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ORIGINAL RESEARCH

FUNCTIONAL MOVEMENT SCREEN™ IN YOUTH SPORT PARTICIPANTS: EVALUATING THE PROFICIENCY BARRIER FOR INJURY

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ABSTRACT

Background & Purpose: The number of youth participating in sport increases yearly; however, the evaluation of youths' movement ability and preparedness for sport remains inadequate or neglected. The Functional Movement Screen (FMS™) is an assessment of an individual's movement quality that has been utilized to evaluate risk of injury in collegiate and professional sport; however, there is minimal support regarding the predictive value of the screen in youth sport. The purpose of this study was to evaluate the mean and distribution of FMS™ performance in sport participants age 11-18, and to evaluate the existence of a composite FMS™ score proficiency barrier to predict injury risk.

Study Design: Prospective cohort study.

Methods: One hundred, thirty-six participants (63 male, 73 female) age 11 to 18 years (16.01 $\pm$ 1.35) were recruited from local schools and sport organizations. The FMS™ was administered prior to each participant's competitive season and scored by researchers who demonstrated reliability in assessments derived from the screen (κ_w = 0.70 to 1). Injury data were collected by the participants' Athletic Trainer over one season. An injury was defined as any physical insult or harm resulting from sports participation that required an evaluation from a health professional with time modified or time lost from sport participation.

Results: Females scored significantly higher than males for mean FMS™ composite score ($t = 14.40$; m = 12.62; $p < 0.001$), and on individual measures including: the hurdle step ($t = 1.91$; m = 1.65; $p < 0.001$), shoulder mobility ($t = 2.68$; m = 2.02; $p < 0.001$), active straight leg raise ($t = 2.32$; m = 1.87; $p < 0.001$), and the rotary stability components ($t = 1.91$; m = 1.65; $p < 0.05$). Two FMS™ composite scores (score $\leq$14 and $\leq$15) significantly increased the odds of injury (OR = 2.955). When adjusting for sport, there was no score relating to increased odds of injury.

Conclusion: Dysfunctional movement as identified by the FMS™ may be related to increased odds of injury during the competitive season in youth athletes. Consideration of an individual's movement within the context of their sport is necessary, as each sport and individual have unique characteristics. Addressing movement dysfunction may aid in injury reduction and potentially improve sport performance.

Level of Evidence: 1b.

Key Words: Functional movement screen, injury prevention, movement system, movement quality, youth sport

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