Physical Performance Differences in Sea, Air and Land (SEAL) Operator Cohorts Separated by Demographics

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U.S. Navy SEALs must maintain elite physical fitness throughout their careers, but there is little previous research investigating how rank and injury rates impact SEAL fitness. **PURPOSE**: Investigate differences in a performance testing protocol and self-reported injury history survey between cohorts grouped by similar rank and prior musculoskeletal injuries. **METHODS**: A total of 255 Operators (age: 28.5±5.9 years, height: 70.1±2.5 inches, weight: 188.7±20.8 pounds) participated in testing of body composition (%), muscular strength (%BW), flexibility (°), anaerobic power/capacity (W/kg), aerobic capacity (mL/kg/min), peak vertical ground reaction force (%BW) and joint landing angles (°). The groups were stratified based on similar-level ranks (younger officers: O1-O3, older officers O4-O6, younger enlisted E4-E6, older enlisted E7-E9) and above or below the mean (3.4±2.9 injuries) for self-reported injury history throughout the lifespan. Significant results had a p-value of <0.05. **RESULTS**: O1-O3 and E4-E6 had greater shoulder external rotation strength than E7-E9 (46.7±7.0, 37.9±7.7; 42.8±6.5, 37.9±7.7). O1-O3 and E4-E6 had less body fat (15.8±5.7, 19.9±7.3; 16.1±5.1, 19.9±7.3) and higher aerobic capacity (52.4±7.6, 46.6±6.0; 51.1±6.1, 46.6±6.0) than E7-E9. Subjects reporting ≤3 injuries demonstrated greater strength in shoulder external rotation (47.6±11.9, 44.3±7.3), ankle inversion (39.6±5.6, 37.9±6.7), and ankle eversion (50.9±7.8, 48.0±9.4) than those reporting >3 injuries. Subjects with ≤3 injuries had greater left hip extension (17.7±3.0, 16.9±2.9) and left trunk rotation range of motion (58.3±11.2, 54.8±10.5) than subjects with >3 injuries. Subjects with ≤3 injuries had lesser peak vertical ground reaction force (189.5±48.0, 211.7±75.4), lesser hip abduction angle at initial contact (-6.0±3.1, -4.5±3.7), and lesser knee varus angle at initial contact (2.8±3.0, 3.9±2.9) than subjects with >3 injuries. **CONCLUSION**: Differences in job requirements could negatively affect performance measures in higher-ranked Operators. SEALs with numerous injuries throughout their lifespan may benefit from strengthening the dynamic stabilizers of the ankle, balancing side-to-side range of motion, and practicing optimal landing mechanics to prevent further injuries.

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