ABSTRACT

Background. Athletes often utilize compensatory movement strategies to achieve high performance. However, these inefficient movement strategies may reinforce poor biomechanical movement patterns during typical activities, resulting in injury.

Objectives. This study sought to determine if compensatory movement patterns predispose female collegiate athletes to injury, and if a functional movement screening (FMS™) tool can be used to predict injuries in this population.

Methods. Scores on the FMS™, comprised of seven movement tests, were calculated for 38 NCAA Division II female collegiate athletes before the start of their respective fall and winter sport seasons (soccer, volleyball, and basketball). Seven athletes reported a previous history of anterior cruciate ligament reconstruction (ACLR). Injuries sustained while participating in sport activities were recorded throughout the seasons.

Results. The mean FMS™ score and standard deviation for all subjects was 14.3±1.77 (maximum score of 21). Eighteen injuries (17 lower extremity, 1 lower back) were recorded during this study. A score of 14/21 or less was significantly associated with injury ($P=0.0496$). Sixty-nine percent of athletes scoring 14 or less sustained an injury. Odds ratios were 3.85 with inclusion of all subjects, and 4.58 with exclusion of ACLR subjects. Sensitivity and specificity were 0.58 and 0.74 for all subjects, respectively. A significant correlation was found between low-scoring athletes and injury ($P=0.0214$, $r=0.76$).

Discussion: A score of 14 or less on the FMS™ tool resulted in a 4-fold increase in risk of lower extremity injury in female collegiate athletes participating in fall and winter sports. The screening tool was able to predict injury in female athletes without a history of major musculoskeletal injury such as ACLR.

Conclusion. Compensatory fundamental movement patterns can increase the risk of injury in female collegiate athletes, and can be identified by using a functional movement screening tool.

Key Words. female athlete, sports injury, Functional Movement Screen™, injury risk factors

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