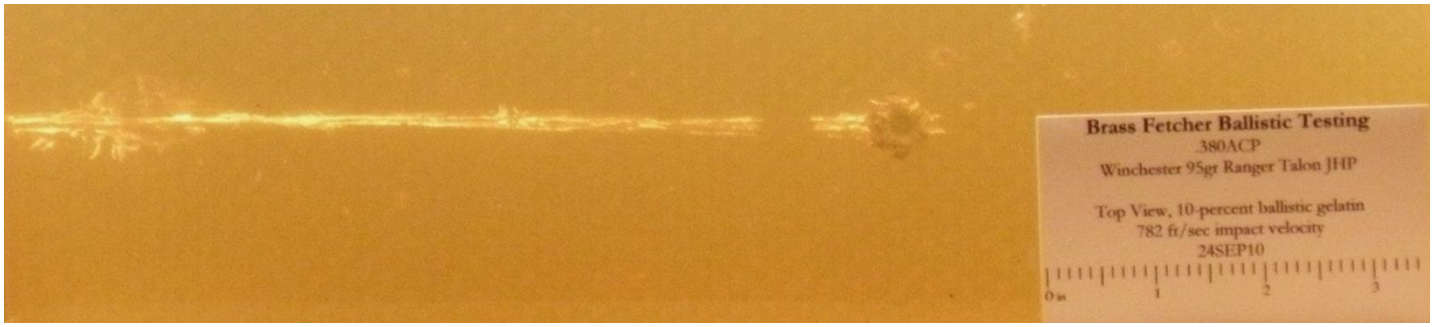


Raw Data

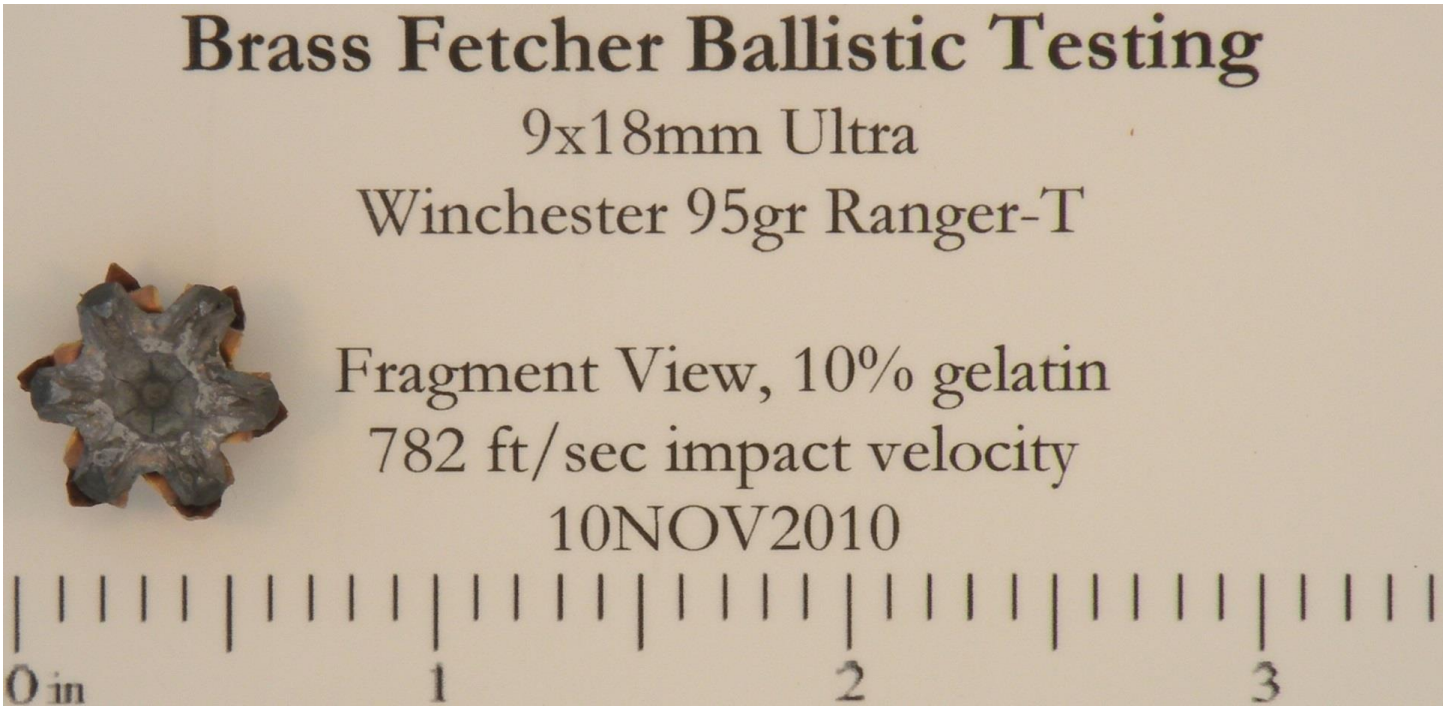
Shot number	Block calibration velocity (ft/sec)	Corrected Calibration Depth (inch)	Block calibration depth (inch)	Block calibration temperature (degrees Fahrenheit)	Gelatin block core temperature (degrees Fahrenheit)	Impact velocity (ft/sec)	Frontal Surface Area ($inch^2$)	Deepest penetration depth (inch)	Non-cavitation depth (inch)	Largest crack diameter (inch)	Largest crack diameter location (inch)
1	584	3.7	3.9	40.2	42.0	782	0.238	8.8	6.2	2.1	2.5
2	583	3.4	3.5	42.0	42.0	797	0.240	8.6	6.7	1.8	2.6
3	602	3.7	3.9	43.1	42.0	1281	0.230	7.8	6.8	3.1	2.4
4	580	3.5	3.3	41.9	40.8	1045	0.249	8.6	7.7	2.2	2.1
5	590	3.5	3.7	44.0	42.4	867	0.211	10.4	8.9	1.9	2.3
6	590	3.6	3.6	41.1	40.8	763	0.229	9.4	6.0	1.8	2.3

Shot 1 (Side View)

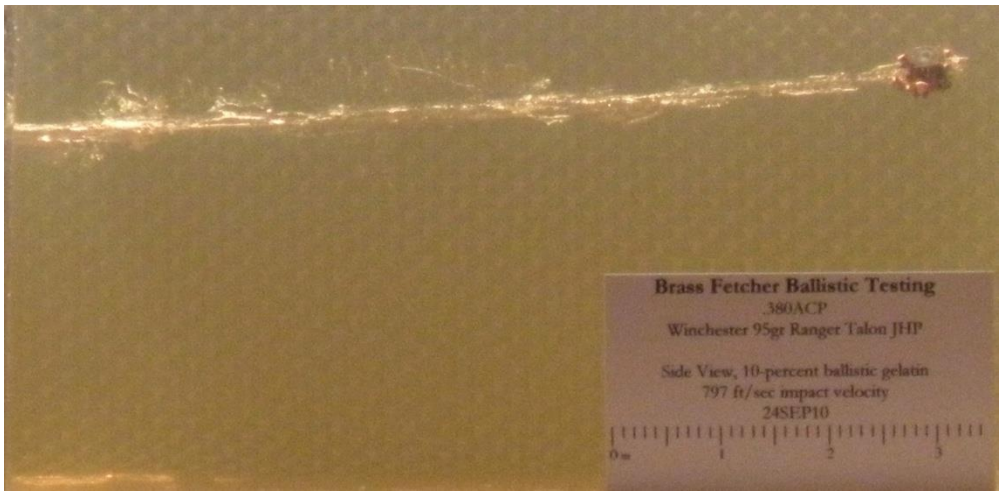
Shot 1 (Top View)



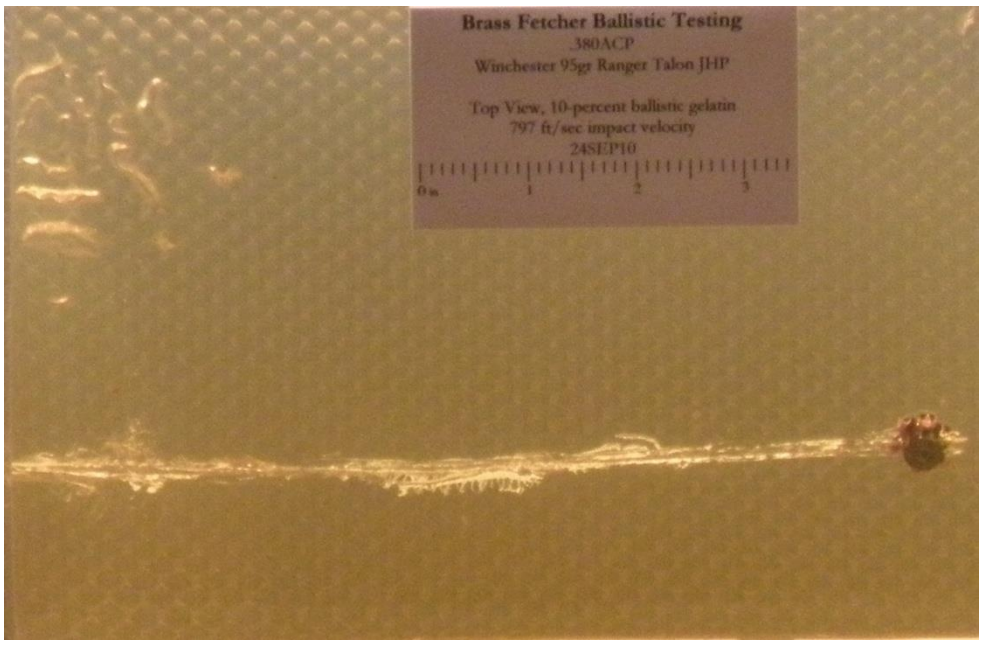
Shot 1 (Frag View)



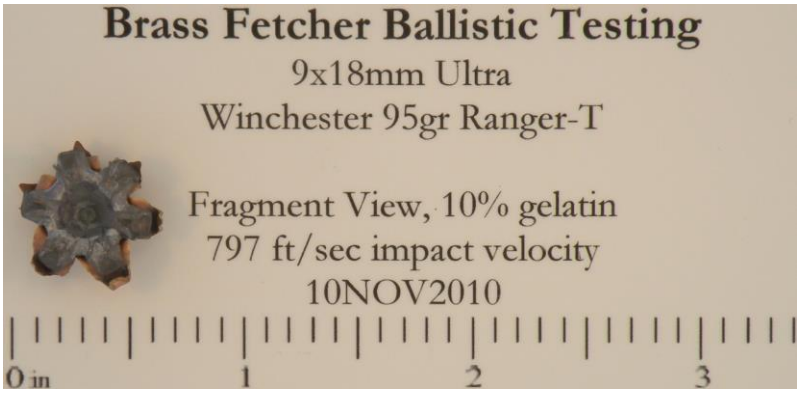
Shot 2 (Side View)



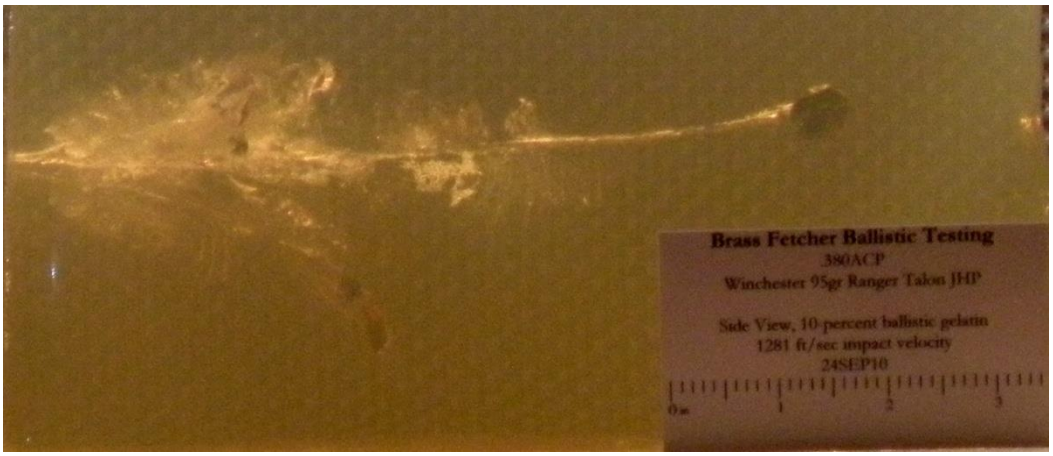
Shot 2 (Top View)



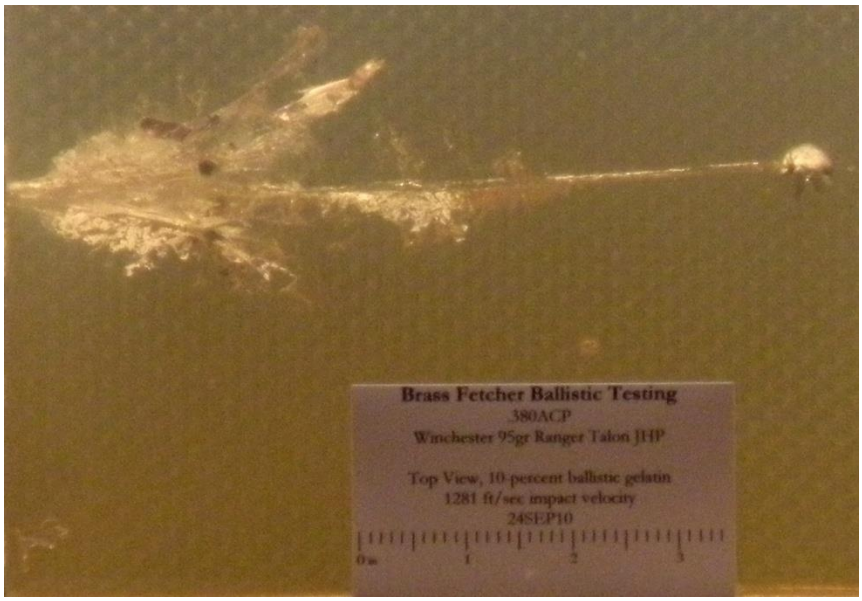
Shot 2 (Frag View)



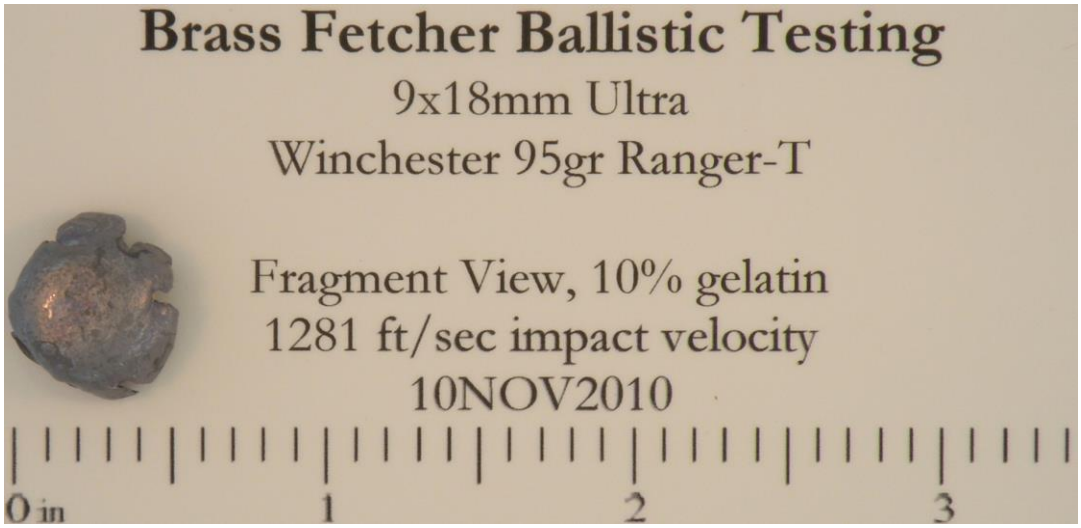
Shot 3 (Side View)



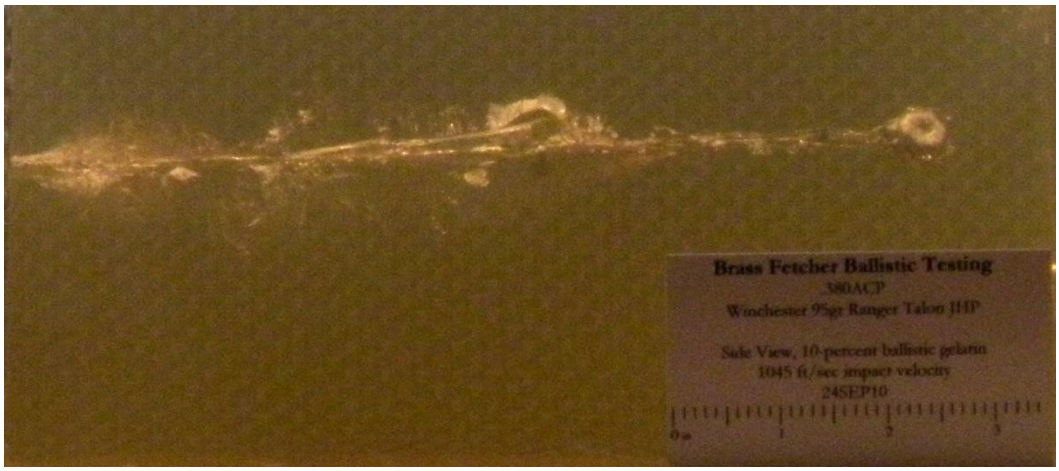
Shot 3 (Top View)



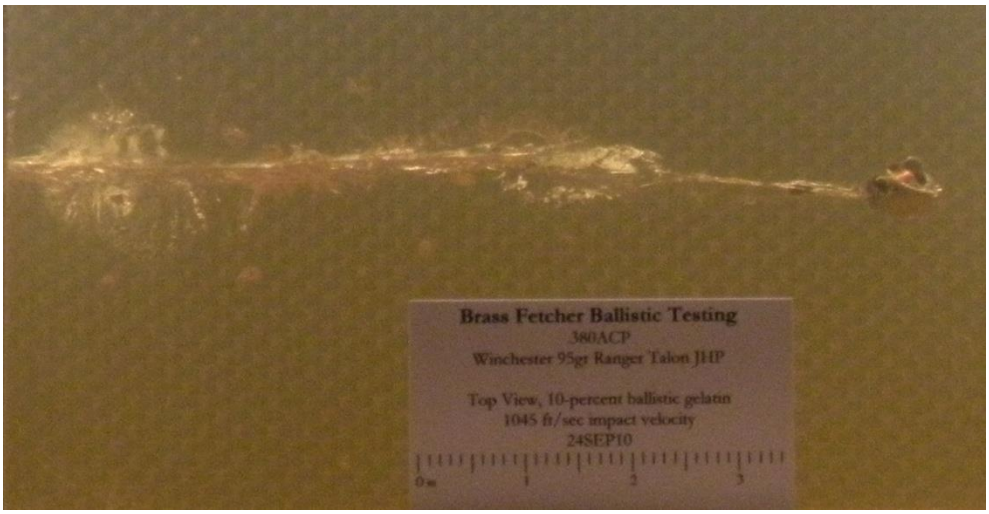
Shot 3 (Frag View)



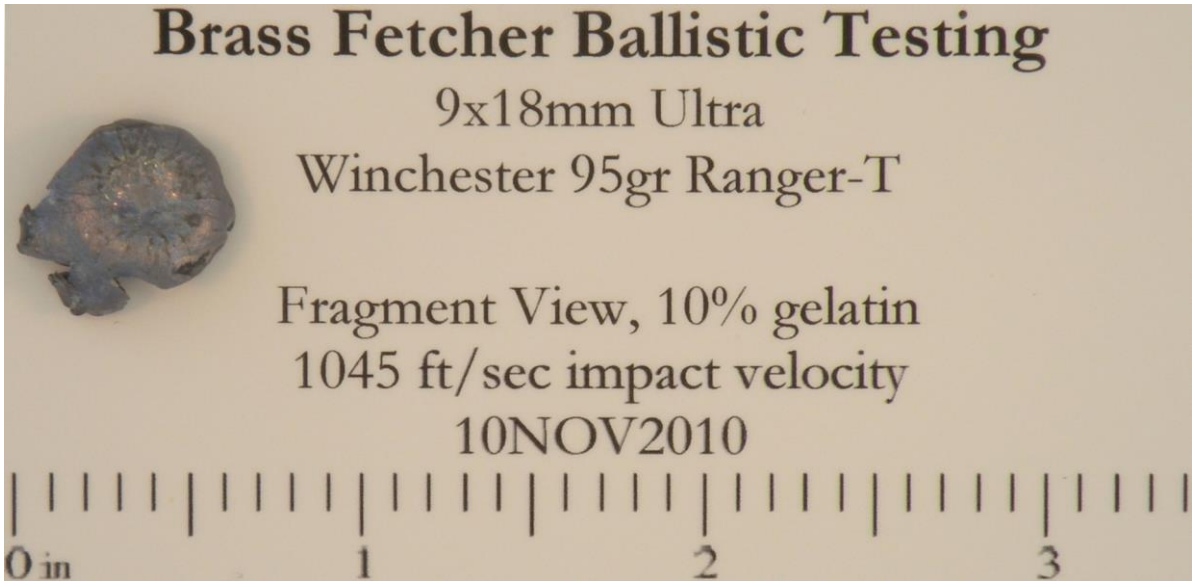
Shot 4 (Side View)



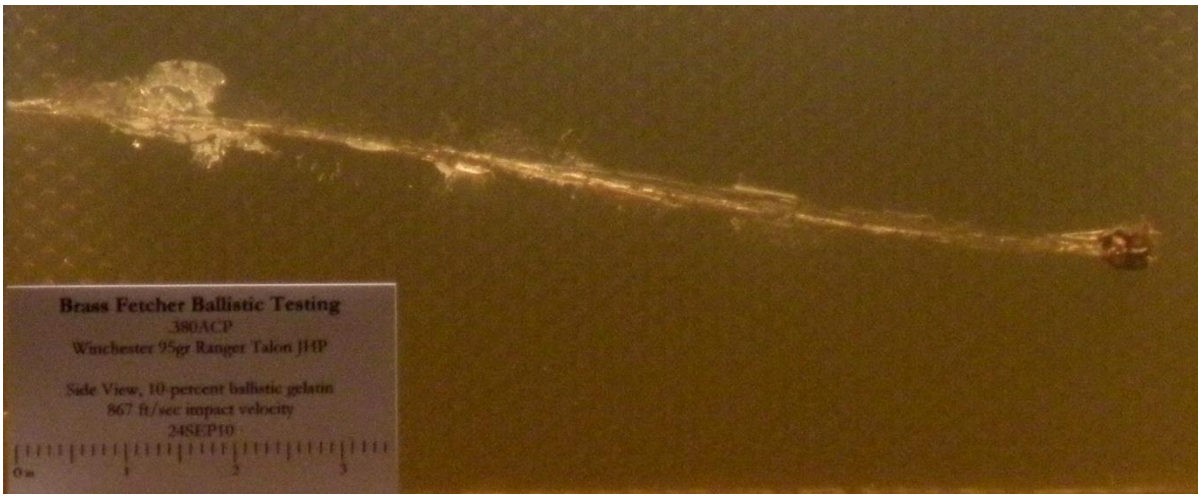
Shot 4 (Top View)



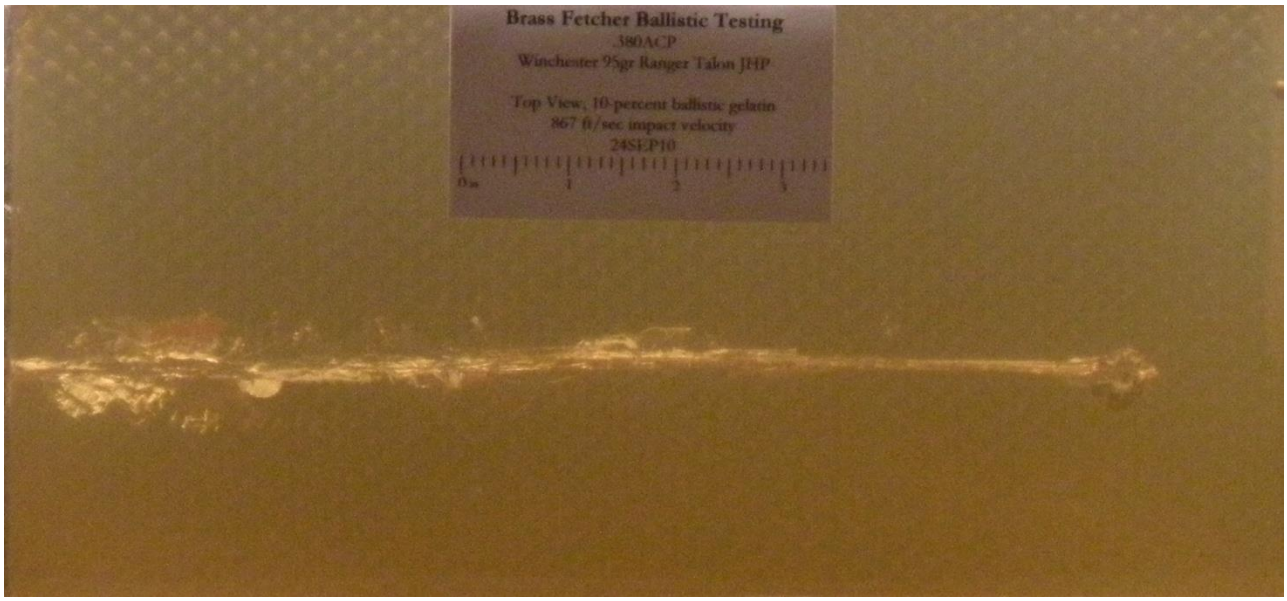
Shot 4 (Frag View)



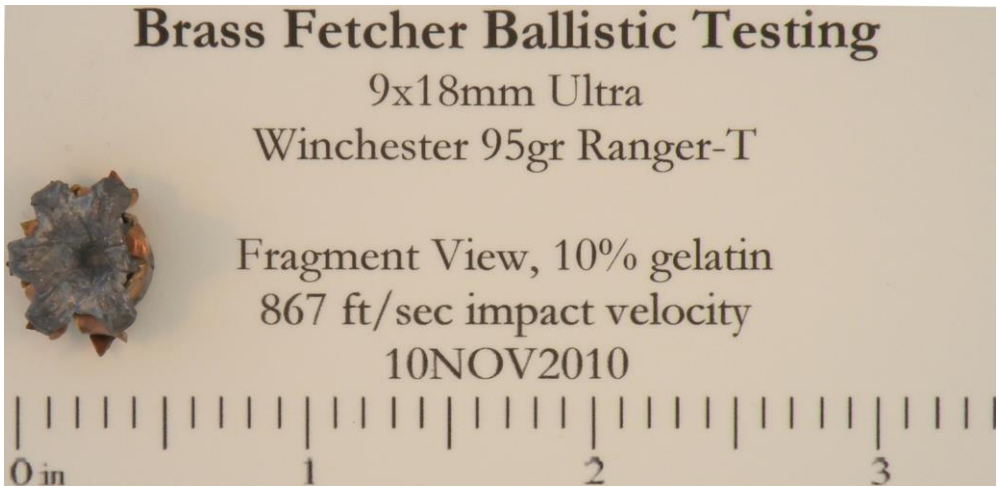
Shot 5 (Side View)



Shot 5 (Top View)



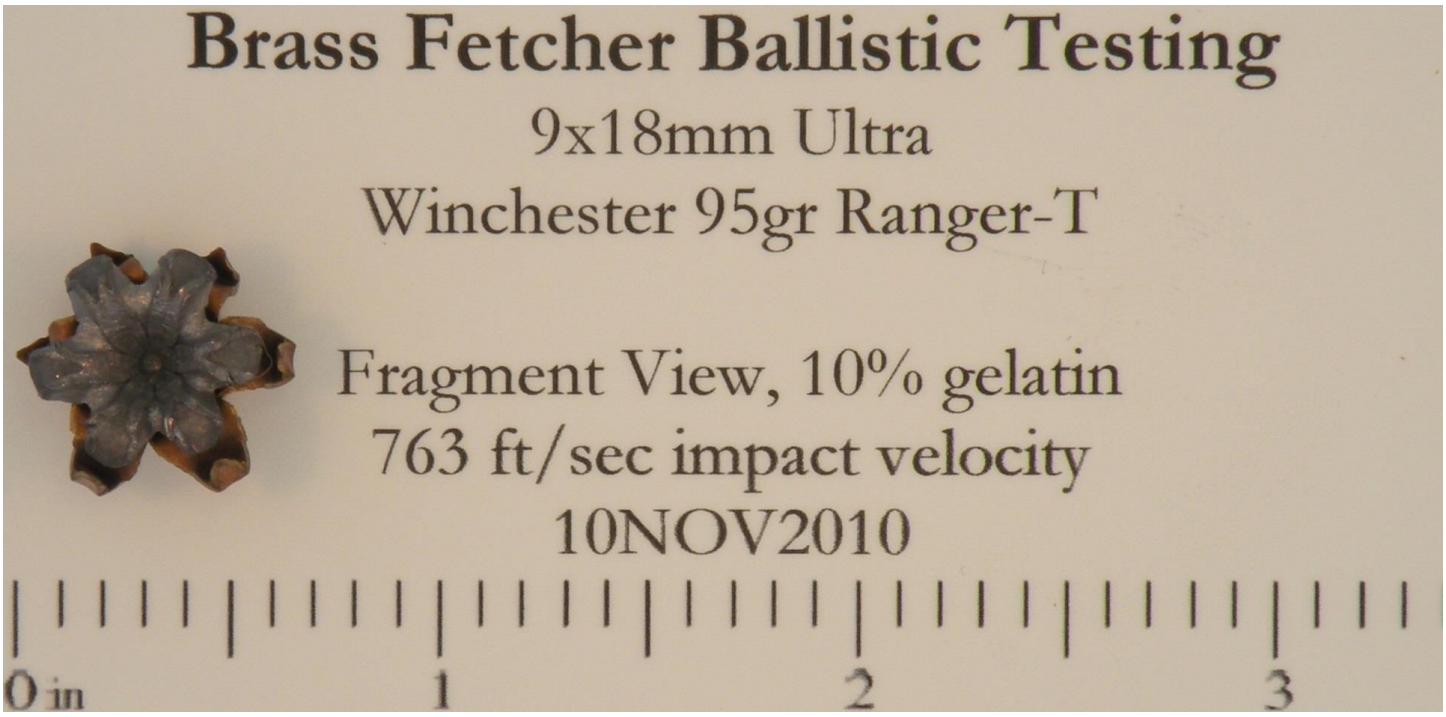
Shot 5 (Frag View)



Shot 6 (Side View)
Gelatin Image Not Recovered

Shot 6 (Top View)
Gelatin Image Not Recovered

Shot 6 (Frag View)



Conclusion

The 95gr Winchester Ranger-T JHP offers good terminal performance when fired from a 9x18mm Ultra pocket handgun. We like that the penetration depth on all bullets tested (except for the failure-to-expand on Shot 5) is less than 10", which indicates that greater kinetic energy will be transferred to the critical areas on the body, on the vast majority of shotlines.

Due to the likelihood that the tested bullet was designed for .380ACP handguns, and is therefore overdriven at Ultra velocities, usage of this cartridge in a barrel longer than 2.5" is not recommended, as evidenced with the dramatic fragmentation of the projectile on Shot 3. While we prefer handgun bullets to behave in this way, with independent wound tracks cut by fragments traveling away from the main body of the bullet, this performance is likely to not be consistently obtainable from a barrel length that is practical for concealed carry usage. This bullet would be ideal for moderate-pressure 9x18mm Ultra cartridges.