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FRIENDS OF NVT

OFFICIAL NEWSLETTER OF INNEURACTIVE

INTRODUCTION

Welcome to Issue 3, Volume 5 of our continuing Friends of NVT Newsletter! The place for all your neuro-visual training insights and information. We are thrilled for you to be joining us yet again and continuing your support for our mission and newsletter.

In this issue, we are presenting our belief in why the Accommodative-Convergence Accommodation (ACA) reflex should be considered a component in an athlete's intake physical. Throughout our 5 Volumes of the Friends of NVT Newsletter, we've discussed the importance of the accommodative system many times, as well as brought attention to the significance of the ACA reflex, whether it's discussing the accommodative process and athletic performance (I6V3), the negative effects staring at your phone prior to performance has on the accommodative system (I5V3), or several others. This article directly speaks to the importance of an ACA reflex baseline value for athletes.

Furthermore, our "How To" for this week explores Eye Patch Training with an Artificial Horizon. So, stick around for that and learn how to get more out of your NVT program! Lastly, we have several exciting updates and announcements, so stay tuned and make sure you don't miss those, found at the bottom of this newsletter.

As always, we genuinely appreciate your support, and continue to look forward to bringing you the latest updates, philosophies, and strategies of Inneuractive, and our NVT programs. Make sure to follow us on twitter at @FriendsofNVT.

WHAT'S IN OUR LATEST ISSUE:

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Benefits of the ACA Reflex as Part of an Intake Physical

As we've discussed the accommodative-convergence accommodation (ACA) ratio in a previous issue of our Friends of NVT Newsletter, for a brief description, the ACA ratio is a neurological reflex that defines the relationship between the amount of convergence (in-turning of the eyes) that is generated by a given amount of accommodation (focusing effort). Keep in mind the emphasis that this is a neurological reflex, a neurological process, not necessarily a relationship between independent eye functions. We can successfully measure an individual's ACA ratio through the use of a phoropter, which is a standard optometry device that we often use as a component of our Neuro-Visual Suite. Since we can quantify the ACA ratio through using the phoropter, we can objectively quantify this neurological reflex.

When considering the ACA ratio for intake physicals a couple of protocols should be established. The distance from the subject to the target should be standardized. Age related norms should be taken into account. Best correction for that distance must be worn. Indeed, low acuity will impact the test results. The fixation target should be consistent from subject to subject in order to make comparisons and or a valid diagnosis. The amount of correction should be consistent in the protocol as well. Even the rate in which the tester moves the prisms should be a consistent as possible. A quality and consistent protocol will be more likely to produce quality diagnostic data.

With that said, since the ACA ratio is a neurological reflex that we can objectively quantify, we highly recommend including this as part of an athlete's intake physical, and especially as part of an athlete's concussion baseline. Since the ACA ratio takes into consideration the convergence system and the accommodative system, two highly consistent systems, and both systems that are commonly disrupted during insult, the differences between an initial ACA ratio as part of an intake physical and a reexamination can be useful in aiding the determination of a cognitive injury such as a concussion.

"HOW TO – Eye Patching with an Artificial Horizon

Eye patching is a common therapy in the optometry world for treating amblyopia, or a "lazy eye". A lazy eye is defined as an eye with reduced vision primarily caused by abnormal visual development early in life. This weaker eye usually "wanders" inward or outward, in terms of alignment compared to the stronger eye. This disorder is called strabismus and commonly occurs in conjunction with amblyopia. The eye patching therapy usually instructs one to cover their stronger eye with the eye patch, forcing the brain to use the eye with weaker vision. Now, this seems like a standard optometry recommendation… what does this have to do with neuro-visual training and athletes?

The problem we experience with this common eye patching technique is that when you cover the stronger eye with a standard, completely black eye patch, you are not providing that eye with any stimulus what-so-ever (Figure 1). With time this could then over train your weaker eye to become stronger than "normal" eye, or can even make your stronger eye weaker, so that when training your weaker eye back to normal, your normal is now reduced compared to what it could have been. Also, there could be some concern for inducing a strabismus or wandering of the stronger eye while isolated in darkness behind the eye patch, because your eye is not closed, it is supposed to remain open, and with no visual stimulus, the eye may wander. So how do we adjust for these potential negative effects and attempt to maximize the benefits of eye patching?

In our practice, we routinely add a colored, usually white or silver, "artificial horizon" to the inside of a standard black eye patch. This artificial horizon can be horizontal, vertical, or either diagonal (Figure 2).

The purpose of this is that the artificial horizon provides the eye patched eye with some visual stimulus, as well as a fixation target to mitigate against any potential wandering. Again, this is important because we don't want to decrease the strength and ability of the already stronger eye, however, we do want both eyes to improve and become symmetrically strong. So how is this relevant for athletes, neuro-visual training, and therapy post-concussion?

During our performance enhancement neuro-visual training exercises, when we include our manipulated eye patching drills with the artificial horizon, we usually do four sets of the drill. For example, let's say we are having our athletes perform Brock string exercises, and this Brock string exercise uses a 10-ft Brock string, and their goal is to converge and focus on each bead for approximately 1 second each, while simultaneously using a multi-colored baton from their periphery to touch the bead with the corresponding, matching color on the baton (a rather difficult, and advanced drill). Each set will go for 1 minute and the number of "runs" (down and back the Brock string) is recorded. Now let's say we want them to do this exercise with an eye patch. The first set of the exercise will be using both eyes, the second set will be eye patching with an artificial horizon either the right or left eye making sure to have the eye patched eye open throughout the set, the third set will be the same as the second, but with the eye patch over the opposite eye as the last set (if set 2 eye patched the left eye, then set 3 would eye patch the right eye), and set four would conclude the exercise with the athlete performing the final set with both eyes again, as the starting set.

In the unfortunate circumstance of a concussive injury, one of the more common symptoms we see in our patient population is suppression, as well as fatigue-induced suppression, which we have discussed throughout many past Friends of NVT Newsletters. As a brief refresher, suppression is defined as a subconscious, maladaptive strategy of the brain to eliminate the symptoms of binocular vision disorders such as strabismus, convergence insufficiency, aniseikonia (the difference in perceived size or shape of an image between the eyes), and others. Fatigue-induced suppression is a type of suppression that comes and goes, or is "intermittent", and only occurs when the brain gets fatigued, whether from the classroom, studying, playing sports, or really any activity that requires increased cognitive demand. Thus, when we enroll a concussion patient, either athlete or non-athlete, into our NVT rehabilitation program, and they inevitably perform eye patching exercises, we absolutely make sure that the eye patch has an artificial horizon so that there is at least the bare minimum of visual sensory information. That is because if there isn't the artificial horizon, and it is just a standard black eye patch, no sensory information is being provided to the eye patched eye, which could lead to a fatigue-induced suppression, which is what we are working towards resolving.

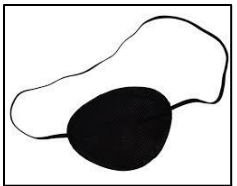

Figure 1: Standard black eye patch

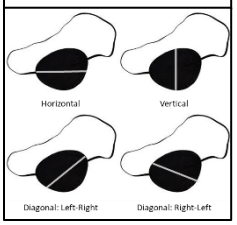

Figure 2: Eye patch with different artificial horizons

Announcements

The Carrick Institute, thought leaders in the field on Functional Neurology, are hosting their biannual Synapse Sessions October 23-24, 2021. For more information and registration, please visit the following link: https://synapse.carrickinstitute.com/.

Inneuractive will be participating with a local health care innovation summit; https://innovativehealthcareinstitute.com/about-ahis2021/. Please stop by live or virtually on September 17th

Also, in exciting news, Dynavision International, manufacturer of the Dynavision D2 device is BACK and BETTER than ever! They are back in business and have been the long-standing leaders in Sports Performance Training Devices across the market. For more information, please visit www.dynavisioninternational.com.

As always, if your interested in learning more about Inneuractive, our mission, our products and service offerings, please click the following link: www.inneuractive.com.

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