

Experienced firefighter's perceptions of key tasks for safe and productive tanker-based bushfire suppression .

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Background

Our group has previously reported remotely measured work patterns of real bushfire suppression and direct aerobic demands of common bushfire fighting tasks (1,2). Direct observation of real life bushfire suppression is limited due to the numerous pressures of an emergency situation to both participants and researchers. Researchers must therefore generate accurate simulated situations to comprehensively define the full physical demands of tanker based bushfire suppression, which are currently unknown. The informed opinions of expert fire fighters can be used to determine which fire ground tasks require more detailed scientific analysis within a simulated trial (3,4).



Methods

21 experienced CFA personnel (55.2 ± 8.4 years old, 25.7 ± 12.7 years of active bushfire experience, 10.5 ± 6.2 years as a strike team leader) collectively evaluated a list of 55 common fire fighting tasks in four separate sessions. Common fire tasks were evaluated according to physical demand, perceived importance, difficulty, the types of actions performed during each task, the types of energy systems used during each task and potential risk of injury involved with each task. Contributions from each session were weighted according to the number of participants in that session. An overall weighted score of over 0.60 was used as the response threshold.

Results

Figure 1. Activity type distributions of all Crew Member tasks

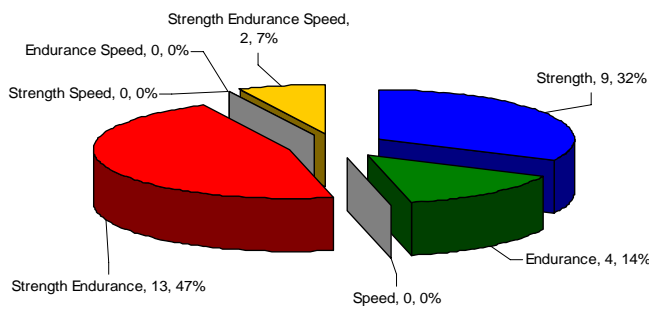


Figure 3. Activity Category distributions of commonly performed fire ground tasks

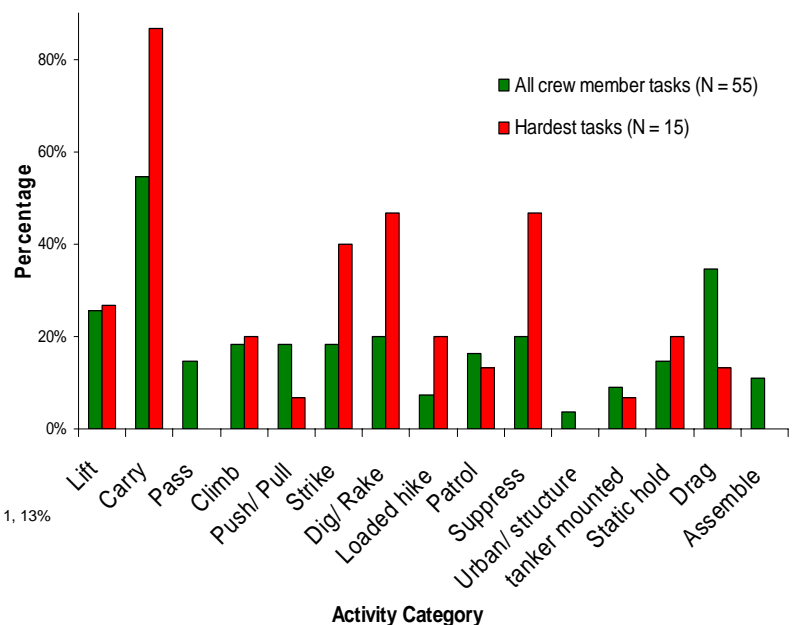
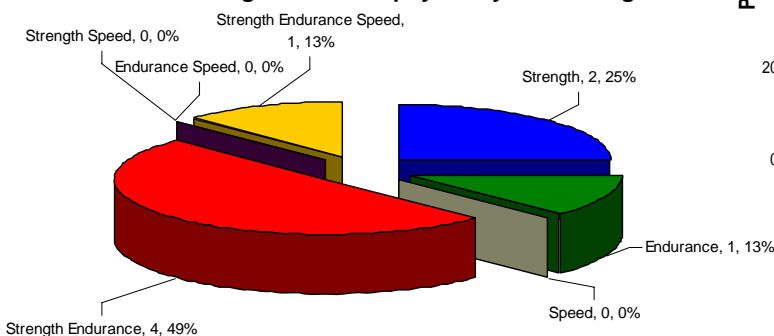


Figure 2. Activity type distributions of tasks identified as higher risk and physically demanding



Conclusion

Major findings from the study were:

- 15 out of 55 (27%) common fire ground tasks were considered to be more physically demanding and to involve a higher risk of injury.
- Similarly to military populations (3), this task analysis showed a tendency to use 'Strength- Endurance' and 'Strength' when completing bushfire tasks. This was consistent in the harder tasks (Figure 2) and in the normal tasks (Figure 1) . Job selection batteries when selecting fire fighters should factor in these components.
- Experienced bushfire fighters consider the **most demanding bushfire tasks** to involve a 'carry' component or be conducted with **manual hand tools**. **No driving tasks or hose advance/ relocation** activities were considered amongst the hardest tasks, but were considered amongst the most operationally important and most frequently performed. This suggests that operational practices of volunteer fire fighting have evolved to avoid 'carry' and manual tool suppression work.

This study has provided a **detailed scientific task analysis** of experienced fire fighters perceptions of fire fighting and **increased the accuracy of simulated field work** into the physical demands of fire fighting.

References

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