



ANNOUNCING OUR LATEST IMPACT FACTOR

Physical, Physiological, and Dietary Comparisons Between Marine Corps Forces Special Operations Command Critical Skills Operators and Enablers

Scott D Royer, D Travis Thomas, Joshua D Winters, John P Abt, Stuart Best, Kathleen M Poploski, Andrejs Zalauskalns, Scott M Lephart

Military Medicine, Volume 183, Issue 11-12, November-December 2018, Pages e341–e347, <https://doi.org.ezproxy.uky.edu/10.1093/milmed/usy049>

Published: 04 April 2018 [Article history](#)

[Cite](#) [Permissions](#) [Share](#)

Abstract

Introduction

Tactical demands of a Marine Corps Forces Special Operations Command (MARSOC) Critical Skills Operator (CSO) require high levels of physical performance. During combat deployments, teams of CSOs are supplemented with enablers who specialize in mission-specific tasks. MARSOC CSOs and enablers serve alongside each other in extreme combat environments, often enduring the same physical demands, but the selection process for each group is very different. The purpose of this observational study was to quantify the physical, physiological, and dietary differences of MARSOC CSOs and enablers, as this may have a direct impact on tactical performance and provide important information to shape future research.

Materials and Methods

Fat free mass (FFM), fat mass (FM), fat mass index (FMI), fat free mass index (FFMI), anaerobic power (AP), anaerobic capacity (AC), aerobic capacity ($VO_2\max$), knee flexion (KF), knee extension (KE), trunk extension (TE), and trunk flexion (TF) isokinetic strength were collected. Dietary intake was collected using automated self-administered 24-hr dietary recalls (ASA24) for a subgroup of subjects.

Results

Testing on 164 male CSOs (age: 27.5 ± 3.8 yr, height: 178.7 ± 6.5 cm, mass: 85.7 ± 9.1 kg, and 7.6 ± 2.9 yr of military service) and 51 male enablers (age: 27.8 ± 5.4 yr, height: 178.4 ± 8.5 cm, mass: 83.8 ± 11.8 kg, and 7.9 ± 5.4 yr of military service) showed there were no significant differences for age, height, mass, or years of military service ($p > 0.05$). CSOs demonstrated greater physiological performance in AP (W/kg) ($p = 0.020$), AC (W/kg) ($p = 0.001$), and $VO_2\max$ (ml/kg/min) ($p = 0.018$). There were no significant differences in FM and FFM ($p > 0.05$), however CSOs demonstrated significantly higher FFMI ($p = 0.011$). CSOs also demonstrated greater KF (%BW) ($p = 0.001$), KE (%BW) ($p = 0.001$), TE (%BW) ($p = 0.010$), and TF (%BW) ($p = 0.016$). No differences in energy or macronutrient intake were observed in the subgroup.

Conclusions

MARSOC CSOs demonstrated significantly greater FFMI, AP, AC, $VO_2\max$, KF, KE, TE, and TF compared with enablers. Dietary intake was consistent between groups, but fueling concerns were identified for all personnel in the subgroup. These findings suggest the need for future studies to examine what physiological and strength thresholds are necessary to operate effectively as a member of a MSOT and determine the relationship between specific performance deficits and risk of injury. In addition, the integration of nutrition strategies that augment and optimize the performance of both CSOs and enablers may be beneficial.

Keywords: [special operations](#), [marines](#), [performance](#), [military](#), [nutrition](#)

Topic: [diet](#), [military personnel](#), [self administration](#), [science of nutrition](#), [aerobic capacity](#), [trunk structure](#), [knee flexion](#), [extension of knee](#), [military deployment](#), [macronutrient](#), [trunk extension](#)

Issue Section: [Brief Report](#)

© Association of Military Surgeons of the United States 2018. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

This article is published and distributed under the terms of the Oxford University Press, Standard Journals Publication Model (https://academic-oup-com.ezproxy.uky.edu/journals/pages/open_access/funder_policies/chorus/standard_publication_model)

You do not currently have access to this article.

Sign in

Don't already have an Oxford Academic account? [Register](#)

[Cite](#) [Permissions](#) [Share](#)

Oxford Academic account



Volume 183, Issue 11-12
November-December 2018

< Previous Next >

Email address / Username [?]

Password

Sign In

[Forgot password?](#)
[Don't have an account?](#)

Association of Military Surgeons of the United States members



[Sign in via society site](#)

Sign in via your Institution

[Sign in](#)

Purchase

[Subscription prices and ordering](#)

Short-term Access

Physical, Physiological, and Dietary Comparisons Between Marine Corps Forces Special Operations Command Critical Skills Operators and Enablers - 24 Hours access

EUR €36.00 GBP £28.00 USD \$45.00

Buy

Rental

This article is also available for rental through DeepDyve.



MEDICINE & HEALTH

Search opportunities on the Oxford University Press **Journals Career Network**

Your perfect job is closer than you think



View Metrics

Email alerts

- [New issue alert](#)
- [Advance article alerts](#)
- [Article activity alert](#)

[Receive exclusive offers and updates from Oxford Academic](#)

More on this topic

Cycle Ergometry Estimation of Physical Fitness among Israeli Soldiers

Explaining Performance on Military Tasks in the Canadian Armed Forces: The Importance of Morphological and Physical Fitness Characteristics

Effect of a 13-Month Deployment to Iraq on Physical Fitness and Body Composition

Exploring the Prevalence of Adverse Childhood Experiences in Soldiers Seeking Behavioral Health Care During a Combat Deployment

Related articles in

[Google Scholar](#)

Related articles in PubMed

Cite Permissions Share [Enhanced Recovery after Surgery in Breast Reconstruction: A Systematic Review.](#)

[Skip to Main Content](#)



Volume 183, Issue 11-12
November-December 2018

[< Previous](#) [Next >](#)

The glucocorticoid receptor in osteoprogenitors regulates bone mass and marrow fat.

Identification of moracin N in mulberry leaf and evaluation of antioxidant activity.

Citing articles via

[Google Scholar](#)

[CrossRef](#)

Latest | **Most Read** | **Most Cited**

Evidence for Residual Immunity to Smallpox After Vaccination and Implications for Re-emergence

Preliminary Evidence for a Hormetic Effect on DNA Nucleotide Excision Repair in Veterans with Gulf War Illness

Influence of Time to Transport to a Higher Level Facility on the Clinical Outcomes of US Combat Casualties with TBI: A Multicenter 7-Year Study

High Resiliency Linked to Short-Term Patient Reported Outcomes and Return to Duty Following Arthroscopic Knee Surgery

Preparing Future Medical Educators: Development and Pilot Evaluation of a Student-Led Medical Education Elective

Looking for your next opportunity?

RADIOLOGIST EMPLOYMENT
OPPORTUNITY CALGARY, ALBERTA,
CANADA
CALGARY, Alberta

Associate or Full Professor (Translational
Research Director, Center for Prostate
Disease Research)
Bethesda, Maryland

Assistant/Associate Professor
Shreveport, Louisiana

Director of Neurosurgical Research
Shreveport, Louisiana

[View all jobs](#)

OXFORD UNIVERSITY PRESS | Journals Careers Network



**Military Medicine is now published
by OUP**

Never miss an issue
[Sign up for e-Alerts here](#)

[About Military Medicine](#)
[Editorial Board](#)
[Purchase](#)
[Author Guidelines](#)
[Facebook](#)

[Twitter](#)
[Linkedin](#)
[Recommend to your Librarian](#)
[Advertising and Corporate Services](#)
[Journals Career Network](#)

Military Medicine

Online ISSN 1930-613X | Print ISSN 0026-4075 | Copyright © 2019 The Society of Federal Health Professionals

[About Us](#)

[Connect](#)

[Resources](#)

[Explore](#)

Oxford University Press is a department
of the University of Oxford. It furthers

[Contact Us](#)

[Careers](#)

[Help](#)

[Access & Purchase](#)

[Rights & Permissions](#)

[Open Access](#)

[Join Our Mailing List](#)

[OUPblog](#)

[Twitter](#)

[Facebook](#)

[YouTube](#)

[Tumblr](#)

[Authors](#)

[Librarians](#)

[Societies](#)

[Sponsors & Advertisers](#)

[Press & Media](#)

[Agents](#)

[Shop OUP Academic](#)

[Oxford Dictionaries](#)

[Oxford Index](#)

[Epigeum](#)

[OUP Worldwide](#)

[University of Oxford](#)

*the University's objective of excellence
in research, scholarship, and education
by publishing worldwide*

OXFORD
UNIVERSITY PRESS

[Copyright © 2019 Oxford University Press](#)

[Cookie Policy](#)

[Privacy Policy](#)

[Legal Notice](#)

[Site Map](#)

[Accessibility](#)

[Get Adobe Reader](#)

[VOLUME 405, ISSUE 11-12](#)

November-December 2018

[< Previous](#) [Next >](#)