

Reviewer ID: Zoe Raffard, John Zhu, Ben Mortenson, Gita Manhas			
Type of Outcome Measure: Physical Activity Recall Assessment for People with Spinal Cord Injury (PARA-SCI)			Total articles: 4
Author ID Year	Study Design	Setting	Population (sample size, age) and Group
Zbogar et al. 2016	Observational study	Two inpatient spinal cord injury rehabilitation centers in Canada	<p>N=106</p> <p>Non-ambulatory patients: (n=70) 49M, 21F Mean age (SD): 48.9 (18.3) 67% Traumatic, 33% Non-traumatic 49% Paraplegic, 51% Tetraplegic AIS: 33%A, 14%B, 21%C, 29%D</p> <p>Ambulatory patients: (n=36) 26M, 9F Mean age (SD): 51.8 (15.4) 69% Traumatic, 31% Non-traumatic 63% Paraplegic, 37% Tetraplegic AIS: 3%A, 6%B, 0%C, 91%D</p>
Latimer et al. 2006	Construct and convergent validity test	Not specified	<p>Convergent validity study: 73 participants; 52M, 21F, avg. age =39 37 tetraplegic, 36 paraplegic</p> <p>Construct validity study: 158 participants; 110M, 48F, avg. age= 38.5 81 tetraplegic, 77 paraplegic.</p>
Martin Ginis et al. 2005	Development and preliminary assessment of test-retest reliability and criterion validity	Community dwelling - Telephone interviews	<p>Reliability Study: 102 SCI patients Validity Study: 14 patients Age range: 27-53, 72% men</p> <p>Inclusion criteria: Neurological impairments secondary to SCI, wheelchair use and no cognitive deficit</p> <p>Reliability study participants: 50 paraplegic Mean (SD) age = 41.1 (12.2) years Mean (SD) time since injury = 12.5 (11.2) years 50% incomplete, 50% complete 64 % male</p> <p>52 tetraplegic Mean (SD) age = 36.9 (10.2) years Mean (SD) time since injury = 11.2 (8.5) years 49% incomplete, 51% complete 79 % male</p>
Martin-Ginis et al. 2012	Survey with a 1-week follow-up	General community	<p>Validity Study: N=103 (75% male, 25% female) Mean age: 48.10±12.70y Mean years postinjury: 17.9±11.9y</p>

			<p>54% tetraplegic 46% paraplegic</p> <p>40% complete 60% incomplete</p> <p>Test-Retest Reliability Study: N=35 (77% male, 23% female) Mean age: 48.51±13.24y Mean years postinjury: 14.20±12.42y 60% tetraplegic 40% paraplegic</p> <p>25% complete 75% incomplete</p> <p>Patients with SCI who used a wheelchair as the primary mode of mobility</p>
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1. RELIABILITY

Author ID	Internal Consistency	Test-retest, Inter-rater, Intra-rater																										
Zbogar et al. 2016	No data available	<p>Test-retest: $p \leq 0.01$</p> <p>Non-ambulatory participants: Spearman's rho (95%CI) = 0.68 (0.53-0.79)</p> <p>Ambulatory participants: Spearman's rho (95%CI) = 0.53 (0.24-0.73)</p>																										
Martin Ginis et al. 2005	No data available	<p>All 3 PARA-SCI measures of total physical activity had an ICC >0.70 (there were no significant differences between any pairs of PARA-SCI scores from T1 to T2, meaning scores were stable across the test-retest period)</p> <ul style="list-style-type: none"> Cumulative activity ICC =0.79 (0.7-0.85) Leisure time physical activity ICC =0.72 (0.6-0.8) Lifestyle Activity ICC =0.78 (0.68-0.84) <table border="1"> <thead> <tr> <th>PARA-SCI measure and Intensity Level</th> <th>ICC</th> </tr> </thead> <tbody> <tr><td>Cumulative - Total</td><td>0.79</td></tr> <tr><td>Cumulative - Mild</td><td>0.65</td></tr> <tr><td>Cumulative - Moderate</td><td>0.75</td></tr> <tr><td>Cumulative - Heavy</td><td>0.80</td></tr> <tr><td>Leisure Time Activity - Total</td><td>0.72</td></tr> <tr><td>Leisure Time Activity - Mild</td><td>0.63</td></tr> <tr><td>Leisure Time Activity - Moderate</td><td>0.45</td></tr> <tr><td>Leisure Time Activity - Heavy</td><td>0.91</td></tr> <tr><td>Lifestyle Activity - Total</td><td>0.78</td></tr> <tr><td>Lifestyle Activity - Mild</td><td>0.66</td></tr> <tr><td>Lifestyle Activity - Moderate</td><td>0.80</td></tr> <tr><td>Lifestyle Activity - Heavy</td><td>0.56</td></tr> </tbody> </table>	PARA-SCI measure and Intensity Level	ICC	Cumulative - Total	0.79	Cumulative - Mild	0.65	Cumulative - Moderate	0.75	Cumulative - Heavy	0.80	Leisure Time Activity - Total	0.72	Leisure Time Activity - Mild	0.63	Leisure Time Activity - Moderate	0.45	Leisure Time Activity - Heavy	0.91	Lifestyle Activity - Total	0.78	Lifestyle Activity - Mild	0.66	Lifestyle Activity - Moderate	0.80	Lifestyle Activity - Heavy	0.56
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2. VALIDITY

Author ID	Validity
Zbogar	Convergent Validity:

et al. 2016	Spearman correlations for PARA-SCI with: (Spearman correlation (95%CI)) Wrist accelerometry = -0.04 (-0.27-0.20) SCIM III mobility score = -0.14 (-0.37-0.11) Step counts = 0.35 (0.01-0.61)
Martin Ginis et al. 2005	Pearson correlations for indirect calorimetry measurement and levels of cumulative activity (using subset of validity sample; N = 9): <ul style="list-style-type: none"> • Mild: (r=0.27, n.s.) • Moderate: (r=0.63, P<.05) • Heavy: (r=0.88, P<.01) • Total: (r=0.79, P<.01)
Latimer et al. 2006	<p>Correlations with muscle strength:</p> <ul style="list-style-type: none"> • Biceps muscle strength assessed by maximal load that could be lifted in one repetition (1RM) in unilateral bicep curl correlated positively with total, moderate and heavy intensity PARA-SCI leisure time physical activity (LTPA) subscore ($r \geq 0.21$, $P < .05$). • Bicep strength also correlated with heavy intensity lifestyle and cumulative activity ($r \geq 0.23$, $P < .05$). • Left Pectoral strength assessed by maximal load in one repetition (1RM) in unilateral chest press correlated only with moderately intensity LTPA subscore ($r = 0.23$, $P = .03$). <p>Correlations with aerobic fitness:</p> <ul style="list-style-type: none"> • Oxygen consumption (VO₂) correlated with <ul style="list-style-type: none"> ○ Heavy intensity Leisure Time Physical Activity (LTPA) ($r = 0.35$ $P < .01$) ○ Moderate intensity cumulative activity ($r = 0.26$ $P < .05$) ○ Heavy intensity cumulative activity ($r = 0.33$ $P < .01$) • Workload sig. correlated with moderate, heavy and total LTPA subscore as well as heavy intensity cumulative activity ($r \geq 0.28$, $P < .02$). <p>Extreme Groups analysis Leisure time physical activity ANOVA Total leisure time physical activity (LTPA) subscore indicated main effects for: <ul style="list-style-type: none"> • age ($F(1,108) = 11.18$, $P = .001$, $d = 0.64$) • gender ($F(1,1456) = 4.51$, $P = .04$, $d = 0.36$) Men and younger participants reported more total LTPA compared with women and older participants.</p> <p>MANOVA Effects on leisure time physical activity (LTPA) subscore for mild, moderate and heavy intensity were significant by: <ul style="list-style-type: none"> • Age ($F(3,106) = 3.94$, Pillai's trace = 0.10, $P = .01$); younger respondents engaged in more moderate intensity LTPA than older participants. • Having a gym/sports team membership ($F(3,129) = 7.01$, Pillai's trace = 0.14, $P < .001$); those who did belong to a gym or sports team reported more moderate and heavy intensity LTPA. • Participation frequency (low vs. high) ($F(3,80) = 3.65$, Pillai's trace =, $P < .001$); those with high participation frequency reported more mild, moderate, and heavy intensity LTPA. <p>Lifestyle activity Lifestyle scores were significant for: <ul style="list-style-type: none"> • Work status ($F(3,151) = 3.21$, Pillai's trace = 0.12, $P = .02$) <p>Cumulative activity Cumulative scores were significant for: <ul style="list-style-type: none"> • Gym or sports team membership ($F(3,129) = 3.14$, Pillai's trace = 0.07, $P = .03$) </p></p></p>

Martin-Ginis et al. 2012
 With the exception of mild intensity activity, there were moderate to strong correlations between Leisure Time Physical Activity Questionnaire for People with Spinal Cord Injury (LTPAQ-SCI) & PARA-SCI measures of Leisure Time Physical Activity (LTPA).
 All correlations between the PARA-SCI and LTPAQ-SCI measures of LTPA were positive and statistically significant ($P < .01$).
 The strongest correlation was between the measures of heavy LTPA ($P = .54$), followed by the measures of total ($P = .46$) and moderate LTPA ($P = .43$).
 The weakest correlation was between the measures of mild intensity LTPA ($P = .27$).

3. RESPONSIVENESS – No data available

4. FLOOR/CEILING EFFECT

Author ID	Floor/ceiling effect
Martin-Ginis et al. 2005	Minimum between-subject variability may have caused floor effects in heavy intensity lifestyle activity for reliability scores.

5. INTERPRETABILITY

Author ID	Interpretability
Zbogar et al. 2016	MDC = 179.4 min

Martin-Ginis et al. 2005
Chronic SCI: ($n = 102$, combination of: paraplegia and tetraplegia, complete and incomplete SCI)

PARA-SCI measure and Intensity Level	Mean (SD) in minutes of PARA-SCI results at Time 1	Mean (SD) in minutes of PARA-SCI results at Time 2 (one week after Time 1)
Cumulative - Total	184.1 (141.2)	189.3 (138.3)
Cumulative - Mild	113.3 (107.4)	103.3 (95.2)
Cumulative - Moderate	66.1 (72.6)	63.9 (61.4)
Cumulative - Heavy	19 (30.5)	21.5 (36.4)
Leisure Time Activity - Total	45.3 (59.9)	51.2 (68.6)
Leisure Time Activity - Mild	13.5 (25.1)	16.2 (37.0)
Leisure Time Activity - Moderate	20.2 (33.4)	20.2 (30.6)
Leisure Time Activity - Heavy	11.7 (28.3)	14.8 (34.4)
Lifestyle Activity - Total	138.8 (138.5)	138.1 (127.4)
Lifestyle Activity - Mild	85.6 (93.2)	87.6 (89.5)
Lifestyle Activity - Moderate	45.9 (65.9)	43.8 (58.1)
Lifestyle Activity - Heavy	7.3 (14.8)	6.7 (16.0)

SEM and MDC (calculated by the SCIRE team from data in Martin-Ginis et al. 2005):

PARA-SCI measure and Intensity Level	SEM (min of activity/day)	MDC (min of activity/day)
Cumulative - Total	64.7	179.4
Cumulative - Mild	63.5	176.1
Cumulative - Moderate	36.3	100.6
Cumulative - Heavy	13.6	37.8
Leisure Time Activity - Total	31.7	87.9
Leisure Time Activity - Mild	15.3	42.3
Leisure Time Activity - Moderate	24.8	68.7
Leisure Time Activity - Heavy	8.5	23.5
Lifestyle Activity - Total	65.0	180.1

	Lifestyle Activity - Mild	54.3	150.6
	Lifestyle Activity - Moderate	29.5	81.7
	Lifestyle Activity - Heavy	9.8	27.2
Martin-Ginis et al. 2012	Mean (SD) PARA-SCI leisure time physical activity (LTPA) subscore (min/day): mild: 6.58 (14.59) moderate: 12.69 (27.30) heavy: 5.37 (15.21) total: 24.64 (37.43)		