EYE DOMINANCE

Isn't All It Seems

It's not always as simple as right-eye or left-eye dominance — especially for female shooters.

BY PETER BLAKELY

Your eyes and your shotgun must work as a team. The correct visual stimulus is the only contact we have with a moving target, and although we use both of our eyes to see, our success with a shotgun depends on what we *do* with what we see. Our eyesight is the most complex of the sensory systems, and we need to utilize this to its maximum potential if we are to achieve mechanical excellence. The ocular stimuli the brain receives must be converted into a physical response to move the intermediary (our shotgun) accurately into the space in front of the target if we are to intercept it. Because of this, competitive shotgunning is clearly defined by eye dominance — and in this respect, several things can present a problem for the competitive shooter.

We are all designed with two eyes but only one receiver — the brain. The brain processes billions of neural impulses from each eye,

PHOTOS BY THADDIUS BEDFORD

which are converted into hand and body movement. Simply put, this is what laymen call hand-eye coordination. If the input from either eye to the brain is less than perfect, we will have problems and miss targets. Of course, this isn't always problematic in bird hunting situations, because most shotgunners would be blissfully happy with poking and hoping for years, with a 50 percent average on live quarry. But if they are only connecting with half their targets on a skeet field or sporting clays course, this sort of performance would be unacceptable to most.

Gun fit can be influenced by inconclusive dominance. If we mounted a shotgun central to our line of sight in the middle of our chest instead of on one shoulder or the other, perhaps we would have less trouble? Maybe. But we go to great lengths to ensure that our gun fit is a good one, precisely and accurately aligning our barrel with the correct eye. But is it always conclusively our master eye? Sometimes it's easier said than done, and the master eye concept is still misunderstood by many. Perhaps with many lady shooters, there is good reason.

Usually, the master eye diagnoses are fairly straightforward. Keep both eyes open, point at a distant object, close first one eye and then the other and the point that stays in line with the object reveals the dominant eye. Or make a triangle with your outstretched hands while looking at an object, quickly bring your hands back to your face, and the eye framed by your hands is the dominant eye. This means that if the right-shouldered shooter tests right-eye dominant, he can confidently shoot with both eyes open — doesn't it? Unfortunately not. The problem arises when we try to determine the degree of dominance.

▲ Inconclusive eye dominance can even influence gun fit.

▼ More women tend to test left-eye dominant than men do, and the standard dominance tests aren't always conclusive.

As we become neurologically mature, somewhere between 10 and 15 years of age, some optic nerve connections go to the right side of the brain and some go to the left side. If the majority of these nerve "hook-ups" go to the right, 80 percent for example, we are strongly right-eye dominant. The opposite obviously occurs if the lion's share of these connections goes to the left eye. But if the hook-ups are more or less evenly distributed, 55 to 45 percent for example, obviously the dominance is less pronounced. The student might still test right-eye dominant, but certain target presentations might give him problems as the less dominant eye "takes" the target from the master eye. A shot down the side of the target is the result.

Because neurological dominance might not be complete in some immature students, it is possible for a fledgling shooter at 10 years old to test right-eyed, and then test left-eyed two years later. Complicated, isn't it? Especially when we take into account that although the above might work for most of the male shooters out there, it certainly doesn't work for the majority of ladies!

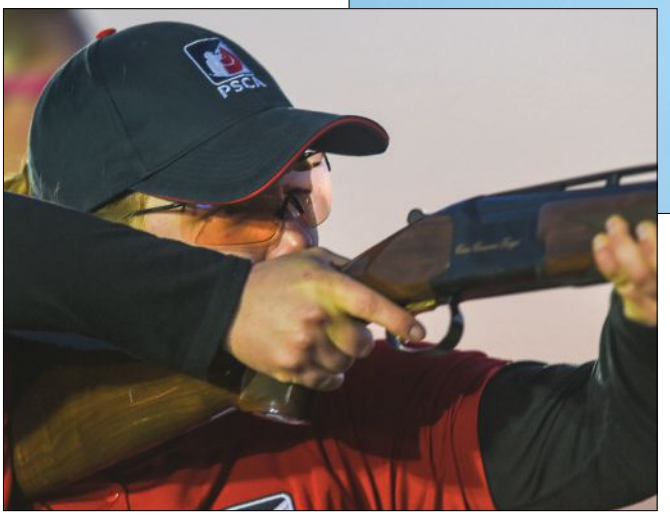
Over the years I have been a shooting coach, I have tested many shooters of both genders for eye dominance,

and a couple of decades ago I began to notice a trend. It wasn't readily apparent to me at first, because the majority of my clients 20 years ago were male. I noticed that a larger proportion of lady shooters tested left-eye dominant than their male counterparts, and even more baffling, the familiar eye dominance tests that I had always used over the years were now often inadequate and inconclusive. Many ladies would be hesitant during the test, and sometimes they deliberately tried to influence the outcome. By using the aperture method, as some of these ladies brought their hands back towards their face, their hands would stray first to one direction then the other, unlike a more positive reaction in a male shooter where the test would always pull the aperture quickly to the master eye. So I began to experiment.

I tried a different dominance test with a pocket camera. I would leave the camera on top of a gun rack or table and ask the female student to take a picture of a distant object with it. Usually at this stage, the student did not suspect that I was doing an eye dominance test, and with no conscious thought, the camera would go unerringly to her master eye. Sure enough, in most cases, with the ladies it would be the left eye. But if I did the test again, by the familiar finger point or aperture method, the test could indicate either eye — proving, as I suspected, that more ladies had central vision. In other words, they had no conclusive eye dominance as their male counterparts did. As far as I knew at that time, there were no records in existence to prove this, but there was no doubt — the ratio of ladies that tested left-eye dominant was far higher by as much as a 5:1 ratio. Was this just a coincidence? At that time, I had no idea.

▼A left-handed shooter who is left-eye dominant is home free. This is common in men; women are more likely to be cross-dominant.

▼Some cross-dominant shooters choose to shoot with their "off" shoulder.



▲ Despite conventional wisdom, some shooters of both genders who have central dominance can shoot better by closing one eye.

Quite by chance, at a pheasant shoot in the Scottish Borders, I mentioned my concerns to some other shooters, and one of them gave me some information about someone who is an expert on the subject. His name is Peter O. Behan, Professor Emiterus of Clinical Neurology at Glasgow University. Some time ago, Professor Behan wrote an article on the subject for Country Club magazine in the UK. His findings and that of another prominent neurologist, the late Professor Geschwind of Harvard, confirmed that gender differences had some influence between left-handedness and certain other biological characteristics. The article is called "Why the Lady Guns Will Never be Quite Like the Men," and the complete article is available on the internet.

Medical science has proved that at about five to six weeks after conception, the brain will take on either a male or female form, and testosterone, the male steroid hormone, plays a big part here. The interaction

of this hormone with the brain influences the final outcome of gender. Low incidences of testosterone will result in the brain developing as a female brain; high testosterone levels will influence anatomical changes that will favor a male brain. Simply put, testosterone level will determine the final way that the brain is constructed. During adolescence, massive surges of testosterone can take place, and (this is pure speculation on my part) I believe that this might be one of the reasons that testing dominance in neurologically immature students can be misleading. As I mentioned before, it is possible to test a 10-year-old for dominance and he favors the left eye, then test the same student two years later and he is convincingly right. Or perhaps even worse, the gun fitter's/shooting coach's nightmare, somewhere in between — central or cyclopic vision.

The human brain is divided into left and right cerebral hemispheres. Strangely, this cerebral dominance differs between the sexes, and it is the difference between the way men and women acquire particular skills in each hemisphere that can cause problems. Most right-handed men have a dominance of speech and motor function in the left hemisphere, and the right hemisphere controls visual and spatial abilities, abstract forms, shapes and patterns. In men, the left side of the brain deals almost exclusively with verbal functions and the right side with visual functions — but women use both hemispheres for all functions. Men who suffer damage in the right hemisphere lose more of their speech ability than women with identical damage to the same area, which indicates that (according to Professor Behan) spatial and language skills are more evenly distributed through the female brain, but in males the same skills are more localized.

With shotgunning, every two-eyed shooter sees a "ghost image" of two barrels in their peripheral vision as they trigger a shot. With pronounced dominance in their master eye, their brain can select the stronger visual impression of the barrel and ignore the less clear image, and this is why some shooters of both genders can sometimes shoot better by closing an eye. Only the person who pulls the trigger can identify this — in other words, in competitive shotgunning, his/her consistency can sometimes improve by closing the off eye. With female shooters, I believe that because language and spatial skills are distributed more evenly through the brain (compared to male shooters), this can contribute even more to an already complicated problem of diagnosing conclusive dominance. I also believe that it might explain why a right-handed, right-master-eyed, right-shouldered lady shooter can still benefit by closing her left eye, instead of shooting with both eyes open as a strongly dominant male shooter can do.

Over the last 20 years or so, my findings (and those of Professor Behan) have been repeatedly confirmed; most lady shooters see a more defined bird/barrel relationship with one eye and shoot better by either closing the off eye completely, as champion trap shooter Nora Ross does, or wearing an occluder, as multi-Olympic medalist Kim Rhode does. I believe there are many other ladies that do this, but sometimes at top level, shooters are very secretive about this — and why not? One or two extra targets at Olympic level can mean the difference between a podium finish and the relegation of an also-ran. *CTN*

▼ Language and spatial skills are more evenly distributed between the left and right sides of the brain in females than in males. This might explain why eye dominance is not always clear-cut for women.