Duke University School of Medicine
Doctor of Physical Therapy

Impact of Short Term Intensive Rehabilitation on Outcomes in Persons Post Stroke with Limited Therapy Access

Joeline Kane, SPT; Marlena Allen, SPT; Erin Carroll, SPT; Christine Dang, SPT; Gwendolyn E. Moffett, MAT, SPT; Benjamin Ramger, SPT; Hannah-Rose Tucker, SPT; Jody A. Feld, DPT, NCS

Background

- Stroke is a leading cause of long-term disability and can result in significant economic and caregiver burden
- Access to traditional stroke rehabilitation can be limited by financial, geographic, and resource barriers
- In North Carolina, Medicaid beneficiaries receive only 3 treatment sessions per year
- Short term, intensive physical rehabilitation can be an effective way to minimize disability and improve health and functional outcomes despite barriers

Purpose

- Examine the impact of a short-term intensive task-specific rehabilitation program on functional outcomes in community-dwelling post-stroke survivors with limited access to therapy services

Methods

- 13 post-stroke participants
  - 21±15 months post-stroke
  - 52±14 years of age; 77% male
  - 92% assistive device; 54% bracing
  - 62% ischemic stroke
- Intensive rehabilitation program completed over 6 consecutive days in Durham, NC
  - Pre/Post Outcome Testing (4 hours)
  - Intervention Stations (29 hours)
  - Education (1-2 hours)
- Treatment provided by DPT students(13-15) supervised by faculty and clinicians
- Pre and post scores analyzed for significant differences using Wilcoxon Signed Rank Tests

Outcome Measures

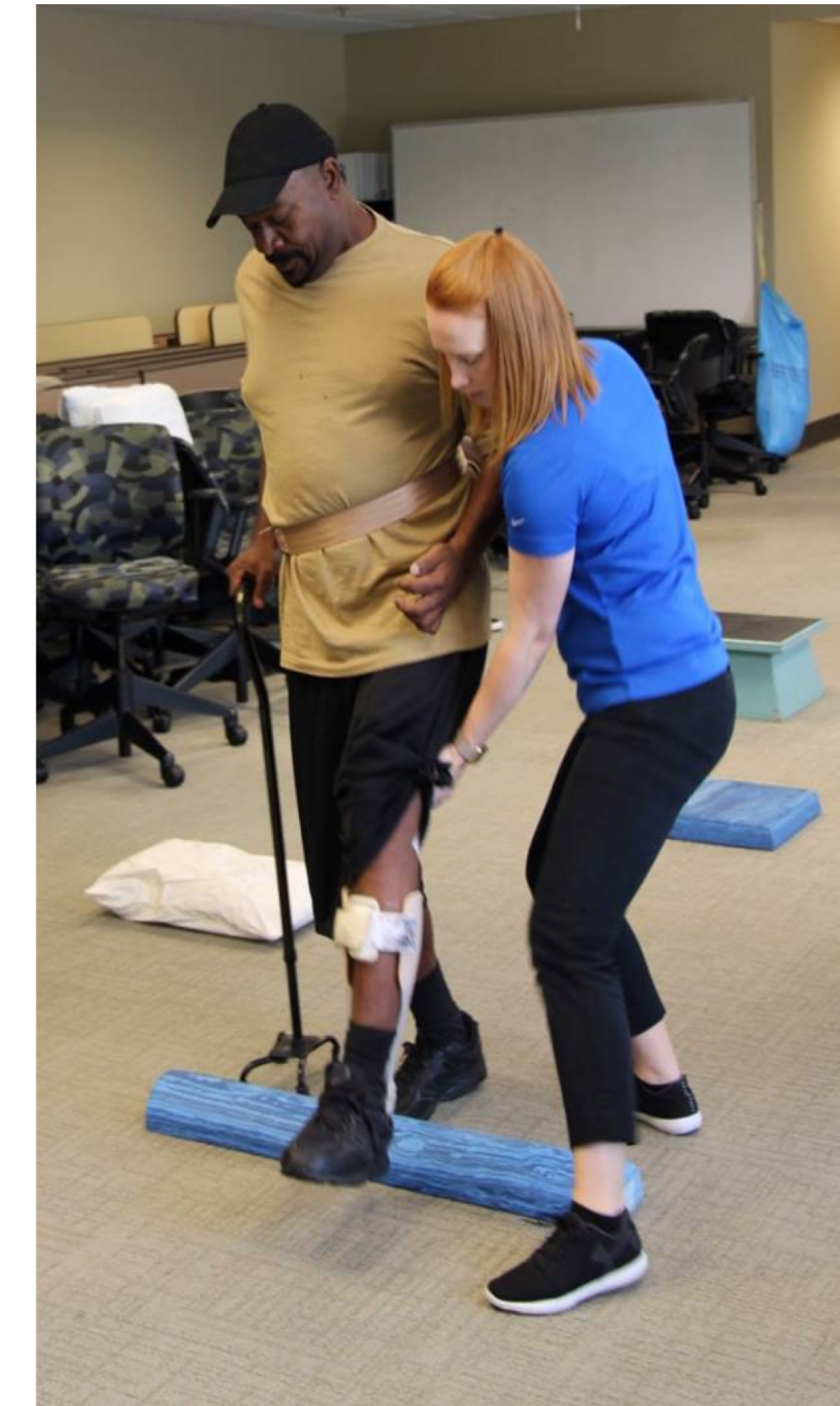| Category	Measures
Balance	Berg Balance Scale (BSS) Functional Gait Assessment (FGA)
Gait	6 Minute Walk Test (6MWT) 10 Meter Walk Test (10mWT) Timed Up and Go (TUG)
Upper Extremity	Fugl-Meyer Upper Extremity (FMA-UE)
Physical Function	Stroke Impact Scale 16 (SIS_16) Stroke Recovery Scale

Intervention Stations

Mat Exercises	Balance Training
Gait Training	Upper Extremity
Functional Activities	Group Activities

Analysis

Outcome Measure	Pre-Score	Post-Score	Absolute Change	Z	p-value	Effect Size (r)	MCID Met	MDC Met
BBS	34.00	42.20	8.20	2.67	0.008	0.60	-	✓
FGA	13.44	17.67	4.23	2.38	0.017	0.56	-	✓
6MWT (m)	132.96	176.88	43.92	3.06	0.002	0.62	✓	-
10mWT (m/s)	0.52	0.64	0.12	2.71	0.007	0.55	X	-
TUG (s)	35.92	29.36	6.56	2.97	0.003	0.58	-	✓
FMA-UE	27.00	32.08	5.08	2.94	0.003	0.58	-	X
SIS-16	56.14	65.43	9.29	2.38	0.017	0.64	X	✓
Recovery Scale	60.71	68.86	8.15	2.23	0.026	0.60	-	-

Effect Size (r) Category 0.1=small; 0.3=medium; 0.5=large. MDIC=minimal clinically important difference. MDC=minimal detectable change. (-) indicates no validated value for the outcome measure.

Results

- Significant differences found between pre and post measurements for all outcome measures (p<0.05)
- Large effect sizes found for all outcome measures (range; r=0.55 – 0.64)
- Minimal clinically important difference (MCID) was met for 6MWT
- Minimally detectable change (MDC) was met for BBS, FGA, and TUG

Conclusions

- Subacute and chronic stroke patients were responsive to an intensive short-term, task-specific rehabilitation program
- Despite chronicity, meaningful improvement was achieved in walking endurance, balance, and functional gait measures
- Further research needed to determine
  (1) retention of functional gains over time
  (2) need for one or more episodes of the program across continuum of care

Clinical Relevance

- A short-term intensive task-specific rehabilitation program could be an effective alternative to conventional rehabilitation models for stroke survivors with limited access to therapy services

Acknowledgements / References

- Thank you to all of the students, faculty and volunteer clinicians for their time and dedication to the Durham Stroke Camp
- References available upon request