

Deployment-Related Changes in Physical and Physiological Characteristics

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Lack of standard or consistent physical training performed by Soldiers during deployment impacts physical readiness preparation. Constraints reported by Soldiers include physical demand and fatigue due to tactical requirements, lack of available time, environmental conditions, and limited or austere facilities.

PURPOSE: To assess deployment-related changes in physical and physiological characteristics.

METHODS: A total of 23 active duty Soldiers from the 101st Airborne Division (Air Assault) participated (Age: 26.0 ± 5.8 years; Height: 178.8 ± 6.4 cm; Mass: 80.3 ± 12.8 kg; Pre Test-Deployment: 139 ± 17 days; Deployment: 433 ± 15 days; Deployment-Post Test: 30 ± 20 days). Pre and post deployment testing consisted of assessments of body mass (kg) and body composition (%BF), isokinetic knee flexion/extension strength (%BW), and anaerobic power/capacity (W/kg). A paired t-test was used to evaluate deployment related changes in the dependent variables. Variability was calculated for each measure to determine individual subject response.

RESULTS: Body mass (Pre: 80.3 ± 12.8 kg, Post: 83.2 ± 13.6 kg, $p = 0.02$) and anaerobic capacity (Pre: 7.7 ± 0.8 W/kg, Post: 7.4 ± 1.0 W/kg, $p = 0.019$) were worse post deployment. Knee flexion strength improved post-deployment (Pre: 112.3 ± 23.2 , Post: 127.5 ± 23.7 , $p = 0.002$). No changes were noted for body composition, knee extension strength, or anaerobic power ($p > 0.05$). The individual subject response for body mass was 22.4% loss – 26.9% gain, body composition was 30% loss – 70.3% gain, knee extension strength was 18.3% loss – 58.7% gain, knee flexion strength was 23.5% loss – 59.1% gain, anaerobic power was 33.1% loss – 32.0% gain, and anaerobic capacity was 23.6% loss – 10% gain.

DISCUSSION: Self-reported constraints may be weighted for each Soldier and impact the ability to perform physical training independently given large post deployment response variance. At the minimum a maintenance program should be performed to prevent diminished physical readiness while deployed. Post deployment changes in physical and physiological characteristics and self-reported constraints were considerations for development of the Eagle Tactical Athlete Program for the 101st Airborne Division (Air Assault).

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