Physiological and Strength Characteristics of Enlisted Female Soldiers by Physical Demand Rating and PULHES Number

Author Block: Katelyn Fleishman Allison¹, John P. Abt¹, Timothy C. Sell¹, Takashi Nagai¹, Kim Beals¹, Michael D. Wirt², Scott M. Lephart, FACSM¹. ¹University of Pittsburgh, Pittsburgh, PA. ²Blanchfield Army Community Hospital, Fort Campbell, KY.

Abstract:
The United States Army ranks Military Occupational Specialties (MOS) by physical demand rating (PDR) from 1 (light) to 5 (very heavy). A Military Physical Profile Serial (PULHES) number is assigned to each MOS, with “P” representing physical stamina/capacity, “U” upper extremity, and “L” lower extremity, and with 1 indicating high level of medical fitness, 2 some activity limitation, and 3 a significant limitation. Research is warranted to examine female Soldiers categorized in different PDR/PULHES to determine if those in high demand PDR/PULHES possess better physiological and strength characteristics. PURPOSE: To compare physiological and strength characteristics of female Soldiers by PDR and P, U, and L numbers.

METHODS: Enlisted female Soldiers (N=53, age=25.7±4.3 years, height=163.4±6.7 cm, weight=65.8±10.5 kgs) of the 101st Airborne Division (Air Assault) underwent testing for body fat using air displacement plethysmography, maximal oxygen uptake (ml/kg/min) and lactate threshold (%VO2max) during an incremental treadmill protocol, anaerobic power/capacity (AP/AC: W/kg) during a 30-second cycle sprint, and bilateral strength testing of shoulder internal/external rotation (SIR/SER) and knee flexion/extension (KF/KE) using an isokinetic dynamometer (60°/second: average peak torque %BW). One way ANOVA and Tukey post hoc tests were used to determine variable differences between PDR, physiological differences between P numbers, SIR/SER differences between U numbers, and KF/KE between L numbers (p<0.05).

RESULTS: No significant differences were demonstrated between PDR groups except left SER (PDR2: 22.6±4.5 vs PDR3: 29.6±5.4 %BW, p=0.046). No significant differences were demonstrated between physiological variables in P groups, SIR/SER in U groups, or KF/KE in L groups except for AC (P2: 5.9±0.7 vs P3: 4.5±2.6 W/kg, p=0.027).

CONCLUSIONS: Enlisted female Soldiers possess similar physiological and musculoskeletal characteristics regardless of PDR and PULHES requirement. However, women in lower demand categories demonstrated less shoulder strength and AC. Future research should investigate characteristics related to unique tactical tasks and physiological demands to enhance performance and reduce injury risk and include larger sample sizes. Funded by USAMRMC #W81XWH-11-2-0097.

Oasis, The Online Abstract Submission System http://www.abstractsonline.com/submit/SubmitPrinterFriendlyVersion.a... 1 of 2 11/3/2014 11:05 PM
Author Disclosure Information: K.F. Allison: None.
Category (Complete): 0806. Environmental and Occupational Physiology - occupational or military physiology and medicine
Keyword (Complete): military; physiology; isokinetic strength
Unlabeled/ Investigational Products (Complete):
  : No

Presentation Preference (Complete): Indifferent
Area of Interest (Complete):
  Area of Interest: Applied Science

Additional Info (Complete):
  *Do you authorize ACSM to record your presentation?: Yes
  *Confirmation: I understand and agree to the above terms regarding AV equipment
  Sponsor Email Sent Status : Sent on 11/2/2014 5:00:05 PM

Payment (Complete): Your credit card order has been processed on Sunday 2 November 2014 at 4:34 PM.
Status: Complete

OASIS Helpdesk

American College of Sports Medicine
401 West Michigan Street
Indianapolis, IN 46202-3233
(317) 637-9200

Leave OASIS Feedback

Powered by OASIS, The Online Abstract Submission and Invitation System SM
© 1996 - 2014 Coe-Truman Technologies, Inc. All rights reserved.