
ORIGINAL RESEARCH

REPRODUCIBILITY OF THE MODIFIED STAR EXCURSION BALANCE TEST COMPOSITE AND SPECIFIC REACH DIRECTION SCORES

Remko van Lieshout, PT, MSc¹
Elja A.E. Reijneveld, PT, MSc¹
Sandra M. van den Berg, PT, MSc¹
Gijs M. Haerkens, PT, MSc¹
Niek H. Koenders, PT, MSc¹
Arina J. de Leeuw¹
Roel G. van Oorsouw, PT, MSc¹
Davy Paap, PT, MSc¹
Else Scheffer, MSc¹
Stijn Weterings, PT, MSc¹
Mirelle J. Stukstette, PT, PhD¹

ABSTRACT

Background: The mSEBT is a screening tool used to evaluate dynamic balance. Most research investigating measurement properties focused on intrarater reliability and was done in small samples. To know whether the mSEBT is useful to discriminate dynamic balance between persons and to evaluate changes in dynamic balance, more research into intra- and interrater reliability and smallest detectable change (synonymous with minimal detectable change) is needed.

Purpose: To estimate intra- and interrater reliability and smallest detectable change of the mSEBT in adults at risk for ankle sprain.

Study Design: Cross-sectional, test-retest design

Methods: Fifty-five healthy young adults participating in sports at risk for ankle sprain participated (mean \pm SD age, 24.0 \pm 2.9 years). Each participant performed three test sessions within one hour and was rated by two physical therapists (session 1, rater 1; session 2, rater 2; session 3, rater 1). Participants and raters were blinded for previous measurements. Normalized composite and reach direction scores for the right and left leg were collected. Analysis of variance was used to calculate intraclass correlation coefficient values for intra- and interrater reliability. Smallest detectable change values were calculated based on the standard error of measurement.

Results: Intra- and interrater reliability for both legs was good to excellent (intraclass correlation coefficient ranging from 0.87 to 0.94). The intrarater smallest detectable change for the composite score of the right leg was 7.2% and for the left 6.2%. The interrater smallest detectable change for the composite score of the right leg was 6.9% and for the left 5.0%.

Conclusion: The mSEBT is a reliable measurement instrument to discriminate dynamic balance between persons. Most smallest detectable change values of the mSEBT appear to be large. More research is needed to investigate if the mSEBT is usable for evaluative purposes.

Level of Evidence: Level 2

Keywords: Ankle, Dynamic Balance; mSEBT; Reliability; smallest detectable change

CORRESPONDING AUTHOR

Mirelle J. Stukstette,
Clinical Health Sciences
University Medical Center Utrecht, Utrecht
University
P.O. Box 85500, room HB4.05, 3508 GA
Utrecht, The Netherlands
Tel: +31887556764, Fax: +31 887 55 34 09
E-mail: m.j.p.m.stukstette@umcutrecht.nl

¹ Physical Therapy Science, Program in Clinical Health Sciences, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands