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Use of a modified load carriage predictive equation to identify specialist police candidates at greater risk of injury and selection failure

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Methods
• Retrospective data were collected from 18 specialist tactical police officer candidates attending a selection course within an Australian law enforcement agency
• Baseline data were provided for 20-meter Multi-Stage Fitness Test (20m-MSFT) performance (converted to est. VO2max), time to complete a 10 km pack march carrying a load of 25 kg in a backpack and 3.5 kg in the hands, the 10 km pack march course terrain profile, and outcomes (pass or fail) of the candidate on the tactical police selection course.
• Baseline data were then entered into a load carriage energy cost equation, modified to account for loads in the hands and on the feet, to determine the % of VO2max work effort (Figure 1) and scored on a risk matrix for load carriage (Table 1) based on earlier work by Orr and Pope [1].

Results
• Descriptive results from the outcome measures are shown in Table 2.
• Of the 18 participants, 11 passed the selection course (mean height =181.36 ± 5.35 cm: mean weight=85.36 ± 6.65 kg) while seven (mean height=187.42 ± 4.5 cm: mean weight=95.85 ± 7.44 kg) failed.
• Seven participant’s work efforts exceeded a predicted work effort of 60% VO2max and of these seven, five failed the selection course. Likewise, 71% of those who were considered to be at moderate risk or higher were injured (Figure 2).

Conclusion
Modified load carriage equations may be of use in identifying specialist candidates at a greater risk of physical injury and subsequent selection course failure.

References: