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Type of Outcome Measure: Capabilities of Upper Extremities Instrument (CUE)			Total articles: 3
Author ID Year	Study Design	Setting	Population (sample size, age) and Group
Marino et al. 1998	Cross-sectional survey	Regional Spinal Cord Injury Center	154 patients Avg. age = 37 years, injured for avg. of 8 years.  99% of subjects had neurological examinations within 2 years of completing study.  AIS-A/B/C/D: 93/12/24/25
Kalsi-Ryan et al. 2012	Cross-sectional multi-center study	Seven centers: 3 European (University Hospital Balgrist, Trauma Centre Murnau, and Hohe Worte, Bayreuth), and 4 North American (Toronto Rehabilitation Institute, Rehabilitation Institute of Chicag, GF Strong and Magee Rehabilitation Hospital, and Thomas Jefferson University Hospital).	N=72 Mean age = 39.7±10.7y (16-65y) Mean YPI = 7.6 ±6.1y  Chronic tetraplegia ranging from 6 months to 20 years post-injury.  52.5% C6-C7 motor levels 66% C4-C6 sensory levels  39% Complete tetraplegia 61% Incomplete tetraplegia
Oleson and Marino 2014	Longitudinal, with convenience sample Studying the revised CUE-Questionnaire (CUE-Q; 5pt instead of 7pt scale)	"Data were obtained at admission and discharge from acute inpatient rehabilitation"	N = 46, 42 male Median age 44±21 yrs AIS-A = 14, B = 5, C = 8, D = 19 Right motor lvl: C1-C4 = 11, C5 = 25, C6 = 7, C7-C8 = 3 Left motor lvl: C1-C4 = 9, C5 = 27, C6 = 5, C7-C8 = 5 28 Caucasian, 18 African-American Etiology: fall = 18, MVA = 17, sports = 8
<b>1. RELIABILITY</b>			
Author ID	Internal Consistency	Test-retest, Inter-rater, Intra-rater	
Marino et al. 1998	Cronbach's alpha = 0.96	Test-retest reliability and agreement were assessed using a weighted k coefficient for individual items and intraclass correlation coefficient (ICC) for the total scale score.  Individual items: $\kappa > 0.60$ for all but three: reaching forward with right arm ( $\kappa = 0.58$ ), manipulating objects with the right hand ( $\kappa = 0.55$ ), and lifting a 5-pound object overhead ( $\kappa = 0.57$ )  ICC for total score = 0.94	
<b>2. VALIDITY</b>			
Author ID			
Marino	Different motor levels for each side of the body had significantly different CUE scores ( $P < .001$ ) except for the		

et al. 1998	motor levels adjacent with each other.  Correlations of the CUE to other instruments measuring the same construct: Functional Independence Measure: $r = 0.738$ , $p = 0.798$ , $P < .05$ Upper Extremity Motor score: $r = 0.782$ , $p = 0.798$ , $P < .05$														
Kalsi-Ryan et al. 2012	Spearman correlation coefficients were used to establish the association between the Graded Redefined Assessment of Strength Sensibility and Prehension (GRASSP) subtests and the CUE questionnaire: <ul style="list-style-type: none"> <li>- Sensation total (R+L) = 0.77</li> <li>- Strength total (R+L) = 0.76</li> <li>- Prehension performance total (R+L) = 0.83</li> </ul> All values: $P < .0001$														
Oleson and Marino 2014	Spearman Correlations of:  CUE-Q total score at: Admission: With (Upper extremity motor score – ISNCSCI) UEMS: $r = 0.89$ With FIM-Self Care: $r = 0.73$ Discharge: With UEMS: $r = 0.70$ With FIM-Self Care: $r = 0.80$  CUE-Q score change btwn admission and discharge: With UEMS: $r = 0.07$ With FIM-Self Care: $r = 0.51$														
<b>3. RESPONSIVENESS</b>															
<b>Author ID</b>	<b>Responsiveness</b>														
Oleson and Marino 2014	Effect size (for change btwn admission and discharge): 0.92														
<b>4. FLOOR/CEILING EFFECT</b>															
<b>Author ID</b>	<b>Floor/Ceiling Effect</b>														
Marino et al. 1998	One item had a borderline floor effect, item hand 5 on the left. This item asks about difficulty manipulating small objects and is difficult with impaired hand function. No further explanation of “borderline” or actual values were given.														
Oleson and Marino 2014	Possible floor effect on one patient who had: “low admission scores on all measures, but despite minimal change in UEMS and FIMsc reported less difficulty with CUE-Q items at discharge”  Possible ceiling effect on one patient, whose: “admission CUE-Q scores were high relative to UEMS and FIMsc scores, but at discharge the scores were more congruent”														
<b>5. INTERPRETABILITY</b>															
<b>Author ID</b>	<b>Interpretability</b>														
Marino et al. 1998	SEM = 12.2 MDC (calculated from data in this article) = 33.8 <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">Item</th> <th colspan="2">Mean (SD)</th> </tr> <tr> <th>Right</th> <th>Left</th> </tr> </thead> <tbody> <tr> <td><b>Arm Function</b></td> <td></td> <td></td> </tr> <tr> <td><b>Reach 1</b></td> <td>4.5 (2.0)</td> <td>5.4 (2.1)</td> </tr> <tr> <td><b>Reach 2</b></td> <td>4.6 (2.4)</td> <td>4.5 (2.5)</td> </tr> </tbody> </table>	Item	Mean (SD)		Right	Left	<b>Arm Function</b>			<b>Reach 1</b>	4.5 (2.0)	5.4 (2.1)	<b>Reach 2</b>	4.6 (2.4)	4.5 (2.5)
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	Right	Left													
<b>Arm Function</b>															
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<b>Reach 2</b>	4.6 (2.4)	4.5 (2.5)													

	<b>Reach 3</b>	3.2 (2.5)	3.2 (2.5)
	<b>Pull/push 1</b>	5.9 (1.9)	5.7 (2.1)
	<b>Pull/push 2</b>	5.1 (2.2)	5.0 (2.2)
	<b>Pull/push 3</b>	5.8 (2.1)	5.5 (2.3)
	<b>Pull/push 4</b>	4.9 (2.3)	4.6 (2.3)
	<b>Wrist 1</b>	5.0 (2.5)	4.8 (2.5)
	<b>Wrist 2</b>	5.2 (2.3)	5.2 (2.3)
	<b>Hand Function</b>		
	<b>Hand 1</b>	3.0 (2.3)	3.0 (2.3)
	<b>Hand 2</b>	3.8 (2.5)	3.7 (2.4)
	<b>Hand 3</b>	3.9 (2.5)	3.8 (2.5)
	<b>Hand 4</b>	2.8 (2.3)	2.7 (2.3)
	<b>Hand 5</b>	2.4 (2.0)	2.2 (2.0)
	<b>Hand 6</b>	3.6 (2.6)	3.5 (2.6)
		<b>Bilateral</b>	
	<b>Reach down</b>		
	<b>Bilateral 1</b>	4.7 (2.4)	
	<b>Bilateral 2</b>	3.8 (2.6)	
Kalsi-Ryan et al. 2012	Mean CUE score: 78.8 (SD=29, range 4-124, median 78)		