

VALIDITY OF FUNCTIONAL SCREENING TESTS TO PREDICT LOST-TIME LOWER QUARTER INJURY IN A COHORT OF FEMALE COLLEGIATE ATHLETES

P. David Walbright, DPT,¹

Nicole Walbright, MS²

Heidi Ojha, DPT,³

Todd Davenport, DPT⁴

ABSTRACT

Background: Lower quarter injuries account for more than 50% of all injuries in collegiate athletics. Neuromuscular screening tests could potentially identify athletes who are at risk for sustaining an injury. While previous research has studied individual tests, the authors of this paper are unaware of any study that has compared diagnostic accuracy of multiple neuromuscular screening tests within one study cohort.

Hypothesis/Purpose: The purpose of this study was to examine the accuracy of three common neuromuscular screening tests to predict the occurrence of a lower quarter injury in female collegiate volleyball and basketball players.

Study Design: Prospective Cohort

Methods: Thirty-five subjects underwent a pre-season screening by performing the Y-balance test, the Functional Movement Screen™, and Single Leg Hop test. Data were collected on lower quarter injury incidence, lost practice time, and lost competition time among subjects throughout the course of one season. Receiver operating characteristics curves were plotted and area under the curve was calculated to assess the relationship between lower extremity injury incidence and the scores of the functional tests.

Results: Lost-time injuries occurred in 11 athletes (31.4%), of whom, six athletes (17.1%) lost 50 hours or greater. There were no significant relationships between occurrence of a lost-time lower extremity injury and scores on any of the three tests. Positive and negative likelihood ratios all included the value of 1.0.

Conclusions: Although reliable, the screening tests under study did not appear to retain adequate validity to predict lower quarter injury risk within these female collegiate athletes.

Level of Evidence: Level 2b

Key words: Ankle, hip, injury prediction, knee, lower quarter, lumbar, movement system, relative risk, sports

CORRESPONDING AUTHOR

P. David Walbright DPT
Orthopaedic Rehab Specialists,
Jonesville, MI,
phone: 517-849-7040
fax: 517-849-7050
E-mail: davidwppt@orsmi.com

¹ Orthopaedic Rehab Specialists, Jonesville, MI, USA

² Hillsdale College, Hillsdale, MI, USA

³ Temple University, Philadelphia, PA, USA

⁴ University of the Pacific, Stockton, CA, USA