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FRIENDS OF NVT

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INTRODUCTION

We are thrilled to present Issue 4, Volume 8 of the Friends of NeuroVisual Training Newsletter! As we reach the halfway point of Volume 8, we are excited to share with you some exciting content that we hope will enhance your understanding and practice of NVT.

In this issue, our feature article delves into the differences between "go-no-go" and "impulse control" exercises in NVT. We explore the benefits of each type of training and offer examples of how athletes can use these exercises to improve their cognitive control and inhibition, ultimately leading to improved athletic performance. Whether you're an aspiring athlete, already an athlete looking to gain that additional edge, or simply interested in optimizing your cognitive functions, this article will provide valuable insights into the world of NVT.

Our How To section in this issue features instructions on how to use the Vector Balls, an NVT product manufactured by EyeOnBall. These specially designed balls are an exceptional tool for enhancing visual skills such as depth perception, tracking, peripheral awareness, and our favorite, training decision making and acting while something is coming at you. Our article provides step-by-step guidance on how to use the Vector Balls, as well as tips on how to vary the difficulty level as you progress. Whether you're an athlete looking to gain a competitive edge or someone looking to improve their overall visual performance, the Vector Balls are an invaluable addition to your NVT training regimen.

We hope that you find the content in this issue informative, engaging, and useful for your NVT practice.

WHAT'S IN OUR LATEST ISSUE:

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Go-No-Go vs Impulse Control Training Using NVT

For our main content, we'll dive into the importance of training "go-no-go" and "impulse control" using NVT methods, their targeted brain regions, crucial differences to consider between these two exercises, and how they can benefit athletic performance enhancement. As we know, cognitive control and inhibition are crucial for athletes to make split-second decisions on the field or court. NVT techniques aim to enhance visual and cognitive skills through a range of exercises that target specific regions of the brain responsible for visual processing, attention, and decision-making. With this in mind, we will explore how "go-no-go" and "impulse control" exercises can help athletes improve their performance and prevent injuries by strengthening their cognitive control and inhibition skills. So let's dive in and learn more about these valuable NVT training exercises!

Importance for Training

It is important to train "go-no-go" and "impulse control" exercises and the benefits of these NVT exercises include sports performance enhancement extending to injury prevention because these exercises target important cognitive skills that are essential for success in sports. "Go-no-go" exercises help athletes to react quickly and accurately to cues, such as the movement of a ball or the actions of an opponent. By training this skill, athletes can improve their reaction time, decision-making abilities, and overall performance on the field or court.

Similarly, "impulse control" exercises help athletes to inhibit impulsive responses and make more deliberate and strategic decisions, and at a much quicker pace. This skill is crucial for avoiding mistakes, maintaining focus and attention, and staying in control of one's emotions during high-pressure situations. By training this skill, athletes can reduce the risk of injuries, such as concussions or muscle strains, by making more calculated and safe movements.

Using NVT to train these cognitive skills is especially effective because it incorporates training of the brain-eye axis, emphasis on the brain when trained appropriately, that can enhance an athlete's perception, tracking, and awareness abilities. This visual training can help athletes to "see" the field or court more clearly, anticipate movements of their opponents or the ball, and react more quickly and accurately. Ultimately, by training "go-no-go" and "impulse control" exercises through our NVT methods, athletes can improve their overall cognitive abilities, reduce the risk of injuries, and enhance their sports performance.

Brain Regions of Interest

Go-no-go exercises and impulse control exercises can target several brain regions involved in cognitive control and inhibition. Here are some of the key brain regions that may be targeted by these exercises:

Prefrontal Cortex: The prefrontal cortex is involved in executive functions such as decision-making, attention, and working memory, which are essential for both go-no-go and impulse control tasks. These tasks require the individual to inhibit a prepotent response and instead maintain the relevant information in working memory to execute the correct response. NVT exercises may target the prefrontal cortex to improve these cognitive control processes.

Anterior Cingulate Cortex: The anterior cingulate cortex (ACC) is involved in error monitoring, conflict detection, and performance monitoring. During go-no-go and impulse control tasks, the ACC may be activated when the individual makes an error or experiences conflict between competing responses. NVT exercises may target the ACC to improve error monitoring and conflict detection, leading to improved cognitive control and inhibition.

Basal Ganglia: The basal ganglia are a group of subcortical structures involved in motor control and learning. During go-no-go tasks, the basal ganglia may be involved in selecting and initiating the correct motor response. During impulse control tasks, the basal ganglia may be involved in inhibiting the prepotent response. NVT exercises may target the basal ganglia to improve motor control and learning, leading to improved performance on go-no-go and impulse control tasks.

Parietal Cortex: The parietal cortex is involved in spatial awareness, attention, and visual processing. During go-no-go tasks, the parietal cortex may be involved in spatial attention and recognition of the relevant stimulus. During impulse control tasks, the parietal cortex may be involved in visual processing and attentional control. NVT exercises may target the parietal cortex to improve visual processing and attention, leading to improved performance on go-no-go and impulse control tasks.

Differences between Go-No-Go and Impulse Control
While go-no-go exercises and impulse control exercises both involve inhibiting responses to certain stimuli, they differ in their specific goals and the types of stimuli they use.

Go-no-go exercises are designed to improve an individual's ability to quickly recognize and respond to a specific stimulus, while inhibiting responses to other stimuli. For example, in a go-no-go task, the individual may be instructed to press a button when they see a green circle, but not when they see a red circle. This task requires the individual to quickly recognize the relevant stimulus (the green circle) and respond, while inhibiting responses to the irrelevant stimulus (the red circle).

Impulse control exercises, on the other hand, are designed to improve an individual's ability to inhibit responses to irrelevant or distracting stimuli. For example, in a Stroop task, the individual may be shown the word "red" written in green letters, and instructed to say the color of the letters, not the word itself. This task requires the individual to inhibit the impulse to read the word, and instead focus on the relevant task of identifying the color of the letters.

Overall, go-no-go exercises focus on responding to a specific stimulus, while inhibiting responses to other stimuli, while impulse control exercises focus on inhibiting responses to distracting or irrelevant stimuli. While there is some overlap between the two types of exercises, they target different cognitive processes and can be used together to improve overall cognitive control and inhibition.

Sports-Specific Benefits of NVT Go-No-Go and Impulse Control Exercises
NVT exercises for go-no-go and impulse control can have significant benefits for athletes by improving their ability to quickly process visual information, attend to relevant cues, and inhibit responses to irrelevant stimuli. Here are some sports-specific examples of how NVT exercises can enhance athletic performance:

Football: In football, players need to be able to quickly recognize specific visual cues, such as the location of their teammates and opponents, the direction of the ball, and the play being executed. NVT exercises for go-no-go, such as letter or symbol recognition, can help improve players' ability to quickly recognize and respond to these cues, while inhibiting responses to irrelevant cues.

Basketball: In basketball, players need to be able to pay close attention to their opponents' movements and react quickly to changes in direction or speed. NVT exercises for impulse control, such as a reaction time task using the Dynavision D2 Light Board can help improve players' ability to quickly react to relevant cues, while inhibiting responses to irrelevant cues.

Golf: In golf, players need to be able to maintain focus and concentration for long periods of time, while blocking out distractions from the environment. NVT exercises for go-no-go and impulse control, such as visual search and color recognition, can help improve players' ability to maintain focus and attention, while inhibiting responses to irrelevant distractions.

Tennis: In tennis, players need to be able to quickly react to their opponents' shots, while also maintaining a strategic focus on the game. NVT exercises for go-no-go, such as directional recognition, can help improve players' ability to quickly recognize and respond to relevant cues, while inhibiting responses to irrelevant cues.

By incorporating NVT exercises for go-no-go and impulse control into an athlete’s training regimen, athletes can improve their visual processing, attention, and impulse control, which can lead to improved performance on the field, court, or course. Additionally, the skills learned through NVT can transfer to other areas of life, such as academic or work performance, making it a valuable tool for overall personal and professional development.

All in all, training go-no-go and impulse control exercises using Inneuractive's NVT paradigm can have significant benefits for cognitive and athletic performance. These exercises target specific regions of the brain responsible for cognitive control and inhibition, leading to improvements in reaction time, decision-making, and overall visual performance, improving the connections through the eye-brain axis. By incorporating these exercises into a NVT program, athletes can see improvements in their sport-specific skills, leading to enhanced performance and reduced risk of injury. At Inneuractive, we are committed to helping individuals achieve their full potential through the power of NeuroVisual Training. If you have any questions or would like to learn more about our products and services, please don't hesitate to reach out to us at info@inneuractive.com or visit our website at www.inneuractive.com.

“How To” – Vector Balls

The Vector Ball is an invaluable training tool for NeuroVisual training that helps strengthen an athlete’s visual processing speed, reaction time, coordination, decision-making, and accommodation processes. It provides a great addition to any NeuroVisual Trainer’s tool bag, specifically for pitch-and-catch drills. But how can a ball touch all these neuro processes?

The Vector Ball is the same size and roughly the same weight as a standard baseball, and it even has blue seams on it. The bounce of the vector ball is not as good as a tennis ball or super ball, but better than a baseball. Bounce this ball on the ground or to a friend, and you’ll notice something peculiar about it. Upon impact, the ball will briefly and brightly flash either a red, blue, or green light, and therein lies the magic of the Vector Ball. The flash of light is bright enough to see in most indoor settings, but hard to see in direct sunlight.

These light flashes allow NeuroVisual Trainers to elevate traditional pitch-and-catch drills by introducing signals and response commands. For example, if the trainer bounces a ball to the athlete and the ball flashes red, the athlete will catch the ball with the right hand. This flash forces athletes to stay disciplined on the ball as it travels, see and process the flashes/light frequencies, decide which hand to use, and execute the proper movement to complete the catch. For the NeuroVisual trainers, the Vector Bal opens a world of possibilities for introducing new and more complex training progressions.

The Vector Ball operates on a random signal generator so it can also be used as an extrinsic instruction instrument. For example, an athlete running towards the NVT training catches the ball in the air, the flash will indicate cut right (red), cut left (green), and stop (blue). Similar decision paradigms are available with the vector ball.

Another significant aspect of this training device is that you can train solo. If you’re an athlete out of season or looking to improve your thinking speed, the Vector Ball can satiate those needs.

In this “How To,” we will brief you on how you can do a version of pitch-and-catch with the Vector Ball. Here are the step-by-step instructions for using the Vector Ball:

Materials Needed:

- 10-20ft open space
- Vector Ball

Instructions:

1 - Explain the purpose of the drill to the athlete/participant. Let them know that they will be bouncing a ball back and forth between themselves and the trainer.

2 - Show the athlete/participant that a red, blue, or green light will flash randomly when the ball is bounced. Explain that the color of the flash determines which hand they must catch the ball with.

3 - Show the athlete/participant that a red, blue, or green light will flash randomly when the ball is bounced. Explain that the color of the flash determines which hand they must catch the ball with.

4 - Recommend that the drill run for a few continuous minutes, and that the athlete/participant should work continuously.

5 - Start the drill with the instructor bouncing the ball first. Stand on a firm surface at least 10-20ft from the subject to begin the drill.

Note: the shorter the distance between the instructor and the athlete/participant, the more challenging the drill because the subject will have to recognize the color of the flash and decide the appropriate hand to catch the ball at a much quicker pace.

6 - Bounce the ball, aiming for about 8 feet short of the athlete/participant.

7 - The athlete/participant should track the ball and observe the flash. Based on the flash, they must catch the ball with a specific hand or both.

8 - After catching the ball, the athlete/participant should toss it back to the instructor and repeat the task.

9 - Continue the drill for a few minutes, varying the speed and direction of the ball to challenge the subject.

10 - Monitor the subject's progress and provide feedback as needed.

11 - Once the athlete/participant develops proficiency at this exercise, progress them to more challenging difficulties by adding tasks, pinhole glasses, strobe glasses, while on half bosu ball, etc.

Note: this is a foundational exercise and is very progressive. Adding tasks such as auditory memory recall, switching signal response commands, or adding a second vector ball can enhance the complexity of the exercise. The only limit is your creativity!

Announcements

They're back. Vector balls from www.eoball.com are for sale again for $44.95 each. Vector balls randomly flash red-blue-or-green when bounced and are a great NVT aid.

Looking to get started with NVT Training? Check out Inneuractive’s NVT Starter Pack! https://inneuractive.com/product/nvt-starter-kit-2/

On June 22 2023, at 12:00 noon meet Dr. Clark at the Food court in the NATA convention in Indianapolis. More information can be found here; https://convention.nata.org/.

As always, if you’re interested in learning more about Inneuractive our mission, our products and service offerings, or just Neuro-Visual Training in general, please click the following link: www.inneuractive.com.

Have suggestions for a future issue? Please reach out to clarkjf@gmail.com or info@inneuractive.com and we will do our best to include your request in the future.