

FRIENDS OF NVT

OFFICIAL NEWSLETTER OF INNEURACTIVE



INTRODUCTION

WHAT'S IN OUR LATEST ISSUE:

Welcome to Issue 1 Volume 8 of the Friends of NVT Newsletter! In the main portion of today's newsletter, Dr. Joseph Clark discusses his opinions on using Intense NVT as a central component for rehab post mTBI.

In our "How To" this week, Jon Vincent provides methods for using advanced flashcards for cognitive performance training.

Thank you for your support! We look forward to creating more NVT centric content for you! We encourage you all to leave questions and/or comments below.

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.

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Intense NVT as a Central Component for Rehab Post Mild Traumatic Brain Injury

An overwhelming majority of rehab post mild traumatic brain (mTBI) injury follows the guidelines of one-hour sessions, once or twice a week as tolerated. That philosophy is grounded in years of experience and has the benefit of leveraging the ontogeny of the injury to recover on its own with time. By some estimates 85% of mTBI patients recover without intervention. Historically this may have led to many practitioners to say to mTBI patients, lets wait a while and see how much recovery you get before starting rehab. I have never said that, but I have heard that said.

There is a growing group of mTBI rehab specialists who have embraced the concept of bootcamp rehab. While it goes by several names, for the purposes of this article bootcamp will be a reference to about 5 days of intense all-day training and rehab for mTBI patients. Some entities that engage in the bootcamp rehab method are <https://www.cognitivefxusa.com/> and <https://www.carrickinstitute.com>.

Some common aspects of the bootcamp method, we think, becomes critical when making decisions or recommendations concerning doing the bootcamp. Often the patient has reached a plateau where improvements are not made or not perceived. The bootcamp can sometimes change the trajectory of an mTBI patient. In other words, the bootcamp for a week to get the rehab progress moved along and resume the once or twice a week rehab to take advantage of the bootcamp.

All of the bootcamp practitioners seem to use exercise as part of their rehab program. Therefore it appears to be important that the patient be able to tolerate some exertion during the bootcamp. We've talked about exertion assessments to obtain target heart rates before, see <https://pubmed.ncbi.nlm.nih.gov/27372849/>.

Bootcamp patients are universally advised to engage in good nutrition, good hydration and to avoid excessive or extraneous activities when not doing the bootcamp. Many bootcamp patients are fatigued and not wanting to engage in too many activities after 8 hours of rehab. Notwithstanding brain rest is encouraged after hours during the bootcamp.

Another common theme concerning bootcamp is that the patients often undergo quantitative testing on the first and last day. These can be functional neurological assessments and / or imaging or a combination of the above. Having tasks that are quantitative as well as being part of the everyday rehab program helps monitor the progress as well. Sometimes tests can be repeated on the middle day to monitor progress and make adjustments as warranted. Regular symptom checks and wellness checks are a must.

Most rehab specialists are familiar with progressing rehab tasks, adding complexity, regular switching of the rehab modality within sessions, as well as frequent breaks. The bootcamp by definition means the sessions are 8 hours long, thus it is critical to have regular breaks along with frequent switching of tasks. We believe that switching the tasks is critical to aid in keeping the patient engaged as well as to help prevent symptom exacerbation. For example, doing a 2-minute cognitive task, followed by 1 minute ocular motor treatment, which is followed by 2 minutes of vestibular will allow for regular switching of the brain regions being treated and avoids boredom as well as helps keep symptoms at bay.

The bootcamp week often seems to start with the patient doing rehab at a kind of single task level and progresses to Multi-tasking during the week. The multi-tasking means that a single task can be done in combination with another task. Consider, after day 2 or 3 where a patient is doing ocular motor rehab such as saccades while standing on a half Bosu ball or Airex pads. Now the patient is working the vestibular system along with the visual system. These systems are being trained simultaneously and would be expected to benefit from the concept of fire-together wire-together (FoNVT I7V4). For the sake of this discussion, let's say that the saccadic eye movement while on an Airex is a dual task working two brain regions. The fire-together wire-together philosophy implies that these two systems will wire together and work together better in the future. To achieve this fire-together wire-together benefit the brain must go through a brain plasticity state. The brain plasticity is often a goal of practitioners of the mTBI bootcamp.

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.

A detailed discussion of brain plasticity is well beyond the scope of this article. However, the simple concept is that plasticity of the brain means the brain is making new nerves, new connections, new wiring, new pathways, new synapses, new cells, new perfusion pathways can all be accelerated after 1 week of bootcamp.

The above summary outlines some common themes that bootcamp practitioners engage in when working for 5 straight days with an mTBI patient. There are, of course, pitfalls for doing bootcamp. First is to manage patient expectations. The bootcamp does not magically make a person normal in 5 days. Often patients are fatigued. However, they often feel that somethings are progressing. Also, the bootcamp is a lot of work for the rehab specialists. He/she needs to be proficient in a range of rehab methods. There need to be enough rehab methods tolerable and on the table for the patient to be able to keep them engaged during the sessions.

Finally, as understood from the bootcamp practitioners, insurance often does not cover bootcamp. The patient is left to self-pay and apply for reimbursement. Wide adoption of the bootcamp method will likely be slow until a system of paying for the treatment can be developed.

In conclusion there are multiple entities who seem to be performing bootcamp as a treatment option for mTBI patients. A quote garnered from a bootcamp practitioner is that 100% of their patients show improvement after a week of bootcamp. The detailed metrics of the success or failure rate from all the bootcamp practitioners is not available at this time but that seems like a promising testimonial.

“How To” – Advanced Flash Cards for Cognitive Performance Training

Flashcards are a highly effective and incredibly cheap way to pack an additional punch with your Neuro-Visual Training program for cognitive performance enhancement, injury prevention, and rehabilitation. As we highlighted in our Friends of NVT Issue 4, Volume 8 How To: Flashcards for Pillar 3 and NVT multitasking, flashcards are a simple and efficient way to add cognitive drills to motor tasks such as exercises using the Dynavision D2 Light Board, or pitch & catch drills such as Marsden balls, wacky ball reaction training, or even saccadic eye movement exercises. With this How-To section, we'll be providing examples of different Flashcards that we use such as Fill-in-the-Blank, Multi-Meaning, and “10 numbers/symbols” with memory.

Fill-in-the-Blank:

Fill-in-the-Blank flashcards are a set of flashcards that contain several words on them with a single letter missing. For example, “BO_T” would be displayed on the fill-in-the-blank flashcard. The person would be instructed to call out a word that appropriately matches the displayed word template. Thus, with the example of “BO_T”, the person could call out “BOOT”, “BOAT”, or “BOLT”. As the trainer, we don't necessarily care which word is called out, because this is a cognitive task of word retrieval, and often added to primary motor task exercises such as pitch & catch drills or even balance drills while standing on a half bosu ball. The goal of these flashcards is to train retrieval while doing “something”.

Multi-Meaning:

Multi-Meaning flashcards are a set of flashcards that contain a specific set of words that have more than one meaning. For example, “Bright” would be one of these words included on the flashcards. The person would be instructed to be doing a primary motor task such as hitting as many buttons as possible during a Dynavision D2 Light Board exercise that includes a program that flashes 80% red lights and 20% green lights, and every time a green light illuminates, the person would be instructed to quickly turn their head, read the flashcard and call out as many definitions of the word on the flashcard that they can. For the example of “Bright”, the person could call out definitions including, “a measure of light intensity”, or another meaning/definition that includes “an adjective for a level of intelligence”. As another example, the flashcard

10 Numbers/Symbols with Memory:

10 numbers/symbol flashcards are a set of flashcards that display a 10 digit alphanumeric with or without symbols and has the person look at the flashcard, without calling anything out at first, but then continuing the primary motor task while then sequentially recalling as many of the 10 numbers, letters, and/or symbols as possible. For example, the flashcard could have the following displayed, “3%1j9kc!u”. Let's imagine that the person is also instructed to complete Marsden ball exercise where different colored wiffle balls are being thrown towards them and the person has to catch them according to Red-Right Hand, Green-Left Hand, and Blue(Other Colors)-Both Hands.

Every fifth ball the person would have to look at a flashcard and memorize as much of the 10 numbers, letters, symbols as possible, and then continue with the described Marsden ball drill. While continuing with the Marsden ball drill, the person would then be instructed to call out as many of the letters, numbers, symbols that they could remember.

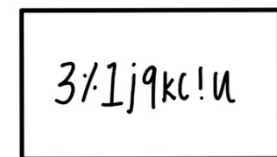
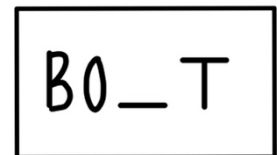


Figure 1. Examples of Fill-in-the-Blank, Multi-Meaning, and 10 Numbers/Symbols with Memory Flashcards

For more flashcard examples, check out <https://tinyurl.com/2jufu4jw>

Announcements

The American Society for Neurochemistry is meeting in Lexington in March! If you are interested, you may register here: <https://www.asneurochem.org/2023-registration>

The National Neurotrauma Society opened abstract submissions this week for their national meeting in Austin, TX June 25-28; <https://www.neurotrauma.org/>

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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