

**NINDS CDE Notice of Copyright
Toronto Rehabilitation Institute Hand Function Test**

Availability:	Available at Toronto Rehabilitation Institute Hand Function Test: Unilateral Gross Motor Function Assessment
Classification:	Exploratory: Spinal Cord Injury (SCI)
Short Description of Instrument:	<p>Construct measured: Hand Functional Mobility, Strength</p> <p>Generic vs. disease specific: Disease specific</p> <p>Means of administration: Administered by a therapist</p> <p>Intended respondent: Participant</p> <p># of items: 14</p> <p># of subscales and names of sub-scales: 2 sub-scales – object manipulation and strength</p> <p># of items per sub-scale: 10 in the object manipulation section and 4 in the strength section</p>
Comments/Special instructions:	<p>Scoring: Part one is scored on scale between 0-2 where 0 is unable to grasp and hold object; where 1 is able to grasp and hold in supination and pronation for between 2-10 seconds and; 3 able to grasp and hold in supination and pronation for 11-30 seconds. Part two is scores are calculated for torque generated by palmar grasp, force generated by lateral pinch and exocentric grasp that the palmar grasp is able to sustain.</p> <p>Background: This is a performance measure that consists of two parts that are administered in sequential order. Part one evaluates the ability to manipulate 10 objects using lateral and palmar grasps. Part two measures the strength of the lateral and palmar grasp during manipulation of four objects: blocks with varying weight and surfaces; instrumented cylinder; instrumented credit card and an instrumented wooden handle.</p>
Rationale/Justification:	<p>Rationale: The Toronto Rehab Test is more of a "kit" than it is an outcome measure as the kit includes many subtests. The TRI-HFT may be a good choice for studies that are exclusively focused on hand function, particular studies designed to evaluate the effectiveness of treatment for improving lateral and palmar grasp patterns and force (authors recommend it for C5-C7 levels who may be receiving functional electrical stimulation or occupational therapy). The entire assessment requires approximately 35 minutes to administer. The test requires tolerance for sitting and thus may not be applicable for acute trials.</p> <p>Psychometric Properties: High interrater reliability with an intercorrelation coefficient (ICC) of 0.98; another study reported high inter-rater and intra-rater reliability ($r=1.0$; $p<0.01$). Moderate to strong correlations were found between TRI-HFT total scores and self-care components of FIM and SCIM TRI-HFT was found to be sensitive in determining difference in function pre and post functional electrical stimulation.</p>

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References:	<p>Kapadia, N.I., Zivanovic, V., Verrier, M. & Popovic, M.R. (2012) Toronto rehabilitation institute-hand function test: assessment of gross motor function in individuals with spinal cord injury. <i>Top Spinal Cord Inj Rehabil.</i> 18(2):167-86. doi: 10.1310/sci1802-167.</p> <p>Nagai, M.K., Contway, C., Zivanovic, V., Boschen, K.A. & Popovic, M. Toronto rehabilitation institute hand function test: Unilateral gross motor function assessment. (2008) 13th Annual Conference of the International Functional Electrical Stimulation Society. Retrieved from: (Toronto Rehabilitation Institute Hand Function Test: Unilateral Gross Motor Function Assessment)</p>
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