

THE EFFECTIVENESS OF PHYSICAL THERAPY USING TELEREHABILITATION IN IMPROVING BALANCE OF AN 8-YEAR-OLD CHILD WITH CEREBRAL PALSY

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OBJECTIVES: The objective of this case study is to describe the effectiveness of physical therapy delivered via telerehabilitation to an 8-year-old child diagnosed with cerebral palsy spastic diplegia in improving balance.

INTRODUCTION:

Patient Profile:

- J is an 8 year old child, male, and diagnosed with CP Spastic Diplegia with GMFCS level 3
- J and his mother's goal is to ambulate independently and safely specifically in walking from house to school which is >1 km
- J can walk with supervision and without assistive device
- J walks slowly and with crouch gait posture
- J usually experiences falls or trips when walking in their community

METHODS:

Assessment tool used: Pediatric Balance Scale (PBS)

is a modified version of the Berg Balance Scale that is used to assess functional balance skills in school-aged children. It consists of 14 items that are scored from 0 points to 4 points with a maximum score of 56 points (Physiopedia, 2021).

Platform used in tele rehabilitation: Facebook Messenger video call

Duration: one hour per week from December 2, 2020 to April 7, 2021

Management:

- Strengthening exercises of core and bilateral lower extremities
- Flexibility exercises to improve range of motion of bilateral lower extremities and trunk to improve posture and gait
- Balance training embedded in functional gait training
- Motor function training to improve dynamic balance

Disclaimer: The author has declared no conflict of interest.

RESULTS:

Pediatric Balance Scale Scores

Initial Evaluation: Dec. 2, 2020

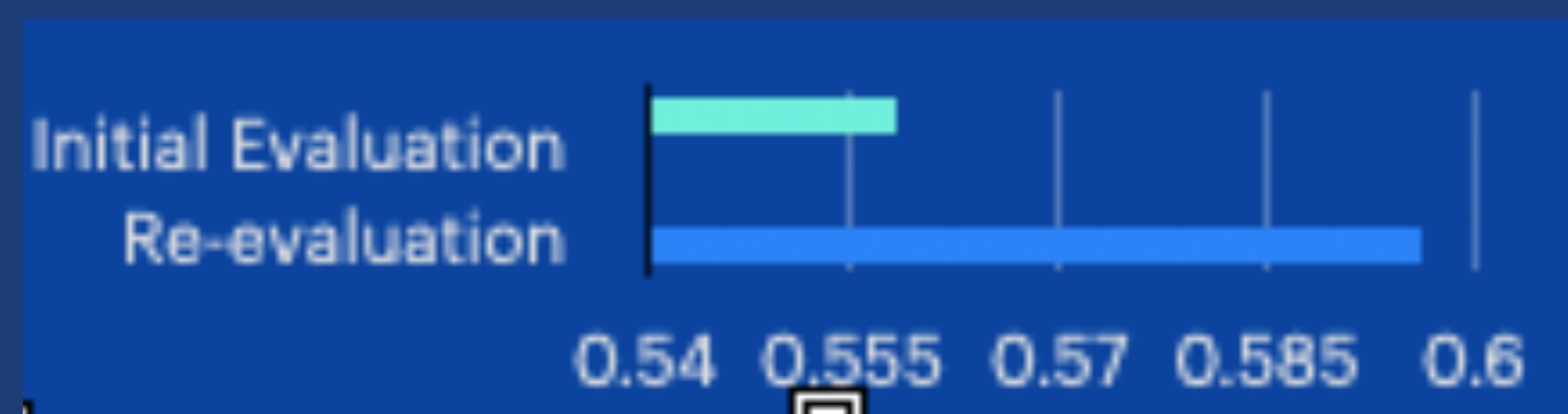
Re-evaluation: March 17, 2021

	Score	Time/ Distance	Score	Time/ Distance
1. Sitting to standing	3		4	
2. Standing to sitting	4		4	
3. Transfers	4		3	
4. Standing Unsupported	4	30s	4	30s
5. Sitting Unsupported	4	30s	4	30s
6. Standing, Eyes Closed	4	10s	4	10s
7. Standing, Feet Together	2	15s	3	30s
8. Standing, One Foot in Front	0		0	
9. Standing on One Foot	0	1s	0	1s
10. Turning 360 degrees	N/D	N/D	1	7-8s each
11. Turning to Look Behind	0		0	
12. Retrieving Object from Floor	4		4	
13. Placing Alternate Foot On Step Stool While Standing Unsupported	N/D	N/D	0	
14. Reaching Forward with Outstretched Arm	N/D	N/D	not assessed; no measuring device	
TOTAL	29/52		31/52	

PBS Total Scores:

Initial Evaluation: 55.77%

Re-evaluation: 59.6%



Reference:

Rieke, M., Jackson, K., & Gadgil, R. (2021). *Pediatric Balance Scale*. Physiopedia. https://www.physio-pedia.com/Pediatric_Balance_Scale

CONCLUSION:

The following are also noted during the sessions:

- Improved standing balance during ball passes
- Improved posture when standing and when walking on level surface
- Improved performance during walking on obstacle course
- Decreased instances of falling or losing balance
- Improved walking outdoor as reported by the mother

From the results of the PBS, there is improvement not only on the total score but also on the items such as sitting to standing in which J was able to do the task without holding on the chair, standing with feet together in which he did not lose balance for 30 seconds, and turning 360 degrees each side which he was able to perform. The decreased in the score for the transfers was because he held on the chair during the task and possibly because of his fear of falling.

These results show that physical therapy intervention delivered via video call can still improve the balance and function of a child with cerebral palsy spastic diplegia. The improvements are not only attributed to the actual physical therapy sessions but also with the good compliance of the patient and caregiver with the home exercises.



These pictures were taken from a video sent by J's mother last May 12, 2021.