

MANAGING VISUAL DECEPTIONS



BY JOHN D. SHIMA

Modern entertainment magician Robert Houdini is considered the father of modern magic. Interestingly, he was not related to the more famous illusionist Harry Houdini, whose real name was Erik Weisz. Contemporary illusionists Siegfried & Roy, Penn & Teller, and David Copperfield have elevated the art of stage illusion to a much higher level.

Sleight of hand is commonly associated with close-up magic because the “tricks” are performed directly in front of a smaller audience. In addition to manual dexterity, sleight of hand experts

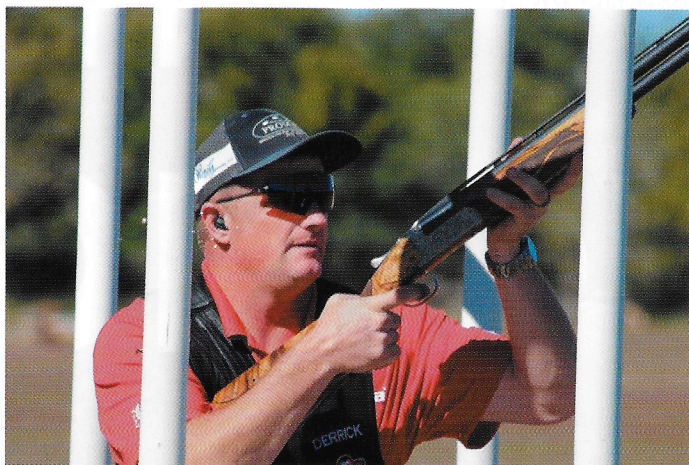
involve psychology, timing, and distraction to ensure their hand is quicker than the observer’s watchful eyes.

An optical illusion occurs when the visual system perceives something that differs from reality. Richard Gregory classified visual illusions into three categories: environmental, physiological, and cognitive. *Environmental* illusions are caused by external factors that alter sensory input to the eye. This is the clay target trap setter’s domain. *Physiological* illusions are caused by internal factors that arise within the eye or along the pathway to the visual cortex in the

brain. These illusions occur when the eyes are subjected to competing stimuli, especially when both objects are moving, and they are associated with a repetitive activity. The competing stimuli for the clay target shooter are the target and the rib of the shotgun.

Cognitive illusions occur when the mind makes unconscious inferences about images perceived by the visual cortex, which can be affected by environmental and physiological factors. Researcher Mark Changizi introduced the concept of *neural lag* to further explain cognitive optical illusions. He opined that it requires

approximately one-tenth of a second for the image that hits the retina to reach the visual cortex and be translated into a visual perception. Changizi asserted that the visual system compensates for neural lag with *foresight*, which means the mind uses a pre-existing image and projects it one-tenth of a second ahead in anticipation of what it expects to see. Foresight enables humans to react to events in the present, and correctly perform reflexive acts, like catching a fly ball or pointing the muzzle ahead of a clay target. Changizi stated, “Illusions occur when our brains attempt to



perceive the future, and those perceptions don't match reality."

The Inner Game of Shooting

Optical illusions occur because the human brain learns to speed up the interpretation process as a protective mechanism to compensate for neural lag. Our three-dimensional vision capabilities are learned jointly with the mind's planning of reflexive movements. Therefore, repetition improves hand-eye coordination and our automatic responses to specific stimuli (cues).

Research demonstrates that this learning process adjusts more effectively to visual data coming from closer objects than from distant objects. The application of this science to shooting clay targets suggests that the eye prefers to focus on the end of the rib, which is larger, closer and moving quicker than on a clay target that is moving at a consistent speed in the distance.

Although humans can see in three dimensions the actual image hitting the retina is only two-dimensional. Hence, *motion perception* and *depth perception* are responsible for many of the visual deceptions experienced by

sporting clays shooters. Perception of movement occurs automatically (unconsciously) when a clay target shooter is in a proper state of awareness. Perception of depth requires the shooter to exercise conscious visual discipline to control the point of primary visual focus.

Tim Gallwey published *The Inner Game of Tennis* in 1972 to bring attention to the mental aspects of peak performance. Briefly, Gallwey stated *The Outer Game* consists of external (environmental) factors, and *The Inner Game*, which comprises the thoughts and emotions that arise within our mind whenever we face new challenges or feel anxious. According to Gallwey, the inner game is played between Self 1 (the conscious, verbal, analytical mind) and Self 2 (the unconscious, non-verbal, automatic mind).

I liked the construct of Gallwey's two Selves but I wondered, which Self controls my inner voice, and if that self-talk is actually me talking, who is listening? So, I introduced the concept of three Selves in my book *The Moment of Truth* to help clay target shooters manage their inner game of shooting. I separated Gallwey's Self 1 into the Ego Self (the emotional and immature talker) and the Conscious Self (the

rational and mature listener). I called Gallwey's Self 2 the True Self (the quiet and adaptive unconscious). The True Self is where all the shooter's good and bad visual habits are programmed and stored.

Good and Bad Habits

In the animal kingdom habit formation evolved as a survival mechanism to protect against real or perceived threats from the environment. This innate survival mechanism involves the natural programming of life-sustaining habits. In *The Power of Habit* author Charles Duhigg described the neuromuscular programming process that controls the formation of automatic behaviors as a *habit loop*.

A habit loop consists of a *cue* that triggers an automatic response, which is followed by a *reward*. The cue for clay target shooters is the emergence of the target. The response is the pre-planned (habitual) move of the shotgun muzzle to engage the target. The reward is the dopamine rush experienced by the shooter when he or she breaks the target.

Protective (reactive) habits tend to develop automatically because the mammalian brain is hard wired to intuitively respond to threats and negative experiences so similar threats can be avoided in the future. Malcolm Gladwell described this phenomenon as our adaptive unconscious. Conversely, pre-emptive (proactive) habits do not develop automatically, so they must be consciously programmed through rigorous training that involves precise repetition. Gladwell described this repetitive process as training the adaptive unconscious. I refer to this process

as developing muscle memory, which is programming a repertoire of pre-planned moves for different target presentations.

It is apparent to most clay target shooters that bad visual habits tend to creep into the game automatically, while good visual habits require considerable effort and continuous reinforcement. Craving the dopamine rush that is linked to breaking the next target often triggers bad shooting habits. Craving activates the *tension of execution*, which arises within a shooter's mind when he or she lacks confidence in his or her ability to break the next target. Hence, the tension of execution is directly linked to craving the dopamine fix. Elite shooters override the tension of execution with qualified confidence or unconditional trust.

Confidence and Trust

Although many shooters think that confidence and trust are synonymous I believe they are distinctly different terms. My experiences as a shooting instructor for the past 35 years have convinced me that most sporting clays enthusiasts aspire to shoot every target presentation with confidence because it provides them with a *feeling of self-assurance*.

Shooting clay targets with confidence is not a bad thing. In fact, that's exactly how I started shooting competitively as a teenager. My father was an enthusiastic supporter of my shooting so I had unlimited opportunities to develop confidence in my skeet shooting skills through diligent practice. Unlike sporting clays, the game of skeet is highly structured. The

targets on a skeet field travel at relatively the same speed, and at the same distance, at each station. Therefore, highly confident shooters commonly post perfect scores in major skeet competitions.

Sporting clays is especially unstructured. Moreover, it is a game of designed visual deceptions. Since sporting clays targets are different sizes, which travel in different directions at different distances, and are thrown at varying speeds, the ability to read the targets correctly and break them predictably is much more dependent on trust. Trust is a *firm belief* that a specific pattern of behavior (pre-planned move) will produce a predictable response.

In my opinion confidence is linked to achieving a desired outcome, while trust is associated with executing an intended process. In other words, a *careful* shooter's Ego Self depends on confidence in the ability to control the outcome of the next shot by creating the ideal picture. Conversely, a *mindful* shooter trusts that his or her True Self will respond and react to the next target with the appropriate process while the Ego Self is pre-occupied with merely watching the target continuously until it breaks.

The Need for Control

In their article, *Born to Choose: The Origins and Value of the Need for Control* psychologists Leotti, Iyengar and Ochsner argued that humans are born with a biological and psychological need to be in control of themselves and their environment. Since our need for control is linked to our survival instinct, the need to control outcomes in a sport is closely linked to our adaptive unconscious,

which is the mechanism that creates our habitual behaviors.

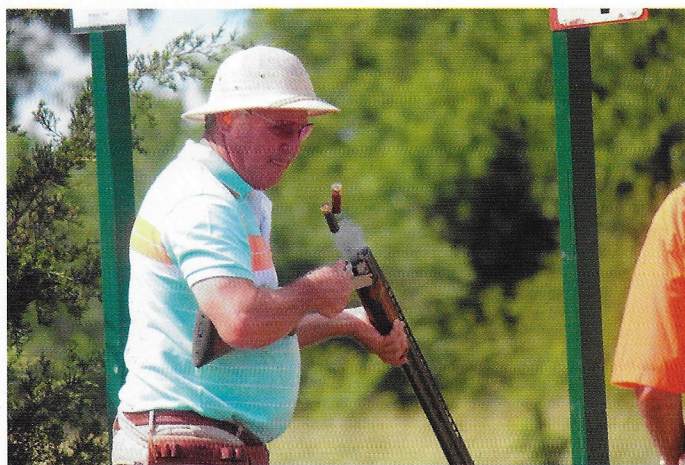
The innate need for control clearly differentiates individuals who practice carefully to *shoot with confidence*, and those who train mindfully to *shoot with trust*. This is an important distinction because the approach a shooter uses will determine how he or she looks for each target, which ultimately affects what he or she sees after calling for the target – reality or a visual deception.

I spend every teaching session helping shooters improve their perception of reality. Experienced clay target shooters seldom miss a target because they don't know the correct lead picture. In my experience shooters miss clay targets because the Ego Self is convinced the lead picture being perceived "in the moment" is reality, when it is actually a visual deception.

Careful shooters tend to utilize *blended focus* by engaging the target with the muzzle earlier in its flight path so they can watch the rib and the target simultaneously approach the break zone. Careful shooters consciously control the muzzle position to create a "lead picture" they are confident will break the target. This method requires conscious analysis during target flight, and a much *greater degree of visual discipline* because it is difficult for the eyes to maintain depth of focus on the distant target while attempting to point the muzzle with the forward allowance.

Mental and Visual Discipline

Visual acuity is different from visual perception. An individual's visual *acuity* is determined by the ability of the eye to read letters on



an eye chart in the doctor's office. Visual acuity is used to transmit raw data from the environment to the visual cortex, which interprets the raw data to construct an image for the mind to interpret. Visual *perception* is the image the shooter's mind constructs and believes it is seeing. The perceived visual image may be reality, foresight, or an optical illusion.

The mind's interpretation of any perceived image can be affected by various physical and emotional factors. Mental and visual discipline is necessary to manage the factors that cause visual deceptions.

Mental discipline – Mental discipline becomes increasingly important as the shooter's average scores improve. My second book emphasized the maxim, what you think determines how you shoot because mental discipline is necessary to transform qualified confidence to unconditional trust. *Qualified confidence* depends on an active mind, which analyzes visual perceptions and attempts to create coherent lead pictures. *Unconditional trust* requires a quiet mind, which allows for automatic pre-planned moves that create consistent processes.

Visual discipline – Whenever I place an occlusive patch over the non-shooting eye, and/or raise the

comb on the stock, I enhance the shooter's perception of reality. The purpose of these two training aids is to help the shooting eye *look above and beyond the rib* so it can *acquire the target as it emerges* into the shooter's field of vision. Then the shooter will be able to acquire the target and correctly utilize blended focus or absolute focus to track the actual target continuously.

Careful shooters prefer *blended focus* so they can engage the target with the muzzle of the shotgun midway to the break zone, which allows them to see the target and the rib simultaneously so they can consciously employ a swing-through or pull-away method to establish an appropriate lead. This strategy supports the shooter's *desire to break the target*.

Mindful shooters strive for *absolute focus* so their eyes can watch the target exclusively during the tracking and engagement phases. Hence, mindful shooters seldom perceive the rib in primary visual focus when the gun fires in the break zone. The mindful strategy supports the shooter's intention to *watch the target break*.

Blended focus requires considerably more visual discipline than absolute focus. During blended focus the shooter's eyes must be trained to maintain the



depth of focus as close to the target's path as possible while still maintaining an awareness of the rib in the foreground. Consequently, the *blended focus method* is more susceptible to visual deceptions. Visual deceptions are commonly due to poor target acquisition, visual fatigue, and sudden vertical movements of the shotgun muzzle.

By now it should be evident to readers that the Ego Self's desire to break the target is an emotional factor that alters a shooter's visual perception, which predictably distorts reality and promotes visual deceptions. When shooters experience problems breaking certain target presentations it is common for them to make changes in their mechanical game. These "problem targets" are usually caused by visual deceptions, which produce compensatory mechanical faults. Improving mental and visual discipline, rather than introducing mechanical changes, is most often the correct approach to managing visual deceptions.

Managing Visual Deceptions

Since the Ego Self is the source of most visual deceptions the

shooter's primary goal must be to manage its uncontrolled desire to break the target. I recommend *constructive distraction* to manage this uncontrolled desire. This approach involves training the Ego Self to care less about breaking the target, and to care more about watching the target continuously until it breaks. The following suggestions usually help careful shooters manage the constructive distraction process:

■ **Approach every target with curiosity** – This can be as simple as approaching each station with curiosity and asking, "I wonder where this target is going?"

■ **Release the tension of execution** – Settling the eyes in expanded soft focus at the eye hold quiets the conscious mind, and envelops the shooter in a state of awareness. When the shooter's mind is quiet, self-doubt will no longer precipitate pre-shot anxiety because there is no anticipation.

■ **Look above and beyond the rib** – Sporting clays is predominantly a binocular sport because most targets are thrown at distances greater than 20 yards. Therefore, when I prescribe an occlusive patch it is usually to diagnose a specific visual problem

and possibly as a temporary aid to strengthen the shooting eye. More often I suggest the *head-up* (Figure 1) gun mount to help shooters look above and beyond the rib of the shotgun. The head-up position, which is established by placing the side of the chin against the comb, is considerably higher than the classic *head-on* (Figure 2) position with the cheekbone firmly on the comb. The head-up position allows the shooter's eyes to be in the same horizontal plane while the nose is pointed at the target instead of the rib. Slight lateral contact of the side of the chin on the comb maintains a stable head position. Most importantly, the

head-up position helps maintain the correct focal distance.

■ **Control the focal distance** – There are three critical elements of focal distance that a shooter must consciously control: depth of focus, intensity of focus, and point of focus. When the eyes are relaxed and in expanded soft focus the increased *depth of focus* allows the shooter to see the target emerge in the background while being aware of the rib of the muzzle in the foreground. The shooter must increase *intensity of focus* on the target gradually during the tracking phase so the depth of focus remains out on the path of

FIGURE 1. HEAD UP GUN MOUNT HELPS A SHOOTER LOOK ABOVE AND BEYOND THE RIB OF THE MUZZLE, WHICH USUALLY IMPROVES VISUAL PERCEPTION AND MINIMIZES VISUAL DECEPTIONS



FIGURE 2. HEAD DOWN IS THE TRADITIONAL GUN MOUNT WITH THE CHEEKBONE FIRMLY SEATED ON THE COMB. THE COMB MAY BE RAISED ABOVE THE RIB TO MIMIC THE HEAD UP CONCEPT WHILE PROVIDING A MORE SECURE GUN MOUNT.



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SHOOTING INSTRUCTION

the target. Hard focusing too soon during tracking often causes defocusing in the break zone due to visual fatigue. As the target approaches the break zone the shooter must concentrate the eye's *point of focus* on a specific aspect of the target prior to firing the gun. This is the moment of *hyper focusing*. By controlling the focal distance in this manner, the depth of focus will remain out on the target instead of automatically converging toward the rib.

■ **Override the twinge of uncertainty** – The twinge of uncertainty occurs when the target approaches the break zone and the shooter suddenly lacks confidence in the lead picture and defocuses to check the lead. However, when the shooter consciously directs the Ego Self to focus on a specific point on the target, he or she prevents this natural tendency of the eye to defocus from the target just prior to firing the shotgun. Defocusing is caused by: premature hard focusing on the target, loss of concentration on the target during the tracking phase, visual fatigue prior to the break zone, and the desire to break the target, which precipitates the need to check the lead. Regardless of the underlying cause of defocusing, it is the sudden change in point of focus, and the accompanying decrease in depth of focus in the break zone, that causes the muzzle to move randomly just prior to firing the

shotgun. The twinge of uncertainty is closely linked to an increased desire to break the target. Thus, *delaying hyper focusing* until the target approaches the break zone will effectively override the twinge of uncertainty.

Research demonstrates that humans are innately wired to automatically detect the direction, speed and distance of a moving clay target when the eyes are allowed to watch the target without distractions in the foreground. Visual deceptions occur when physical or emotional factors corrupt the transmission of real data from the shooter's eyes to the visual cortex. It requires mental and visual discipline to ensure the shooter's eyes perceive reality instead of visual deceptions. ■

John Shima is a former five-time World Skeet Champion and was high average in 12 gauge for two years. John is the leading authority on detection of visual deceptions and prescribing appropriate visual training to unleash the power of reality for clay target shooters. For more information about the Shima Shooting MethodSM, the Clinic Schedule, his new Shima Shooting ExperienceSM, or to arrange a Private Consultation, contact John via email at john@johnshima.com. To order his books or view previous articles go to

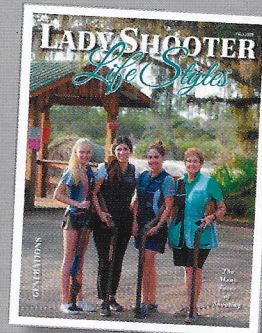
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