

Reviewer ID: Kyle Diab, Matthew Querée, Risa Fox			
Type of Outcome Measure: Penn Spasm Frequency Scale (PSFS) and Spasm Severity Scale			Total articles: 7
Author ID Year	Study Design	Setting	Population (sample size, age) and Group
Mills et al. 2018	Psychometric study	General Community	N=66 (17M, 49F) Mean age: 44.1±12.3 years Level of injury and AIS: C1-C4 AIS A/B/C = 15, C5-C8 AIS A/B/C = 22, T1-S1 AIS A/B/C = 17, AIS D (any level) = 12
Adams et al. 2007	Scale development and assessment	General Community	N = 61 community dwelling with chronic SCI and “stable” spasticity. 45 male, 16 female Mean age = 41.9 ±12.6 mean (SD) time since injury = 10.2 (8.6)
Aydin et al. 2005	Cohort; uses a modified PSFS	Rehabilitation Centre	N= 21 traumatic SCI Time postinjury was 11.48 ± 13.92 mos Traumatic SCI M/F: 6/15 C=5, 16=T AIS A/B/C/D=10/3/7/1
Benz et al. 2005	Outcome measure correlation	Rehab institute: in/out-patient	N=17 No info on participant sex Age 22-63 (Mean 42.4; SD 11.6) C5-T10 AIS A-D Time since injury=24-372m
Boviatsis et al. 2005	Cohort	Neurosurgical unit	N=22; MS=15, SCI=7 Population: MS, SCI C4-T11, Duration of symptoms: 1-5 years for total N, Avg disease duration SCI: 2.71y SCI Age: 27-49years, SCI M/F: 5/2
Penn et al. 1989	Cohort	Depts. of Neurosurgery, Physiology, PM&R, PE	N=20 Age 23-62 M/F=11/9 MS/SCI=10/10 C5-T9 Population: SCI, MS
Priebe et al. 1996	Outcome measure correlation	VAMC-SCI service in/out-patient	N=85 Mean age=46y±13 (21-82) C3-T10 AIS A-D Duration of injury: 1m to 25y

1. RELIABILITY																						
Author ID	Internal Consistency	Test-retest, Inter-rater, Intra-rater																				
Mills et al. 2018	No data available	The intra-rater reliability between 5 to 10 days and 4 to 6 weeks after baseline was 0.822 (0.709, 0.935) and 0.734 (0.586, 0.883), respectively, for PSFS Part 1. With the addition of Part 2, the intra-rater reliabilities were 0.812 (0.705, 0.919) and 0.729 (0.586, 0.872) for 5 to 10 days and 4 to 6 weeks, respectively. The PSFS inter-rater reliability within a 3-day time interval was 0.862 (0.759, 0.965) for Part 1 and 0.857 (0.762, 0.952) with the addition of Part 2. Part 1: spasm frequency Part 2: spasm frequency-severity combination																				
2. VALIDITY																						
Author ID	Validity																					
Benz et al. 2005	Spearman r Correlations between Ashworth (hip, knee, ankle) vs SCATS (clonus, flexion, extension) vs PSFS <table style="margin-left: 40px;"> <tr> <td></td> <td>Hip</td> <td>knee</td> <td>ankle</td> </tr> <tr> <td>PSFS</td> <td>.43</td> <td>.43</td> <td>.51</td> </tr> </table> <table style="margin-left: 40px;"> <tr> <td></td> <td>SCATS</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Clonus</td> <td>Flex</td> <td>Ext</td> </tr> <tr> <td>PSFS</td> <td>.59*</td> <td>.41</td> <td>.40</td> </tr> </table> *P<.05			Hip	knee	ankle	PSFS	.43	.43	.51		SCATS				Clonus	Flex	Ext	PSFS	.59*	.41	.40
	Hip	knee	ankle																			
PSFS	.43	.43	.51																			
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Priebe et al. 1996	Polychoric correlations SFS & Interference with Function Score = 0.407 SFS & Painful Spasm Score=0.312																					
Adams et al. 2007	<ul style="list-style-type: none"> • Excellent: PSFS and SCI-SET correlations ($r = -0.66$) • Adequate: PSFS and Spasticity Severity correlations ($r = 0.58^*$) • Excellent: PSFS and Spasticity Impact correlations ($r = 0.67^*$) • Poor: PSFS and FIM Motor Score correlations ($r = -0.05$) • Adequate: PSFS and QLI Health and Functioning Sub scale correlations ($r = -0.46^*$) *P<.001																					
3. RESPONSIVENESS																						
Author ID	Responsiveness																					
Penn et al. 1989	Intrathecal (IT) Baclofen, Ashworth was reduced from 4 ± 1 to 1.2 ± 0.4 , $P = .0001$, concomitant decrease in spasm frequency 3.3 ± 1.2 to 0.4 ± 0.8 , $P < .0005$. After mean follow-up of 19.2 months, Ashworth was 1.0 ± 0.1 and SFS was 0.3 ± 0.6 . Calculated Cohen's d: SFS = 2.41 (Score change divided by pretreatment SD)																					
Aydin et al. 2005	Baclofen Pre-post Spasm Frequency Scale (SFS) and Lower Limb Ashworth Score (LLAS) was $-28 \pm 30\%$ and 22% , respectively. TENS pre-post SFS and LLAS was $-16 \pm 16\%$ and $-17 \pm 17\%$, respectively. All other spasticity related measures progressed in the same direction also. Calculated Cohen's d: SFS = 1.11 (Score change divided by pretreatment SD)																					
Boviatsis et al.	Intrathecal Baclofen. From pre-tx to final post-tx, Ashworth decreased from 4.57 to 2.57 ($P = .0134$). Concomitant reduction in Penn from 3.71 to 1.28 ($P = .00006$).																					

2005	Calculated Cohen's d unavailable due to lack of reported SDs			
4. FLOOR/CEILING EFFECT – no data available				
5. INTERPRETABILITY				
Author ID	SEM, MDC, MCID, normative & published data			
Aydin et al. 2005	Mean (SD) score from modified version of PSFS:			
		Baclofen treatment		Transcutaneous electrical nerve stimulation treatment
		Pre (n=10)	Post (n=10)	Pre (n=11) Post (n=11)
	PSFS score	3.3 (0.9)	2.3 (0.3)	3.1 (0.7) 2.6 (0.6)