

Thesis Title	Reliability of Eccentric Isokinetic Measurement of Knee Flexor and Extensor Muscles Using Cybex 6000
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Date of Graduation	4 April B.E. 2540 (1997)

ABSTRACT

Reliability of a test is crucial when the assessment is to be used in Physiotherapy practice. Very few studies on test-retest reliability for eccentric isokinetic measurement of the knee are available and none have been conducted with Thai subjects. This study aimed to determine the degree of test-retest reliability of eccentric isokinetic measurements of knee flexor muscles (KF) and knee extensor muscles (KE) for peak torque (PT), total work (TW), and average power (AP) using the same rater. Fifty healthy, untrained volunteers, 23 males (mean age 20.87 ± 2.27 yrs) and 27 females (mean age 21.44 ± 1.42 yrs), were recruited for this study. The right-dominant knee of each subject was measured at the speed of 60 and 180 deg/sec of eccentric isokinetic works. All data were collected on Cybex 6000 using the corresponding software version 5.0. A study design consisting of three sessions including pretraining, test, and retest was applied. Each session consisted of

four steps of tasks; measurement of body weight and height, setup and positioning, warm-up / cool down, and testing procedure. The order of testing for muscle groups and speeds was the same for every subject. KF were tested, before KE and low speed was tested, then high speed. Each speed was repeated twice for each testing procedure which had four repetitions. The data were recorded from 0 to 90 degrees of KF and KE during eccentric reciprocal contractions. Subjects were tested in sitting position with 90 degrees seat back angle and firm trunk stabilization. An intraclass correlation coefficient ($ICC_{(3,1)}$) was used to determine the reproducibility of the measurements. The data yielded a moderate to excellent degree of reliability ($ICCs = 0.64-0.92$). About 75 % of all $ICCs$ attained an acceptable level of test-retest reliability ($ICCs \geq 0.75$). The $ICCs$ tended to be higher for KE than KF and the $ICCs$ for PT tended to be more reliable than TW, and AP. The data also revealed that the reliability was higher for males ($ICCs = 0.64-0.91$) than females ($ICCs = 0.70-0.92$), and better at high speed ($ICCs = 0.72-0.92$) than at low speed ($ICCs = 0.64-0.89$).