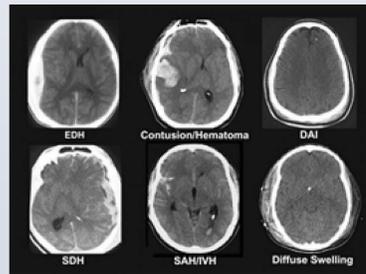


At Home Cognitive Workouts For TBI Patients: The Use of Journaling During a Pandemic

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INTRODUCTION

- What is Supportive Living Inc?
 - Supportive Living Inc. is a non-profit organization focused on improving the lives of survivors of traumatic and acquired brain injuries by providing brain injury residential programs and long-term wellness programs.
- What is a Traumatic / Acquired Brain Injury?
 - An Acquired Brain Injury is defined as an injury to the brain that is not hereditary, congenital, degenerative, or induced by birth trauma. It can be identified as either traumatic or non traumatic.
 - The CDC defines a traumatic brain injury (TBI) as a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head, or penetrating head injury.
 - A non-traumatic brain injury causes damage to the brain by internal factors, such as a lack of oxygen, exposure to toxins, pressure from a tumor, etc.



(nih.gov, 2015)

OBJECTIVES

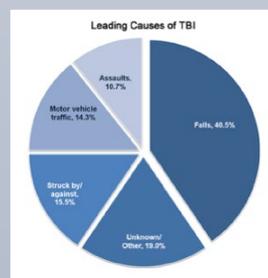
To create an at-home cognitive workout routine for those who have sustained a brain injury when they are unable to leave their home for rehabilitation programs.

RELATED INFORMATION

Physical fitness has been proven to improve balance, endurance, strength, cognitive and social function, and overall outlook on life for TBI survivors. (NA, 2019)

“Traumatic brain injury (TBI) is a major cause of death and disability in the United States. From 2006 to 2014, the number of TBI-related emergency department visits, hospitalizations, and deaths increased by 53%. In 2014, an average of 155 people in the United States died each day from injuries that include a TBI.” (CDC, 2019)

“How long your rehab lasts and how much follow-up care you will need afterwards depends on how severe your brain damage was and how well you respond to therapy. Some people may be able to return to the same level of ability they had before TBI. Others need lifetime care.” (Johns Hopkins Medicine, 2019)



(biact.org, 2020)

MATERIALS & METHODS

Cognitive exercises create a unique recovery situation for those who participate. When the brain is healing, it is best to start slow.

For four days a week, for at least 1 hour a day, the survivor will work on different cognitive exercises to stimulate their brain. After their exercise, they will log information about their day in a journal. The journal will be used to track their progress.

- Sunday - Try Something New:
 - Try a new food or walk home using a different path. This will encourage you to think outside of your normal routine. It also gives you the motivation to keep moving on the recovery path, even when it is difficult. When you have new experiences, your brain starts making new neurons.
- Tuesday - Pay Attention To Your Food
 - As you try new foods, name specific ingredients you taste. Begin with obvious ones and then move to the subtle flavors. This helps re-establish your senses.
- Thursday - Switch Hands
 - If you're right-handed, switch to your left for a few activities (brushing your hair/teeth, eating, etc.) This helps spur activity on the other side of your brain. It also strengthens your neurons by getting them to work in innovative ways.
- Saturday - Practice Memorization
 - Add new levels of difficulty by practicing memorization, a little bit at a time. Ex: Remember a few things off your grocery list before looking at it, try memorization card games.

Journaling

Uses your fine motor skills, memory, senses and more all at once. Everyday after cognitive exercises, write about your experience and progress. Maybe you were able to memorize more than the week before or able to taste more than before.

RESULTS

- A review of the journals from those who participated:
 - 1st entry: *Today my wife sent me to the grocery store and I tried to remember the first few things on the list. I looked down and remembered that we needed tomatoes, potato chips, and eggs. As I went through the store, I focused on those three things on top of the others on the list. Going through the aisles and seeing other things in the same department helped me remember what I needed.*
 - 12th entry: *Today I went to the store and was able to remember 99% of the things on my list plus things that my wife had reminded me to get on my way out of my house that weren't even on the list!*
- From the above journals, we are able to see the level of change from the first journal entry to the twelfth. Activities like these can help boost memory function in those who have suffered a brain injury. On top of the cognitive exercise, journaling can help with their writing function, and help them focus on their accomplishments.
- Those who participated in at home programs found:
 - Additional workouts for the survivor when they are unable to be at rehab.
 - Increased independence:
 - Examples Include: Ability to go to the grocery store on their own, confidence of loved ones that they can be alone as documented by the ability to take new paths and try new things.
 - Attention: Focused, divided, concentration as documented from journaling about the flavors of their food.
 - Memory: long/ short term, learning new information, comprehension, interpreting instructions as documented in their ability to recall items from their grocery list.
 - Language: reading, writing, forming sentences correctly, simple and complex math as identified in everyday journal use, reforming sentences, practicing grammar and spelling.
 - Executive functions: problem solving, decision making, planning, judgement, organizing thoughts based on the ability to complete cognitive brain puzzles and memorization games.

CONCLUSIONS

- Cognitive exercise has been proven to increase the overall quality of life in traumatic brain injury survivors.
- At home cognitive exercises may benefit those who are unable to see a doctor or go to therapies due to reasons such as cost or COVID 19.
- Improves independence and provides a sense of relief to caregivers.
- From my internship at Supportive Living, I have learned how to read and execute an exercise routine. At the time we were able to spend at the gym we were each given a folder for the survivor that we would be working with. It contained limitations that the person may have, goals, and exercises that they had previously done. I was able to read the exercise log and help execute the exercises with the survivor. I was also able to add more exercises and change the routine if needed due to survivor's limitations.
- I have also learned what it is like to live with a brain injury. From the brief time I spent in the gym, I was able to see the drive that these survivors had. They had not been in the gym since the beginning of COVID, and some of them got right back in like they had never taken a break. I was also able to see how some of them pushed themselves with the drive to get stronger.
- This internship has given me insight into something that I potentially want to do as a future career; work with special populations. I have been able to experience both the challenges and the amazing benefits that come with working with people who are differently abled.



(smartdraw, n.d.)

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