A duty fitness test for tanker-based fire fighters

M. Phillips [1], J. Raines [1], D. Nichols [2], J.Pringle[1], S. Cramer [2], G. McConell [1] & B. Aisbett [1]
[1] Department of Physiology, The University of Melbourne, Vic. [2] Country Fire Authority, Vic

Structural and dry hand tool based fire fighting have been repeatedly identified as physically demanding occupations. Similar research has not been conducted into Australian tanker based bushfire fighting. Without this knowledge, fire agencies cannot match the capabilities of their fire fighters to the demands of their job, a practice known to enhance productivity and lower job related injury rates.

Recent research by Program D2.1 research teams, conducted over the bushfires of 2006-07 and within volunteer brigades in Victoria, has for the first time, identified the physical demand of common fire ground tasks both operationally and during simulated situations. Remote recording equipment, that monitors variables related to physical demand, was placed on bushfire fighters for 53 shifts during the bushfires of 2006-07. Information obtained from these shifts included GPS movement, physical activity level, work duration and heart rate. Simulated bushfire work was conducted between April and August 2007 with volunteer brigades and involved collection of expired air samples, a direct measure of the metabolic response to bushfire work, in addition to the fore mentioned variables.

The first part of the presentation will focus on quantifying the physical demands of tanker based fire fighting. Results indicate the most demanding bushfire fighting tasks involve load bearing (knapsack spraying) or manual tool handling (rake hoe work). Work intensities recorded during operational and simulated bushfire work may be as high as those shown in previous fire ground research, but may involve shorter duration.

The rest of the presentation will focus on practical applications of this data for use by fire agencies. Our research group has also designed a tanker based fit for purpose test. Unlike existing fit for purpose tests such as the pack hike or the multi stage shuttle run, this test is being designed specifically for tanker-based bushfire fighting and matched to the work intensity of most demanding bushfire fighting tasks. This fit for purpose test has the potential to match the capabilities of the bushfire fighter to the demands of their job and increase the safety of Australia's bushfire fighting force.