

POSTER: Functional Movement Screen, Citadel Physical Fitness Test, and Incidence of Pain Among Freshmen Cadets

*Siqi Hong 1 , Amy Hand 1 , Craig Pfeifer 2 , Justin Goins 1 , Kyle Silvey 1 , Kimbo Yee 3 , Mason Dubina 1 , Daniel Spaulding 1 , and Ryan Sacko 3

1 University of South Carolina, Exercise Science, Columbia, SC, USA

2 University of Gloucestershire, School of Sport and Exercise, Cheltenham, UK

3 The Citadel, Health and Human Performance, Charleston, SC, USA

Objective: Rates of musculoskeletal injuries have remained consistently high across all military branches for the past 15 years. Decreased functional capacity has been identified as a contributing factor to this trend. Therefore, the purposes of this study were to 1) evaluate the relationship between two measures of functional capacity (Functional Movement Screen [FMS], Citadel Physical Fitness Test [CPFT]); 2) evaluate the relationship between the FMS, CPFT, and incidence of pain among freshman cadets at a military academic institution. **Methods:** We used a prospective cohort design and recruited 82 freshmen cadets from The Citadel (age: 18.2 ± 0.4 years, height: 175.2 ± 9.5 cm, weight: 74.0 ± 11.6 kg; females: $n=10$; males: $n=72$). Performance on the FMS, CPFT, and a 10-week pain questionnaire were collected. Raw CPFT scores (push-up, sit-up, run, total) were transformed for analysis. Spearman correlations and logistic regressions were used to evaluate relationships between the FMS and CPFT. Logistic regressions were used to evaluate relationships between the FMS, CPFT, and incidence of pain. **Results:** There were significant positive correlations between the composite FMS score and CPFT overall score ($r_s = 0.32$, $pp=0.01$), and between the trunk stability task and the four CPFT scores (push-up, $r_s = 0.24$, $pp=0.05$; sit-up, $r_s = 0.36$, $pp=0.01$; run, $r_s = -0.24$, $pp=0.05$; total, $r_s = 0.39$, $p < 0.001$). The trunk stability pushup was the only FMS component to have a significant positive correlation with overall CPFT success ($OR=1.860$, $p < 0.00$). Only the FMS active straight leg raise ($OR=0.77$, $pp=0.05$), CPFT sit-up ($OR=2.75$, $p = 0.01$), and CPFT run scores ($OR=5.20$, $p < 0.001$) had a significant positive correlation with pain. **Implications:** The composite FMS is not a recommended tool to evaluate either odds of pain during physical training in The Citadel cadet population or success on the CPFT. The FMS trunk stability push-up may be useful in determining odds of success on the CPFT. The CPFT run scores may be valuable in evaluating odds of pain in physical training.