

11-27-2012

Metabolic fitness as a predictor of injury risk in conditioned military trainees undertaking an arduous field training exercise

N. Meigh

Bond University

Michael Steele

Bond University, michael.steele@ubd.edu.bn

Rob Orr

Bond University, rorr@bond.edu.au

Follow this and additional works at: http://epublications.bond.edu.au/hsm_pubs



Part of the [Sports Sciences Commons](#)

Recommended Citation

Meigh, N.; Steele, Michael; and Orr, Rob, "Metabolic fitness as a predictor of injury risk in conditioned military trainees undertaking an arduous field training exercise" (2012). *Faculty of Health Sciences & Medicine Publications*. Paper 450.
http://epublications.bond.edu.au/hsm_pubs/450

This Miscellaneous Material is brought to you by the Faculty of Health Sciences & Medicine at [ePublications@bond](#). It has been accepted for inclusion in Faculty of Health Sciences & Medicine Publications by an authorized administrator of [ePublications@bond](#). For more information, please contact [Bond University's Repository Coordinator](#).

PHYSIOLOGICAL AND PHYSICAL EMPLOYMENT STANDARDS I



Proceedings of the First Australian Conference on Physiological and Physical Employment Standards

Editors:

Nigel A.S. Taylor and Daniel C. Billing

November 27th-28th, 2012
CANBERRA, AUSTRALIA



Australian Government
Department of Defence
Defence Science and
Technology Organisation

UNIVERSITY OF
WOLLONGONG 

**METABOLIC FITNESS AS A PREDICTOR OF INJURY RISK IN CONDITIONED
MILITARY TRAINEES UNDERTAKING AN ARDUOUS FIELD TRAINING
EXERCISE.**

N. Meigh, M. Steele and R.M. Orr

School of Health Sciences and Medicine, Bond University, Australia

Corresponding author: rorr@bond.edu.au OR Robin.orr@defence.gov.au

INTRODUCTION

Musculoskeletal injuries reduce the ability for military forces to train new personnel. Metabolic fitness has been used to predict injury risk in new Australian Army trainees. The purpose of the present study was to examine the validity of using metabolic fitness to determine injury risk in conditioned military trainees completing an arduous field training exercise.

METHODS

Participants were officer trainees who had completed at least six months of full time military training. Metabolic fitness (VO₂ max) was determined through use of retrospective 20m Progressive Shuttle Run data. Injury risk was determined through the use of retrospective injury data captured by a field medical officer during a 10-day arduous field training exercise. The metabolic fitness assessment was complete three days prior to the field training exercise. Ethical approval was granted by the Australian Defence Human Research Ethics Committee and the Bond University Human Research Ethics Committee.

RESULTS

In total, data from 140 military trainees from the Australian Regular Army (127 male, 13 female) were captured. The mean VO₂ max for the injured group was 50.1ml.kg⁻¹.min⁻¹ (SD 4.5), and for the non-injured group 53.0ml.kg⁻¹.min⁻¹ (SD 3.4). This was statistically different, $t=2.8$ ($p=0.006$) irrespective of gender. The mean VO₂ max was higher for males (53.1ml.kg⁻¹.min⁻¹, SD 3.2) than females (46.8ml.kg⁻¹.min⁻¹, SD 4.4) $t=-6.6$ ($p=0.0001$) and participants with a VO₂ max below 1SD of the mean were three times more likely to be injured than those above 1SD from the mean ($p=0.049$).

CONCLUSIONS

The results of this study suggest that metabolic fitness as determined through a 20m Progressive Shuttle Run assessment is a valid predictor of injury risk for conditioned military trainees prior to undertaking an arduous field training exercise.

NOTES:
