NEURODYNAMIC VISION: SEE FASTER AND REACT QUICKER

Every time you see athletes in any sport do incredible things and wonder, "How did they do that," it involves an amazing successful coordination of sensorimotor skills. The same is true when athletes struggle and make mistakes—this time there is a breakdown in the sensorimotor skills.

The best athletes recognize patterns no one else sees, whether it's a tennis player tracking the path of a 225 km/h serve, a race car driver weaving through the bumper- to-bumper grind of the Daytona 500, or a hockey player skating at 32 km/h and backhanding a no-look pass to a teammate across the ice. These athletes possess highly developed, highly integrated eye-mind-body speed (EMB Speed).

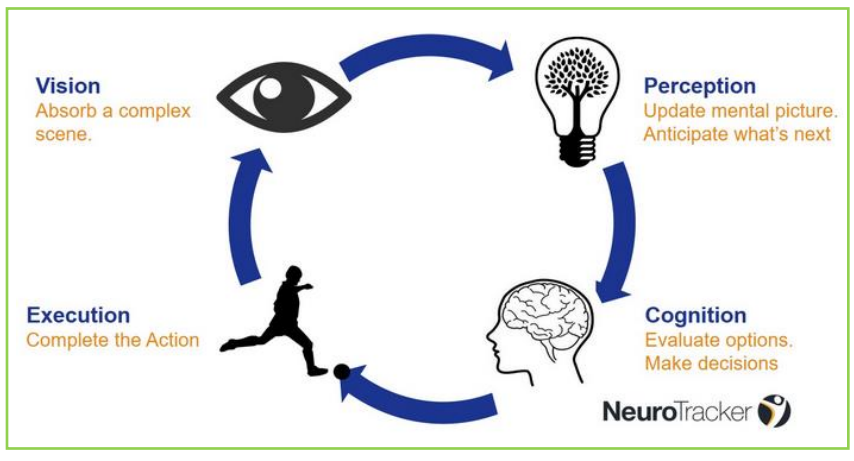
EMB Speed is not about visual acuity but can be affected by poor visual acuity. EMB Speed is more about the ability to discern and process the most import visual cues to an action and react with accuracy without much thought. Put simply, an athlete with great EMB Speed and Control sees the game at a higher level and performs actions without delay or thought. This is what we're seeing when we can't believe our eyes.

This desirable level of EMB Speed is often influenced by their coordination of a powerful pyramid consisting of several key layers. Think of this as a pyramid of athleticism. The base of the pyramid is the foundation of the athlete. This is the musculoskeletal system. The musculoskeletal system is important to the success of the athlete and dependent on the fitness of an athlete, but without the mind and the visual system it is simply a rock. The middle layer is cognitive. This layer is influenced by mental skills, mental toughness and mindfulness. The athlete must have the desire to accomplish the task. The peak of the pyramid is the sensory layer. This is the input of information from our environment that tells us how to perform. In most sports this sensory input begins with the visual system.

Neurovision Concepts

In the same way that an athlete improves sports performance by training the body for strength and endurance, visual skills can be improved and enhanced through a wide range of conditioning techniques. These are some examples of specific visual functions that vision specialists typically train.

- Peripheral Awareness – allows perception of what's going on at either side of you without turning your head
- Dynamic Visual Acuity – enables sustained and clear focus on objects when they are moving quickly
- Depth Perception – provides spatial judgments, such as how far away an object or person is
- Hand-Eye Coordination – involves the coordinated processing of visual input and motor-skills involved in hand movement
- Color Vision – the ability to detect different colors and hues to interpret subtle features in the environment
- Contrast Sensitivity – the ability to distinguish between fine increments of light versus dark



Performance training of these skillsets is not a 'one size fits all' approach, as the vision skills for optimum athletic performance will vary, depending on the demands of each sport. For example, tennis players need excellent hand-eye coordination, teams sports place large demands on peripheral awareness, and contrast sensitivity is key for skiers, who must perceive their path via snow shadows.

Rather than the traditional approach of simply testing, corrective and training eye functions, the neurovision approach tries to bring the whole perception to action loop together.

Neurodynamic Vision

Neurodynamic Vision is an advancement in understanding of the power of the brain to improve overall human performance. It integrates a new multidisciplinary approach between sports vision science, neuro-sports psychology, athletic training techniques and advanced technologies to deliver a new level of superior, consistent performance for athletes.

It expands traditional sports vision procedures to consider additional cognitive aspects of visual processing including response time, response accuracy, fixation stability and vision search strategies, to name a few of the critical aspects needed in training and competition. This concept goes beyond eyewear performance features to harness the power of the brain to see faster and react quicker.

Sources: https://neurotracker.net/2019/05/17/what-is-neurovision-training/, http://digital.optikmag.ca/publication/?m=37735&i=508879&p=28&ver=html5, https://neurodynamicvision.org, http://digital.optikmag.ca/publication/?i=565212&article_id=3298747&view=articleBrowser&ver=html5

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