

THE IDEAL COMBINATION –
RIGHT HANDED, RIGHT EYE
DOMINANT.

RICHARD RAWLINGSON LOOKS AT EYE DOMINANCE AND WHY IT MAY NOT BE RELIABLE

SIGHT FOR SORE EYES

THERE IS CONSIDERABLE EVIDENCE THAT EXTERNAL FACTORS CAN SWITCH EYE DOMINANCE IN THE SHORT TERM. IN SHOOTING TERMS THE SHORT TERM COULD BE A SINGLE SHOT. IF THAT SHOT RESULTS IN A LOST TARGET IT IS A SIGNIFICANT ISSUE.

Although largely a mystery to the population at large, most shooters with any experience will be aware of eye dominance. Anyone who has had formal coaching will almost certainly have had their eye dominance checked as a matter of routine and most shooters can tell you whether they are right or left eye dominant.

It is, of course, a crucial piece of information. We have binocular vision, the brain receiving two images which it combines to form a single mental picture. Rather like a stereoscopic camera, it is this combination of images that gives us such precise depth perception and the ability to see in three dimensions. However, when we point at a single object – which of course we do all the time when shooting – the brain uses the image

from one eye only to guide the hand. This is called the 'master' eye.

For the majority of the population eye and hand dominance are the same. Right handed people therefore are predominantly right eye dominant and vice versa. In shooting, this is the ideal situation because the dominant eye is the one positioned directly over the rib. Problems arise when eye and hand dominance differ. A right handed shooter with a dominant left eye will shoot consistently to the left of the intended target unless measures are taken to block or degrade the view of the left eye in some way, or the shooter learns to shoot from the opposite shoulder (far from easy for many strongly right handed people).

Research indicates that the incidence of cross dominance

among active sportsmen and women is much higher than in the population as a whole. In many sports, particularly those that are 'side-on' such as golf or baseball, this is an advantage; the dominant eye is also the leading eye nearest the 'target' whether it is the ball or a distant flag. One British study found 46% of clay shooters tested to be cross dominant.

For most people a satisfactory solution can be found to cross dominance, from the simple expedient of closing or dimming the master eye as the gun comes into the shoulder (the method that has served me well through all my career) to the use of glasses with patches or a degraded lens over the offending eye. One specialist company has reported interesting results with the use of different

CREATIVE VISION

To understand how this might happen, it is useful to have some more information on how the eyes function and how the brain interprets what they see. It is also worth noting that scientists are still by no means certain exactly how vision works. Even something as routine as the use of glasses or contact lenses to correct defective vision is still the subject of ongoing debate amongst the medical profession.

Vision is a function of the cerebral cortex and it is closely allied to imagination and memory. Thus it is a creative process; the brain does not process 'facts', it takes images from the eyes and interprets them in a way that is based heavily on past experience. It has, in short, a tendency to jump to conclusions and not always the right ones. Optical illusions – such as the famous Escher drawings – are the result of the brain misinterpreting data. A course designer relies on the brain's ability to confuse itself with tricks, such as using a midi instead of a standard clay to make the target seem further away.

If we accept, then, that what we see is not necessarily 'real', but instead the product of some complex creative process, then it is easy to also accept the premise that the mental computer can occasionally go haywire. In shooting terms this is the one time during a competition when the brain decides to act on the information coming from the left eye – rather than the right as it did for the other 99 shots. If we accept it might happen, can we find out why and, even more importantly, can we do something about it? The good news is that we can answer at least a partial yes on both counts.

Many shooters, for example, struggle with crossing or quartering targets from one side. The man who hits every 40 yard

crosser from right to left finds he struggles on one flying in the opposite direction. Why should that be? He knows that the amount of lead needed is identical so it should be straightforward. One reason may be gun fit: a gun that is too low in the comb may result in the partial obstruction of one eye. A right handed shooter for example could find his right eye partially blocked by his own hand or the receiver when looking to the left. This could be sufficient to cause the brain to prefer the information coming from the left eye. One recent study showed that performance deteriorates dramatically with even small degrees of occlusion of the master eye in right handed/right eye dominant shooters. This backs up of course the practice of treating cross dominance by partially blocking the master eye with a small dot or smear of Vaseline on the lens of the shooter's glasses. If you have a consistent problem with targets from one direction consult a coach and have your gun fit checked.

Secondly, there is a scientific reason why eye dominance might change for a target off to one side. A University of California study has showed that eye dominance can shift when the observer looks to the left or right. Moving eye position to the left can make the left eye more dominant. The same result can come from a slight change in image magnification. The brain gives more importance to the larger image, even if it is coming from the normally non-dominant eye.

A dominance shift from a change in eye position would be very difficult to detect. Intuitively the effect would seem greater for example with a pre-mounted gun, where the shooter would look to the side of the gun hold point by movement of the eyes alone. From a low gun hold the whole head can move much more easily, greatly

reducing the risk; it could be worth experimenting with a lower gun position and a conscious head turn to pick up targets from your problem direction.

STRAIN

So far we have looked at external factors that might cause eye dominance to change. The numbers of shooters affected by them are likely to be relatively small. The next area though could potentially be of concern to all two-eyed shooters. We are talking about strain, both physical and emotional.

Taking the physical first, everyone knows about eye strain. That tired feeling from staring at a computer screen for too long or reading in poor light is all too familiar. Eye movement is controlled by three pairs of muscles, made up of a unique mixture of fibers; striped fibers that are associated with continuous control and smooth fibers that relate to automatic and unconscious movement. Normally, muscle groups are one or the other, the eye alone combines both together. These muscles have at least four functions, principally:

- Controlling the visual axes
- Tracking
- Searching
- Scanning

All are vitally important to shooting; when the target is released we go from scanning a broad area of sky to searching a smaller area for the clay. The visual axes converge as we lock onto the target and track its flight. Indeed it has been shown that the eye leads a moving object by anticipating its flight in exactly the same way that we apply a forward allowance with our shot.

Tired eyes do none of these things as well as they should. If one eye in particular is not functioning as well as it should, the brain

lens colors designed to increase the contrast of the image to the aiming eye and subdue the view of the other. It is not my intention though to provide an in depth review of the subject here; anyone with master eye problems is encouraged to seek out an experienced coach who will help work out the optimum solution.

Instead I want to concentrate on an aspect of the subject that has received considerably less exposure and that is the problems caused by a temporary shift in eye dominance. Temporary is the key word for there is no scientific evidence that eye dominance can be retrained. If you are born right eye dominant you will stay that way all your life. There is however considerable evidence that external factors can switch eye dominance in the short term. In shooting terms the short term could be a single shot. If that shot results in a lost target it is a significant issue.

PALMING

Palming is one of the core techniques of the Bates method for overcoming eye strain. It is a way of resting the eyes by closing them and then covering them with the palms of the hands so that all light is excluded. The most comfortable position is seated at a table with your elbows supported. Choose a quiet time and place and try to relax tension in the muscles of your face, neck and shoulders. About five minutes, repeated three or four times in succession is the recommended duration, all the while just allowing your mind to wander.

It can also be done for shorter periods at any odd moment and can help stave off eye strain and keep the mind relaxed. It is much more effective than sleep because when dreaming our eyes make repeated rapid and random movements, meaning the muscles are just as active as when we are awake. As someone who spends long hours in front of a computer screen, I can testify to the effectiveness of this technique and best of all it is free!

suppresses its signals in favor of the other.

You may bring your tired eyes to the shooting ground with you. Overwork, a long and stressful journey or a late night partying will all degrade their performance. Tiredness and strain can also build up as the competition progresses. Most coaches stress the importance of 'hard focus' on the target but that should not mean a conscious attempt to stare hard at it. In fact the harder you try to stare at something, the worse it gets and the more strain you put on the eye muscles. Aldous Huxley wrote an important book called *The Art of Seeing* and made a distinction between 'spontaneous' and 'voluntary' attention "Voluntary attention," he said, "is always



THE TARGET'S VIEW OF THE LEFT EYE TAKING OVER.

LEFT EYE DOMINANT.



FOR MANY, DIMMING THE LEFT EYE IS THE ANSWER TO LEFT EYE DOMINANCE.

LEFT EYE DIMMED.



SHOOTING GUN UP AND MOVING JUST THE EYES TO PICK UP THE TARGET CAN CAUSE THE BRAIN TO GIVE PRIORITY TO THE EYE NEAREST THE TARGET.

LOOKING OFF LEFT.

associated with effort and tends more or less rapidly to produce fatigue." Learning to see is something that can be practiced away from the shooting ground but in competition it should be a relaxed and unconscious process.

You can avoid eye strain too by

consciously relaxing between stations and while waiting your turn to shoot. Watching every member of the squad shoot every target is a sure way to wear out those eye muscles. This is something I quickly learned in the days when I shot a lot of trap. Watching

everyone else's birds was the same as shooting 500 targets not 100. Looking down at the ground or aimlessly off to the side gives the muscles a chance to switch off.

More controversial is the concept of poor visual performance through emotional strain. It is a



central part of the teachings of a New York ophthalmologist, W.H. Bates, who published his book *Perfect Sight Without Glasses* in 1919. He argued that because vision was a function of the cerebral cortex, emotional disturbances that affected that part of the brain would also have an influence on the visual process. Your eyes could be working at less than optimum efficiency when you have work or relationship problems or other external stress.

Bates remains a controversial figure in among eyecare professionals (not least because he argued that their reliance on corrective measures such as glasses was often unnecessary and served to make the patients' problems worse – thus striking at the heart of their commercial income). This is a shame in many ways because there is much in his work that is of potential benefit to anyone who relies on visual performance (i.e. every shooter). Leaving aside the more contentious claims, we could all benefit from his training and relaxation routines. There are several books available on the Bates Method that are worth reading.

What I hope is clear from all this is that eye dominance and eye fitness are interlinked and can have a direct impact on shooting performance. No matter how sure you are of your dominance, there may be times when your brain sees things differently. If nothing else it could give you a new excuse for that inexplicable miss! ■

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