

New research recommends supports to help keep Aussie firefighters safe

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House fires, road crashes and emergency rescues—they're all part of the job for Aussie firefighters. And in such physically demanding roles, maintaining a high level of fitness and [movement quality](#) is essential.

Now, [new research](#) in the *Journal of Strength and Conditioning Research* from health and fitness experts at the University of South Australia shows that professional firefighters have reduced movement quality as they age, which [could put them at greater risk of injury](#).

Conducted by UniSA masters researcher, Alex Redshaw, in partnership with the South Australian Metropolitan Fire Service (MFS), the findings indicate that firefighters over the age of 50 generally have lower movement quality than their younger counterparts, and would benefit from additional functional strength training to maintain a fit and healthy workforce.

Good movement quality underpins all essential movements required to safely perform critical components of physical function, including balance, stability, and muscular strength. It is developed through functional strength training using exercises that replicate body movements and patterns seen in [daily activities](#) (such as lunging, squatting, bracing, pressing).

This is the first study on the effect of age on movement quality in Australian firefighters, and largest [firefighter](#) cohort in the world.

[Statistics show](#) that firefighters have an injury rate more than three times that of the non-tactical workforce. It is well-established that movement quality deteriorates with age in the [general population](#), but there is conflicting evidence in older tactical populations.

With an aging population and more than 40% of South Australian firefighters aged over 50, the MFS was keen to understand how they could best support their members to maintain a safe and healthy career for as long as possible. Assessing movement quality, [physical activity](#), injury history and body mass index (BMI) among 324 South Australian MFS firefighters, researchers found that firefighters older than 50 were

more likely to have poor movement quality.

They also found that firefighters with a high BMI, who participate in less than 150 minutes of physical exercise per week, and have had a musculoskeletal injury in the past 12 months, have lower movement quality, and may be at an increased risk of injury.

UniSA researcher Dr. Hunter Bennett says exercise interventions could be offered as part of a supportive workplace health and safety program.

"Firefighters are routinely exposed to unique physiological and physical hazards, including [extreme temperatures](#), heavy personal protective gear and unstable workspaces, all of which contribute to an increased risk of injury," Dr. Bennett says. "Good movement quality supports well-coordinated performance within these environments, but aging can deteriorate these functions, which may put older firefighters at risk.

"The MFS deploys a range of supports to maintain a fit and healthy workforce but is always on the lookout for additional improvements to benefit their members. In this study we found that older firefighters had poorer movement quality than their younger counterparts, and that this increased with age. Additionally, firefighters who did more exercise (more than five hours a week) had better movement quality. Knowing this, the MFS can support their members by offering specific movement quality programs to better maintain their physical capabilities as they age."

More information: Alex S. Redshaw et al, Effect of Aging on Movement Quality in Australian Urban Firefighters, *Journal of Strength and Conditioning Research* (2023). [DOI: 10.1519/JSC.0000000000004528](https://doi.org/10.1519/JSC.0000000000004528)

Provided by University of South Australia

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