

Bond University  
Research Repository



**Soldier load carriage: An investigation into the load carriage conditioning practices of the Australian Regular Army**

Orr, Rob Marc; Pope, Rodney; Johnston, Vanerina; Coyle, Julia

Published: 12/10/2012

*Document Version:*  
Peer reviewed version

[Link to publication in Bond University research repository.](#)

*Recommended citation(APA):*

Orr, R. M., Pope, R., Johnston, V., & Coyle, J. (2012). Soldier load carriage: An investigation into the load carriage conditioning practices of the Australian Regular Army. The Annual Australian Military Medicine Association Conference, Brisbane, Australia.

**General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.



## AMMA 2012 CONFERENCE ABSTRACT

Please complete all sections of the abstract template.

Title: Soldier Load Carriage: A investigation of the load conditioning practices of the Australian Regular Army

Authors: Assistant Professor Robin Orr, DR Rodney Pope, DR Venerina Johnston, Associate Professor Julia Coyle

Presenter: Assistant Professor Robin Orr

Presenter's Bio (no longer than 100 words):

Having served in the Australian Army as an infantry soldier, Physical Training Instructor, physiotherapist, and human performance officer, Rob has recently accepted a position at Bond University. Rob's fields of research include physical conditioning and injury prevention for military and protective services spanning from the initial trainee to the elite warrior. Currently focussing on tactical load carriage, Rob is exploring means of reducing injuries associated with load carriage tasks and improving the mobility and lethality of soldiers and tactical police. Published in newspapers, magazines and peer-reviewed journals, Rob is regularly invited to present at conferences both nationally and internationally.

Abstract (no longer than 500 words)

### INTRODUCTION

Soldiers must carry equipment and move, on foot, over various terrains for long and continuous periods. While the equipment carried is often crucial to mission success and survival, its weight may be a source of risk to the carrier. As physically conditioning soldiers to carry heavy load may present as a risk control strategy, the purpose of this study was to compare current Australian Regular Army (ARA) load carriage conditioning practices with previously established best practice standards for military load carriage conditioning.

### METHODS

ARA soldiers and units were selected via purposive sampling and invited to participate in the study. Soldier self-reported participation in load carriage physical training (PT) was captured via online survey. In addition, textual PT programs were requested from training institutions and operational units. On receipt of textual PT programs, relevant data were extracted and each PT session rated from 1 to 4 based on the session's specificity and value to load carriage conditioning (in accordance with established best practice). A rating for each PT session was determined by reviewing the PT session title, dress, nature of the PT activity, and any clarifying comments to describe the lesson.

### RESULTS

Of the 303 survey respondents, 41% ( $n=126$ ) reported participating in a load carriage PT session in the preceding fortnight. Marching Order was the most commonly reported form of dress (69%) with mean loads carried of 36.3 kg ( $SD=12.0$ kg) or 43% body weight ( $SD=14\%$  BW). Roads (42%) and dirt or grass (39%) constituted the predominant terrains traversed with over 90% of sessions conducted on flat ground or over mild hills. Endurance Marching was the most common activity (60% of nominated activities) with the majority of reported sessions (79%) lasting no more than 2 hours.



## AMMA 2012 CONFERENCE ABSTRACT

Please complete all sections of the abstract template.

The load carriage PT programs of Initial training institutions generally met with best practice evidence. However, only one (25%) of the corps training institutions built on, and progressed, these initial conditioning standards (up to 32 kg for 165 minutes of endurance marching). Two of the four trade training institutions conducted no load carriage specific conditioning over the duration of their course. Among the PT programs obtained from operational units, 50% ( $n=4$ ) included load carriage specific PT (up to 31 kg for 120 minutes of endurance marching), the remaining operational units conducted no specific load carriage PT session over their PT program durations.

### CONCLUSIONS

When viewed through the lense of the Frequency, Intensity, Time and Type of training principle, the load carriage practices of both the survey respondents and the conditioning programs in trade training institutions and operational units achieved limited success in meeting established evidence-based guidelines for load carriage conditioning. These findings suggest that a training gap exists between ARA current load carriage conditioning practices and the load carriage requirements of soldiers and selected army units during field training exercises and on operational duties.

#### Authors(s) affiliations:

Assistant Professor Robin Orr – Bond University

DR Rodney Pope – Charles Sturt University, Centre for Military and Veterans Health

DR Venerina Johnston – University of Queensland

Associate Professor Julia Coyle – Charles Sturt University

#### Corresponding author:

Assistant Professor Robin Orr

#### Corresponding authors contact details:

Faculty of Health Sciences and Medicine

Bond University

Gold Coast

Queensland, 4229

Australia

Phone: +61 7 5595 5444

#### Corresponding authors email:

[rorr@bond.edu.au](mailto:rorr@bond.edu.au) or [Robin.orr@defence.gov.au](mailto:Robin.orr@defence.gov.au)