

ORIGINAL RESEARCH

EXPLORATION OF SCORE AGREEMENT ON A MODIFIED UPPER QUARTER Y-BALANCE TEST KIT AS COMPARED TO THE UPPER QUARTER Y-BALANCE TEST

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ABSTRACT

Background/Purpose: Physical performance measures (PPMs) such as The Star Excursion Balance Test (SEBT) and the Y-Balance Test (YBT) are functional movement tests used to assess participants' dynamic balance, which can be a vital component in physical exams to identify predisposing factors for risk of injury. The YBT is a functional assessment tool for the upper and lower body. It evolved from the SEBT, which has been previously used in research as a lower body functional assessment. It is comprised of fewer movement directions, which help limit fatigue. The YBT kit is a commercialized tool, which may pose barriers for clinicians with limited budgets and/or strict approval process for purchasing capital items in their clinics, especially healthcare providers in the secondary school setting. The cost may also pose a barrier for researchers with limited budgets. A less expensive, easy to make kit, may provide clinicians an opportunity to integrate functional testing into their evaluation or research. The purpose of this pilot study was to describe a cost efficient method to gather participant's upper quarter YBT (UQYBT) measurements and examine the inter- and intra-rater score agreement between this method and the commercial YBT measurements.

Methods: A convenience sample of 20 physically active participants volunteered to participate in a comparison study of the of Upper Quarter Y-Balance Test (UQYBT) using the commercialized kit and the Modified Upper Quarter Y-Balance Test kit (mUQYBT) made with three cloth tape measures, athletic tape, a goniometer and three 2x4x8 wood blocks. A Pearson Product Moment correlation and Bland-Altman analyses were used to examine the relationship between intra-rater scores comparing the UQYBT and mUQYBT. Inter-rater scores were analyzed using intraclass correlation coefficients (ICC) (2,1) and Bland-Altman analyses.

Results: All Pearson Product Moment r-values for intra-rater scores were greater than .96 and statistically significant at $p < 0.05$. Coefficients of determination suggest that the mUQYBT scores account for approximately 92% of the UQYBT composite score when analyzing intra-rater comparisons. Bland-Altman plots suggest moderate agreement between the two tests with a potential bias towards higher composite scores in the mUQYBT. Inter-rater ICC scores were all greater than .98, while Bland-Altman plot analyses suggest moderate agreement between the raters.

Conclusion: The mUQYBT produced similar results in both inter- and intra-rater measurements when compared to the commercialized YBT kit and offers a cost-effective alternative for assessing upper quarter PPMs for clinicians with limited budgets.

Level of Evidence: 2b

Keywords: Y-Balance Test, upper quarter functional tests, physical performance measures

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