

ORGANIZATION NEWS

Highlights From the Rehabilitation Measures Database

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Measurement Characteristics and Clinical Utility of the High-level Mobility Assessment Tool Among Individuals With Traumatic Brain Injury

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Approximately 5.3 million Americans live with disabilities related to traumatic brain injury (TBI).¹ TBI causes a wide range of impairments; even high-functioning individuals with TBI often have physical impairments that impede their ability to return to their prior activities, including accessing the community and employment. Many outcome measures do not detect high-level deficits because of a ceiling effect. The High-level Mobility Assessment Tool (HiMAT) is a free, 13-item, unidimensional scale that measures mobility in people who can ambulate independently at least 20m without an assistive device.² It assesses high-level activities, such as running and jumping, which are not typically included in other measures. It is clinically feasible, as it requires minimal time and equipment, requiring only a stopwatch, a brick, and 14 stairs with handrails. A revised 8-item version of the HiMAT eliminating the stairs items exists, but more studies are needed before recommendations for its use can be made.³

The HiMAT has excellent reliability and adequate to excellent concurrent validity with the FIM and Rivermead Mobility Assessment in individuals with mild to severe TBI.⁴⁻⁶ Standard error measurement and minimal detectable change data have been reported, which will allow clinicians to identify true change in an individual's performance.^{4,5}

A full review of the HiMAT and reviews of nearly 200 other instruments can be found at www.rehabmeasures.org.


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This instrument summary is designed to facilitate the selection of outcome measures by trained clinicians. The information contained in this summary represents a sample of the peer-reviewed research available at the time of this summary's publication. The information contained in this summary does not constitute an endorsement of this instrument for clinical practice. The views expressed are those of the summary authors and do not represent those of authors' employers, instrument owner(s), the *Archives of Physical Medicine and Rehabilitation*, the Rehabilitation Measures Database, the United States Department of Education, or the Retirement Research Foundation. The information contained in this summary has not been reviewed externally.

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	Measure Name: High-level Mobility Assessment Tool	Acronym: HiMAT	Summary Author: Ward, I; Roth, H; Kahn, J; Tseng, E; Tappan, R															
	Population Reviewed: TBI, others reviewed at www.rehabmeasures.org	Admin Time: 5 to 15 minutes	Items: 13	Score: 1/54 (min / max)														
Purpose and Administration Instructions: <ul style="list-style-type: none"> A unidimensional scale designed to assess high-level motor performance in patients with TBI 																		
Required Equipment: Stopwatch, tape measure, house brick or similar sized obstacle, 20 meter walkway, and a flight of 14 stairs with handrail		Training: None required; Read manual																
Validity: <ul style="list-style-type: none"> <u>Concurrent Validity:</u> <ul style="list-style-type: none"> Excellent concurrent validity with RMA for chronic TBI⁶ Adequate concurrent validity with FIM for chronic TBI⁶ <u>Criterion Validity:</u> <ul style="list-style-type: none"> Adequate criterion-related validity at 3 and 6 months post injury with the Rivermead Post Concussion Symptoms Questionnaire for mild TBI³ 		Reliability: <ul style="list-style-type: none"> <u>Test-retest Reliability:</u> <ul style="list-style-type: none"> Excellent in chronic TBI⁴ Excellent in mild TBI³ <u>Interrater Reliability:</u> <ul style="list-style-type: none"> Excellent in chronic TBI⁴ Excellent in mild TBI³ <u>Internal Consistency:</u> <ul style="list-style-type: none"> Excellent in chronic TBI⁴ 																
Minimal Detectable Change (MDC): <u>Chronic TBI:</u> MDC ₉₅ = increase of 4 points or decrease of 2 points on the total score of the HiMAT ⁴ <u>Mild TBI:</u> MDC = increase of 4 points or decrease of 3 points on the total score of the HiMAT ³																		
Standard Error of Measurement (SEM): <ul style="list-style-type: none"> <u>Chronic TBI:</u> SEM = 1.36⁴ 		Scoring Instructions: <ul style="list-style-type: none"> Circle the score for each item based on the corresponding time or distance Add each subtotal to calculate a total score 																
Score Interpretation: <ul style="list-style-type: none"> Higher scores indicate better mobility 																		
Considerations: <ul style="list-style-type: none"> The HiMAT is appropriate in the acute stages post TBI when the patient is able to ambulate unaided⁶ The minimal mobility requirements for testing is independent walking over 20 meters without gait aids. Orthoses are permitted Revised HiMAT: 8-item revision to original test where the 4 stair items and the bounding onto the unimpaired limb are removed. Although found to be unidimensional, valid and have excellent internal consistency in chronic TBI, more studies are needed³ The revised HiMAT is a valid option for clinics without stairs (MDC = +/- 2 in Chronic TBI)³ 		Abbreviations: TBI: Traumatic Brain Injury RMA: Rivermead Mobility Assessment FIM: Functional Independence Measure <table border="1"> <thead> <tr> <th colspan="3">Cut-off Criteria:</th> </tr> <tr> <th></th> <th><i>r</i></th> <th>ICC</th> </tr> </thead> <tbody> <tr> <td>Excellent</td> <td>≥ .6</td> <td>≥ .75</td> </tr> <tr> <td>Adequate</td> <td>.31-.59</td> <td>.40-.74</td> </tr> <tr> <td>Poor</td> <td>≤ .3</td> <td>< .4</td> </tr> </tbody> </table>		Cut-off Criteria:				<i>r</i>	ICC	Excellent	≥ .6	≥ .75	Adequate	.31-.59	.40-.74	Poor	≤ .3	< .4
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