TO THE Untrained Eye

It's all about vision and visual perception.

BY JOHN D. SHIMA

"To the untrained eye" is a common expression that relates to someone who has not been taught, through formal education or training, the skills they need to perform a particular activity. For example, to the untrained eye, the high 2 and low 6 targets on a skeet field appear to be too fast to break before the center stake for most new shooters.

One of the primary challenges I face as a shooting instructor is helping shooters overcome the habit of riding the high 2 and low 6 targets beyond the center stake. These shooters believe they have to wait to see the target clearly to break it. Certainly I agree they must see the target clearly. I also know they will be able to acquire the target much sooner, and see it clearly, with a properly trained shooting eye.

TARGET ACQUISITION

I am convinced that the vast majority of missed clay targets are the consequence of improper target acquisition. I have described target acquisition as the point along the flight path where the shooting eye centers visual focus on the target. Ideally, this transition from peripheral (soft) visual focus to central (hard) visual focus occurs at or just beyond the eye hold.

Target acquisition is a critical element of the shot sequence because it initiates the tracking process. The tracking process transmits data to the visual cortex of the brain. The visual cortex is the high-speed visual data processing center responsible for activating the correct pre-planned move to break the target. Therefore, proper target acquisition is central to the proper function of the Shooting Reflex (adaptive unconscious).

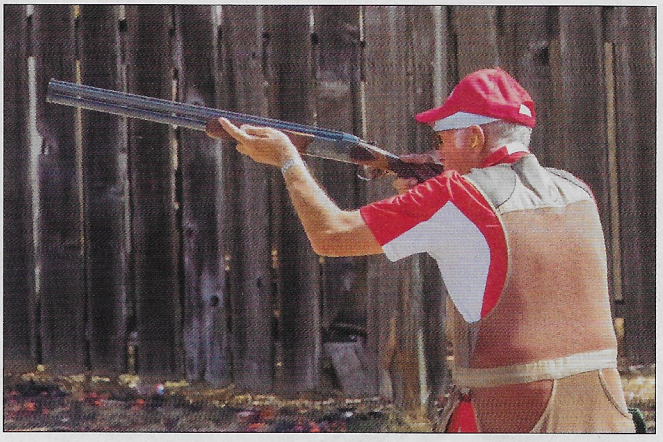
The concept of "moving on the flash" originated when skeet was shot with the low-gun approach. Since the gun was held low and gradually moved up to the flight path at the break zone, the shooting eye could acquire and track the target without distraction. When a shooter with an untrained shooting eye starts with a pre-mounted gun and moves on the flash, the target and the end of the barrel are competing for the shooter's visual attention. Whenever two moving objects appear within the visual field, the primary focus will be attracted to the object that is largest and closest to the eye — which is the end of the gun barrel. This phenomenon is the basis for most visual deceptions.

VISION

Eyesight is responsible for collecting and transmitting

visual data from the environment. The visual cortex in the brain is responsible for accepting visual data from the eyes and processing it to create the perception of visual images. Since visual perception is a neurological phenomenon, the images created can be real or imagined. This is the basis for virtual reality.

Vision occurs naturally in sighted mammals. The peripheral visual field detects the movement of an object and the mammal will naturally focus on it until it identifies whether it is a threat or something worthy of attention. Infants naturally track movement and toddlers naturally point at objects of interest to them. Nonetheless, the eyes merely transmit visual data to the visual cortex in the brain for processing and interpretation.



▼ Vision is a fixed capability — it is what it is. But visual perception can be trained.

▲ What you see and what your brain tells yourself you see are not always the same.

Some people have better eyesight than others, and eyesight tends to diminish with aging. It is generally accepted that eyesight, with the help of corrective eyeglasses, is a relatively fixed capability. Because visual perception is dependent upon eyesight for visual data, one would logically assume that visual perception is a fixed ability as well. However, research disputes this belief.

VISUAL PERCEPTION

Certainly vision is necessary for visual perception. However, I am a firm believer that visual perception is more important than actual vision, because shooting clay targets requires a reaction and response to the visual image of the clay target. Research has revealed that visual perception is a learned behavior. Therefore, it is possible to improve visual perception through training, just as a person can learn to read printed words faster or become more adept at video games. Many of my shooting drills were developed to "rewire the brain" to improve a shooter's visual perception.

Since skeet is a highly structured game, the shooter knows when the target will emerge and where it will travel. Although sporting clays is less structured, the shooters are allowed to preview the targets at every station. Therefore, proficiency in both of these clay target sports relies heavily on visual perception. Visual perception can be improved through perceptual learning.

PERCEPTUAL LEARNING

Experts describe perceptual learning as the process by which the ability of a sensory system improves its response to stimuli through interaction with the environment as well as through practice in performing specific sensory tasks. With regard to the clay target sports, perceptual motor learning is the acquisition of motor skills (pre-planned moves) requiring perceptual motor (visio-motor) coordination.

In my previous writings, I have emphasized the need for programming the Shooting Reflex (adaptive unconscious). Research in perceptual learning confirmed that visio-motor training can improve the precision and smoothness of a person's automatic (reflex) responses. Until recently it was thought that perceptual learning was confined to childhood; however, the discovery of neuroplasticity confirmed that neural tuning or "rewiring the brain" can occur in humans at any age. Low-level cognitive processes, such as reflexes, are especially amenable to rewiring by perceptual learning.

Many simple visual tasks involve basic perceptual mechanisms. Clinical studies have demonstrated that the perceptual learning process related to visual motion detection can be accelerated with immediate feedback. For skeet and sporting clays shooters, the critical feedback occurs in the acquisition zone, not in the break zone. This means the feedback is associated with how well the shooting eye centers primary visual focus on the target at the eye hold and tracks the target continuously to the

break point, not whether the target breaks.

Another important consideration is that the visual cortex processes information independently from the right and left visual fields of the eye. Therefore, the visual images of left-to-right crossing targets cannot be transferred to clay targets that fly in the opposite direction. Visual training for left-to-right crossers is completely separate from visual training for right-to-left crossing targets.

THE TRAINED SHOOTING EYE

In October 2014, my article "Visual Training" appeared in *Skeet Shooting Review*. I emphasized the importance of visual perception and suggested three different drills to "train the shooting eye" to improve the acquisition and tracking of clay targets. Each shooter must identify his or her "dependable focus zone" to acquire each emerging target. This makes it possible to see a consistent image for each emerging target in the acquisition zone during training sessions. Then that image can be imprinted into the visual cortex through repetition during practice sessions, which accelerates target detection and acquisition.

The deliberate process of programming the Watching Reflex actually rewires the connections between the visual cortex and the brainstem where all reflexes are managed. As these neural pathways transmit apparent images faster, the image of the clay target perceived by the trained shooting eye appears to be slower, larger and clearer.

Correctly programming your Watching Reflex to become automatic practically eliminates distractions and the associated visual deceptions. I am convinced that most visual deceptions are related directly or indirectly to poor target acquisition. Inconsistent target acquisition alerts the conscious mind to analyze the "new" problem and calculate a solution. This most often causes the shooting eye to defocus from the target to check the lead.

Inconsistent tracking of the clay target transmits inconsistent visual data to the visual cortex. This is caused by lack of total focus on a specific aspect of the clay target during the tracking phase. This distorted data alters visual perception, which corrupts the pre-planned move to the proper break point. Therefore, consistent detection and acquisition of the target at the eye hold and hard focusing during the tracking phase are the keys to an efficient, effective and effortless pre-planned move.

Detection and acquisition of the clay target as it emerges into your field of vision at the eye hold is the primary job of the Watching Reflex (conscious mind). The shooter has a definite advantage when his or her shooting eye is able to accomplish this simple task at the earliest point on the target's flight path.

▲ Ideally, your eyes' transition from soft to hard focus will happen right after the eye hold.

Dr. Robert Goldstone proposed four mechanisms that affect the way visual perception adapts to environmental stimuli. Of these four mechanisms, attentional modulation and imprinting are the ones that could improve the detection and acquisition of a clay target for skeet and sporting clays shooters.

The shooter's attention should be directed toward seeing some distinctive aspect of the clay target. Repeating this process intensifies perceptual learning by imprinting the visual receptors that become specialized to capture a specific image of the moving target.

If you direct your attention toward "moving on the flash" so you can acquire the target somewhere along the flight path and apply the correct lead in the break zone, your ability to acquire the target sooner will never improve. In fact, the lack of consistency in the acquisition of outgoing targets usually causes shooters to move the break point farther away from the station.

Conversely, if you direct your attention toward optimal detection and acquisition of the emerging target at the correct eye hold, the ability of your shooting eye to see the "fast" targets will eventually improve due to perceptual learning. When you train your shooting eye to improve target detection and acquisition with a consistent Watching Reflex, it will enable the Shooting Reflex to activate a smooth, automatic pre-planned move. **CTN**

▶ John Shima is a former five-time World Skeet Champion. To view previous articles or order John's books, go to www.johnshima.com.