

THERE ARE NO BIOMECHANICAL DIFFERENCES BETWEEN RUNNERS CLASSIFIED BY THE FUNCTIONAL MOVEMENT SCREEN

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ABSTRACT

Background: Running has been one of the main choices of physical activity in people seeking an active lifestyle. The Functional Movement Screen (FMS™) is a screening tool that aims to discern movement competency.

Purpose: The purposes of this study were to compare biomechanical characteristics between two groups rated using the composite FMS™ score, and to analyze the influence of specific individual tests. The hypothesis was that the group that scored above 14 would demonstrate better performance on biomechanical tests than the group that scored below 14.

Study Design: Cross-Sectional Study.

Methods: Runners were screened using the FMS™ and were dichotomized into groups based on final score: Functional, where the subjects scored a 14 or greater ($G \geq 14$, $n = 16$) and dysfunctional, when the subjects scored less than 14 ($G < 14$, $n = 16$). All runners were evaluated using measures for flexibility, postural balance, muscle strength, knee dynamic valgus during forward step down test and time for the electromyographic response of the transversus abdominis and fibularis longus muscles. All data were analyzed with SPSS ($p \leq 0.05$) and the index of asymmetry (IS) was calculated with the mean score of nondominant limb divided by the mean score of the dominant limb, multiplied by 100.

Results: There were no statistically significant differences in flexibility, muscle strength, knee dynamic valgus, or myoelectric response time of the transversus abdominis and long fibular muscles. Index of asymmetry (IS) of global stability was $3.26 \pm 26.79\%$ in $G \geq 14$ and $31.72 \pm 52.69\%$ in $G < 14$ ($p = 0.02$). In-line lunge and active straight-leg raise tests showed no significant difference between the groups ($p > 0.05$).

Conclusions: Overall, there were no biomechanical differences between the groups of runners as classified by the FMS™. In addition, in-line lunge and active strength-leg raise tests did not influence on the FMS™ final score.

Level of Evidence: 2b

Key words: Electromyography, fundamental movements, running

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