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Implementation of an Intensive Amplitude-Focused Program with Stroke Patients in an Inpatient Rehabilitation Setting

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Allie Best OT/L- Southern Crescent Traumatic Brain Injury Center



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Introduction

- Stroke is a leading cause of death and severe disability in the United States affecting approximately 795,000 individuals each year.
- ADL dependency during the 1st-week post-stroke is indicative of continued ADL dependency at 6 months and 3 years after stroke.
- Although several approaches to stroke rehabilitation exist (e.g., constraint-induced movement therapy, mirror therapy, repetitive-task training) and have demonstrated positive results, these results do not necessarily carry over to everyday tasks.

Site Description

- Southern Crescent Traumatic Brain Injury Center (SCTBI) is a private 40-bed adult inpatient rehabilitation facility located in McDonough, Georgia.
- SCTBI accepts adult patients with a variety of conditions, particularly stroke, traumatic brain injury, and spinal cord injury.



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Summary of Needs Assessment

- Current occupational therapy interventions utilized in stroke rehabilitation have been proven effective, but the skills learned are not often carried over into everyday activities.
- LSVT-BIG is unique in that it promotes both motor function and generalizability of acquired skills (Metcalf et al., 2019).
- As LSVT-BIG focuses on functional movement components and meaningful tasks, this program is uniquely fitted to promote consistency and improve the motivation of its participants.



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Literature Review Summary

- Neuroplasticity is a key component of stroke rehabilitation and interventions that promote such should be introduced as early as possible during recovery (Nepveu et al., 2017).
- Fox et al (2012) determined that amplitude-focused interventions aim to improve motor performance through the recalibration of the sensorimotor system.
- LSVT® -BIG targets the motor system by encouraging increased amplitude of movements, sensory recalibration, self-cueing, and attention to movement patterns. These training methods are consistent with principles of neuroplasticity and motor skill acquisition (Fox et al., 2012; Peterka et al., 2020; Proffitt et al., 2018; Walter et al., 2017).
- Traditionally, LSVT® -BIG is utilized with patients with Parkinson's disease. However, recent studies have shown that LSVT® -BIG may also be effective in stroke rehabilitation. A single-participant study conducted by Proffitt et al (2018) utilized the LSVT® -BIG protocol with a 56-year-old woman who had experienced an ischemic stroke. The participant showed improvements in active range of motion, UE muscle strength, and ADL performance (Proffitt et al., 2018).

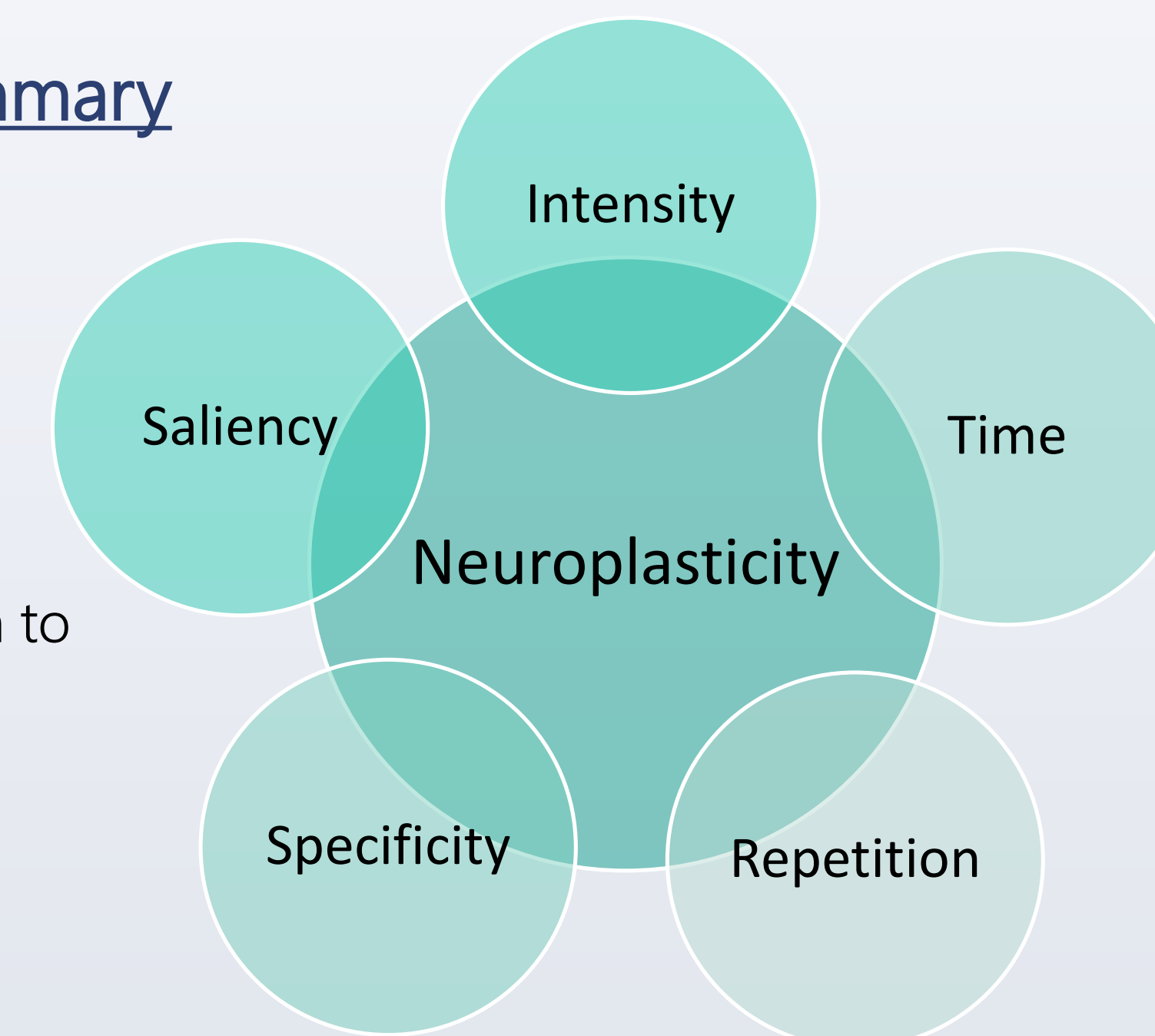


Figure 1. Key components of neuroplasticity



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Capstone Project Description

Program Development

- A modified program was established that utilized the foundations and key research points behind the LSVT® -BIG protocol.
- Patients received both traditional occupational therapy, physical therapy, and speech therapy services each day, in addition to participating in the intensive high-amplitude exercises.
- Patients participated in the program 3-5 times a week for 15-30 minutes a day depending on their activity tolerance and therapy schedule.
- Exercises were modified to fit each patient's level of function and could be completed supine, seated, or standing. The exercises all incorporate a functional-task component such as reaching, bending, or twisting.

Clinical Skills

- Managed a caseload of 5-8 patients a day. Completed evaluations, discharge plans, progress notes and patient/caregiver education sessions weekly.
- Completed numerous MedBridge courses related to stroke rehabilitation, splinting, upper extremity rehabilitation, motor learning, and neuroplasticity.
- Administered the Barthel Index and The St. Louis University Mental Status Exam (SLUMS) to document progress made from evaluation to discharge.

Supine Bent Leg Lift with Arm Extension



SETS: 3
DAILY: 1-2 REPS: 10

Supine Alternating Knee Taps with Hands



SETS: 3
DAILY: 1-2 REPS: 10

Seated Finger Flicks with Elbow Extension



SETS: 3
DAILY: 1-2 REPS: 10

Seated Reaching to Side



SETS: 3
DAILY: 1-2 REPS: 10

Staggered Stance Weight Shift with Arms Reaching



SETS: 3
DAILY: 1-2 REPS: 10

Step Sideways with Arms Reaching



SETS: 3
DAILY: 1-2 REPS: 10

Figure 2. Examples of high-amplitude movements; images retrieved from Medbridge.com



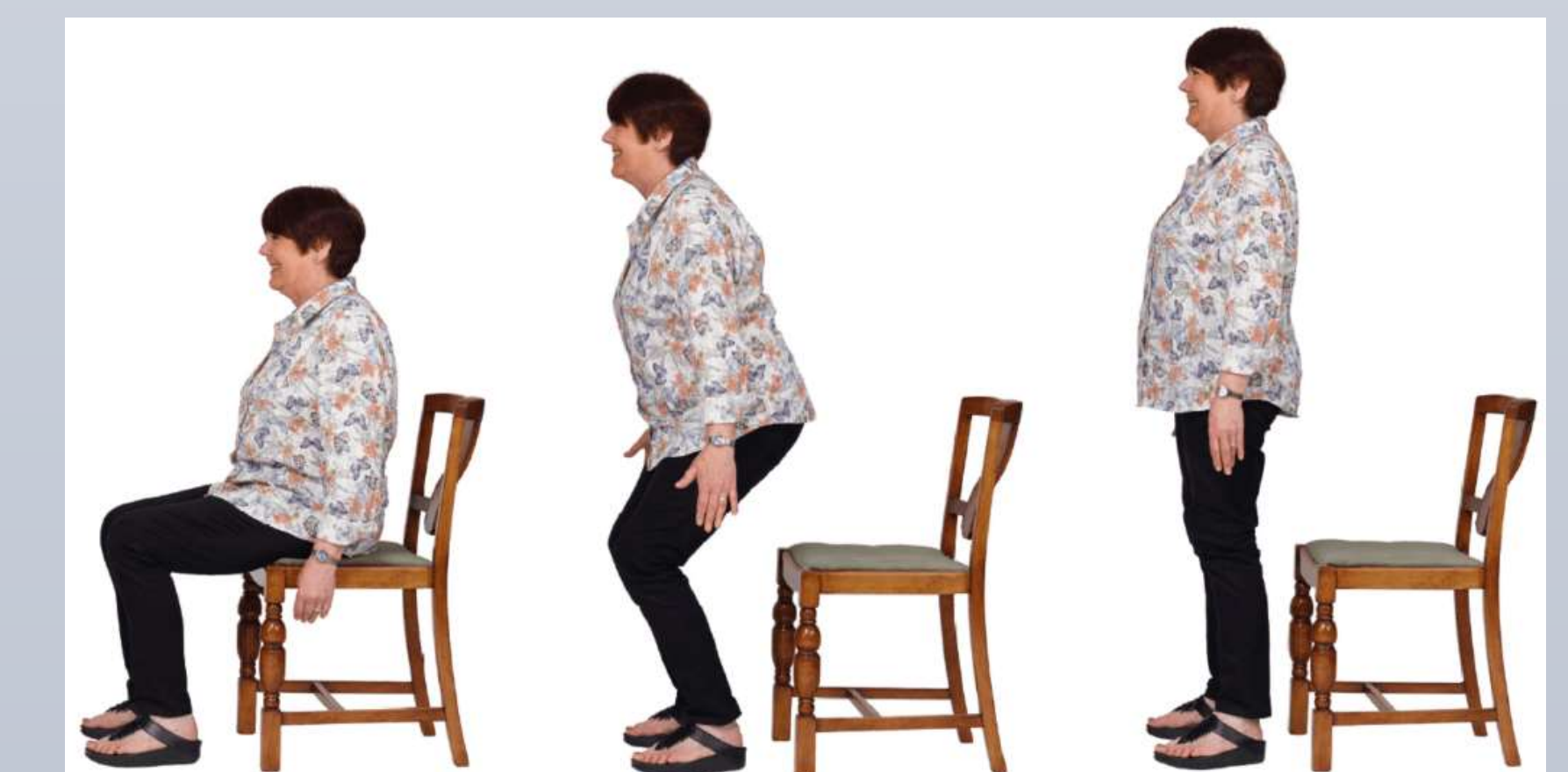
Retrieved from lsvtglobal.com

Learning Objectives Achieved

- Achieved certification in LSVT® -BIG to gain a greater understanding of neuroplasticity & motor learning and used this knowledge to create a high-amplitude, function-based program for patients recovering from stroke.
- Successfully utilized the Barthel Index and SLUMS as outcome measures to document progress made during the rehabilitation process.
- Developed and practiced clinical skills related to treating patients with stroke & TBI.

Implications for OT Practice

- Implementation of an intensive, amplitude-focused program may improve UE range of motion, UE strength, UE coordination, ADL performance and satisfaction, and motivation in stroke survivors.
- Potential for interdisciplinary collaboration in the creation of a client-centered and function-based intervention program.



Retrieved from bayareaseniorcare.com

References & Acknowledgments

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References Available Upon Request