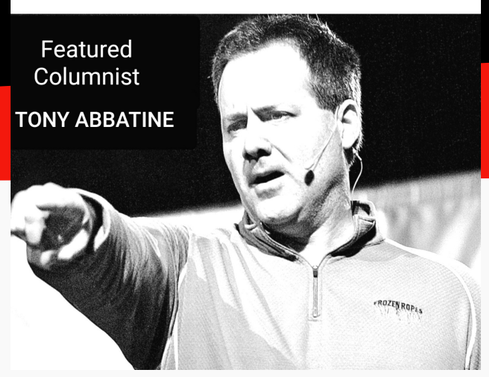
Baseball America

How Much Can Vision Training Help Improve A Hitter's Eye?



By Tony Abbatine on May 14, 2019

Can you really improve your hitting eyes to recognize different ball flights with the help of the latest vision/video training tools on the market?

This is a question I am constantly asked throughout spring training and on my visits to college campuses across the country. My simple answer has always been, "It can't hurt, although real hitting has variables that aren't factored into the visual training games."

I wanted a more scientific explanation, so I went out into the world to get real answers. In an era in which many of us look to our laptops, tablets and mobile devices to provide convenient ways to access programs aimed at self-improvement, there have been a glut of application-based training systems arriving on the market focused solely on sport-specific skill acquisition. Similar to brain-gaming apps purported to improve memory and intelligence, these systems are video simulations of real-world activities, providing various exercises aimed at cultivating sport-specific skills.

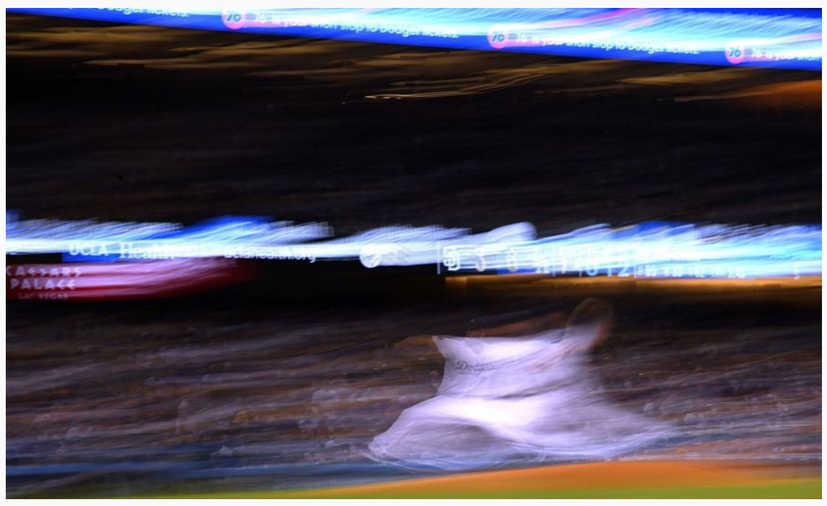
Enter Ken Cherryhomes, who is the creator of the X Factor Hitting System. He might not be a household name in the baseball industry yet, but he is a former major league scout, hitting coach and intellect that shared his thoughts with me on this very topic. I've summarized his research and insights on the vision training mystery in outline form to make it easier to understand.

Claims

- Modularized training of perceptual skills, such as pitch recognition and recognition and correlation of pitcher motion, helps determine pitch type.
- Proposed improved brain function, visual perception and decision making/anticipatory cues by the pitcher and pitched ball through video occlusion.

Limitations

- Absence of ability to identify collision point between bat and ball due to two-dimensional limitations.
- Absence of TAO (change), the eye/brain processing of the rate of change in size of an object as it nears or approaches, to predict velocity and arrival location.
- Absence of universal gravity, the proximal relationship we have will all objects of mass; our “feel” of an object’s proximity as it relates to our physical body (distance/change in distance) and spatial awareness.
- Absence of coupling between visual processing and physical response (motor reaction).
- Hard focus affordance (tunneling) due to absence of contextualized performance behaviors (interactive perception/action).
- Absence of contextualized stressors that contribute to potential delay of cognitive-perception and motor response.
- Absence of object scale (actual size) as well as depth and other object nuances used to identify object motion, orientation and vector/velocity.



Realities

- Great hitters like Tony Gwynn say they rarely, if ever, saw a baseball spin. They instead recognized change in proximal depth of the ball, vector (pitch plane and rate of depth change).
- Fixation on ball spin or rotation limits perception to ball detail through hard focus, not velocity or direction of the ball's travel over space. Seeing spin can indicate pitch type, at times, but spin offers no clues as to the ball's rate of travel.
- Video occlusion exposes hitter to video snapshots, cut off somewhere between 0.15 and 0.75 seconds after pitch release.
- Capturing and processing a ball’s flight characteristics, such as trajectory or velocity, have little to do with identifying spin characteristics, which is what occlusion methods attempt to improve.
- Universal gravitation: Our physical relationship to other objects of mass. This can be thought of as “feel” rather than an actual gravitational attraction, since the gravity between objects, other than the earth, is relatively small. The user’s physical, proximal relationship would be limited to the device presenting the object(s), not the object(s) depicted within the screen.
- Because video cognitive-perception protocols do not induce stress normally found in live ball encounters (which can result in reaction delays), and because scale and depth are not present, this type of programming offers no discernible transference of skill acquisition.
- Recall of encoded memory accessed in the fractions of seconds of an interception event would preclude any consideration of two-dimensional engrams due to dissimilarity between real objects and pixelated representations of objects (snow, et al.).
- Hard Focus: Binocular vision. Distracts motion attention while seeking object detail or ball clarity, like shape, color, and detail nuances such as shadows and scuffs, much like focusing on a person’s face as they approached you. The rate of depth change would not be recognized as the visual attention was fixated on facial details as the person approached, i.e. eye color, freckles, moles, etc.

Despite what some hitters claim they see or think they are seeing during the fractions of seconds involved in an at-bat, it is truly the ball's flight vector (lateral, proximally and downward) and perceived rate of change in proximity that they use to determine when to swing at a pitch.

With an average major league pitch speed of 91.5 mph, and with that pitch being released at an average distance of 55 feet from the collision point between bat and ball, it takes just .431 seconds (average speed over distance of 86.92 mph) to arrive. If the hitter were to actually narrow their field of vision to identify spin/pitch type, they would diminish their ability to determine the pitch’s rate of travel and vector.

They could see spin, sure, but spin offers no clues as to whether or not the pitch is traveling 75 mph or 85 mph.

Therefore, the bottom line is that the hitter must be visually aware of everything in front and around the ball's flight for the best decision making possible. Otherwise they are missing important cues for the eyes/brain to process. This is teachable through changing visual search strategies but not within the realm of two-dimensional vision training.

Abbatine is the author of numerous articles on player development. He has been a consultant to several Major League Baseball teams, professional players and college baseball and softball programs in the area of visual psychology and strike zone awareness training. He is currently a professor at St. Thomas Aquinas College in Sparkill, N.Y. where he teaches sports psychology. He is also the National Director of Performance for Frozen Ropes. His Website is ***www.tonyabbatine.com***