Dear Colleagues

**A shooter finds that he/she can group within the 0.5 MOA X-ring or 1.0 MOA V-bull**

**The Problem:**a**s**hooter may suddenly find that a particular technique has at last enabled him/her to produce a much smaller group than ever before.
After following the advice of a coach, who is unable to confirm everything the shooter considers has been carried out, the ultimate 0.5 MOA X-ring or 1.0 MOA V-bull may suddenly appear as the sought-after group.  The doubtful shooter may then want to immediately confirm that the group can be produced again.
This article describes what a shooter may experience, until finally discovering he/she can really produce the group, i.e. upon allowing time for the concentration of adrenaline to reduce naturally in the bloodstream. When adrenaline is sufficiently reduced the muzzle ceases to vibrate at the moment when a projectile departs.

**Discussion:**before releasing a shot, an observer behind the shooter may observe minute vibrations of the shooter’s hat, face, hand on the pistol grip and even the shoulder. This is transmitted to the muzzle and affects the size of the shooter’s group. It results from the bodily rush of adrenaline prior to each shot. The rush reduces within seconds. Reduction occurs more readily if the shooter’s body position enables the rifle to be held dead still. The moment of trigger bite is an arbitrary time from which to start counting down the reduction. It was found at the 2019 Canberra Queen’s that some shooters required 4 to 5 seconds (seen as holding the breath) before finally releasing a shot. One leading shooter held his breath for 9 to 10 seconds. Each type of shooter (TR and F Class) produced V-bull or 6-ring groups. The 9 second shooter scored a 50.10 (TR).

**Practical:**techniques used by TR and F Class shooters, in their final effort to shoot the ultimate group, include:

* support for the rifle, through body position and placement of the forward elbow, so that it is dead still, making it unnecessary for the wandering foresight or scope sight to be repeatedly returned to the aim (TR)
* consciously allowing muscles of the supporting arm to go limp and rely entirely upon the sling to stabilise the rifle (TR)
* from the moment when pressure on the trigger just starts to bite, the shooter ensures that the aiming mark remains dead still in the foresight ring or scope element (TR, F Class)
* from the moment of trigger bite, while increasing trigger pressure until trigger release, the shooter occupies his/her mind with a thought process to keep it fully engaged upon trigger-release, averting all wandering and focussing upon events which occur after shot-release, e.g. screen position of the shot, looking through the scope and opening the bolt (TR, F Class)
* before starting a serious competition, the shooter releases dry shots to confirm the period required for the concentration of adrenaline to dissipate in the bloodstream, which results in cessation of movement of the muzzle of the rifle (TR, F Class)
* from the moment when the trigger commences to bite, the shooter releases dry-shots, prolonging the time period until trigger release, with seconds counted up to final release; the muzzle moving under the effect of the adrenaline response, then after 4 seconds ceasing to move the foresight or scope sight relative to the target (TR, F Class)
* upon starting to fire live shots, the shooter releases s shot, counting the seconds to reach the experimentally determined time for release to occur (TR, F Class)
* whereas for one shooter the time period counted can be 4 to 5 seconds and for another, it was 9 to 10 seconds (TR, F Class).

**Conclusion:** in a team’s match at 500m, the writer coached an F Class shooter who counted to 4 or 5 seconds to achieve the following group with a score of 89.11. Note that the coach re-centred every shot that was not in the middle of the 6-ring, moving 1/4 MOA for every shot near the 6-ring, with a movement of 1/8 MOA for every shot near the X-ring.

Best regards

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