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Nike's Sparq Shines a Light on Visual Training

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You wouldn't think that old saw, "practice makes perfect" would apply to, say, tracking a baseball as it comes toward you at 95 mph. Nike says it does, and wants to prove it. The company's funky new Sparq Vapor Strobe eyewear works with the equally geeky Sparq Sensory Station to analyze and improve 10 vital visual and sensory skills. The eyewear's lens work a bit like a strobe light — hence the name — by alternating between clear and obstructed fields of vision to improve your ability to target an oncoming object. Think of it as watching that baseball through a venetian blind you're opening and closing dozens of times a minute. It sounds crazy, but evidence suggests it works. The system has been used in particular by NFL players like St. Louis Rams running back Steven Jackson and Green Bay Packers wide

receiver Greg Jennings. But you don't have to be catching long bombs to benefit from the technology. Nike swears it can help any athlete in any sport where keeping your eye on the ball is critical.

"The clearer you see, the better the reaction, the better the depth perception," says Dr. Alan Reichow, Nike's vision and science research director, who's been studying visual and sensory performance in sports since the late 1970s.



Sparq Sensory Performance, as the system is called, is the latest evolution in the Sparq program Nike launched in 2004 to create an array of training products and programs. Reichow worked with Paul Winsper, Sparq's performance director, to create the system. Although it's designed to work as a system, you can use the \$300 Vapor Strobe eyewear (pictured) without the additional hardware.

If you want the full monty, you start with the sensory station. It's got a wireless high-def touch screen and a custom app that takes you through a 30-minute test to evaluate 10 skills: visual clarity, contrast sensitivity, depth perception, near-far quickness, target capture, perception span, eye-hand coordination, decision-making, hand reaction time and visual endurance. That done, the system creates a custom profile so you can compare your performance to others who play the same sport, or even the same position. The idea is to identify your visual and sensory strengths and weakness. That information informs the two-part training program that follows.

For part one, two screens on a wall-mounted training system help hone four visual and sensory skills: depth perception, eye-hand coordination, decision making (thinking quickly under pressure) and split attention. That last one is tested and improved by forcing you to use peripheral vision to focus on a task on a secondary screen while responding to verbal commands with the primary screen.

Part two requires putting on the Vapor Strobe. The look like a pair of ski goggles and feature a curved LCD lens.

“That was a challenge, to trap it in the frame, to get a curved plastic LCD lens. It took several years,” says Reichow.

The lens works like a shade or venetian blind, rapidly alternating between clear and obstructed views. Two buttons near the right lens allow you to determine the speed with which the lens alternates. There are eight speeds, each obstructing your view for increasing periods of time. The slower the speed, longer your vision is blocked and the harder it is to track an object.

An additional feature allows each lens to operate independently, so one remains clear while the other flickers between transparent and opaque. This is handy if you want to “train” one eye.

Once you’ve strapped on the Vapor Strobe, it’s time to practice on-field drills. The program includes dozens of drills for football, soccer, baseball, basketball and other sports. All focus on a common goal: Improve the 10 skills evaluated in the sensory station.

Nike says those skills invariably improve when a person attempts to recognize and track an incoming object — say, a tennis ball coming over the net — using limited visual and sensory feedback. Essentially, less is more. If a wide receiver successfully tracks a pass using a scant amount of relevant visual input during practice, then the task should, in theory, be that much easier in a normal setting when all information is available.

“You have to project in the mind’s eye where the ball will be,” Reichow says. By momentarily obstructing your vision, your brain is forced to project where the ball will be. As it hones that skill, Reichow says, you’ll be able to better track the ball with full vision.

Does it work? Yes. Well, sorta.

A Nike-funded study by Duke University, published Oct. 28, found a mixed bag of results for the Vapor Strobe. Researchers tested 157 people, many of them Duke university athletes, by subjecting them to Sparq computer-based evaluations of their visual and sensory skills. Then they were subjected to visual-motor training wearing the Strobe. Eighty-five people participated in lab exercises, while 31 members of the university ultimate Frisbee team and 41 varsity football players took to their respective fields for drills.

Researchers found the technology provided the greatest benefits in central visual field motion sensitivity and transient attention abilities. In other words, the gadgetry improved an athlete’s ability to recognize an object in the central field of vision. Many improvements were seen in as little as two days.

On the other hand, there was no benefit observed in peripheral vision.

What does this mean for a professional athlete? Their skill levels are so sharp, and their professions so competitive, that even the slightest performance gain can mean the difference between success and failure. Weekend warriors probably will see less benefit.

Reichow notes that 1.1 million nerve fibers in each eye transmit visual and sensory

information to the brain. That's a lot for a person to process, and the time available to evaluate it can be brief, depending on the sport.

"We all get the same information," says Reichow. "The quality of the information from the eyes on up and then what we do with it is where we really differ from each other."

Photos and video: Nike

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