

Comparative Analysis of Wolf Motor Function Test and Fugl Meyer Assessment Tool for Evaluating Upper Limb Disability in Stroke Patients

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Abstract: ***Aim:** This study investigates the effectiveness of the Wolf Motor Function Test and the Fugl Meyer Assessment tool in evaluating upper limb disability in stroke patients. **Methods:** The study employed a comprehensive literature review methodology. Relevant databases such as PubMed, Medline, Cochrane, Google Scholar, and CINAHL were searched using keywords related to stroke, upper limb functions, outcome measures, reliability, validity, Wolf Motor Function Test, Fugl Meyer Assessment tool, neuro assessment, and physiotherapy. The quality of the studies was assessed, and eight studies were included in the review. **Results:** 8 studies were included 2 RCT, 2 comparative study, 1 interrelated and test retest reliability, 1 repeated measures design study, 1 meta analysis, 1 literature review provides evidence that wolf motor function test is more responsive than the fugl meyer assessment tool in stroke patients with upper limb disability. **Conclusion:** The result of this study provides evidence that the wolf motor function test and fugl meyer assessment tool are assessment tools for upper limb functions after a stroke, both scales are reliable and valid but the wolf motor function test is more responsive to stroke patients with upper limb disability compared to the fugl meyer assessment tool.*

Keywords: Stroke, Upper Limb Disability, Wolf Motor Function Test, Fugl Meyer Assessment Tool, Comparative Study, Physiotherapy, Rehabilitation

Purpose

The purpose of this study is to compare the effectiveness of the Wolf Motor Function Test and the Fugl Meyer Assessment tool in assessing upper limb disability in stroke patients, with the aim of identifying the more responsive tool.

1. Introduction

Although there are numerous evaluations for upper extremity function following stroke only a limited number of dependable and credible clinical measurement instruments exist to measure upper extremity function while carrying out one sided motor activities [1, 2]

The wolf motor function test is the best tool designed to evaluate the disability of stroke patients. It is designed by the laboratory based evaluation. The wolf motor function test includes measurement of impairments and the measurement of disability in the stroke patients, it differs from other motor scales such as fugl meyer assessment scale [3].

The functional use of both of upper limb and lower limbs impairments can be easily evaluated by the fugl meyer assessment tool. Specifically, the FMA examines sensation, range of motion, joint pain, and the quality of movement of an extremity while a subject performs selected movement patterns. The extremity usage and speed were not evaluated by this scale [4]. It can be challenging to utilize the FMA and it assesses synergistic movements that are no longer the foundation of several treatments focused on functionality [5]

Several rehabilitative interventions have been tested with promising results to improve the movement of the affected upper extremity. The upper extremity motor section of the fugl meyer assessment of sensory motor impairment [UE - FE] has often been utilised by authors in stroke

rehabilitation to regiments to assess the response to intervention. [6]

Through timed single or multiple joint movements and functional tasks, the wolf motor function test measures the upper extremity movement capacity. On the other hand the fugl Meyer assessment concentrates on the multi joint function of the upper extremity in stroke patients and is considered reliable and valid. [4]

The fugl meyer scale is an essential tool for monitoring the progress of recovery following a hemiplegic stroke several therapies are being studied to enhance motor recovery after stroke the fugl Meyer assessment tool has frequently been used to evaluate the efficacy of treatments [5]

Both the upper extremity motor section of the fugl meyer assessment scale and the action research arm test are reliable in detecting clinically significant changes however the ARA test is considerably more responsive to improvements in upper extremity function in chronic stroke patients. [3]

2. Methodology

Source

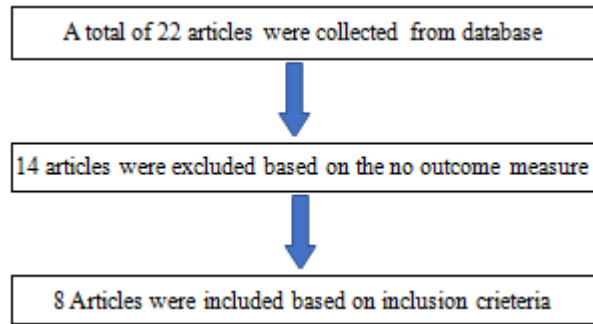
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Study selection

RCT studies related to wolf motor function test and fugl meyer assessment which are published in English since 2000 are included in this study

Objective

The objective of the study is to find out the effectiveness in between wolf motor function test and fugl meyer assessment tool



Data Extraction

Studies, objectives, methods, subjects, participant characteristics, interventions, outcome measures, results are reviewed by reviewer separately and final data summary made by conscious

S. no	Author/Year	Study design/ Sample size	Outcome Measure	Objective	Result
1	David M Morris et al. 2001 [7]	Interrater and test - retest reliability	Wolf Motor Function test	To check how reliable the Wolf Motor Function test is at assessing motor function of the upper extremity in people with hemiplegia	The study concludes that the WFMT has a high interrater reliability and test - retest reliability which in turns means that the test is useful in both clinical and research settings
2	Steven L. Wolf et al. 2001 [8]	Repeated measures design study	Wolf Motor Function test and Fugl Meyer Motor assessment upper extremity	To test and compare the interrater reliability of WFMT and FMA	
3	Rinske Nijland et al. 2010 [9]	Comparative study	Action Research Arm Test and Wolf Motor Function test	To examine the concurrent validity between WFMT and ARAT	They found high concurrent validity between both the outcome measures and the study showed good clinimetric properties for both the assessments.
4	Steven L. Wolf et al. 2005 [10]	Meta analysis	wolf order function test	to check the attributes of the wolf motor function test	the author stated that wolf motor function test is valid for testing patients with subacute stroke
5	Johanna H. Van der Lee et al. 2001 [11]	Comparative study	ARAT and FMA upper extremity	To determine the responsiveness of the ARAT and FMA upper extremity in case of patients with chronic stroke	The study found both the outcome measures to be reliable measures for measuring improvements in the function of the upper extremity in case of chronic stroke patients but they concluded that ARAT was more responsive than FMA.
6	Katherine J. Sullivan et al. 2011 [6]	RCT	Fugl Meyer motor and sensory assessment	To determine the effectiveness of the Fugl - Meyer motor and sensory assessment scale.	Their study concluded that FMA has high reliability and can be used in clinical practice to measure the severity of impairment and the responsiveness to therapy for patients with stroke.
7	David J. Gladstone et al. 2002 [12]	Literature review	Fugl - Meyer assessment	To study the measurement properties of the FMA scale	They have found the inter - rater and interrater reliability making the scale a great instrument for monitoring the course of recovery from hemiplegic stroke.
8.	Stephen J. 2012 [13]	RCT	Fugl meyer assessment	To find effectiveness of fugl meyer scale in mild to moderate disability	the author stated that Roc curve analysis revealed changes in upper extremity fugal mayers course during the intervention. Distinguished participants who experienced clinically important improvement.

3. Conclusion

Based on the review of relevant studies, both the Wolf Motor Function Test and the Fugl Meyer Assessment tool are reliable and valid for assessing upper limb disability in stroke patients. However, the Wolf Motor Function Test appears to be more responsive, making it a potentially more effective tool in this context.

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