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# ORIGINAL RESEARCH

## MEASURING SPORT-SPECIFIC PHYSICAL ABILITIES IN MALE GYMNASTS: THE MEN'S GYMNASTICS FUNCTIONAL MEASUREMENT TOOL

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### ABSTRACT

**Purpose/Background:** Despite the availability of various field-tests for many competitive sports, a reliable and valid test specifically developed for use in men's gymnastics has not yet been developed. The Men's Gymnastics Functional Measurement Tool (MGFMT) was designed to assess sport-specific physical abilities in male competitive gymnasts. The purpose of this study was to develop the MGFMT by establishing a scoring system for individual test items and to initiate the process of establishing test-retest reliability and construct validity.

**Methods:** A total of 83 competitive male gymnasts ages 7-18 underwent testing using the MGFMT. Thirty of these subjects underwent re-testing one week later in order to assess test-retest reliability. Construct validity was assessed using a simple regression analysis between total MGFMT scores and the gymnasts' USA-Gymnastics competitive level to calculate the coefficient of determination ( $r^2$ ). Test-retest reliability was analyzed using Model 1 Intraclass correlation coefficients (ICC). Statistical significance was set at the  $p < 0.05$  level.

**Results:** The relationship between total MGFMT scores and subjects' current USA-Gymnastics competitive level was found to be good ( $r^2 = 0.63$ ). Reliability testing of the MGFMT composite test score showed excellent test-retest reliability over a one-week period (ICC = 0.97). Test-retest reliability of the individual component tests ranged from good to excellent (ICC = 0.75-0.97).

**Conclusions:** The results of this study provide initial support for the construct validity and test-retest reliability of the MGFMT.

**Key Words:** Functional measurement, gymnastics, physical abilities

**Level of Evidence:** Level 3

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This study protocol was approved by the Northwestern Institutional Review Board and the Nova Southeastern Institutional Review Board

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