

ORIGINAL RESEARCH

PREDICTION OF FUNCTIONAL MOVEMENT SCREEN™
PERFORMANCE FROM LOWER EXTREMITY RANGE OF
MOTION AND CORE TESTSNicole J Chimera, PhD, ATC, CSCS¹Shelby Knoeller, MS, ATC²Ron Cooper, MS, ATC³Nicholas Kothe, PT, DPT⁴Craig Smith, PT, DPT⁵Meghan Warren, PT, MPH, PhD⁶

ABSTRACT

Background: There are varied reports in the literature regarding the association of the Functional Movement Screen™ (FMS™) with injury. The FMS™ has been correlated with hamstring range of motion and plank hold times; however, limited research is available on the predictability of lower extremity range of motion (ROM) and core function on FMS™ performance.

Purpose/Hypotheses: The purpose of this study was to examine whether active lower extremity ROM measurements and core functional tests predict FMS™ performance. The authors hypothesized that lower extremity ROM and core functional tests would predict FMS™ composite score (CS) and performance on individual FMS™ fundamental movement patterns.

Study Design: Descriptive cohort study

Methods: Forty recreationally active participants had active lower extremity ROM measured, performed two core functional tests, the single leg wall sit hold (SLWS) and the repetitive single leg squat (RSLS), and performed the FMS™. Independent t tests were used to assess differences between right and left limb ROM measures and outcomes of core functional tests. Linear and ordinal logistic regressions were used to determine the best predictors of FMS™ CS and fundamental movement patterns, respectively.

Results: On the left side, reduced DF and SLWS significantly predicted lower FMS™ CS. On the right side only reduced DF significantly predicted lower FMS™ CS. Ordinal logistic regression models for the fundamental movement patterns demonstrated that reduced DF ROM was significantly associated with lower performance on deep squat. Reduced left knee extension was significantly associated with better performance in left straight leg raise; while reduced right hip flexion was significantly associated with reduced right straight leg raise. Lower SLWS was associated with reduced trunk stability performance.

Conclusions: FMS™ movement patterns were affected by lower extremity ROM and core function. Researchers should consider lower FMS™ performance as indicative of underlying issues in ROM and core function. Clinicians may consider ROM interventions and core training strategies to improve FMS™ CS.

Level of Evidence: Level 2B

Key Words: Dorsiflexion, FMS™, range of motion, Single leg wall sit

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