

FRIENDS OF NVT

OFFICIAL NEWSLETTER OF INNEURACTIVE



INTRODUCTION

Welcome back to Issue 4 Volume 7 of the Friends of NVT Newsletter! In the main portion of today's newsletter, Dr. Joseph Clark discusses NeuroVisual Training and the use of Multi-Tasking for NVT.

In our "How To" this week, author Jon Vincent provides methods for using neuro-enhanced flashcards for incorporating the third pillar of NVT to transform Sports Vision Training to NeuroVisual Training.

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

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. @FriendsofNVT.

WHAT'S IN OUR LATEST ISSUE:

- Introduction
- NeuroVisual Training and the use of Multi-Tasking for NVT- Dr. Joseph Clark
- How to: Transforming Sports Vision Training into NeuroVisual Training: Incorporating the Third Pillar of NVT using Neuro-Enhanced Flashcards - Jon Vincent
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NeuroVisual Training and The Use of Multi-Tasking for NVT

A lot of personal trainers, coaches, athletic trainers, and other practitioners claim that they are training multi-tasking. I've heard personal trainers claim that any training that is different than their normal tasks archives multi-tasking. Sadly, this lack of understanding of how the brain works and how the brain must operate during competitive and combat situations leads to poor performance and missed training goals. Multi-tasking training is suffering from overuse-dilution. In this article we will try to aid in a broader understanding of multi-tasking, including dual tasking, and sequential processing as well as the important nuances for each.

Using the analogy of driving a car, let's say that driving the car with no passenger, no phone call and no radio is a single task. You may have multiple things to do, but you are doing ONE task. When we add a passenger to the car and that passenger has a conversation with the driver the driver is now dual tasking. He/she is driving, and their driving should NOT be impacted by the conversation with the passenger. Thus, TWO tasks are going on at the same time: Driving and Talking. If we now have the driver engage with an electronic device such as a phone and they are texting and driving (not recommended) that person must take their attention away from the driving task, look at the screen and use at least one hand to type a text. Now the driving task continues, but this task is negatively impacted. Multi-tasking has two tasks, but those tasks are more likely to impact each other. This negative impact is what trainers claim they are training away.

Sticking with the driving analogy please consider a driver coming to an intersection with a stop sign. The driver must do multiple steps in sequence, in the right sequence and make decisions. They will come to a stop, look left, look right, remember what they saw left and right and decide to proceed or not. Sounds simple. But those of us who work with brain injured patients will have heard patients complain that they will look left and look right but forget what they saw left and must look again. Plus, those same patients may not be able to estimate the distance and speed of an oncoming car and be unable to make a safe decision to proceed or not. The afore mentioned deficiencies are sequential processing deficiencies.

When working with patients, clients, athletes et cetera multiple tasks such as, multi-tasking, dual tasking and sequential processing have different meanings and different roles for all aspects of human performance.

To clarify the training goals when considering multi tasks and task performance we use the following descriptors.

Single task.

Being able to focus on a task. Do it well, consistently, proficiently, and as quickly as needed.

Multi-tasking.

Having multiple tasks on going with overlap. The tasks are distinct. Do those tasks quickly efficiently. The goal is to have minimal decrement in performance with the added tasks. Switching between tasks based on the need. An example might be, carrying on a conversation while watching the game when the conversation stops if the game gets exciting. When the game drops off, restart the conversation.

Dual tasking.

Doing two or more tasks simultaneously. Keep both tasks going and do the tasks with minimal decrement in performance with the added tasks. Driving and talking or walking and Chewing gum are examples of dual tasking.

Sequential Processing of Tasks.

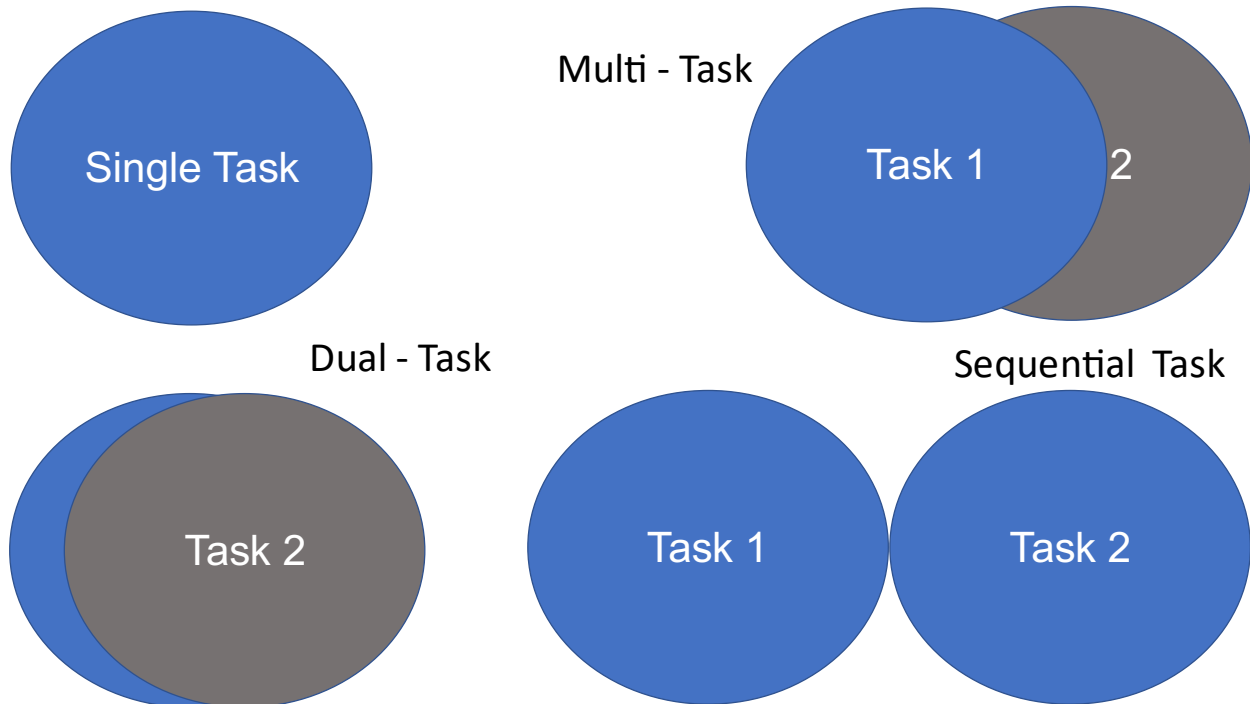
Do two or more tasks in order. Do them well, quickly and with minimal decrement associated with one vs the other.

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In baseball a common sequential processing task is a third baseman fielding a ground ball with a runner on third and one out. The fielder will do the following sequential steps; Field the ball, Check the runner, decide to throw to home or first.

Venn diagram of the 4 tasks.



When working with a patient, client or athlete consider what they need to do when designing NVT training. By the nature of this article, the NVT trainer will be focusing on Pillar 3 of NVT, brain training.

Some examples of how we do multi-tasking, dual tasking, and sequential processing training with our NVT subjects:

Multi-tasking is somewhat achieved when we use the Marsden balls (I1V2). The subject is instructed to catch the balls with red – right, green – left, blue – both and all other colors with either hand. Plus, the person must call the shape or alphanumeric on the balls. This is multi-tasking because the person has the task of catching the balls, plus other actions to make the task correct. They also have verbal tasks that must be completed. It is not sequential processing because several tasks are done at once, Catching and deciding which hand for example. It is not dual tasking because the calling the shapes or alphanumeric is not done at the same time as the catch.

Dual Tasking can be trained by having a person do the above task on a half aerex. They are keeping their balance while doing the Marsden ball task. If they take a mental break from balancing, they will fall and thus this is a dual task activity.

Sequential processing is something we do with the Dynavision (I4V2). We have the person do the Dynavision reaction test. They get a score for the full test which is a visual reaction time. The instructions have the person react to and hit one button in sets of 5. To train and test sequential processing we have a trainer throw Marsden balls or ball pit balls at the subject right when the light lights up. Thus, the subject must react to the light, hit it, turn, and catch the Marsden ball with the usual instructions of red right et cetera. This is doing a task in sequence or sequential processing.

In conclusion we believe that if you can customize your NVT to the needs of your patient or client and use diverse and appropriate multi-tasking methods you will be better able to serve the people you work with. The limitations of this type of training are our imaginations. Consider the Venn diagram concerning the different multi-tasking scenarios and address them as needed.

“How To” – Using the Phorofter to Assess and Quantify ACA Reflex

Inneuractive’s Neuro-Visual Training philosophies and methodologies all focus on a consistent theme that we try to articulate and discuss with each newsletter; the Three Pillars of NVT. We try to present different training modalities, training tools, and concepts, and then relate them back to how they fit within the schema of our Three Pillars of NVT. For more direct information about our Three Pillars of NVT, please visit our very first release of the Friends of Neuro-Visual Training Newsletter Issue 1, Volume 1. Although each of these three pillars has its specific role in our NVT paradigm, the third pillar, Brain Processing, involves the most crucial component of NVT, which is applied functional neuroscience.

This is what separates traditional vision training or even sports vision training from our Neuro-Visual Training. Throughout our Friends of Neuro-Visual Training Newsletters, we’ve presented and proposed many primary “exercises” and tools to achieve the incredible results that we have for performance enhancement, injury prevention, and rehabilitation. However, in this How To, we will be discussing arguably the best accessory exercise/tool to stimulate the third pillar, Brain Training, which is our enhanced multi-modal flashcard sets.

The beauty of our flashcards is that you can customize them however you want, with whatever functional neuroscience emphasis you are attempting to target. We’ll start by providing examples using traditional math flashcards that are just difficult enough but not too difficult. One could be training on the Dynavision D2 Light Board, or doing pitch & catch drills, then

add flashcards in between each component of the exercises to perform a lower-level brain processing training through multitasking. For every button on the Dynavision a person hits, they must turn their head or use their peripheral vision to detect the flashcard and quickly perform the standard math question (ex. $10-10+2$, 12×12 , square root of 9, 12, etc.). With these types of math problems, there are many ways to engage and enhance various brain processing modalities. Instead of presenting the math problem using traditional math numerics, such as “ $\sqrt{9}$ ”, one could write out the math problem as, “square root of nine”, or even mix and match the different styles, “square root of 9”. Although the difficulty of the problem is the same, the way your brain approaches and solves this problem is different per how the information is received and processed. There are many ways to mix up traditional math flashcards; one could change the color of the font to make “six2” and ask for the mathematical answer, as well as what the color of that answer should read on the card (red + blue = purple). Another way to manipulate these would be to change the direction of how the math problem reads; instead of the traditional horizontal presentation, one could present the problem diagonal or with using small fonts, or mixed size fonts, etc.

Another type of flashcard we love to use are our Fill-in-the-Blank flashcards. These flashcards present a 3-5 letter word with one of the letters missing. The participant is then instructed to fill say out loud, vocalizing the complete word.

The great thing about these is that it requires the participant to come up with the missing letter themselves, as there is not 100% correct answer, so they have to be creative, think of a word that uses the presented word skeleton, think of the missing letter, and then call out loud the completed word, all usually while doing a primary task. For example, if the prompted word skeleton is, “BO_T”, participant could call out “BOOT”, “BOLT”, or “BOAT”, or any others that may fit this word skeleton. The same type of “minor” changes to these flashcards to challenge the brain’s general schema of the world and how we intake and process information can be applied to these as well, such as changing the font sizes, changing the font colors, and changing the directions of the word skeleton is presented.

These are very challenging, but a great way to incorporate more advanced, cognitively challenging multitasking to traditional vision training or sports vision training exercises to achieve that third pillar of NVT, Brain Processing. There are many other examples that we could go into such as multi-meaning flashcards, and multi-lingual flashcards, but for more information, please feel free to reach out to jvincent@inneuractive.com or Dr. Joe Clark at clarkjf@gmail.com or clarkjf@inneuractive.com, or visit our store at www.inneuractive.com/store to see our flashcard offerings. We appreciate your continued support of our mission at Inneuractive and appreciate your continued viewership.

Announcements

If you are interested in learning more about NeuroVisual Training modalities such as how to use a phorofter in a rehab setting, please look into this course: tinyurl.com/b9x3ww2z. The course is designed for Athletic Trainers, Physical Therapists, Chiropractors and NeuroVisual Training specialists to gain more skills on the uses of the phorofter. Feel free to contact Dr. Clark if you have questions, clarkjf@gmail.com.

Check out this article on the effect of cognitive motor dual-task training on sports performance and brain processing: <https://www.sciencedirect.com/science/article/pii/S1469029222001704>

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.

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