

At Home Adaptive Workouts

How Fitness Can Help with Traumatic Brain Injuries

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BACKGROUND OF SUPPORTIVE LIVING, INC

- Supportive Living was founded in 1991 after the Stephen's son was in a car accident leaving him with a traumatic brain injury (Supportive Living, 2020)
- They started Supportive Living because they could not find another facility with all the aspects they wanted for their son (Supportive Living, 2020)
- Services such as social / recreational activities and independent living skills training are offered to assist anyone living with a brain injury (Supportive Living, 2020)
- Many events are also offered to keep the residents active and in high spirits (Supportive Living, 2020)

Traumatic Brain Injuries and Supportive Living, Inc [SLI]

- A traumatic brain injury [TBI] is disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head (Centers for Disease Control and Prevention, 2020)
- Acquired brain injury (ABI) can be caused by disease, blows to the head, stroke, alcohol and drug use, or oxygen deprivation. (Betterhealth, 2014)
- SLI is a non-profit organization was founded to help improve the lives of people with TBI or an ABI
- Many hospitals or other rehabilitation centers, believe that people with traumatic brain injuries plateau after six months. Supportive Living does not believe that people plateau. (Supportive Living, 2020)



Image of Douglas House (Mass Access Housing Registry, 2015)

RELATED LITERATURE

How Fitness Can Help with Recovery

- Fitness can help improve self confidence and independence (SLI, 2020)
- Fitness improve balance, endurance, daily activities, strength, cognitive and social function, and overall quality of life (SLI, 2020)
- Conventional thinking about brain injury concluded that neurological improvements plateau after a period of time. Research has challenged this assumption and is proving that the brain can recover function many years after an injury. (SLI, 2020)
- It can assist with life transitions. Life transitions can cause anxiety and knowing others feel the same way is a sense of support. (AOTA, 2020)

OVERVIEW OF THE INTERNSHIP

- On average, I worked with two to three clients per day from each of the three houses owned by Supportive Living, Inc.
- Residents completed either group fitness classes or one-on-one fitness instruction.
- Each client was assessed at the beginning and the end of the overall workout program. These assessments were done by our supervisor and placed in each residents personal folder. They were completed before each new set of interns come on board during the summer, fall and spring semesters.
- I was tasked with creating workout plans for each client.
 - Each plan included: warm-up stretches, core, upper and lower body exercises, and cool down stretches.
 - How many sets and reps should be completed as well as images and explanations of each workout.
 - Each plan was created to be inclusive to all the residents as some of them use wheelchairs or are paralyzed on one side of their body.
 - After monitoring how many sets and reps they completed of each exercise, their progress was recorded.

Name:	Goals:	1)	2)	3)						
Exercise	Modifications	Date								
Upper Body Strength/Mobility										
Lower Body Strength/Mobility										
Core Strength/Stability										
Gait/Balance/Fall Prevention										
Aerobic Exercise										
Type:										
Level:										
Time:										
INTERN NAME:										
Additional Comments:										

Above – spreadsheet that was used to record the residents workouts and progress. Below – exercise plans created for participants.



Cross Body Reach
Start with the resistance band or cable toward your feet. Legs should be shoulder width apart. Start with your hands at your hip and pull across your body to above your shoulders. Three sets of 10-12 reps.



Standing Chest Fly
With either resistance bands or cables, start with your arms slightly bent parallel to your shoulders with your palms facing outward and a slight bend in your elbows. Bring your arms to the center of your chest. Three sets of 10-12 reps.



Russian Twist
Sit on the ground with only your glutes and heels touching the ground. Keep them still and rotate your torso side to side. Your hands should be held together and rotate your entire torso. Holding a weight is optional. Three sets of 12-15 reps.



Concentration Curl
Sit down with your legs slightly more than shoulder width apart. Using either a resistance band or dumbbells, place one elbow on the inside of your knee. Curl it up toward your chest. Place your other hand on your other knee for support. Three sets of 10-12 reps.



Lateral Raise
Using dumbbells, start with your hands just below your hips while standing. Raise them up to be parallel with your shoulders. Elbows should be slightly bent. Three sets of 10-12 reps.



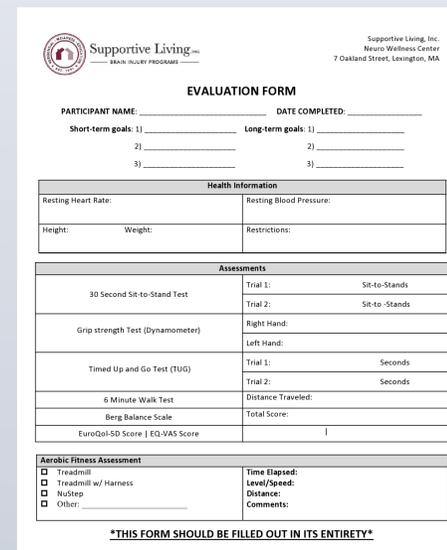
Seated Leg Tucks
Sit at the edge of your seat and hold it with your hands. Extend your legs all the way out and then bring them toward your chest. Three sets of 12-15 reps.



Ziccap/Extension
Using a resistance band, dumbbell, or cable, begin with your hands above your head. Bend your arms at your elbow and extend straight. Only move at your elbow and not the rest of your arm. This can be done either standing or sitting. Three sets of 8-10 reps.

RESULTS

- 3 out of 3 patients made significant improvements throughout the summer program.
 - This included either completing more reps for their workouts, using a heavier resistance band, or making the exercise more difficult for them by holding the band tighter if a heavier one was not available.
- Core, lower and upper body exercise were chosen because they assisted the patient in case they fell or whether they were in a wheelchair or not.
 - Core exercises give the patients more balance, stability and improve fine and motor skills. (Gympanzees, 2020)
- Their workouts were recorded daily by writing down the amount of sets and reps done.
- Improvement was shown by the increase in reps and sets done by the patient



Supportive Living - Brain Injury Programs
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EVALUATION FORM

PARTICIPANT NAME: _____ DATE COMPLETED: _____

Short-term goals: 1) _____ Long-term goals: 1) _____
2) _____ 2) _____
3) _____ 3) _____

Health Information

Resting Heart Rate: _____ Resting Blood Pressure: _____
Height: _____ Weight: _____ Restrictions: _____

Assessments

30 Second Sit-to-Stand Test	Trial 1:	Sit-to-Stands
	Trial 2:	Sit-to-Stands
Grip strength Test (Dynamometer)	Right Hand:	
	Left Hand:	
Timed Up and Go Test (TUG)	Trial 1:	Seconds
	Trial 2:	Seconds
6 Minute Walk Test	Distance Traveled:	
Berg Balance Scale	Total Score:	
EuroQoL-5D Score EQ-VAS Score		

Aerobic Fitness Assessment

Treadmill
 Treadmill w/ Harness
 NuStep
 Other: _____

Time Elapsed: _____
Level/Speed: _____
Distance: _____
Comments: _____

THIS FORM SHOULD BE FILLED OUT IN ITS ENTIRETY

To the left is the evaluation that each resident completed prior to starting fitness

CONCLUSION

- Due to COVID-19, the residents were unable to utilize the weight room. Therefore, adjustments were made with resistance bands. The residents displayed progress by having increased or tighter resistance and by completing more reps per set.
- It is believed that if the residents were able to utilize the weight room, they would have also shown much improvement by increasing their weight over time.
- I learned how to adapt quickly. To ensure each resident could complete their workout. They all had different injuries and different things they could or could not do. While working in a group setting, I had to adapt some of the workouts for a certain resident.
- I am taking a lot from this internship into my future. The main thing I am taking into my future career is to make things fun.
- Another thing I am taking into my future career is to never doubt someone's ability to meet their goals. Before starting the fitness programs, I was unsure of what each resident was able to do. I thought most of the residents would struggle with the workouts they were given and that we would have to help them more than we had to.
- Both of these things are important for my future career because I have learned that everyone, no matter what has happened in their life, has the ability to keep getting better and work on themselves.