

ORIGINAL RESEARCH

LOAD-ENHANCED MOVEMENT QUALITY SCREENING AND TACTICAL ATHLETICISM: AN EXTENSION OF EVIDENCE

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ABSTRACT

Background: Military organizations use movement quality screening for prediction of injury risk and performance potential. Currently, evidence of an association between movement quality and performance is limited. Recent work has demonstrated that external loading strengthens the relationship between movement screens and performance outcomes. Such loading may therefore steer us toward robust implementations of movement quality screens while maintaining their appeal as cost effective, field-expedient tools.

Purpose: The purpose of the current study was to quantify the effect of external load-bearing on the relationship between clinically rated movement quality and tactical performance outcomes while addressing the noted limitations.

Study Design: Crossover Trial.

Methods: Fifty young adults (25 male, 25 female, 22.98 ± 3.09 years, 171.95 ± 11.46 cm, 71.77 ± 14.03 kg) completed the Functional Movement Screen™ with (FMS™W) and without (FMS™C) a weight vest in randomized order. Following FMS™ testing, criterion measures of tactical performance were administered, including agility T-Tests, sprints, a 400-meter run, the Mobility for Battle (MOB) course, and a simulated casualty rescue. For each performance outcome, regression models were selected via group lasso with smoothed FMS™ item scores as candidate predictor variables.

Results: For all outcomes, proportion of variance accounted for was greater in FMS™W ($R^2 = 0.22$ [T-Test], 0.29 [Sprint], 0.17 [400 meter], 0.29 [MOB], and 0.11 [casualty rescue]) than in FMS™C ($R^2 = 0.00$ [T-Test], 0.11 [Sprint], 0.00 [400 meter], 0.19 [MOB], and 0.00 [casualty rescue]). From the FMS™W condition, beneficial performance effects ($p < 0.05$) were observed for Deep Squat (sprint, casualty rescue), Hurdle Step (T-Agility, 400 meter run), Inline Lunge (sprint, MOB), and Trunk Stability Push Up (all models). Similar effects for FMS™C item scores were limited to Trunk Stability Push Up ($p < 0.05$, all models).

Conclusions: The present study extends evidence supporting the validity of load-enhanced movement quality screening as a predictor of tactical performance ability. Future designs should seek to identify mechanisms explaining this effect.

Level of Evidence: 3

Key Words: Movement quality, tactical athlete, talent identification, screening

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