Dear Colleague

**Follow-through - keeping the mind focused right to the end of the trigger release**

**Problem:**  a shooter who has been taught and worked hard to thoroughly master the techniques, will welcome high scores that place him/her on the leaders’ board at a Queen’s Prize meeting.

However, while shooters are often at the top of their form, most experience down periods. This occurs at some time for everyone. For many shooters, a down period often seems to occur when least wanted. That is, it can occur when trying to achieve a score in an inter-club teams’ match. As well, it can last for weeks if not months at a time. Not surprisingly, many shooters develop an attitude of mind, where they feel they are mediocre and never destined to reach the top of their game. Unless assisted by a coach, a shooter may give the game away.

One reason for writing these articles is to alert shooters to options which can result in a new lease of life in this sport. It was shown in an earlier article that shooters are generally not sufficiently aware of for example, their physiology. The result of this can be an inability to support the rifle really dead still. This may occur through not positioning it correctly. All shooters know that the weight of the rifle is expressed downward to the centre of the earth. By positioning the elbow directly underneath, a sling can enable it to be supported by the skeletal structure without movement. If the elbow has been positioned on one side of the rifle, this will require its weight to be pulled sideways back toward the rifle, i.e. a small and persistent muscle tension is applied. Muscle tissues are however renowned for their inability to sustain tension, which causes an aimed rifle to repeatedly wander from the target.

This article results from the limited ability of many shooters to consider their neurological functions. One of these governs the time limit for maintaining concentration while keeping the rifle on aim and dead still.

**Discussion:**  a shooter needs to control the following neurological functions concerned with aiming and release of a projectile:

* size of the foresight ring relative to the size of the aiming mark
* annulus width of the foresight ring
* minimization of arm muscle tension so that the weight of the rifle, arm and shoulders are supported entirely by skeletal structure rather than muscles
* focusing of the eye upon the foresight rather than the aiming mark
* timing of a neurologically-generated tremor, associated with the release of adrenaline preceding the noise and recoil of a discharged shot
* maintenance of attention by the mind upon an unchanging sight picture for the complete period, from start of the second stage of trigger release to the final moment of discharge.

The tremor effect, recognized since the 19th century, is managed by the final two dot-points above. The shooter needs to first ascertain the timing of the tremor released by the shooter’s nervous system, so that release of the trigger does not coincide with a tremor generated within the body. To achieve this, smallbore and fullbore shooters have traditionally released the trigger over a time period, calculated to avoid a clash with a tremor. This has enabled numerous smallbore shooters to completely avoid wide shots associated with tremor-induced movement of the muzzle at the moment when a projectile departs. More than a century later, a high proportion of fullbore shooters still ignore the generation of a tremor, because for many it still leads to a shot within the bullseye, even though near the bullseye-inner line.

A century ago it was found experimentally, that upon discharging a dry shot there was a time limit beyond which no tremor would be experienced. That is, the shooter’s second stage of trigger release should result in a shot being discharged after this time. This was very convenient for shooters using a military rifle with a two-stage trigger. Those using a rifle with a single-stage trigger, simply regarded the imagined second stage as commencing when the trigger started to bite.

The neurological requirement discussed in this article concerns focusing the mind for the full period of second-stage trigger release. That is, while releasing the trigger with the foresight dead still, the mind must concentrate upon keeping the foresight on aim until discharge occurs. Since the period can be as much as 6 seconds, the minds of many shooters must be expected to drift off onto thoughts of a following task, e.g. dropping the butt from the shoulder, moving the head to look at the electronic screen, reloading or looking through the telescope.

Hence it is understandable that the rifle must be supported really dead still. Most importantly it must be prevented from wandering off. Every shooter knows this as follow-through, which has been demonstrated to benefit thousands of shooters.

**Practical:** since 1900 numerous coaches have taught that while aiming, the mind should be focussed upon a relevant task which lasts for 6 seconds. Many shooters found that they are able to keep their mind on the job if it is committed to following the progress of trigger release, right up to the point of discharge, so that it occurs as a surprise.

On the other hand, if the mind ceases to continue monitoring the aim, the muzzle may move, although less than if affected by a tremor. This small movement leads to shots widening the 0.5 (F Class) or 1.0 MOA (TR) group. That is, F Class shooters find that an X-ring group begins to widen, firstly with shots outside the 0.5 MOA X-ring across the 6-ring, then across the bullseye (F Class). TR shooters find that a 1.0 MOA group widens across the V-bull, bullseye and inner rings.

However, the writer and many other shooters found by experiment, that if the rifle were supported really dead still, the time for release of a tremor may be as short as 3 seconds. Yet, it was never as short as this if body position was changing as a result of not being dead still. If the shooter is unaware that his/her time limit has increased to 6 seconds or more, then shooting on this day could lead to a wider group, i.e. because the shooter does not realise this.

Other shooters have been attracted to the idea that a lighter trigger weight might reduce the need for the mind to monitor during the full period until discharge occurs. Recently, some F Class Open shooters experimented with keeping the mind blank, while discharging the lightest allowable trigger weight. Turning off the mind for a very short period is still experimental. Some very impressive groups result from a quick release of shots, but this has not always been the case. Instead, a group may appear divided into sub-groups at 6 o’clock, across the middle of the X-ring, across the 6-ring at 12 o’clock and in the bullseye ring at 12 o’clock.

**Conclusion:**  the steps are:

* set up body position with elbow directly under rifle, then confirm it can be held without trace of movement for 5 sec [never force elbow underneath]
* with someone behind to watch for tremor in face, hand on pistol grip or even the hat, load with dry round and when click occurs; observer and shooter have counted time movement of foresight or scope element [keeps shooter’s mind on this for follow-through]
* repeat this until no movement occurs, silently counting time from start of second stage until click [shooter audibly starts count to observer]
* repeat to confirm time
* load with live round, counting time from start of second stage until bang; observer confirms time is same or more [hope to score a V-bull]
* centralise group using ¼ MOA from edge of V-bull or 6-ring [keep using ¼ MOA]
* continue shoot until 8 or more shots occur as V-bulls or Xs; then finally 10 shots

Note: the writer had to do this silently, i.e. no observer, nor audible counting; others were OK

The few fullbore shooters in Australia, who regularly shoot 50.10 possibles in club shooting and at Queen’s Prize meetings, have encouraged shooters to use these techniques. But few shooters actually do this. It is like: taking a horse to water, but cannot get him/her to drink!Best regards

Geoff