

## **MARKSMANSHIP MYTHS, MISCONCEPTIONS & FREQUENTLY ASKED QUESTIONS**

The following myths and misconceptions are in no order of precedence. All of them, however, are the most commonly reoccurring issues that we have seen both while conducting our mobile training missions, and through our on-line question and answer forum. While some of these topics may seem elementary to some people, one would be surprised at the frequency in which these questions occur. The following examples are provided in a question, or statement format, with the correct answer given below:

**1) STATEMENT:** “A 200M zero is the best battle sight zero one could have on their rifle because most combat engagements occur inside of 225 meters.”

**1) ANSWER:** A 200M zero may not be a bad idea if you find yourself in an urban environment, but can be counter-productive when the potential for longer distance engagements is present. A 200M zero increases the probability of hits on target when shooting at closer ranges because you have lowered the maximum ordinate (trajectory) of the round, but can be a detriment if you have to engage targets beyond 200M because you will likely hit below your point of aim. This consideration becomes especially important when engaging partially obscured targets, such as an enemy combatant firing from a covered position. Additionally, when using a 200M zero, the ballistic drop compensator (BDC) is no longer calibrated, and some of your weapons functionality has been degraded. Should the need arise where you must take a further shot, you no longer have the ability to accurately make adjustments to the rear sight, and your only option is to aim over target and hope that you are successful. Ultimately, Commanders must decide what type of zero best suits their unit’s needs.

**2) STATEMENT:** “I am an Infantryman and will be issued an ACOG or M-68 for my rifle. I don’t need to train with, or learn how to use iron sights.”

**2) ANSWER:** Although you may be issued an optical sight for use with your weapon, you must still master the use of the iron sights. Should your optic become inoperable or you find yourself using other than your assigned weapon, you will still be able to successfully engage targets. Nearly all shoulder fired weapons in the US Army’s inventory, as well as the weapons of most other countries, come equipped with iron sights. Additionally, knowing how to apply the fundamentals of marksmanship with iron sights will make you much more proficient when using optics. Unfortunately, this doesn’t work in reverse; one who is proficient with optics will not necessarily be successful when using iron sights.

**3) STATEMENT:** “I went to the 25M range, and my rifle is zeroed.”

**3) ANSWER:** How do you know? Did you check it at actual distance to see where the bullets were impacting? There is a big difference between a “nearo”, and a zero. If you

zero your rifle to Army standard, and place 5 of 6 shots in the 4cm circle, then you are considered to be zeroed. What you may not realize is that the 4cm circle at 25M is the equivalent to a 18 1/2" circle at 300M; that is nearly the size of the silhouette at 300M. Let's pretend that you weren't very critical about your zero while you were at the 25M range, and although you received a "go", the majority of your shot group was off to one side of the 4cm circle. Taking into account that an angle increases over distance, when you go to the qualification range, you have less than a 50% chance of hitting a 300M target therefore, you should always confirm your zero at actual distance.

**4) STATEMENT:** "I have my rifle zero recorded in my notebook so I can put it on any rifle that I use."

**4) ANSWER:** Zeros don't work like that, and rifles are mechanical in nature. When you zero a rifle, you are aligning the sights with the barrel, and the barrel with your eye (by looking through the sights). The zero that works for one rifle isn't going to work on another. Think of it like this: the same seat and mirror settings you use when driving your Ford pick-up truck will not work when you are driving your friend's Volkswagen Beetle.

**5) STATEMENT:** "The sights on all of the M-16 / M-4 family of rifles are the same, and they are all zeroed in the same manner."

**5) ANSWER:** They all have a different thread pitch on the elevation and windage screws, and these differences require slightly different sight settings to be used during the zeroing process. When zeroing, ensure that you are utilizing the zero targets made for the type of rifle you are using, and always reference the instructions that are printed on the bottom of the 25M zero target. These instructions are very specific on where the BDC should be set, and they differ depending on the rifle type.

**6) QUESTION:** "Is there a noticeable shift in impact or zero from M855 and M855A1 ammunition?"

**6) ANSWER:** Many Soldiers have reported that they experienced a drastic shift in impact when switching from M855 to M855A1, while others reported having no significant change to their zero. The safe bet and best practice is to always zero with the type of ammunition that you will be using during training or combat. Should you need to change the type of ammunition you are using for some reason, you should reconfirm your zero as soon as possible, and then follow up with confirmation at actual distance.

**7) QUESTION:** "When I move the sights (either front or rear) on my rifle, what happens internally to make the strike of the round move downrange?"

**7) ANSWER:** Nothing happens internally when you make sight corrections. The rifle is a machine, and small adjustments to the sights actually make the operator adjust their point of aim in very small increments. **EXAMPLE:** When you turn the BDC on your rifle clockwise, the rear sight moves up. When you look through the rear sight aperture,

and reacquire sight alignment, you have simply elevated the muzzle of the weapon, thus causing the strike of the round to be higher.

**8) STATEMENT:** “Wind has no effect on the strike of the round because bullets move entirely too fast for the wind to have any effect.”

**8) ANSWER:** Wind, temperature, and humidity all have an effect on the strike of a bullet, with wind having the biggest effect of all. As a bullet leaves the barrel of the rifle, gravity begins to have an instant effect. As the bullet begins to run out of energy and slow down, wind has an even greater effect. As a general rule, the slower the velocity of the wind, or the shorter the distance you are shooting, the effects of wind become less significant. The higher the wind speed, or the farther out you shoot, you have to compensate for the effects of wind or you will surely miss your desired target.

**9) QUESTION:** How is combat marksmanship different from plain marksmanship?

**9) ANSWER:** Yes, you may shoot at steel targets, add scenario type exercises, and increase stress, but the fundamentals are not different. “Running and Gunning,” type training is a necessary and important training tool, but before all of that takes place, one must master fundamental marksmanship. Failing to master the fundamentals before graduating to scenario based exercises will only result in you shooting misses at a faster rate.

**10) QUESTION:** Does USAMU teach advanced rifle marksmanship?

**10) ANSWER:** No, USAMU only teaches marksmanship. There is no such thing as “advanced,” rifle marksmanship; there is only marksmanship that is taught correctly. When the fundamentals are learned and applied, they work in all situations. The fundamentals also work the same regardless of the weapon system that is being fired.

**11) QUESTION:** “I want my unit to zero their rifles at 200M. Will cutting the 200M target out of the ALT C qualification target and using it at 25M work?”

**11) ANSWER:** No, it will not. While zeroing your rifle, you aim center mass and adjust the strike of the round to hit where you are aiming (point of aim, point of impact). The size of the target has nothing to do with the process, but is only there to give you something to aim at; it is your reference point. To achieve a 200M zero, you must change the distance in which you are zeroing at, or adjust your rifle to hit somewhere other than where you are aiming.

**12) STATEMENT:** “In order to achieve a 200M zero, you must zero at 37M.”

**12) ANSWER:** Given the weapon systems, ammunition, and zero targets available in the Army’s inventory, this is impossible. In order to achieve a true 200M zero with an M16A2, A3, or A4 you would have to zero the rifle at 50M. To achieve a true 200M with an M4, it would need to be zeroed at 41M. The best practice for achieving any zero,

regardless of the desired distance, is to obtain an initial zero at 25M, then fine tune your zero at the actual desired distance.

**13) STATEMENT:** “When I am teaching marksmanship, I always make my Soldiers train in IBA because that is how they are going to fight.”

**13) ANSWER:** Learning the fundamentals requires an undistracted mind and an unstressed body. IOTV, IBA, kit interferes with those conditions. Only once a Soldier can routinely execute the fundamentals should the level of difficulty increase by integrating individual combat equipment into dry firing and live fire exercises. This also assists NCO’s in identifying what may be going on with Soldiers who are having trouble.

**14) STATEMENT:** “He is shooting all over the place. I told him to watch his breathing.”

**14) ANSWER:** Entirely too much emphasis has been placed on breathing, and breathing probably has very little to do with the most problems that are observed on the range. A person firing a rifle has a tendency to fire the rifle while they are in their natural respiratory pause, and the rifle isn’t moving. Although discussing breath control and the natural respiratory pause should be included in any marksmanship instruction, don’t over emphasize it. It is impossible to determine what a shooter may be doing wrong by analyzing a shot group on a piece of paper. The only way to accurately determine what is going wrong is through **CAREFUL** observation of a peer coach who is actively watching the shooter throughout the entire firing process.

**15) STATEMENT:** “I always make my Soldiers put the tip of their finger on the trigger, and the tip of their nose on the charging handle. That is the way I was taught.”

**15) ANSWER:** Due to the fact that we are all made differently, the “cookie cutter” approach to shooting positions is not the best approach when teaching others. There are some key points to consider when teaching shooting positions: 1) A person has to be reasonably comfortable to make well aimed shots. 2) A Soldier’s shooting position, regardless of which position it is, must allow them to achieve proper sight alignment consistently from shot to shot. 3) The position of the firing hand is critical in controlling the rifle, applying proper trigger control, and managing recoil for follow up shots. The firer’s hand position should be high on the pistol grip, and their finger should naturally lie on the trigger. Finally, the trigger is a lever. The trigger must be moved straight to the rear. Forcing someone to place their finger on the trigger in an unnatural position will lead to poor trigger control habits, and misplaced shots downrange.

**16) QUESTION:** “After we zero our rifles and complete training, our unit armorer takes our carrying handles/optics off of our weapons because they don’t fit in the gun racks with them on. Does this affect my zero?”

**16) ANSWER:** Maybe. Manufacturers of the 1913 rail system that most military rifles come equipped with do not guarantee that you will not experience a shift in impact after

removing and reinstalling your optic. After removing any part of the weapon's sighting system, whether using an optic or iron sights, a weapon should be zeroed again before any live firing. Although you may get lucky sometimes, and find that your point of impact did not move all that much, it is not uncommon for rifles to drastically off target after having the sights removed.

The following items are topics we are routinely asked about, or otherwise observe while instructing, but would be too lengthy to discuss in this document.

- 1) Many Soldiers, including NCO's and Officers, do not know how the BDC works. Many of them have no idea what the numbers stamped into the side of the knob mean.
- 2) Very few Soldiers in the Army have a basic understanding of ballistics and bullet trajectory. If asked to draw a picture of the path of a bullet after it leaves the barrel, most Soldiers would draw a straight line from the muzzle to the target. Other Soldiers would draw a line that extends from the muzzle towards the sky, and then the bullet comes back down and hits the target. Neither of these would be correct.
- 3) A sling is part of the issue rifle, but proper use is never taught, and the sling rarely used. The use of a hasty sling should be taught to all Soldiers, and when applicable, used during firing. A sling cannot be used in many situations, but the knowledge should be passed to all Soldiers, and the sling used in situations when possible. This will enhance anyone's firing position.
- 4) Few Soldiers know, or comprehend the minute of angle (MOA) concept. Everything dealing with marksmanship is based on the MOA system. The marksmanship FM, during the next re-write, should provide an explanation of the MOA concept, and all references to sight adjustments should be converted to MOA instead of centimeters.
- 5) Although TM's exist on proper care and maintenance of weapons, the Army has serious deficiencies in this area that are detrimental to overall functioning and accuracy of its weapons.