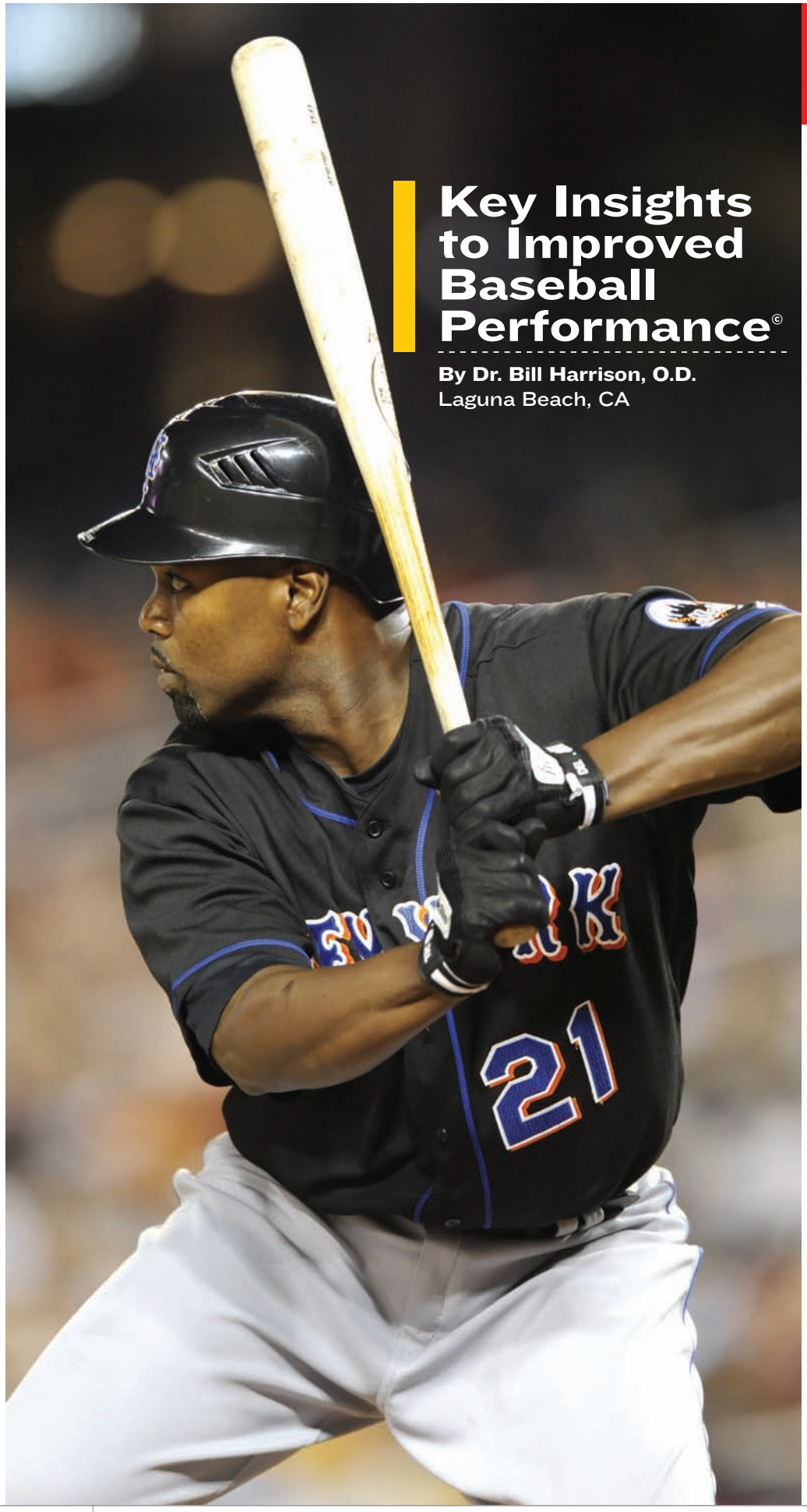

Key Insights to Improved Baseball Performance©

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New York Mets first baseman Carlos Delgado, a sixteen year MLB veteran, after two years of struggling, had a major transformation in his hitting performance this past season. Through June he was hitting .228 with a slugging average of .419. In July he hit .357 with a slugging average of .714.

Cleveland Indians outfielder David Dellucci, a 12-year MLB veteran, was hitting .228 on August 1. That month he went on a tear, batting .345.

Brad Boyer, an A Ball player in the San Francisco Giants chain, increased his batting average in the California League from .248 in 2007 to .347 in 2008 – a 100 point gain. Jason Tweedy, who played collegiately at Long Beach State U., signed a professional contract with the Tampa Bay Rays after he increased his college batting average from .234 in 2007 to .306 in 2008.

Roger Bernadina, who was recently promoted to the Washington Nationals, hit .259 primarily in AA Ball in 2007, but in 2008 hit .335, primarily in AAA ball, a gain of 76 points. Michael Stanton, a former three-sport star at Notre Dame High School in Sherman Oaks, CA, hit 39 homeruns in his first year of professional baseball in the Florida Marlins organization.

The common denominator in all of these hitters is that they placed a significantly higher priority on the "visual side" of their approach to the game. They incorporated vision drills as part of their strength and conditioning program. Prior to the game they trained their baseball related vision skills. They were coached by a visual performance coach on how to best use their vision and they applied specific techniques to see the ball earlier, track it better, and see the ball deeper.

Literally, they "got visual." The surprising benefit to the players is that this emphasis improved the mechanics of their swing markedly.

Baseball is a lightning-fast sport.

The ball gets to hitters and to defensive players very fast. Speed is the key. Everyone knows that, but most don't recognize that the game actually challenges the player's eyes before it challenges their physical ability! Pre-game vision training and an emphasis on coaching the visual aspects of hitting can be the key to increased player production...at any level.

Almost everything players do in baseball begins with what they see. If you don't agree, try playing a game, catching a ball, or hitting soft toss while wearing a blindfold. The simple thought of wearing a blindfold in a game gives an immediate awareness of how pervasive the role the eyes play. The game is "see and react," and a player's reactions depend upon what he sees. However, 99 percent of all training emphasis is on the react side of the equation

Most players need to improve their eyes to be able to consistently handle game speed pitching. Many younger players need an improved vision correction in order to properly see game speed pitching. For example, in 2008 with evaluations of the baseball-related vision of the Long Beach State U. baseball team, we found eight of the 16 position players (50 percent) needed vision correction or improvement in their previously provided vision correction. Most players need to place a higher priority and increase their effort to see the ball better.

Since blindfolds aren't worn, the ball is always seen. However, commonly what is seen is a white flash or two of a small ball. Other times, not only can the seams be seen, but the ball looks larger and appears to be moving much slower. Baseball players can be taught how to consistently see the ball early and have high quality, accurate pitch recognition.

However, the tendency is for players to be visually distracted by the pitcher's arm speed. As a result, though they are somewhat aware of the ball, they read the important visual information late, leaving them very little time to make a good hitting decision.

As a result, they swing and miss a lot of pitches out of their hit zone. As a right-handed hitter they will off swing over the pitch and roll it over to the shortstop; left-hand hitters will do just the opposite. It is common to have physical flaws or mechanical problems because of a poor visual approach to the game.

Even after early and accurate pitch recognition they must learn to purposefully let the pitch dictate the at-bat. Meaning, if it's low and away, they must be able to hit the ball to the opposite field on a line or on the ground. In order to do that, they must be able to track the pitch by seeing it early and staying with it deep to contact.

These aren't wholesale changes, but for most hitters they qualify as major adjustments. By learning an effective method that allows them to recognize the pitch a lot earlier, they become dangerous hitters. That is, provided they track the ball deep. Vision coaching can be as powerful as the coaching of mechanics and often achieves improved game performance more rapidly.

SPEED IS EVERYTHING

An eye examination or a simpler method like a visual acuity test can indicate that one has very good eyesight. And the diagnosis is likely true. One likely has good eyes for average things. However, consistently hitting a baseball requires exceptional visual skills that are most challenged by speed, extraneous motion, and peripheral distractions.

If one could read better than 20/10 on an eye chart it would be of zero value if the same person was not effective at seeing a baseball in motion and at extreme speeds and sharp changing trajectories. One phenomenally great eye is not sufficient. High level "binocularity," the ability for the brain to use the two eyes together even at high speeds, under stress and fatigue, is a unique visual requirement for performing well in baseball.

Binocularity is highly dependent upon the efficiency of the fourteen muscles of the eyes as well as the two sides of the brain. This brain-based ability is known as stereo acuity and is a high-level of depth perception.

Even good stereo acuity is of limited value is the player doesn't have rapid visual processing speed. With high visual processing speed the pitch will appear slow enough to make good hitting decisions. On the contrary, with low visual processing speed the pitch will appear very fast, making it difficult to make good hitting decisions.

RAMPING UP THE VISUAL SYSTEM'S PROCESSING SPEED

To get the eyes to work better in baseball the visual system's processing speed needs to be ramped up so the athlete can see and react more quickly and efficiently.

The importance of eye speed can be clearly considered when you think of when you see a red light, and then step on the brakes. The "visual brain" processing speed defines how fast you can register and identify an external visual stimulus—the red light. The "motor brain" controls the motor speed of physical reaction time, defining how fast you can react to step on the brakes.

The sensory brain processes incoming information through various senses and sends that appropriate information to the motor brain which is responsible for physical reflexes or reactions. The motor brain can stimulate a physical reaction typically in 250-300 milliseconds (ms). People with very quick reflexes can react to a stimulus in under 200ms.

Physiology textbooks state that the limit of our response is 150 ms. Additionally, there are those who

believe this pathway is actually hard-wired in every individual, making it virtually impossible to improve reaction time.

Demonstration

To test reaction time and gain a sense of the speed of visual processing, rest a yardstick, 0 inches down 36 inches up, (vertically), on the end of a table. You are going to hold the yardstick. Have a person have the edge of their hand, pinky finger down, palm out, ready to grab the yardstick. In other words their hand is resting on the table just behind the yardstick. Tell them that you are going to be sneaky and try to nudge the yardstick off the table. As soon as they sense it is moving they have to grab it. When they grab it, read how many inches of ruler have slipped through their hand. Read from the bottom of their hand where it was resting on the table. You will have a distance in inches.

Now you have got to get their calculator out for this part. Distance / 192 =t2 Distance is in inches where the hand grabbed the ruler. 192 is half of the acceleration due to gravity in inches. Divide distance by 192. This equals the reaction time squared, so you will have to take the square root of that number to get the actual reaction time. Average reaction time is about.33 sec. (As we get older it gets worse, but we do have driving experience on our side.) Give them an opportunity to do this three times and take an average.

Then let them get on the phone with someone they enjoy talking to. Do the same thing. Be sneaky with the ruler drop and wait for the moment you think they might be distracted. (Remember, that is the whole point.) See what the difference is. It might not be a lot but remember: A few seconds when driving sat 55 mph you are covering a lot of ground.

Consideration

Their speed of reaction is influenced by their visual attentional skills and directly influences their performance. Additionally, this demonstration clearly explains why the use of portable devices should be eliminated while you are driving. But it also clearly explains why a player shouldn't be receiving verbal instruction while hitting, fielding, or pitching.

How fast a player can see, or how much he can visually process per millisecond, determines whether or not he can see and react to a high speed ball before it goes flying by him. Faster vision allows him to see a ball as if it were traveling at a much slower speed.

Put another way, if he has heightened seeing speed, the slower and bigger the ball seems to be. Exercising the speed of visual processing will allow him to see things sooner so he has more time to adjust to the unexpected. How sensitive or alert the player's visual brain cells are can often determine the difference between whether they rise to the challenge or not.

Athletic speed is the end result of what first takes place in the eyes and then in the mind. During game speed action your player's eye's vision processing speed dictates their mind's speed which dictates their ability to physically respond to the demands of high-speed athletic activity. Winning or losing, on the athletic field or court, success or failure in the professional arena, and life or death on the highway can all be impacted by seeing speed.

To get the eyes to work better in baseball the player's visual system's processing speed needs to be ramped up so the player can see and react more quickly and efficiently. Visual processing speed is the key for athletes in any fast action sports.

For example: The faster the computer processing unit (CPU), the more powerful the computer. Great athletes have exceptionally fast CPU's. Their brains relay information to their muscles more quickly. But this only happens if their visual system relays the available information to the brain more rapidly.

I developed a series of visual drills that are available at www.SportsEyeSite.com, a software training program that challenges and enhances their speed of sensory information processing skills and the ability to handle distractions and still see what they need to see. The software training helps move those skills from the conscious to the subconscious level, where they become automatic responses. This, in turn, frees the conscious mind, to focus on performance. Additional training products for training the eyes are available at www.SlowTheGameDown.com,

Evidence is accumulating that the brain works like a muscle. And each eye functions with the efficient use of seven muscles. Just as physical practice is necessary to train and refine body movements for peak performance, sensory and cognitive practice are needed to fine-tune the eyes-brain-body connection for optimal achievement.

Subtle sensory disturbances can impair those fundamental processing structures that are critically involved in attention, memory, vision and visual processes, auditory perception, reading, speech, coordinated and efficient movement, spatial orientation, proper sequencing of information, and the thought processes that are involved in complex mathematical relationships.

Those sensory system factors are critical to the basic brain processing involved in the functions. Very few programs recognize this and most do not include specific sensory tests in the assessment process or training approach. Sensory system inefficiencies, of which we are not aware, can limit performance, impair efficiency, and adversely affect performance.

Eyecare practitioners commonly hear athletes express a highly positive response to the athletic performance benefit of a very small improvement in their contact lens or spectacle prescription. Athletes who have become

slightly nearsighted, once corrected, almost always state that their reactions are faster, particularly under low light conditions.

Demonstration

The next time you are driving a car in rather safe surroundings note how easy it is to be comfortable with steering the car and being aware of relevant things that occur off to each side. Then tilt your head so that your right ear approaches your right shoulder. Your eyes will be automatically tilted.

Consideration

You'll likely experience difficulty in keeping the car straight and experience a strange uneasiness. The proper use and positioning of your eyes affects your performance.

When a player is in his visual sense, like when they're writing or watching a movie, the other senses can be supportive if they are in agreement with what you are doing. They have the most intense use of their vision when they have supportive sounds, smells, tastes, and feelings.

Specialized baseball-related vision training is focused on high achieving performers with normal eyes but who need to process visual cues faster, cope with increasing speeds, have exceptional eye muscle skills, acute attention to visual cues, need to integrate what is seen with the other senses, and the response with some form of a motor movement.

Most coaches appropriately spend enormous amounts of time and energy trying to improve technical and physical skills, but they often, unknowingly, neglect vision information processing speed development.

Specialized visual training procedures provided in the off-season over four to six weeks will show improvements you can notice in your players' faster physical reflexes, sharper visual discrimination and the ability to make quicker and more informed decisions. ■

Dr. Harrison was educated at the University of California at Berkeley and his client list reads like a Who's Who of Baseball. It includes Hall of Fame members, All-Stars, MVP's, Olympians, Cy Young Award Winners, Hitting Champions, Gold Glove Winners and Rookies of the Year. Dr. Harrison's system and training methodologies and emphasis on vision coaching can be found at www.SportsEyeSite.com and www.SlowTheGameDown.com. His methodology has been fundamental to the development of superior performance, over a wide range of people in a wide range of sports.