



DACOWITS Quarterly Business Meeting

22-23 March 2017

LtCol Coleman

**Manpower Integration Section Head
Manpower Plans and Policies
Manpower and Reserve Affairs**

Point of Contact:
LtCol Lawrence Coleman
703-784-0146



RFI #1

Physiological Gender Differences

Research

- The University of Pittsburgh collected data during the Ground Combat Element Integrated Task Force (GCEITF)
- Smart Adaptations Study for the Operations Analysis Directorate (OAD)
- Comprehensive Literature Reviews



RFI #1

Physiological Gender Differences

➤ Body Composition

- Male lean body mass is 150% greater than female's
- Fat mass relative to body mass averages 20 to 25% in women and 13 to 16% in men

➤ Musculoskeletal System

- Females are approximately 52% as strong as males in the upper body
- Females are approximately 66% as strong as men in the lower body
- Male anaerobic performance was reported as 25 - 66.5% higher than female
- Females are more susceptible to fatigue than males carrying loads of 33-44 lbs
- Females exercising under the same conditions as males are 1.2 – 10 times more susceptible to overuse injuries
- Females are 1.5 - 9.5 times more likely to sustain stress fractures



RFI #1

Physiological Gender Differences

➤ Combat Fitness and Performance

- Total weight and fat free mass were important for cumulative performance
- High-performing Marines had higher height, weight, fat free mass, arm span, and leg length
 - In a 10k road march with different loads, men were about 21% faster than women
 - As loads increase, females' stride length decreases, whereas men's stride length does not show a significant change
 - Higher levels of fat free mass may be associated with ability to perform a 7K hike at a lower relative intensity
- Women fatigue more quickly when conducting military tasks and exerted themselves considerably more than males
 - Higher relative VO_2 Max may be associated with the ability to perform a CASEVAC at a lower relative intensity
 - Female Marines had a higher average % of HR max than male Marines (77.0% and 71.1% respectively) (based on the 7k hike, CASEVAC to CCP, Rig for Recovery and CASEVAC from Vehicle)
 - Female Marines spent more time at a vigorous intensity level (above 85% HR max) than male Marines (32.4% and 21.2%, respectively)



RFI #1

Physiological Gender Differences

Decisions

- Physical performance standards implementation
- Equipment sizing
 - 7 July 2016 USMC issued a policy changing the current fit attribute requirement from the 5th to the 95th percentile Marine to the 2nd percentile female to the 98th percentile male
 - Testing in September 2016 supported the complete transition from the Improved Modular Tactical Vest (IMTV) to the Plate Carrier (PC) as the standard body armor vest of the Marine Corps
 - Decision to be made March 2017
 - Reduces system weight by 5.5 lbs and provides a better fit for female Marines
 - Plate Carrier Generation III (PC Gen III) reduces weight by an additional 23 percent compared with the current PC, is 1.25" shorter
 - Capability being developed to integrate with the USMC Pack Frame and Main Bag to provide adjustability for varying torso lengths and waist sizes
 - Seven female-specific sizes of the Pelvic Undergarment (PUG) are currently in the inventory