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The Use of Fitness Testing to Predict Occupational Performance In Tactical Personnel: A Critical Review

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Introduction

• Tactical personnel (including military personnel, law enforcement officers and firefighters) are required to undergo various physical occupational tasks [1].
• Tasks involve: Heavy load carriage, enduring harsh environmental conditions and mobilizing through difficult terrain, as well as sustained sprinting, and use of physical force (2, 3).
• Tactical personnel require high levels of cardiovascular fitness as well as muscular strength and endurance (4, 5).
• Debate still exists as to whether various measures of fitness are associated with occupationally specific performance tasks.

Methods

• Following development of search terms, key databases (PubMed, EMBASE and Ebscohost ([CINAHL and SportsDiscuss]) were searched for relevant studies (Figure 1).
• After removal of duplicates and initial screening, inclusion criteria were applied; these were the study:
  • Must include an adult, tactical population
  • Must include a physical fitness measure
  • Must include an occupationally specific measure of performance
  • Must be full text
• Exclusion criteria were then applied to determine final studies (Figure 1).
• Quality of the studies were evaluated by three appraisers: Krippendorff’s Alpha was used to determine the inter-rater reliability before a final Critical Appraisal Score (CAS) was determined. Appraisal Skills Programme (CASP) Cohort Study Checklist.

Results

Study Characteristics: (see Table 1)
• Seven studies on military personnel, five studies on firefighters and three studies on law enforcement officers.
• Seven studies from the U.S., three from Australia, two from the UK and one from Finland, Sweden and Norway.
• Seven studies examined male participants while only one study included female participants. Both males and females were reported in six of the studies and the remaining study did not identify the sex of participants.

Research Quality:
• The mean CAS score for all studies was 8.4 ±1.2 ranging from 6.33 to 10.0.
• Inter-rater reliability = 80% (κ= 0.797).

Conclusion

• Presented research indicates that a wide range of fitness tests are required to predict occupational performance in tactical populations.
• Aerobic capacity was the most correlated fitness attribute with various occupational measures. Other appropriate fitness measures included: muscular strength, endurance, and power; agility; and anaerobic capacity.
• Further research of standardized fitness tests and their relationships to specific occupational performance will assist with employment standard and training protocols for tactical populations.

References


Additional references are available upon request.