Functional Movement Screen Scores within ROTC Cadets In the Appalachian Region

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EXERCISE & SPORTS SCIENCE

CONTEXT

Roughly 1,000 colleges and universities within the United States offer the **Army Reserve Officers' Training Corps (ROTC)** program as a means of providing leadership training to future military officers. Of these institutions, 274 institutions sponsor the program with the remaining schools serving as partnership campuses.[1] Despite the prevalence of ROTC programs, **institutions are at their own discretion in terms of physical fitness training and injury prevention measures.**

BACKGROUND & SIGNIFICANCE

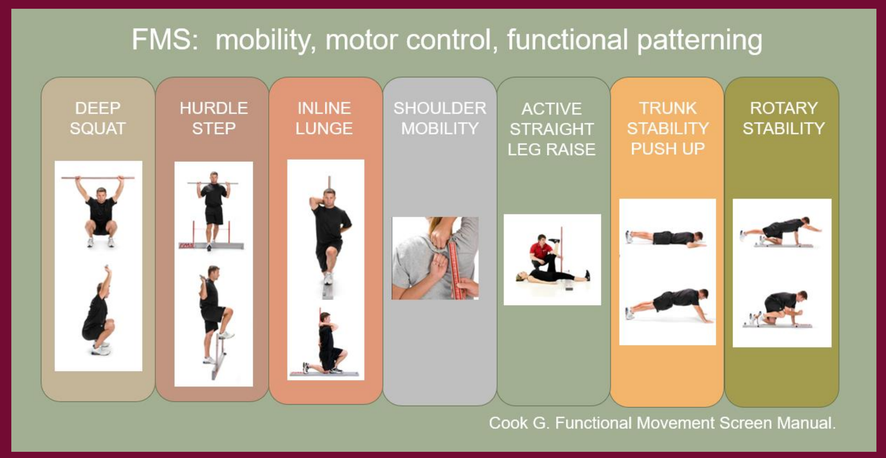
One common **injury prevention tool** within athletic and **tactical populations** is the **Functional Movement Screen (FMS)**. The FMS is comprised of seven movements that assess mobility, stability, and functional patterning within the body[2]. The movements are assessed individually as well as for a combined score. A total score of <14 is considered to place a person at increased risk of injury. The FMS has been established in other tactical athlete populations, including active-duty military and law enforcement. Within the ROTC population, however, only **four known institutions have implemented the FMS**[3-6]. This equates to having an injury risk profile on <1% of the approximately 30,000 ROTC cadets.

PURPOSE

To examine the FMS scores of ROTC cadets within the Appalachian region.

METHODS

53 ROTC cadets (41 males, 12 females; age 21.32±3.08 yrs, 20.08±1.85 yrs, respectively) completed the FMS and body composition using bioelectric impedance analysis (Tanita Corporation, Toykyo, Japan) at the start of the academic school year. The FMS was scored by a certified athletic trainer and exercise science graduate and undergraduate students. FMS scores were recorded for each test (0-3) and total score (0-21).



RESULTS

Descriptive characteristics are shown in Table 1. Group total FMS score was 16.04±1.58.

TOTAL SCORES:

- Male average = 15.98±1.65
- Female average = 16.25±1.23

INJURY RISK:

- ~6% of all cadets (n=3) were at increased injury risk (score of <14 on total score), all of whom were male.
- Five cadets (9%) scored slightly above the injury risk threshold with a score of 14 (M=4, F=1).

ASYMMETRY IN MOVEMENT PATTERNS

- Approximately 80% of cadets (n=42) presented with at least one asymmetry in one of the five tests completed bilaterally, including the three cadets who scored <14.

INDIVIDUAL TEST SCORES

- Two tests with the highest amounts of lowest possible score included deep squat (n=11) and hurdle step (n=9).
- Shoulder mobility was the test with the highest scores, with all cadets reaching within one and a half hand lengths.

	HEIGHT (m) mean±SD	WEIGHT (kg) mean±SD	BODY COMPOSITION (%) mean±SD
MALES	1.79±0.08	80.83±10.85	14.53±4.90
FEMALES	1.65±0.04	70.18±8.71	30.79±4.51

Table 1. Cadet Descriptive Characteristics

CONCLUSIONS

While the majority of cadets presented with at least one asymmetry upon movement, this did not necessarily translate to increased injury risk. The two movements that cadets had the most issues performing focused on mobility and stability and involved multi-joint movement. Females scored slightly better on total score, however results should be interpreted with caution due to the small sample size. This finding is contradictory to previous research which showed no significant differences in total score between males and females.[3] Future research should focus on continued exploration of FMS scores between sexes in addition to examining longitudinal data for potential implications of asymmetries present in ROTC cadets.

PRACTICAL APPLICATIONS

Tactical strength & conditioning instructors should focus **injury prevention** measures on exercises that require **multi-joint mobility and stability**. The **FMS is a useful tool** in determining specific focus areas for the tactical population.

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