

SportsVision MAGAZINE

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VISUAL PERFORMANCE FOR THE MASSES

The tireless work of one sports vision pioneer to make visual performance training a mainstay of every athlete's daily regimen

by Brian Stammer

While the field of vision training has been around for at least 80 years, the emergence of high-tech sports vision training products is relatively new. Perhaps it's no coincidence that an ophthalmologist with a Harvard MBA is behind the development and marketing of the leading computer software sports vision training program.

His name is Dr. Barry Seiller and the program is called Vizual Edge. It's Seiller's way of making the evaluation and training of visual skills available to the masses.

Visual Fitness Institute

The origins of Vizual Edge go back to the early 1990s when Seiller established the Chicago-based Visual Fitness Institute (VFI). At the time, Seiller was using vision training to help children with learning disabilities improve their reading.

"I saw an overlap in that some of the techniques we used in visual rehab could also be used to

enhance an athlete's visual abilities," says Seiller.

Albertville 1992. Shortly after founding VFI, Seiller was hired as one of three eye doctors to staff the first-ever Olympic Vision Center for the 1992 Winter Games in Albertville, France.

Impressed with Seiller's vision program and the importance of visual skills in athletic performance, several US national teams felt this area of training needed to be explored further. By 1993, his clients included the US ski, snowboard, luge, skeleton and bobsled teams.

Atlanta 1996. Seiller was instrumental in developing the Visual Performance Program at Georgia Tech after the GT staff visited the Olympic Vision Center during the Summer Olympic Games in Atlanta.

This led athletic officials at Georgia Tech to request him to develop a similar visual performance program for the entire student-athlete population at Georgia Tech.

Making Inroads. For the past 20 years, the Visual Fitness Institute has been helping elite athletes and athletic programs, such as USA Bobsled and Skeleton (far left), Georgia Tech Athletics (middle) and three-time world champion freestyle skiing aerialist, Eric Bergoust (above) with their vision and visual skills.

Georgia Tech. In January 2000, Georgia Tech became the first NCAA athletic program to use vision training to improve athletic performance. The sports vision clinic, developed under the guidance of VFI, is located in GT's Homer Rice Center for Sports Performance, which is a world leader in sports science and technology.

The Center integrates five leading-edge sports performance clinics covering the areas of physiology, sports nutrition, injury rehabilitation and prevention, sports psychology, motion analysis, and sports vision training.

In the sports vision clinic, GT athletes undergo tests to determine what visual weaknesses they may have and what possible improvements may impact their athletic performance.

Recommendations may include vision correction as well as specialized training exercises. "The first step in the training process is making sure that an athlete's vision is as good as possible," says Seiller.



PILLAR I: VISUAL SKILLS

State-of-the-art computer equipment is used to test important visual abilities of the athletes including depth perception, focusing, eye-hand coordination, visual attention, pattern recognition and peripheral vision.

Today among other services, VFI evaluates and trains athletes on site in its high-tech Chicago facility and also oversees the implementation of visual performance programs off site. For example, teams might be interested in simply evaluating players to ensure that there are no visual issues which might be detrimental to performance.

Milwaukee Brewers. A few years ago, for example, VFI was hired to screen vision and evaluate visual skills of players attending the Milwaukee Brewers Fall Development Camp.

Fifty-six players underwent testing of skills such as visual acuity, peripheral vision, depth perception, contrast sensitivity, visual recognition, speed of focusing, visual tracking and eye/hand/body coordination. Testing revealed that:

- 7 players needed vision correction for the first time (contact lenses).
- 4 players needed improvement in contact lens power.
- 24% were found to have good visual skills.
- 51% were found to have average visual skills.
- 25% were found to have reduced visual skills.

Seiller was able to recommend vision correction where needed and to prepare customized visual training programs for the players that needed to enhance their visual skills.

Arrival of Vizual Edge

Through the years, Seiller has diligently worked on commercializing his training methods through a computer-based program. In particular, he observed many of the problems associated with traditional physical exercise and training, believing there would be similar obstacles facing vision training—obstacles such as boredom, expense, accessibility of proper equipment, and the ability of athletes to obtain proper instruction and feedback.

"Superior visual performance provides a crucial edge in all sports."

Dr. Barry Seiller, Director, Visual Fitness Institute, Chicago, IL



Convenience. Athletes can now train their visual skills at their own pace, wherever they have access to a computer.



Competitive edge. Dr. Barry L. Seiller (left) with Russian Bobsled team members and coaches at the US Olympic Training Center in Lake Placid, New York.

Photos courtesy: Visual Fitness Institute, Vernon Hills, IL

In the the case of visual training, for example, Seiller says it is necessary to visit an eye specialist to obtain a visual evaluation or to obtain access to any advanced visual training equipment or procedures.

"While such equipment or procedures may include computer-assisted training exercises, the eye specialist is needed to evaluate the user's visual fitness and to provide the necessary feedback associated with any improvement from use of such exercises," he says. "There has been little, if any, equipment available to an athlete to train at his or her own pace at home, or wherever they have access to a computer."

In 2002, Seiller was able spread his visual performance training techniques to a much larger market with the introduction of the Vizual Edge Performance Trainer, a software program that allows athletes to do three important tasks entirely on their own at a relatively low cost:

- Test and assess the quality of their visual skills.
- Train and develop their visual skills with specific exercises.
- Track and monitor the progress of their training.

Athletes who attend VFI's facility, for example, may spend \$350 for a vision evaluation, plus an

additional \$75 to \$100 for half-hour private visual training sessions. With Vizual Edge, on the other hand, an athlete can purchase 30 training sessions for \$200.

Vizual Edge training is typically performed one to three times per week for between one and three months. Each session lasts up to 20 minutes, and the typical athlete will use between 25 and 40 sessions.

Conclusion

After nearly 20 years of trying to educate the athletic world about the importance of visual skills, Seiller's efforts are beginning to pay dividends. There are now approximately 35 universities that use Vizual Edge to evaluate and train their athletes. There is also a Vizual Edge version translated into Spanish.

In addition, Seiller says several Major League Baseball scouting departments use the Vizual Edge program to evaluate visual skills for pre-draft analysis.

The training program is also becoming available in the general marketplace at private training facilities in the US and Canada. ■

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WEIGHT TRAINING FOR THE EYES

A total vision fitness program from the convenience of your laptop

by Brian Stammer

Like weight training for the eyes, the Vizual Edge Performance Trainer builds both eye strength and endurance through regular use. The product contains a series of exercises which measure visual skills and offer training recommendations.

Session-Based Training Program

Vizual Edge is a session-based visual skills evaluation and training program, which offers a method for individuals, teams and facilities to incorporate a visual performance program into their athletic training regimen.

Packages available. Individual athletes can purchase limited numbers of replenishable sessions—30 sessions for \$200; 60 sessions for \$300; 100 sessions for \$500.

Team packages are also available—200 sessions for \$1,325; 500 sessions for \$2,950. For groups, the sessions can be divided among multiple computers for use by many athletes. The training sessions are also adaptable so that each athlete can enhance their own visual skill strengths and improve weaknesses.

Sessions needed. Training sessions take about 15 to 20 minutes to complete and are intended to be done twice a week over an eight to 12-week period. After the sessions are consumed, additional sessions must be purchased online.

Tools needed. The product works with the arrow keys on the keyboard or with a gamepad/joystick. It is activated once online and then there is no further need for Internet access, except to use the secure online scoring system. This system provides rankings for how a user tested and provides training feedback.

The product also comes with red/blue glasses to enhance the three-dimensional effect on the

computer screen during certain training exercises.

Visual Skills Evaluation

Baseline score. The first step of the program is to create a baseline score for the visual skills of the user. Once tested, the user follows a series of exercises to train his or her visual skills based on the baseline score.

Tracking progress. As you train your eyes, the program records the results. This process of evaluation-training-reevaluation allows users to track their own progress.

Evaluation of the visual skills data on five tests are stored under each athlete's individual profile. The data can be entered on a secure website link and immediate feedback and scoring is provided.

The Vizual Edge website link contains an Edge Score, which is a weighted combination of that individual's skill areas and is represented by a single number score. The Edge Score allows for comparison of athletes and the ability to track pre and post training scores.

Five Visual Skills Trained

Visual Skill #1: Eye Alignment. This measures how the athlete aims the two eyes when looking at a given target. If the eyes are not aligned properly, it could cause a baseball player, for example, to swing too early or too late.

The athlete trains this skill by strengthening the muscles of the eyes. In this Vizual Edge exercise, the athlete wears 3-D glasses and must move an object directly on top of another object.



Visual Skill #2: Depth Perception. Accurate perception of space and depth requires the use of both eyes at the same time. In this Vizual Edge exercise, the athlete wears 3-D glasses and must identify the one circle on a row of four circles which appears to stand out.

Visual Skill #3: Visual Flexibility. There are three categories of visual flexibility. They include convergence or the ability of the eyes to maintain an inward posture; divergence or the ability of the eyes to maintain outward posture; and alternating flexibility, which is the ability to shift focus between the two.

In this Vizual Edge exercise, a diamond-shaped object appears inside a square and, wearing 3-D glasses, the athlete must identify the location of the diamond: either up, down, left, or right.

Visual Skill #4: Visual Recognition. This skill allows an athlete to recall previous visual information. In this Vizual Edge exercise, three arrows flash on the screen in a straight line. Each arrow is pointing in a random direction: up, down, left, or right. The athlete must quickly and correctly recognize and duplicate the direction of the arrows.

Visual Skill #5: Visual Tracking. This is the ability to follow an object, like a football through the air. In this Vizual Edge exercise, one single arrow flashes on the screen in a random location. The athlete must quickly and correctly recognize and respond to the direction of the arrow.

Conclusion

Vizual Edge is designed to test and train the skill levels of athletes between the ages of 10 and 22, the age group considered most responsive and motivated for visual fitness training. ■

— Brian Stammer



DOES VISION TRAINING REALLY WORK?

Research study confirms that training with vision software enhances hitting skills

by Brian Stammer

A study conducted in the Fall of 2007 by a research team from the Kinesiology Department of Texas A&M University-Corpus Christi demonstrated significant improvement in the hitting performance of baseball players after enhancing their visual skills.

The athletes trained their visual aptitudes with Vizual Edge, a commercial software program specifically designed to assess and train visual skills of athletes.

The purpose of the study was to determine the validity of the Vizual Edge software in relation to improving hitting performance in baseball. The critical question was, "Would improving visual skills using vision training software actually translate into improved performance?"

Indeed, as noted by the research team leader Dr. Frank Spaniol, "It makes little sense to waste valuable training time working on a skill if it doesn't translate into improved on-field performance."

After the Fall 2007 NCAA baseball season, the research team tested the software's viability. Using a "pre-test, post-test" design, players were randomly selected and assigned to a treatment or control group.

The treatment group trained their visual skills with Vizual Edge, while the control group did no do any vision training.

Because the study was conducted in the off-season, players did not take part in structured batting practice.

At the onset of the study, subjects from both groups were tested for visual skills to determine eye alignment, eye flexibility, visual recognition, visual memory, and visual tracking.

After achieving a baseline score, the treatment group received training on the software three times a week for five weeks.

Batting performance was determined by measuring the batted-ball velocity of pitches delivered at 76 to 80 mph by a pitching machine to assure consistency.

Each baseball player received two rounds of six swings for a total of 12 attempts.

Results showed a significant difference between the batted-ball velocities of the treatment group, which performed at a much higher level, as compared to the control group.

"It makes little sense to waste valuable training time working on a skill, if it doesn't translate into improved on-field performance."

Dr. Frank Spaniol, Texas A&M University-Corpus Christi



"We've known from previous survey studies that professional baseball players believe that training with Vizual Edge enhances their performance," says Spaniol. "The results of this study confirm that college baseball players who trained with Vizual Edge outperformed those who did not. It is highly likely these same findings could translate to college softball as well." ■

— Brian Stammer