

# FRIENDS OF NVT

OFFICIAL NEWSLETTER OF INNEURACTIVE



## INTRODUCTION

Happy Anniversary to Friends of NeuroVisual Training Newsletter and welcome to Issue 6 Volume 6! This issue marks two years of Friends of NVT's newsletter. We began in Volume 1 by discussing the three pillars of NeuroVisual Training, and over the past two years, we've conducted interviews with athletic trainers and practitioners of NVT and have talked about topics ranging from performance enhancement to brain injury rehabilitation. If you missed an issue, please visit <https://inneuractive.com> where all issues are available for free. Please tweet and share with your friends as we plan to release more great content in the coming year @FriendsofNVT.

In the main portion of today's newsletter, our newest author/team member Esha Reddy reviews an article from Optometric Management discussing whether the order in which we train visual hardware and software skills impact visual training outcomes.

In our "How To" this week, Dr. Joseph Clark provides multiple methods on how to use hanging Marsden balls. This simple, easy, and accessible activity can be added to any NVT program and be used on patients with deficiencies, with athletes for performance enhancement, or for hand-eye coordination with the addition of the multicolored baton. This activity has long been used in vision training, but its simplicity allows it to be customizable to each person's needs.

We encourage you all to leave questions and/or comments below. Thank you for the continued interest and enjoy!

## WHAT'S IN OUR LATEST ISSUE:

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- Article Summary: "Which Comes First in Sports Vision Training: The Software or the Hardware Update?" - Esha Reddy
- How To: Hanging Marsden Ball - Dr. Joseph Clark
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## Article Summary: “Which Comes First in Sports Vision Training: The Software or the Hardware Update?”

When conducting sports vision training on athletes, there are two systems a clinician must consider when developing the training regimen: the visual “hardware” and “software” systems.

These terms were originally coined by Abernathy in 1986 where the term “hardware” refers to mechanisms for gathering visual information (binocular vision and oculomotor skills). On the other hand, “software” refers to information analysis (reactive and perceptual skills). Abernathy included skills such as depth perception, accommodation, convergence, and contrast sensitivity as parts of the hardware system while skills such as eye-hand coordination, visual adjustability, and central-peripheral awareness were included under the software system.

It is undeniable that we must train both visual software and hardware. But does the order in which we train these systems really matter?

According to Dr. Biberdorf, optometric clinicians, with their background in vision therapy, naturally tend to begin with hardware drills whereas athletic trainers and coaches tend to begin training plans with visual software drills. To answer the question of whether the order in which these systems are trained affects allocation of attention and visual information processing efficiency, Dr. Biberdorf and Dr. Poltavski divided youth hockey players with no history of concussion into two groups: one in which hardware was trained first, and another where software was trained first. For 10 weeks, the groups trained equal parts hardware and software -- the order separating the two.

Following ten weeks of training, all athletes showed significant improvements. Contrary to expectation, the electrophysiological profiles of athletes who received software training prior to hardware training were more consistent with greater efficiency in visual processing – indicating that software training may prime one’s oculomotor system, leading to greater success in vision training. Overall, while software training before hardware training showed increased efficacy, significant positive results can be obtained with both orders of training.

The authors conclude by saying, “it is encouraging to note that whatever the order of training, improved performance measures — be it electrophysiological, oculomotor or perceptual-cognitive — can be achieved.” For Friends of NeuroVisual Training (@FriendsOfNVT), this report highlights methods to improve neurovisual training regimens and aligns with our mission to not only provide a cutting-edge NVT newsletter, but to constantly learn and improve the efficacy of all our training regimens.

### References:

Biberdorf, D., & Poltavski, D. (2022, June). Which Comes First in Sports Vision Training: The Software or the Hardware Update? *Optometric Management*. Retrieved June 18, 2022, from <https://www.optometricmanagement.com/newsletters/insights-into-sports-vision/which-comes-first-in-sports-vision-training>

# “HOW TO” – Hanging Marsden Balls

The Hanging Marsden ball activity is simple and easy to add to a NVT program. The essential items require a ball with fixation targets on it with string attached. Typically, balls are an alpha numeric and or characters of with colors on it. A 4-color baton is also helpful. Typically the multi color ball is a baseball with 4 different colors on each side.

## Methods for alpha numeric ball.

Method 1. The instructions are to hang the alpha numeric ball such that the ball is chest level and can swing freely with a minimum of 4 feet of string. Gently swing the ball and track a single character on the ball. Track the ball as the swinging slows. When the swing is less than 1 foot that is considered 1 rep. Changing the height changes the challenge and the frequency of the swinging ball.

Method 2. Set the ball swinging and track an alpha numeric when the ball has completed 2 pendulous swings progress to the next alpha numeric. Continue until the swinging subsides to less than 1 foot.

Method 3. Set the ball swinging and track an alpha numeric. When the ball has completed 2 swings, walk to the other side of the balls swing while tracking the correct alphanumeric. Time your walk such that the ball does not hit you. Continue until the swing subsides to less than 1 foot.

To add complexity, use two balls with different frequencies. Have the subject walk past or duck under the swinging balls while tracking the ball closest to them. When the subject crosses the two balls, they are tracking the other ball as it is now closer to them.

## Methods for color ball and baton.

Method 1. Hang the multi color ball and set it swinging left and right. Track one color as it swings back and forth. When the color rotates to the other side and you can't see it, walk to the other side of the pendulum and time the walk such that the ball does not hit you.

Method 2. Hang the multi color ball and use the baton to 'bunt' the baton's color to the ball color. Control the bunt such that the ball swings gently out and back. On the return swing bunt again matching color to baton.

- The tasks are done for 1 minute.
- Progression can include strobe glasses and or balance platforms.
- Bates Field Splitters
- Pinhole glasses
- Habituation
- Gaze stabilization
- Added balls



Figure 1. Marsden Balls



Figure 2. Multicolored Baton

The hanging Marsden ball is an established and longstanding activity for vision training. The task is easy to set up and use at home or in a clinic and is customizable based on the person's level of proficiency as well as clinical needs. This task can be used on patients with tracking or balance deficiencies as well as with athletes for sports performance enhancement. With the addition of the multi color baton the Marsden ball task has the ability to train eye hand coordination in conjunction with tracking drills. This task should be considered a central component to any NVT program.

## Announcements

Friends of NVT Team Member Jon Vincent was featured by the University of Kentucky College of Medicine. To read more visit, <https://medicine.mc.uky.edu/ar/vincents.html>

A lot of people in the neuro-visual training community have asked us what nutrition or supplements we recommend. For years we've recommended three compounds as good for brain health. Finally, a company has taken these three compounds and put them into one product; Tricerapro™. If you are interested in finding out more or how to purchase some Tricerapro please visit; [www.tricerapro.com](http://www.tricerapro.com). Try Tricerapro, it is your brain's new best friend. Please see the add on the first page of this issue!

Last month, Dr. Clark presented at the ISCN conference on the use and utility of exit baselines for concussion management for athletes. More information on the ISCN conference can be found here <https://iscn.carrickinstitute.com>.

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](http://www.inneuractive.com).

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

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