

# FRIENDS OF NVT

OFFICIAL NEWSLETTER OF INNEURACTIVE, INC.



## INTRODUCTION

Welcome to Issue 4, Volume 11 of the Friends of NeuroVisual Training Newsletter! In this edition, we explore the intricate dynamics of visual exploration in sports performance, with a spotlight on the latest research questioning established beliefs about visual exploratory activities (VEA).

Our feature article presents a detailed review and critique of the publication, "No evidence that visual exploratory activity distinguishes the super elite from elite football players" by Simone Caso, Thomas B McGuckian, and John van der Kamp. This study revisits the assumption that VEA—head and body movements made by football players to search for action possibilities before receiving the ball—is a key performance indicator that sets super elite, award-winning players apart from their elite counterparts. By analyzing video footage from the men's UEFA Champions League 2018-2019 season, the researchers found no significant differences in VEA or performance between the two groups, challenging the notion that VEA distinguishes the highest echelons of football talent.

Complementing our main discussion, this issue's "How To" article, "Using the Marsden Balls for Multitasking and Failure Analysis," offers practical insights into enhancing multitasking abilities and conducting failure analysis through the use of Marsden Balls. This versatile tool is essential for anyone looking to improve their neurovisual training regimen.

Join us as we delve into the nuances of visual exploration in sports and equip our community with the latest knowledge and techniques in neurovisual training. Thank you for your continued engagement and support as we strive to push the boundaries of cognitive health and performance.

### WHAT'S IN OUR LATEST ISSUE:

- Introduction
- A Critical Review of Visual Exploratory Activity in Super Elite vs. Elite Football Players – Robert Hasselfeld & Jon Vincent
- How To: Using the Marsden Balls for Multitasking and Failure Analysis – Joe Clark
- Announcements
- Disclaimer



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# Challenging Assumptions: A Critical Review of Visual Exploratory Activity in Super Elite vs. Elite Football Players

Today, we will review the research article "No Evidence that Visual Exploratory Activity Distinguishes the Super Elite from Elite Football Players," published in *The Journal of Science and Medicine in Football*. This study examines whether visual exploratory activity (VEA) differentiates elite football players from super elite players. In this context, elite players are those who have competed at the highest level but have not won accolades, while super elite players have competed at the highest level and have received awards.

The study analyzed video footage from UEFA Champions League matches, comparing VEA and performance between the two groups during specific game phases. The procedure is described in great detail, including how video footage was obtained and analyzed. The use of SportsCode Elite software to analyze footage and the specific inclusion and exclusion criteria for ball receptions are well-documented, enhancing the replicability of the study. The results showed no significant differences in VEA or performance between elite and super elite players, suggesting that VEA does not distinguish these two levels of players. The authors acknowledged the limitations of their study and emphasized the need for further research with more controls.

Despite the robust methodology, the study has some notable limitations. Firstly, the sample size was very small, comprising only 18 super elite players and 18 elite players from a single UEFA Champions League season. This limited sample does not represent the broader population of football players worldwide.

Secondly, although the authors attempted to control for match dynamics, achieving complete control in a fluid game like football is highly challenging. Factors such as opposition strength, team strategy, and individual player roles can significantly influence the results. The discussion on match dynamics assumes that higher-paced games necessarily lead to more frequent and earlier VEA. While plausible, this assumption could benefit from empirical evidence or a more nuanced exploration of how different game contexts impact VEA. Lastly, measuring VEA through video analysis may miss subtle or nuanced exploratory actions that are not easily captured on camera.

The authors present a compelling argument against their results, suggesting that the study's focus may be biased towards stable, tactically routine play. They posit that the value of VEA might be more evident in chaotic, tactically unstructured situations, such as when there are limited passes before possession or during turnovers. This insightful consideration highlights the importance of examining VEA in various game contexts to fully understand its impact. Additionally, the authors astutely note that super elite players may distinguish themselves through aspects of the game not captured by the current performance measures, such as engaging in riskier and more penetrative passes. This recognition underscores the complexity of football performance and the need for multifaceted approaches in future research.

Football requires extensive scanning, spatial reasoning, and neuro-visual attributes to enhance decision-making speed and accuracy. The study frequently mentions that super elite players may distinguish themselves through other aspects of the game not captured within the performance measures (Caso et al., 2024).

Imagine being a midfielder, a position that demands a 360-degree field of view (FOV) to be effective. Regularly scanning the field is common for midfielders, as suggested by the study. However, much more happens beyond just looking around; it involves complex mental processes and decision-making skills.

A midfielder must continuously process a vast amount of information in real-time, including the positions and movements of teammates, opponents, and the ball. They need to anticipate the flow of play, predict potential passing lanes, and identify spaces to exploit. This involves spatial awareness and the ability to quickly interpret and react to dynamic situations.

Moreover, midfielders must make split-second decisions under pressure. They need to choose the best option among several possible actions—whether to pass, dribble, or shoot—while considering the tactical objectives of the team. This decision-making process is influenced by their understanding of the game, the specific strategies employed by their team, and the tactics of their opponents.

For instance, if a midfielder receives the ball near the center circle, they must immediately assess the positioning of the opposition's defensive line, the availability of passing options, and the potential for a forward run. They must also be aware of any pressing players attempting to close them down and decide whether to retain possession or release the ball quickly to maintain the team's tempo and rhythm.

Furthermore, communication and coordination with teammates are crucial. A midfielder often acts as the link between defense and attack, requiring constant verbal and non-verbal communication to orchestrate movements and maintain team cohesion. This role demands a high level of tactical intelligence and the ability to adapt to changing circumstances on the pitch.

In summary, while visual exploratory activity is a key component, a midfielder's effectiveness hinges on their ability to integrate visual information with cognitive processing and decision-making skills. This multifaceted capability is what we believe differentiates an ordinary player from an exceptional one, highlighting the intricate nature of football performance.

# How To: Using the Marsden Balls for Multitasking and Failure Analysis

When an athlete gets overloaded, sometimes called task overload, he / she will often start to have a degradation in performance. One or more tasks will have a decrement in performance proficiency. A task that was previously proficient becomes less proficient when tasks are too many and / or too fast. When working with athletes for performance enhancement we often talk about failure as a process and failure as a decision. Many athletes can vocalize that a task became too hard to do well, so they started doing that task with less efficiency to maintain the performance proficiency of another task. This is a decision to fail on that task. Multitasking is known to have an impact on task proficiency, but our NVT is designed to mitigate that impact as well as aid the athlete in decision making concerning protecting key activities. We've discussed the differentiation of multitasking previously (V714).

Marsden balls (V211, V616, V716) is an NVT task that has multiple tasks layered in the activity. Recall the task involves, catching with the correct hand based on color, calling the alphanumeric in the air, balance on a half Bosu or other progression methods. When we are working with an athlete and we want to take that person to and past failure with the Marsden balls, we progress them with tasks and speed of tasks by working them through progressive stages by adding tasks one at a time.

First start with pitch and catch where they use the correct hand to catch the colored

balls, often just ball pit balls.

Catch with the correct hand with the correct color while adding wiffle balls and colored balls that have alphanumeric or shapes on them. They still catch with the correct hand based on color but now call the shape or alphanumeric while the ball is in the air.

Next we have one or more person throw multiple balls at the same time. They are to catch at least one ball and call the alphanumeric while using the correct hand configuration based on color. Failure often starts here where one or more tasks start to have decreased proficiency. This activity often has many more balls dropped and the wrong hand configuration.

We can progress further by having the athlete stand on a half Bosu while catching balls, calling alphanumeric, using hand configuration based on color and have multiple balls coming at them at once. Alternately we can do rhythmic stabilization (V515) not on the half Bosu. Rhythmic stabilization while on the half Bosu could be the next progression in the program.

You, the NVT trainer should watch carefully how the person is deciding to fail. Note if they fail on the balance, or the correct hand, or calling the alphanumeric or multiple failures. This can help you make decisions as to what tasks to focus future training on. For example, if the person has a good performance until they

are on a half bosu you may conclude that their balance task is overloading their ability. You may wish to consider to do some balance and vestibular training in isolation to improve performance. Making note of failure inducing activities can aid you in improving the NVT training experience.

Please note, that modalities other than Marsden ball can be taken to task overload. This article is intended to simply highlight one example of task overload program using Marsden balls. The goal is to exemplify how you can use this activity when making decisions on what NVT training to engage in. If the concept of failure as a decision and how to identify failure inducing activities, please let us know.

## Announcements

- **Welcome the Chillicothe School System:** We are thrilled to announce the initiation of NeuroVisual Training (NVT) with student athletes at the Chillicothe School system. We hope this program will benefit all those involved, enhancing athletic performance and visual function.
- **Congratulations to Kevin Kohmescher and Aidan Butler:** We extend our heartfelt congratulations and best wishes to Kevin Kohmescher and Aidan Butler on their acceptance to medical school. Both will be starting their medical training this summer. Well done to both of you on this significant achievement.
- **Inneuractive Neurobiks™ Training:** Inneuractive is proud to announce that starting in July, we will be offering Neurobiks Training at the Lakota YMCA for their clients and the Silver Sneakers program. We are excited to bring the benefits of Neurobiks to the community and look forward to working with all participants to enhance their neuro-visual health and overall wellness.
- **Discover the Power of Synergy with Tricerapro's Upgraded Formulation:** Now available at [tricerapro.com](http://tricerapro.com), Tricerapro combines the scientifically proven benefits of creatine, magnesium, and BHB into one potent supplement. This unique three-ingredient formula is designed to enhance brain health by leveraging the synergistic effects of its components. Learn more at [tricerapro.com](http://tricerapro.com).
- **Inneuractive Store:** As always, please check out our store at [Inneuractive Shop](http://Inneuractive Shop). We regularly add new products and are excited for the upcoming launch of our NVT warmup panels and the Speed of Accommodation and Processing software platform.

***Disclaimer:** Nothing in this communication should be construed as a practice of medicine, an endorsement, or political action. The opinions are the opinions of the authors.*