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ORIGINAL RESEARCH

THE LOWER EXTREMITY GRADING SYSTEM (LEGS) TO EVALUATE BASELINE LOWER EXTREMITY PERFORMANCE IN HIGH SCHOOL ATHLETES

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ABSTRACT

Background and Purpose: Lower extremity athletic injuries result in impairments in balance, power, and jump-landing mechanics. Unilateral injury has bilateral effects and the literature supports that it is important to assess neuromuscular impairments such as balance, power, and jumping mechanics following injury and for safe return to sport after injury rehabilitation. Currently, individual tests are established in the literature, but no combined approach or clinical tool exists for this purpose. The purpose of this study is to describe and provide the initial data for the Lower Extremity Grading System (LEGS), comprised of three neuromuscular components for use as a baseline pre-season assessment for high school athletes to assess lower extremity performance. Furthermore, this study focuses on the differences in baseline lower extremity performance outcomes between male and female soccer and basketball athletes.

Methods: One hundred and eighty-five high school basketball, and soccer athletes (94 female, 91 male; mean age = 15.6 $\pm$ 4.4) participated. The participants were administered the LEGS assessment during the preseason for their respective sports, which includes three component tests: (1) Y-balance test, (2) drop vertical jump test, (3) triple-crossover-hop-for-distance test. Participants' scores on each test were recorded, and then totaled to present an overall LEGS composite score. Participants' baseline LEGS scores were then analyzed according to sex and sport, and standard normal distribution was calculated for all scores to enable percentile rankings to be established.

Results: Mean scores and standard deviation for each functional performance test are presented. Furthermore, a LEGS composite score combining the test scores was established and presented as a normal distribution curve allowing for further comparison and analysis. The mean LEGS composite score for males was 700.3 ($\pm$ 76.6), while the mean LEGS composite score for females was 587.4 ($\pm$ 51.6). Statistically different LEGS composite scores were found between males and females.

Conclusion: The current findings present descriptive data for the utility of the LEGS as a neuromuscular baseline assessment before high school sports participation and/or as a tool for assessing return to sports after injury rehabilitation. The LEGS may augment current assessment tools and may serve as a composite score and combined approach to the assessment of lower extremity risk of injury and readiness to return to sports.

Level of evidence: 3

Keywords: Adolescent, lower extremity, baseline screening, return to play

Conflict Of Interest Statement
The authors whose names are listed certify that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter discussed in this article.

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