

INTER-RATER AGREEMENT AND VALIDITY OF A TACKLING PERFORMANCE ASSESSMENT SCALE IN YOUTH AMERICAN FOOTBALL

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ABSTRACT

Background: Long term neurologic injury and concussion have been identified as risks from participation in American football. Altering tackling form has been recommended to reduce the risk of neurologic injury caused by head accelerations when tackling. The purpose of this research is to determine the inter-rater agreement and validity of the Qualitative Youth Tackling System (QYTS), a six-item feedback scale to correct tackling form, when utilized by novice and expert raters.

Hypothesis: Experienced raters will have higher levels of agreement with each other and with motion capture when compared to novice raters.

Methods: Both novice and experienced raters viewed video of youth athletes (ages 9-13) tackling a dummy in a laboratory setting along. The raters identified successful performance according to a binary rating scale for each component. Analysis of both the raters' agreement with each other and with an objective motion capture measure were completed.

Results: Fliess' Kappa measures between all raters were found to be moderate for head placement ($k = .48$), fair for cervical extension ($k = .38$), trunk inclination ($k = .37$), shoulder extension ($k = .27$) and step length ($k = .29$), and there was no agreement for pelvic height ($k = -.16$). When compared to the dichotomized validation measures of each of the five components provided by the motion capture system the average Cohen's Kappa agreement was substantial for pelvic height ($k = .63$), fair for step length ($k = .34$), cervical extension ($k = .40$), trunk inclination ($k = .35$), and slight for shoulder extension ($k = .16$). The experienced raters outperformed the novice raters in all categories.

Conclusion: The results of this study indicate that skilled raters are better able to identify the movement patterns included in the QYTS when compared to a validation measure as well have higher rates of inter-rater agreement than novice raters.

Level of Evidence: 3b

Keywords: Concussion, Feedback, Football, Motor Learning

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