MEDIA RELEASE

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Fit for fires–are our volunteer firefighters up to the test?

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As Australian recovers from its worst ever fire season, a new study establishes for the first time the safe physical work standards that should be applied for the nation's 220,000 volunteer firefighters.

The study by Deakin University PhD student Matt Phillips at the Bushfire Cooperative Research Centre found that the physical stress encountered by a firefighter could demand up to 98 percent of the heart's capacity and 89 percent of the cardiovascular system's capability.

By monitoring firefighters since the 2006–07 bushfire season, the study found that they typically worked a 14-hour day in sustained temperatures over 40 degrees. The results were presented at the Pathfinders: the Innovators Conference in Canberra this week (May 26–28).

"Firefighters who are not fit enough face increased risks of heart attacks and musculoskeletal injuries," Mr Phillips said.

"My work comprehensively quantifies the musculoskeletal and aerobic demands of bushfire fighting and reveals issues of great potential concern. "Surprisingly, before this project, the physical demands of Australian bushfire fighting work were largely unknown."

The data collected, using monitoring equipment on firefighters, covered the physical tasks: how critical they were and how often they were done; stressfulness and the contributions of anaerobic, aerobic and dehydration effects for their loads on heart and lungs.

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Unit 4, Engineering House | 11 National Circuit | Barton ACT 2600 | Australia
t: +61 2 6270 6524 | f: +61 2 6273 1218 | e: crca@crca.asn.au | w: www.crca.asn.au
ABN 42 892 101 689

A complex work simulator was built to validate the data collected from the fire fighters, leading to what Mr Phillips described as a good scientific basis for risk minimisation for firefighters.

“From an emergency management point of view, the physical capacity of firefighters to operate under extreme environmental conditions is critical to both their effectiveness and long term safety,” he said.

“This project has developed a new pathway to quantifying the critical physical components of safe bushfire fighting work. It provides a scientific basis for fire agencies to develop health and safety guidelines that ensure firefighters remain safe on the fire ground.”

Mr Phillips suggests that rural firefighters do not need to have the fitness level of an Olympic level athlete for safe fire fighting.

“Often the fitness levels of rural firefighters are very representative of what we would expect from the wider Australian population,” he said.

“But to function effectively in prolonged, hot work conditions you need at least healthy levels of cardiovascular fitness and musculoskeletal stamina. Individuals with below average or low fitness levels run the risk of being physically overwhelmed by the potential demands of this job.”

The research, supported by the Country Fire Authority of Victoria, will be used to assist volunteer firefighters. A total of seven fire fighting agencies from NSW to Perth were involved in the study.

Mr Phillips said the research could also be applied to other volunteer agencies such as State Emergency Services, Coast Guard, Ski Patrol and Surf Lifesaving.

Mr Phillips is one of eight early career scientists invited to present their research results at the Cooperative Research Centres Association’s Pathfinders Conference at the National Convention Centre in Canberra this week. The CRCA represents Australia’s 50 CRCs operating under a federal government program to drive public/private sector research.

See the conference program at http://www.crca.asn.au/conference/

Information David Bruce, Bushfire CRC, Ph: 03 9412 9600 or 0414 223 281

http://www.bushfirecrc.com/

CRCA Media Ph 0419 250 815; Email crcamedia@gmail.com