Upper Limb Performance Assessment:
A comparison of upper limb assessments and their abilities to detect recovery in arm and hand use during activities of daily living post stroke.

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Objective

- To compare the Upper Limb Performance Assessment (ULPA) assessment with two commonly used upper limb assessments, and demonstrate the clinical utility across a stroke service.

The Project

- More than 6 staff members were trained using ULPA

- 15 stroke patients seen on acute and rehabilitation wards

- Muscle Testing (MT), Motor Assessment Scale (MAS) and ULPA administered within 24hours of each other for baseline data

- ULPA functional task selected for consistency as drinking from a cup

- MT, MAS, ULPA completed at end of ward stay to measure progress related to functional tasks

Upper Limb Performance Assessment

- 2 part assessment
- Assesses task mastery with functional task
- Analyses quality of movement to assist with directing therapy
- Can be applied to any functional task where there is an upper limb component required

PART 1: TASK F	PART 2: COMPARATIVE ANALYSIS OF PERFORMANCE – MOTOR (CAP-M)				
TASK: Drinking	STEP/S: 10				
STEPS	Expected (#)	Observed (#)	Excessive (#)	Missing (#)	Timing
	1) 90 degree hip flexion trunk extension neck extension				
1) Orient	2) shoulder fwd flexion slight ext rotation/ slight abduction/ slight int rotation (dependent on position of cup)				
2) Reach	(slight) Elbow extension dependent on positioning				
3) Open f	slight supination to neutral				
4) Close f	slight wrist extension slight MCP extension				
5) Lift the	slight Thumb abduction				
6) Tilt cup	Slight PIP Flexion DIP extension				
7) Straigh	increased MCP extension increased DIP extension				
8) Reach	PIP flexion maintained?				
9) Releas	3) increased MCP ext increased DIP extension				
cup	PIP flexion maintained? Increased Thumb Abd				
10) Resum	4) Thumb add MCP flexion DIP/PIP flexion				
Sub-Score by E	5) elbow flexion slight shoulder flexion slight shoulder abduction maintain neutral forearm 6) slight radial dev				

Upper Limb Performance Assessment

Results

- 12 out of 15 patients data included in final results

- All strokes with upper limb deficits in acute stages

- Measured at two points throughout admission

- Where upper limb recovery occurred, all assessment scores improved

- ULPA results were compared to Muscle Testing and Motor Assessment Scale

ULPA Results

- Task Mastery (Part 1): Mastery scores increased, demonstrating reduction in errors

- Comparative Analysis (Part 2): Missing actions reduced, compensatory actions reduced and observed actions more closely resembled expected actions

- Provided detail about quality of UL recovery and its implication with functional task assessed

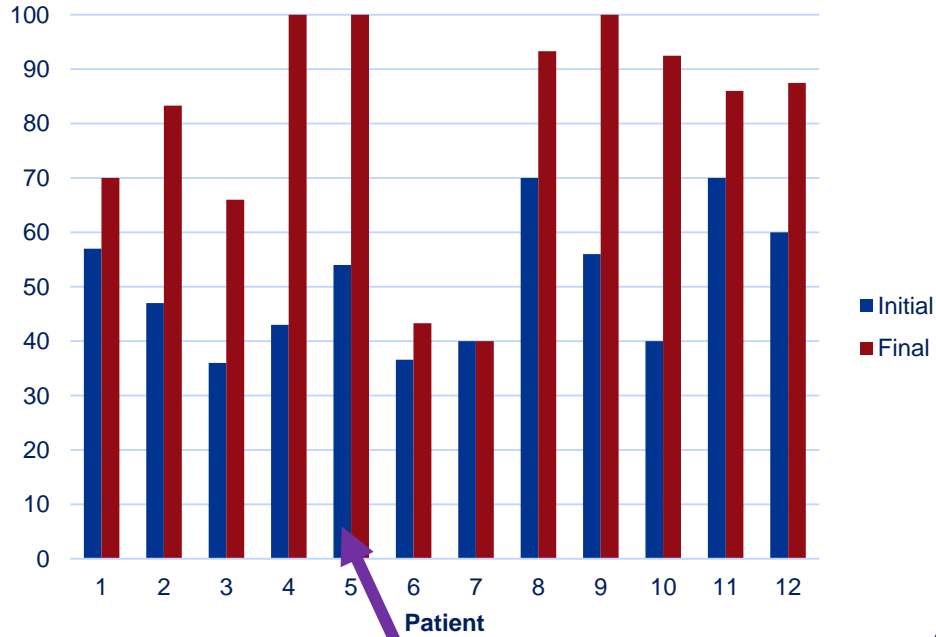- Can be applied to any task

MAS and MT Results

- MAS scores improved, limited by 18 assigned tasks

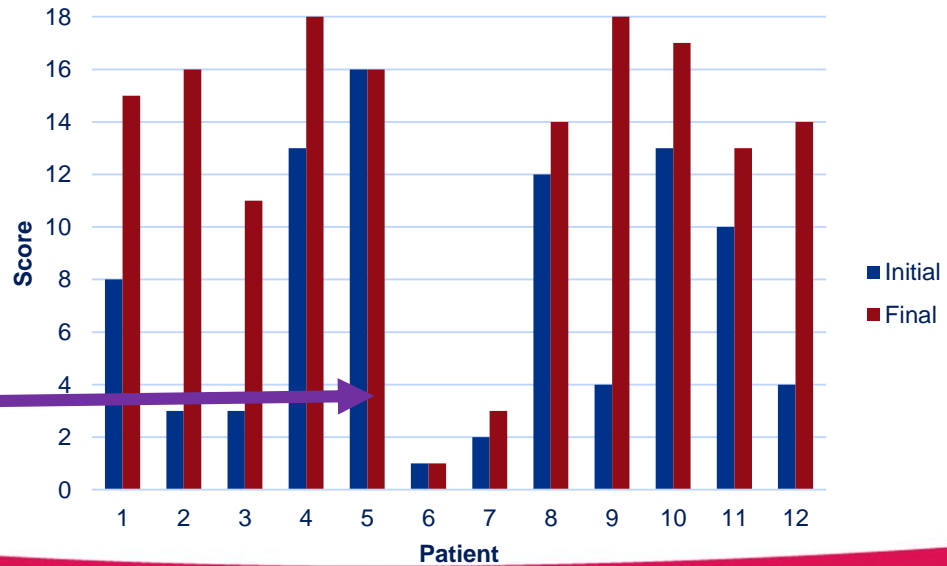- MT demonstrated improvements in ROM and strength but unable to relay into functional implications

Results

	Initial mean	Final Mean	Mean Change	% of change
Motor Assessment Scale (MAS) scored out of 18	89	156	67	**75.3%**
ULPA- Task Performance Mastery % (TPM)	50.8%	80.1%	29.3%	**57.7%**
ULPA- CAP-M excessive actions *(number of actions)*	5	2.5	2.5	**50%**
ULPA- CAP-M missing actions *(number of actions)*	8.5	2.8	5.75	**67.6%**
Muscle Testing (MT) *Attributed numerical value to associated MT score)*	78.6	101	22.5	**28.6%**

Conclusion

- Muscle testing has limited functional relevance to the use of the upper limb

- MAS and ULPA scores improved

- MAS and MT have a ceiling effect where a patient will no longer be able to be measured on improvement in function

- The MAS has more functional relevance than MT but does not encourage therapists to note why the errors have occurred in the completion of each sub task

Thank You

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