

# **FRIENDS OF NEUROVISUAL TRAINING NEWSLETTER.**

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### **Introduction.**

As we routinely discuss the benefits of neuro-visual training for performance enhancement, we also spend a lot of content on highlighting these same methodologies as a tool for traumatic brain injury rehabilitation. Thus, today's feature article is by one of our co-authors, Jon Vincent, and he'll be discussing this conversation in greater detail: is NVT for performance enhancement or really for concussion rehabilitation.

Our "How To" this week is written by another one of our co-authors, Blake Bacevich, who will go into details about the benefits of eye patching for performance enhancement. As with most standard exercises, "staleness" is a huge factor we try to avoid, thus the necessity for increasing difficulty levels, as well as incorporating accessory tools to progress individuals through an NVT program is essential for optimal benefits and avoiding plateaus.

Thanks for staying with us and please follow us on Twitter @FriendsOfNVT!

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### **NVT for Performance Enhancement vs Concussion Rehabilitation.**

As neuro-visual training methodologies gain awareness amongst society, it is a common question whether NVT is primarily for performance enhancement verse better suited for concussion rehabilitation. To me, this question gets to the foundation of what neuro-visual training as a philosophy really is, which is performance enhancement. Now let's dig a little deeper on the issue, because to some this answer may come as a shock, as we actively highlight in our content the numerous benefits and published data on the effectiveness of NVT for concussion rehabilitation, if done properly.

NVT in its essence is performance enhancement by improving the brains processing abilities along the eye-brain axis. By doing this, in theory, one would be able to then improve their neural processing capabilities against the visual stimuli entering the brain through the eyes. With visual information accounting for approximately 80% of the total information garnered from the senses, this has quite a bit of weight towards the

information one's brain synthesizes; thus, it is of the utmost importance to work towards developing these processes efficiencies. We believe this can be done through NVT, and have electrophysiological data demonstrating increased voltage output from the brain post NVT program completion. This provides insights into how NVT is changing the brain either by increasing the amount of "stuff" (something, but we can't say what because of the limitations from electroretinographical data) or increasing the efficiency of the processing system in the brain through potentially decreasing the amount of "junk" which may lead to increased resistance.

Although, the argument for NVT being more concussion rehabilitation is focused on the relevancy of conducting NVT when one is not injured or impaired. A valid argument that I find to be more intrinsic with the time required to perform NVT, similarly to why people do not stick to consistently working out. Peoples' lives are busy, so why should they take the time to do NVT, especially if they feel alert, without "neural lag", and overall healthy?

That is a good point, but to further the conversation of NVT as performance enhancement, NVT works at its most optimal for concussion rehabilitation if there has already been a solid foundation laid for NVT. For example, peer-reviewed published data reports decreasing the time it takes Division-1 football players at the University of Cincinnati to return-to-play post-concussion by 50%, attributed to their NVT program. Although, UC's NVT program focuses on the totality of the NVT system, being primarily used for performance enhancement, with players conducting NVT prior to injury, leading to improved performance. This philosophy relates once again to traditional strength and conditioning, where if someone who has never consistently engaged in physical exercises and conditioning before and that person unfortunately strains their hamstring, it generally takes 4-6 weeks for their hamstring to heal, even with going through physical therapy. Well, we routinely see athletes at all levels return quite often within 2 weeks of a similar type injury. Why is this? It's thought that this occurs because the initial 3 weeks of physical therapy for the person who hasn't regularly exercised needs to train their body how to exercise with proper technique, teach their body how to bear load, etc, whereas the athlete has been engaged with routine and frequent physical exercise, already learning those skills. Thus, their body has been put in the position to begin the rehab process more quickly.

But how specifically can NVT lead to performance enhancement? Simply put, the brain controls the body. There are times when the body can go "faster" than the brain. Many aspects of NVT will train the brain to go faster and thereby keep up with the body. Any and all of these "burst" activities require the brain to coordinate and synchronize that burst activity. The NVT methodologies work to improve the coordination and synchronization of these activities and maintain them when the brain and body are fatigued. Thus, training the brain, especially the fatigued brain, to push to new limits will improve performance while decreasing injuries and is absolutely trainable. Mixing the brain training in with the body training to get fatigued sessions occasionally is of great benefit. Note, we do not claim that people will make better decisions. The decisions and performing with good form are a coaching issue. The speed, duration and fidelity of the brain's decisions will be

improved with proper NVT. With that said, that is why I believe NVT to be more performance enhancement verse concussion rehabilitation.

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## **“How To” – Eye Patching for Performance Enhancement**

Just as individuals can be right-handed or left-handed, they can also be right-eye or left-eye dominant. Both eye and hand dominance are a continuum that can be trained over time with targeted exercises and is an important baseline assessment to complete on any new athlete or client you are beginning to work with (14V1). For many sport related activities, a high level of performance for both eyes is a critical component to on-field success. For example, think of a wing in hockey or soccer. Throughout the game, they typically stay on one side of the ice/field and receive a large majority of their visual input regarding player movement and passes coming their way and from the eye closer to the field of action. If this players' eye dominance happens to lie more in the opposite eye, they may be missing out on a large amount of visual input necessary for them to perform at their optimal level of performance.

Just as occupational therapists have been able to teach a right-handed patient to write with their left hand, an individual can be trained to be less one eye dominate (or more ambidextrous) through constraint induced therapy such as an eye patch. Eye patching can serve as an adjunct to many previously discussed NVT drills such as the brock string, saccades, near/far, dynavision, and pitch and catch. However, when choosing to add eye patching to a drill, it is very important to remember that you are taking away your patients depth perception so be sure to choose drills carefully and do not use heavy balls for pitch and catch activities.

While the primary goal in mind for constraint induced eye patch therapy is uptrain the bad eye, we must be very careful not to detrain the good eye. In order to ensure we are still able to train the less dominate eye while not weakening the good eye we tend to follow a specific patching routine with any exercise we decide to add a patch to. Take saccades for example, we would instruct our client to complete the saccades 4 time as follows;

- 1-minute patching the dominate eye
- 1-minute patching the weak eye
- 1-minute patching the dominate eye
- 1-minute patching neither eye

Through this routine we can ensure we are uptraining the athlete's weak eye, while not neglecting the dominate eye or symmetry of the eyes working together.

Lastly, it is important to note that adjusting eye dominance takes time and that performance may go down before improvements are noticed. It also may be necessary for continuous reinforcement as backslide may occur. As always, involve medical

personnel when making decisions or action plans regarding adjustments of eye dominance.

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### **Announcements.**

This past weekend, The Carrick Institute, leaders in clinical neuroscience education and functional neurology hosted a lecture series taught by Dr. Joe Clark. Thank you to all of our followers who attended and for more information regarding recordings and future events, visit The Carrick Institute's website at <https://carrickinstitute.com/>.

As always, if there are any questions, comments, or concerns please feel free to reach out to Dr. Joe Clark at [clarkjf@gmail.com](mailto:clarkjf@gmail.com) or [info@inneuractive.com](mailto:info@inneuractive.com) and please visit [www.inneuractive.com](http://www.inneuractive.com) for more information on NVT, available NVT products, and NVT services.

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