

FUNDAMENTAL MOVEMENT AND DYNAMIC BALANCE DISPARITIES AMONG VARYING SKILL LEVELS IN GOLFERS

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ABSTRACT

Background: Sports medicine professionals have instituted easy to use on field screening tests to determine physical readiness and identify athletes who may have increased injury risk. Currently there is little research on fundamental movement and dynamic balance abilities in golfers.

Purpose: To examine differences in fundamental movement patterns and dynamic balance in varying competition levels in golfers.

Study Design: Cross-sectional Cohort

Methods: The Functional Movement Screen™ (FMS), and Y-Balance Test Upper Quarter and Lower Quarter (YBT-LQ/UQ) were performed on middle school (MS), high school (HS), college (COL), and professional (PRO) golfers. The FMS™ was assessed for individual tests and composite score. The YBT-LQ/UQ reaches were averaged normalized to limb length. Statistical analysis was completed with a series of Kruskal-Wallis tests with Dunn's post hoc for the FMS™ and YBT-LQ/UQ asymmetries, and a series of ANOVAs, with Tukey's post hoc for the YBT-LQ/UQ reaches ($p < 0.05$). Effect Size Indices (ESI) were also calculated to determine clinical relevance.

Results: A total of 53 MS, 129 HS, 207 COL, and 29 PRO golfers were included in this study. Significant differences were observed between COL and HS in two FMS™ tests (push up; $p = 0.001$), active straight leg raise; $p = 0.0019$). PRO golfers YBT-LQ posteromedial reaches were greater than MS ($p = 0.0127$, ESI = 4.3552). PRO YBT-UQ medial reaches were greater than COL ($p < 0.0001$, ESI = 0.8915), HS ($p < 0.0001$, ESI = 1.2640) and MS ($p < 0.001$, ESI = 1.4218). PRO inferolateral (IL) and superolateral (SL) reaches were greater [IL: COL ($p = 0.0427$, ESI = 0.4413), HS ($p = 0.0002$, ESI = 0.5851)], [SL: COL ($p = 0.0005$, ESI = 0.5990), HS ($p = 0.0004$, ESI = 0.6068)]. YBT-UQ composite scores were greater for PRO compared to COL ($p < 0.0001$, ESI = 0.7657), HS ($p < 0.0001$, ESI = 0.8161) and MS ($p < 0.0001$, ESI = 1.085).

Conclusions: Differences were observed in golfer's fundamental movement patterns in relationship to competition level. These data can be utilized to design personalized training programs that focus to improve movement quality.

Level of Evidence: 2b

Key Words: Functional Movement Screen™, Movement System, Normative Data, Y-Balance Test

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Conflict of Interest: Dr. Phil Plisky developed the Y-Balance Test and has equity in Functional Movement Systems which owns the Y-Balance Test All other authors affirm that they have no

involvement with any commercial organization that have a direct financial interest in any matter included in this manuscript.

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