

Test-retest reliability of isokinetic knee strength measurements in type 2 diabetes mellitus patients

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Abstract

Background: Reliability studies are used to verify the evaluation accuracy of a given device. Strength is an important factor for the development of daily activities and its correct management is fundamental. The objective of this study was to examine the reliability of a concentric strength test in people with type 2 diabetes mellitus (T2DM). **Methods:** Twenty-seven individuals with T2DM performed three repetitions of extension-flexion in concentric-concentric action at 60°/s, for both legs, using an isokinetic dynamometer. For the reliability analysis, we performed an intra-session test retest. **Results:** The total sample and men sub-group intra-class correlation coefficient (ICC) values were excellent for peak torque and work. In the women sub-group, ICC values were excellent for extensors in both peak torque and work; however, concerning flexor, the ICC values were good for peak torque while, for work, they were good for the right leg and moderate for the left leg. Standard error of measurement (SEM) percentage oscillated from 3.85% to 6.80%, with the smallest real difference (SRD) percentage being from 10.66% to 18.86% for peak torque. Furthermore, the SEM (%) was around 5.5% and SRD (%) was around 15% for work. **Conclusions:** The isokinetic dynamometry had “good” to “excellent” relative reliability for peak torque (0.862–0.983) and work (0.744–0.982) of extension-flexion in concentric-concentric action at 60°/s. In addition, our study showed that, in general, an SRD < 20% could indicate a true change in strength regarding this protocol in T2DM.

Author keywords

Isokinetic strength
Reliability
Type 2 diabetes mellitus