Dear Colleagues

**Teaching a new shooter to release the trigger without movement of the muzzle**

**The Problem:**the writer and a colleague have for several years taught boys of a Sydney school to shoot the 7.62mm rifle over a 3 month period. Interestingly, about 25 percent of these new shooters found each year they were able to shoot a highest possible score, including 50.6, 50.7, 50.8 and even 50.9 at 300m to 600m. The Hornsby Rifle Range, NSW is well-protected from wind by a mound of earth on either side, with flags located 20m above the trajectory at 300m. Hence, the only effective indicator of wind is mirage. These relatively unskilled shooters simply waited for flags to return to the median position.

After being taught for a month, boys from the school were able to routinely confirm the correctness of their sling tension and ensure their aim was actually the natural point of aim. Most importantly, they ensured that the timing of trigger release would not allow the tremor effect to move the muzzle at the moment of shot release.

New shooters are traditionally shown how to hold the rifle dead still, while aiming and gradually releasing the trigger. The boys were taught:

* the prone position, with emphasis upon the shooter’s physiology to support the rifle dead still
* the trigger-release technique, to ensure that the rifle remains on aim during shot release
* the less well-understood generation of a bodily tremor associated with the release of adrenaline throughout the body
* use of the foresight ring to access automated shooting, i.e. to access the zone.

However their teaching contrasted with the practices of the vast majority of fullbore shooters, who can be seen at state championships with the:

* forward elbow positioned well out from the rifle
* muzzle of the aimed rifle moving relative to the background
* absence prior to each shot of any observation and adjustment of the natural point of aim
* absence of a pre-shoot dry shot to confirm sling tension and the timing for a shot in order to avoid clashing with a bodily tremor.

**Discussion:**  Shooting with support from a sandbag or sling

Most new shooters are regarded by club members as having similar ability to that of children, i.e. lacking an understanding of the techniques that need to be performed correctly. However, when parents bring along younger members of their family, it is often found they are far from children and keen to perform techniques correctly.

An illustration of the interest shown in the initial teaching occurred when a teenage ballet dancer came with her father to the rifle range. She was accompanied by another young dancer. The two dancers were interested to learn how to correctly perform the steps to release a shot. They found through adhering to the techniques, that they could completely avoid any discernible muzzle movement. After a few weeks, these young women, with little real interest in rifle shooting, were scoring 49 or 50 every time they shot. They were also taught when the wind changed, to simply wait until the flags returned to the same position. Experienced members were surprised when the young women regularly scored higher than other shooters each weekend!

Hence, a club coach may start by choosing to teach a new shooter how to:

* position the body so as to be absolutely still at the moment when a dry shot is released (TR)
* release the trigger as a dry shot without a trace of muzzle movement, successfully avoiding a clearly visible tremor (TR, F Class)

As boys from the grammar school learned how to position the body, to be absolutely still, it became clear that several were doing this correctly from the outset. Others had to be shown until all became expert in the technique. The coaches simply reminded the boys of their lessons in physics, which immediately indicated that the weight supported by the forward arm should be directed downward to the centre of the Earth. From this it was understood that the elbow had to be positioned exactly under the rifle.

Since most shooters positioned the elbow a little distance sideways, the boys immediately recognized that this required arm muscles to pull the forearm toward the rifle. As well, the boys had all learned at school that dependence upon muscle tissue was unreliable, because it would fail after a short time. Dependence upon muscle tissue would lead a rifle on aim to wander off if not correctly supported by a sling. They reasoned that a shooter’s position may need to be corrected before releasing the trigger. This contributed to an unstable aim.

A lesson from smallbore – avoiding a bodily tremor during trigger release

The boys had all been taught biology at school and were familiar with the adrenaline response of the nervous system. That is, they were well aware that a shot about to be discharged could generate a small body-wide rush of adrenaline. They saw this when the trigger was released upon aiming dead still with a dummy round. A movement of the foresight or scope element relative to the aiming mark was clearly seen. The boys were then shown that the trigger could also be released with no sign of movement due to a tremor, if the second stage of the trigger took 6 seconds or longer.

However, when a different shooter set up the rifle dead still, a shot might be released without a tremor after only 5 or even 3 seconds. The boys found for themselves that if a shot were released without a tremor, then the group would be only 1 MOA. However if a tremor occurred, the group could be at least 2 MOA wide. As well, it could appear as sub-groups, a straight line or a halo of shots.

**Practical:** the boys were also smallbore shooters and knew that if all shots grouped within the 10-ring, this was in fact a 1 MOA group. To group within the 10.1 or X-ring, absolutely no movement of the rifle was required. They saw smallbore as miniature rifle shooting, where they could practice open range shooting indoors without wind effects.

At 300 to 600m, the boys applied the techniques that supported the rifle really dead still. Most importantly, they learned that a shot-release that occurred 6 seconds or more after commencing the imagined second-stage of the trigger, would not result in a tremor. However, while some boys found they were able to release a shot after 6 seconds, others could release a shot without a tremor after only 3 or 4 seconds. If a shot went close to the bullseye-inner ring (due to the effect of a tremor), then releasing a little longer, say after 6 seconds, could hit the centre of the bullseye.

**Conclusion:**   new shooters from a school may within 3 months be taught to shoot highest possible scores at 300m. To achieve this, they must first be taught:

* the technique for holding the rifle dead still (TR)
* trigger-release technique while the rifle remains dead still (TR, F Class)
* avoidance of the adrenaline tremor, through release after 3 to 6 seconds upon starting the imagined second stage of the trigger (TR, F Class).

Adherence to all of these techniques was found to enable some new shooters to access the zone if they stared at the foresight ring or scope element while keeping the mind free of unnecessary thoughts. If the mind were concerned solely with imagining the extent of travel of the trigger, then this would also provide follow-through and reduce some of the unexplained wide shots.

Best regards

Geoff