
ORIGINAL RESEARCH

INTRA-RATER RELIABILITY OF THE MULTIPLE SINGLE-LEG HOP-STABILIZATION TEST AND RELATIONSHIPS WITH AGE, LEG DOMINANCE AND TRAINING

Leanne Sawle, PhD^{1,2}

Jennifer Freeman, PhD¹

Jonathan Marsden, PhD¹

ABSTRACT

Background: Balance is a complex construct, affected by multiple components such as strength and co-ordination. However, whilst assessing an athlete's dynamic balance is an important part of clinical examination, there is no gold standard measure. The multiple single-leg hop-stabilization test is a functional test which may offer a method of evaluating the dynamic attributes of balance, but it needs to show adequate intra-tester reliability.

Purpose: The purpose of this study was to assess the intra-rater reliability of a dynamic balance test, the multiple single-leg hop-stabilization test on the dominant and non-dominant legs.

Design: Intra-rater reliability study

Methods: Fifteen active participants were tested twice with a 10-minute break between tests. The outcome measure was the multiple single-leg hop-stabilization test score, based on a clinically assessed numerical scoring system. Results were analysed using an Intraclass Correlations Coefficient ($ICC_{2,1}$) and Bland-Altman plots. Regression analyses explored relationships between test scores, leg dominance, age and training (an alpha level of $p = 0.05$ was selected).

Results: ICCs for intra-rater reliability were 0.85 for the dominant and non-dominant legs (confidence intervals = 0.62-0.95 and 0.61-0.95 respectively). Bland-Altman plots showed scores within two standard deviations. A significant correlation was observed between the dominant and non-dominant leg on balance scores ($R^2 = 0.49$, $p < 0.05$), and better balance was associated with younger participants in their non-dominant leg ($R^2 = 0.28$, $p < 0.05$) and their dominant leg ($R^2 = 0.39$, $p < 0.05$), and a higher number of hours spent training for the non-dominant leg $R^2 = 0.37$, $p < 0.05$).

Conclusions: The multiple single-leg hop-stabilisation test demonstrated strong intra-tester reliability with active participants. Younger participants who trained more, have better balance scores. This test may be a useful measure for evaluating the dynamic attributes of balance.

Level of Evidence: 3

Key words: Assessment, balance, reliability, hop testing

CORRESPONDING AUTHOR

Dr Leanne Sawle

Cardiff University, School of Engineering

The Parade, Cardiff CF24 3AA. 07903731001

E-mail: SawleL1@cardiff.ac.uk

¹ Plymouth University. Faculty of Health and Human Sciences, Peninsula Allied Health Centre, Derriford Road, Plymouth, Devon, Great Britain

² Cardiff University. School of Engineering. The Parade, Cardiff, Great Britain