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

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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.

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