

CHAPTER IV

RESULT

1. Subject participation

Table 1 presents baseline demographics, SCI characteristics, and baseline walking ability of 60 subjects who completed the study (30 subjects/group). Among subjects with FIM_L 6, 16 subjects required walkers, 8 subjects used crutches, and 6 subjects walked with cane. Most of subjects in each group were males and had an SCI from non-traumatic causes at a chronic stage of injury. There were no significant differences of age and post-injury time of subjects in both groups ($p > 0.05$). Other baseline demographics and SCI characteristics of subjects were given in table 1.

Table 1 Baseline demographics, SCI characteristics and baseline walking ability of subjects

Variables	FIM _L 6 (n = 30)	FIM _L 7 (n = 30)
Age [Mean \pm SD] (years)	49.30 \pm 14.41	50.6 \pm 9.68
Genders [Females/Males] (n)	11/19	7/23
Causes [Non-Traumatic/Traumatic] (n)	18/12	16/14
Post-injury time [Mean \pm SD] (months)	61.60 \pm 92.1	49.40 \pm 66.33
Severity of SCI [AIS C/D] (n)	7/23	0/30
Levels of injury [Tetraplegia/Paraplegia] (n)	10/20	13/17

AIS = American Spinal Injury Association (ASIA) Impairment Scales

6MWT = 6-minute walk test

2. Reliability of the tests and functional ability of the subjects

The 3 functional tests demonstrated excellent inter-tester reliability (table 2). Table 3 presents data of functional tests in subjects with FIM_L 6 and 7. The data demonstrated that subjects with FIM_L 7 required significantly less time to complete the FTSST and TUGT, and walked at a significantly greater speed than those with FIM_L 6 (table 3, $p < 0.001$).

Table 2 Inter-tester reliabilities of the 3 functional tests

Variables	Inter-tester reliability		
	ICC	95% CI	p-value
FTSST	0.999	0.995 – 0.999	< 0.001**
TUGT	0.999	0.999 – 1.000	< 0.001**
10MWT	0.998	0.996 – 0.999	< 0.001**

** Indicated statistical significance

Table 3 Functional abilities in subjects with FIM_L 6 and FIM_L 7

Variables	FIM _L 6 (n=30)	FIM _L 7 (n=30)	p-value*
FTSST (s)	16.99 ± 5.50	11.49 ± 4.08	< 0.001**
TUGT (s)	29.09 ± 11.86	12.44 ± 4.34	< 0.001**
10MWT (m/s)	0.42 ± 0.21	0.94 ± 0.20	< 0.001**

Data were presented using Mean ± SD

*p-value from independent samples t-test

** Indicated significant differences

3. Cut-off scores and predictive ability of the 3 functional tests

In order to facilitate data comparison among the tests, findings of the 3 functional tests were reported in time (seconds). Table 4 shows cut-off scores, sensitivity, specificity, and area under the curve (AUC) to determine predictive ability of the tests. The data demonstrated that the time required complete the FTSST ≥ 14.13 seconds, the TUGT ≥ 18.23 seconds, and 10MWT ≥ 6.35 seconds had good to excellent predictive ability to indicate the requirement of walking devices (table 4 and Appendix F). Comparing among the 3 tests, the 10MWT had highest sensitivity, specificity and AUC; thus having the best predictive ability (table 4).

Table 4 Cut-off scores and associated sensitivity, specificity and area under curve (AUC) with respect to the requirement of walking devices for the 3 functional tests

Variables	Cut-off scores (second)	Sensitivity (%)	Specificity (%)	AUC (95%CI)
FTSST	≥ 14.13	70.00	73.33	0.79 [0.68 - 0.91]
TUGT	≥ 18.23	83.33	86.67	0.95 [0.89 - 1.00]
10MWT	≥ 6.35	86.67	90.00	0.96 [0.91 - 1.00]