

Quantifying Performance of the Star Excursion Balance Test

Reliability and Validity of the OnPoint System

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INTRODUCTION

The Star Excursion Balance Test (SEBT) is a clinical method of assessing dynamic balance in healthy adults and athletes¹. Furthermore, this functional test may be extended to the examination of lower extremity injury, such as ankle instability, in injured populations². The 'ONPoint System' is a tool developed by Dr. Jacob Reeves, which attempts to reduce barriers for clinicians seeking to use the SEBT. Before widespread implementation, the ONPoint system must first be examined in terms of both its validity and reliability. Validity refers to the accuracy of a given measure, whereas reliability represents consistency in a set of measures. In other words, is the instrument or method that you use to collect your data giving you the desired result? And can you get that result at any given time?

RESULTS

Analysis of the preliminary data suggest a strong correlation between rater scores and TekScan measurements, with a Pearson coefficient equal to 0.91 as well as upper and lower confidence intervals set at 95%. Biases were evaluated with a Bland-Altman plot, showing a small, constant bias for the calculated differences between the rater scores and the TekScan measurements [bias (y) = -0.59 cm, 95% confidence interval = -11.38 cm, 10.20 cm]. Inter-rater reliability, calculated with ICC(2,1), was assessed from comparison of two raters scores for the same set of trials. Inter-rater reliability was extremely high (ICC [2,1] = 0.98, 95% CI = 0.92, 0.99). Intra-rater reliability was also high but contained much larger confidence intervals (ICC [3,1] = 0.85, 95 CI = 0.44, 0.97).

DISCUSSION

Although the results are promising, aspects of the protocol may be improved in the future. For instance, normalizing the data for leg length (reach distance/leg length*100) reduces some potential bias in the data. Furthermore, the ONPoint mat scores are recorded in sections 3 cm in length. Therefore, inter-rater reliability is likely to be inflated. Future work for this project will need to include a larger data set such that the results may be properly translated to other populations.

Tekscan vs Rater Measures

