Eye dominance explained

Our expert CPSA Coach looks at solving all your eyesight and eye dominance issues

We've all been there – we focus down the barrel, pull the trigger… and feel our hearts sink as we watch the clay we thought we were about to smash sail away untouched. But is it an optical illusion caused by your eyesight that is to blame? Expert CPSA Coach Captain Richard Vallance from Arborfield Garrison Clay Target Club assesses the issues.

The problem

Unlike rifle shooting, where there is both a foresight and a rear sight to align the gun with the target, the shotgun effectively utilises the shooter's eye as a rear sight. If this eye is in the wrong position in relation to the gun, it will adversely effect the fall of the shot. For example, the shot will go over the top of the target if the head is too high on the stock. Using the same rationale, the eye that is over the rib - the 'master eye' - must be dominant in order for the shot to go in the direction the shooter is pointing. If the 'off eye', or eye which is not over the rib, is dominant then it will effectively incorrectly identify the target through the end of the gun from the 'off side'. This is best explained using the diagram shown in Figure 1 (see below).

Figure 1 shows a plan view on the left demonstrating that, with a dominant left eye, the right-handed shooter perceives that they are pointing the gun at the target when in fact the gun is pointing to the left. Please note that no lead has been applied to the target in order to simplify the diagram. In this scenario, a right-handed shooter will miss in front of a right-to-left crossing target.

Figure 2 (see below), however, shows that a right-handed shooter with a dominant right eye is looking down the barrel at the target and the shot pattern is over the target.

Figure 1 – Left eye is dominant on a right-hand shooter

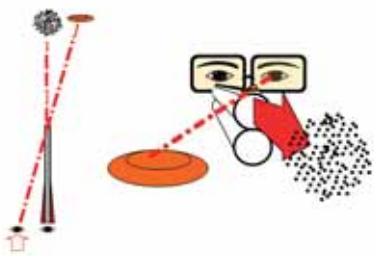
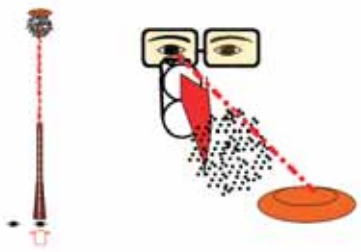


Figure 2 – Right eye is dominant on a right-hand shooter



Double images

If a shooter is not completely dominant in their master eye, remaining fully focused on the target throughout the shot is very difficult. This is because a ghost image of the gun will appear to the off eye. The more dominant the off eye becomes, the more prominent the ghost image will be. For example, someone who has central vision will see a double image of the shotgun when focusing fully on the target. It is extremely difficult for a shooter to point the gun at the target if there are two images of the gun to choose from. Clearly in a sport where applying the correct forward allowance to a target is key, this 'double image' is unacceptable. The inevitable outcome of this situation is that the shooter looks back at the bead in order to remove the ghost image, which results in stopping the gun and missing behind. The images in Figure 3 (next page) demonstrate the images that a shooter, with varying degrees of eye dominance, will see when focusing on a right-to-left crossing target:

Identifying the problem

There are various methods for identifying eye dominance in an individual, but the simple finger pointing method (if done correctly) can indicate the extent of the dominance issue fairly accurately. This method is carried out by the shooter standing about two metres away from the coach and then pointing swiftly to the coach's master eye. This should be repeated several times to ascertain an average reading. The coach will then determine the shooter's finger position in relation to their eye in order to accurately gauge the effect of the off eye when aiming the gun. The images in Figure 4 (see below) show what the coach is looking for and how this information can be used.

Solving the problem

The first step in dealing with this issue is to fully understand the mechanics of what is going on and the difficulties it can cause the shooter. Most coaches are aware of the issues associated with eye dominance and instructors are taught basic detection and rectification techniques during the CPSA Level 1 course. These techniques may include adding micropore tape or lip salve to the off eye lens of the shooter's glasses to ensure that the master eye remains dominant over the rib. These methods offer an effective, quick and easy solution, but are limited to a short-term fix and are only suited to a shooter who is having an initial lesson.

Other methods designed to alleviate off eye dominance/interference include shutting the off eye, squinting the off eye just before the shot is taken and even placing the thumb on the barrel to obscure the bead from the off eye. Many shooters enjoy some success with these methods. There are also many products on the market which can be attached to the barrels of the gun to ensure that only the master eye can see the bead. Personally, I have always struggled to find a product that completely satisfies an individual's specific needs in all cases.

There are also coaches who do not believe there is such a thing as eye dominance. A client recently told me that he had had a lesson where the coach told him eye dominance didn't exist and he was to just focus on the clay even harder. Another alarming comment I heard quite recently was a coach telling his client that: "you must have both your eyes open or you will miss the target". During my research, I have discovered that many coaches are completely dominant in their master eye, which has almost certainly contributed to their success in the sport.

As a result, I believe that some coaches may not fully understand the effect of the problem from their client's perspective and consequently do not offer an effective method of correction. Figure 3 shows the extent of the problem.

I mentioned above that some shooters close the off eye or use other methods to obscure the off eye. The problem with this method is that any peripheral vision is significantly `reduced and any depth perception available is eliminated. The solution to this problem is to use a product that will provide just enough control to the off eye so that the master eye over the rib remains dominant. It is also important to only restrict the off eye's vision at the end of the gun, so that the eye can still see targets appearing from the off side while maintaining as much peripheral vision and depth perception as possible.

In my opinion, occlusion filters are the best product currently available to address eye dominance issues. The use of patches to deal with eye problems is nothing new and occlusion therapy has long been used to treat Amblyopia when diagnosed in children. This involves patching the good eye, encouraging the brain to use the lazy eye (or amblyopic eye) and thereby strengthening it. Eye dominance correction in shooting is subtly different, of course, but the overall concept of encouraging a single eye to work harder is the same. These filters, when used correctly, create a situation where the master eye (over the rib) remains dominant and only a single image of the gun barrel is visible to the shooter when focusing fully on the target. It also prevents the off eye trying to influence the shot as shown in Figure 1.

I have manufactured a pack that will assist Instructors/Coaches to eradicate any eye dominance problems that they may come across.

Full details can be found at www.gunsnstuff.co.uk

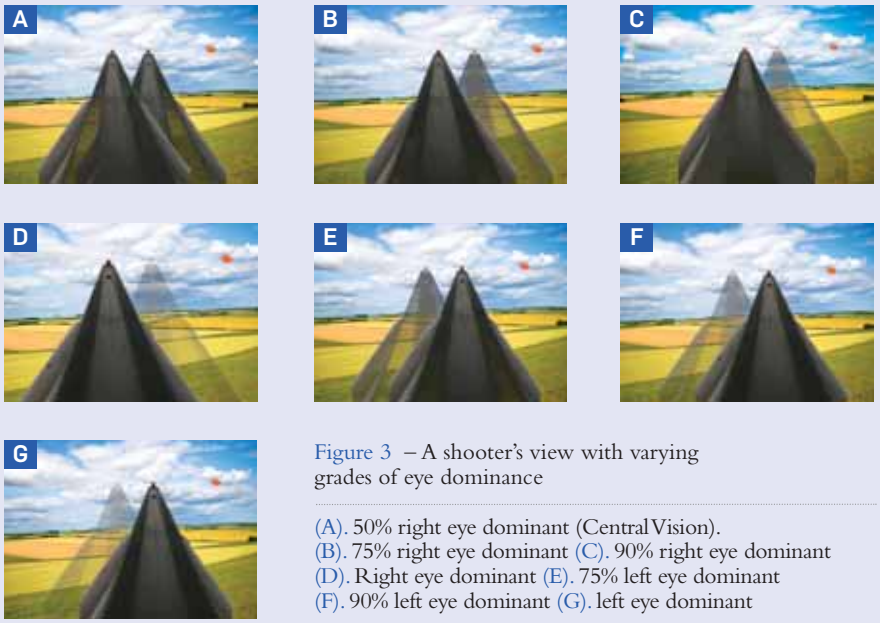
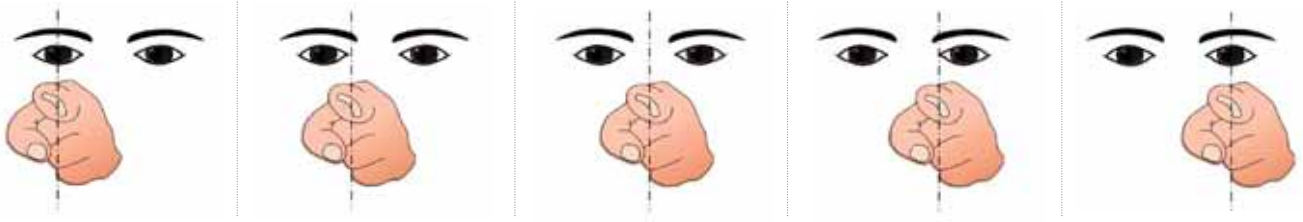


Figure 3 – A shooter's view with varying grades of eye dominance

(A). 50% right eye dominant (Central Vision).
(B). 75% right eye dominant (C). 90% right eye dominant
(D). Right eye dominant (E). 75% left eye dominant
(F). 90% left eye dominant (G). left eye dominant

Figure 4 – Eye dominance check using the finger pointing method



100% right eye dominant | 75% right eye dominant | 50% right eye dominant (central vision) | 25% right eye dominant | Left eye dominant