Physical Selection Tests and Volunteer Tanker-Based Bushfire Firefighters

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Physical Selection Tests (PST)

Assess the ability to perform core job tasks to an acceptable standard

- Generic
- Task-based
- Simulated
- Combination

Must be non skill based, non-discriminatory and shown to be based upon the inherent requirements of the job.

PST in Physically Demanding Occupations

Australian career fire fighters

- Physical Aptitude Test

Australian Army

- Physical Fitness Assessment

Australian Navy

- RAN Physical Fitness Test

Australian Police

- Physical Competency Assessment

Australian Volunteer firefighters

- ?

Where are we now?

1. Previously looked at existing PST
   - PHT and FWT in 2009
     - Moderate correlations to HR and finishing times
     - Low correlations between velocity, RPE
     - User acceptance was low
     - Poor correlation between PHT and rakehoeing in muscle group recruitment

2. There is currently **no** PST specific to tanker-based bushfire suppression duties.

<u>A new job based PST is needed for tanker-based volunteer firefighters.</u>

Supporting Literature- PST

PST increase productivity 

PST decrease injury rates 

PST decrease absenteeism 

PST decrease illness 

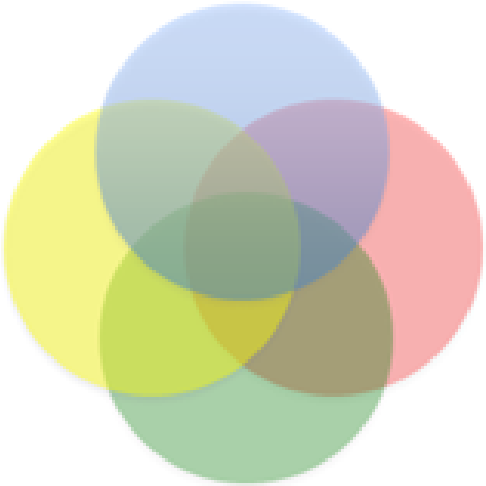
How to design a PST for volunteer firefighters

- Accurately differentiate ‘capable’ from ‘incapable’
- Strong correlations to measures of the job
- Non-discriminatory
- Based on inherent requirements of the job
- Inexpensive
- Field based testing
- Non-skilled based

Key Considerations

Legal requirements

Scientific evidence



End user/agency acceptance

Practical considerations

Traditional and current approaches to PST

1. Job task inventory (JI)
2. Job task analysis (JTA)
3. Identification of physically demanding job tasks
4. Design a PST
5. Reliability
6. Validation
7. Cut-off scores
8. Implementation

Phase 1: Agency Panel

First step in design phase of a new PST

Setting the parameters

- Cost to run test
- Equipment required
- Location of testing
- Duration of test

Agency panel (n= 10) includes agency representatives from;

1. OH & S staff
2. Training officers
3. Recruitment officers

Phase 2: Workshop

Participants (n=12)

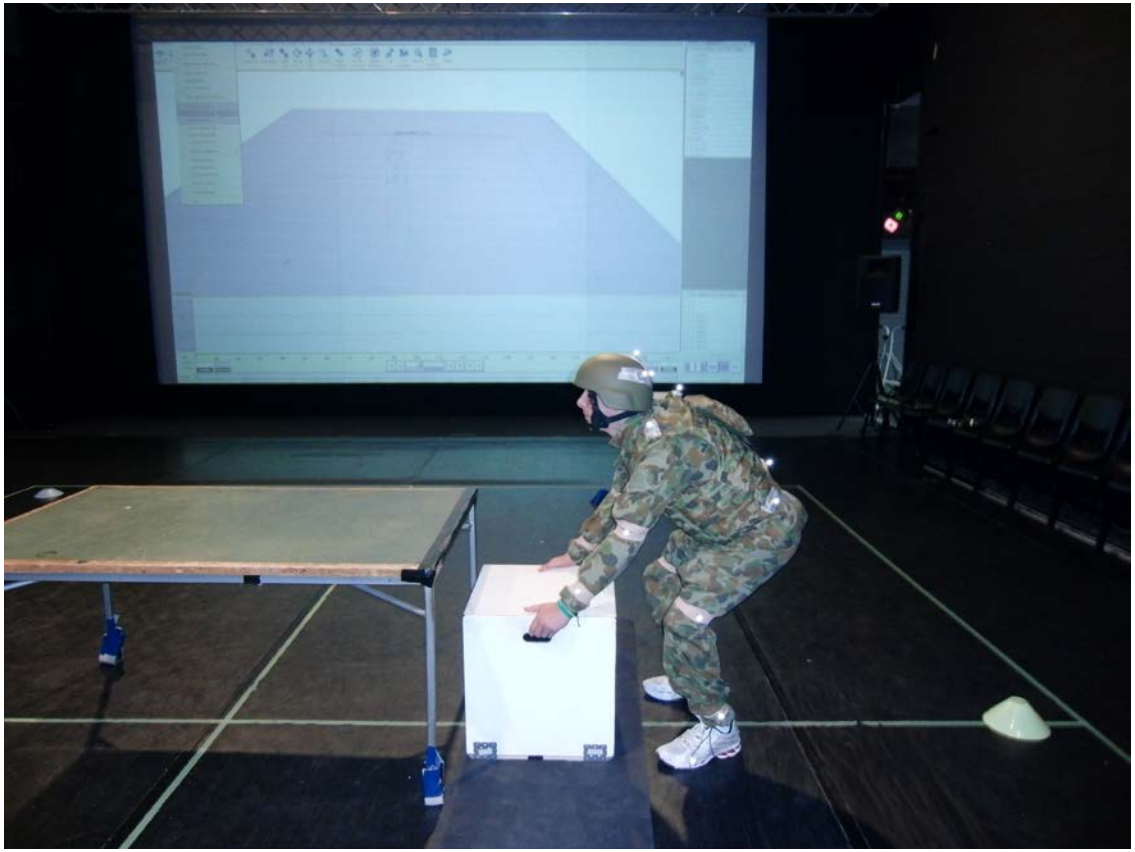
1. Incumbent
2. Agency
3. Sports scientists
4. Legal/employment officer

Half day workshop in which a prototype PST is developed based upon the job tasks

Phase 2: Workshop Procedures

A) Job Task Analysis Verification	B) 7 Critical Job Tasks	C) Job Tasks to Test Components
View video footage of 7 critical job tasks Provide rating of agreement of JTA to their knowledge of the job using a 9 point Likert Scale	Identify and quantify the percentage of contribution of each job tasks • Core actions/ movements • Core muscle groups used • Individual or group tasks • Plane of motion • Fitness component	Allocate a test or multiple tests for each critical job task Indicate the relationship between the test(s) selected and task

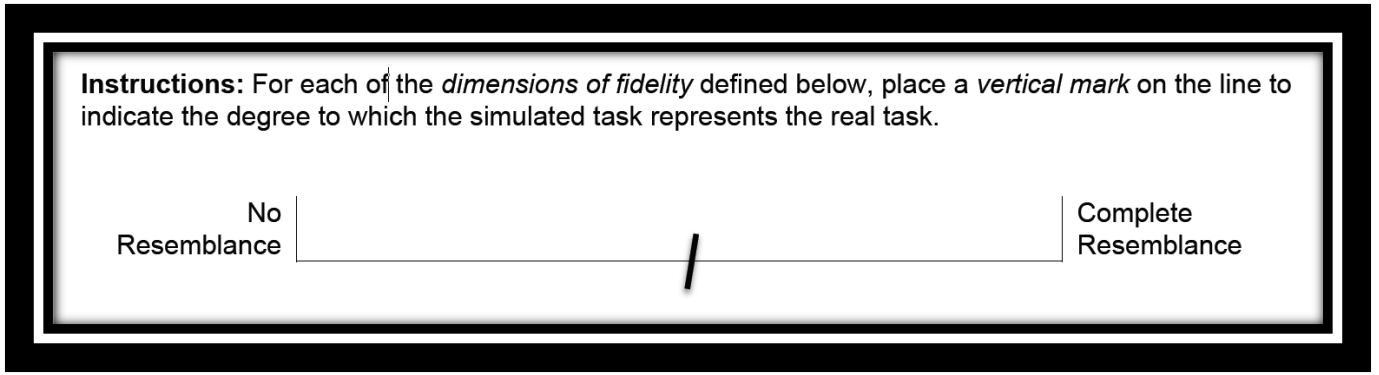
Phase 3: Pilot testing/video



Phase 4: Survey of Incumbents

Participants: Incumbent volunteer firefighters (n=500)

Online survey which asks respondents to rate the level of ‘likeness’ between the job and the PST prototype. This is known as Operational Fidelity. There are different domains of fidelity including physical, environmental and psychological.



Phase 5: Agency verification

Agency panel from Phase 1

Verification of PST prototype still meets agency parameters

- Cost to run test
- Equipment required
- Location of testing
- Duration of test

Reliability

Participants:

N = 30 tanker-based volunteer firefighters

Recruited through Country Fire Authority and Country Fire Service. Participants will be aged over 18 years old.

Protocol:

1. Perform the PST prototype designed in Study 1 once at 9am
2. Repeat PST 30 minutes after the completion of the first trial
3. Repeat PST after 6 hours rest from completion of the first trial
4. Repeat PST 7 days after first trial at 9am
5. Repeat PST 14 days after first trial at 9am

Validation

1. Complete the PST designed in Study 1
   - Physical and physiological measures will be taken

2. Complete the ASH Simulation
   - Three days of 10 hour ‘work’ shifts
   - Indoor controlled environment
   - Six key tanker-based firefighting job tasks are performed
   - Frequency, duration and intensity of simulated job tasks are based on ‘real’ firefighting data

3. Provide rating of Work Ability Index

4. SME provide a rating of Work Ability

Next steps:

- Setting cut-off scores
  - Effects on workforce
- Development of training guidelines
  - Appropriate training for volunteers
- Implementation
  - Costing of conducting testing
  - Number of ‘fail’ attempts
  - Training of ‘assessors’
  - Testing manual

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