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Purpose/Hypothesis

- Limited evidence exists to inform clinicians in selection of outcome measures for use in the remote assessment in persons with Multiple Sclerosis (PwMS).
- The Five Times Sit to Stand (FTSTS) is a recommended core outcome measure for individuals with neurologic health conditions, demonstrating good clinical utility, reliability and validity.
- This study examined the criterion validity of the FTSTS in PwMS via telehealth.
- It is hypothesized that remote administration of the FTSTS will have good criterion validity and support the use as a strength measure.

Methods

- 30 PwMS completed the FTSTS while being timed in-person and remotely through a telehealth service (Qliqsoft) concurrently.
- Demographics and disease characteristics were collected.
- Bilateral isometric peak torque of hip and knee flexors and extensors were measured using the Biodex System 4 Pro Dynamometer ®.
- Incidents requiring physical intervention were recorded to measure the safety of the remote test.
- Validity was assessed using Spearman's rank correlations with SPSS Version 26.

Results

- The remote FTSTS had medium to large associations with all of the measures except for strongest limb knee extension.

FTSTS via telehealth is a *valid* assessment of lower limb strength in PwMS.



Correlations Between Remote FTSTS Time and Strength

Muscle Group	Limb	ρ	p-value
Hip Flexion	Strongest	-0.451	0.012
	Weakest	-0.460	0.011
Hip Extension	Strongest	-0.378	0.040
	Weakest	-0.368	0.045
Knee Flexion	Strongest	-0.365	0.047
	Weakest	-0.590	0.001
Knee Extension	Strongest	-0.365	0.067**
	Weakest	-0.446	0.013

** $p > 0.05$
 Small effect ($\rho = 0.10 - 0.29$)
 Medium effect ($\rho = 0.30 - 0.49$)
 Large effect ($\rho = >0.50$)

Table 1- Descriptive Statistics

Demographics	
Age (years)	55.0 (13.0)
BMI (kg/m ²)	30.0 (7.8)
Sex, n (%)	Male, n=9 (29.0) Female, n=22 (71.0)
Ethnicity, n (%)	Hispanic or Latino, n=3 (9.7) Not Hispanic or Latino, n=27 (90.3)
Race, n (%)	Black or African American, n=3 (9.7) White or Caucasian, n=27 (90.3)
Disease Characteristics	
PDSS (score)	3.0 (3.0)
Disease Duration (years)	14.8 (15.4)
Outcome Measures	
Telehealth FTSTS (s)	10.35 (4.70)
Incidences requiring intervention (n)	0

Data presented as Median (IQR) unless otherwise stated

Conclusion

- The remote FTSTS demonstrates good criterion validity, as evidenced by significant associations with hip and knee flexion and extension in the weakest limb and hip flexion and extension and knee flexion in the strongest limb.

Clinical Relevance

- The results of this study allow clinicians to make a more informed decisions in the selection of appropriate outcome measures for use in the physical therapy assessment via telehealth.

