



# Fire & Rescue NSW

## The Turnout Stronger Project (TSP)

### overview

Fire & Rescue NSW (FRNSW) is a large, decentralised agency with 426 fire stations or facilities and over 8,500 staff.

A key arm of the Health & Safety Branch is the Health & Fitness team, which includes 3 Health & Fitness Advisors (HFAs). Part of their role is to identify dysfunctional movement patterns using the Functional Movement Screen (FMS). The identification of dysfunctional movement patterns, combined with the high manual handling demands of firefighting and rescue operations, led to the development of the Turnout Stronger Project (TSP) to transform the physical preparation of firefighters.

The 3-phase, 16-week project's primary objective was to reduce the risk of musculoskeletal injury to firefighters by increasing movement competency and maximal whole-body strength, as assessed during deadlifting.

### background

#### Project Scope & Needs Assessment

Traditionally, firefighter strength programs have mostly focused on upper and lower limb strength in isolation, with less importance on whole-body strength. Carrying out deadlifting not only increases whole-body strength, it increases overall physical resilience in almost any firefighting and/or rescue operation.

Job task analysis of FRNSW's Urban Search and Rescue (USAR) operations - in combination with a review of Notification of Injury, Illness, Exposure or Near Miss (NIENM) data - identified higher risk fire stations. This data review, an ongoing consultation with professional peers, and a thorough literature review were the major enablers in the development of the TSP's innovative and practical framework of 'tactical strength and conditioning' for FRNSW.

#### Planning Process

The 3-phased approach to the TSP was developed to help mitigate any potential risk, including perceived risk or concern from stakeholders, around a program that requires participants to 'lift heavy'.

**TSP Phase 1 (weeks 1-3) - FMS and Hip Hinge Competency.** The aim was to improve firefighter functional movement and hip hinge (ability to posterior weight shift through the hips) competency

**TSP Phase 2 (weeks 4-7) - Self Selected Strength Training Progression.** Increasing firefighter awareness of balanced strength training, which also provides a 'carry over' benefit to operations.

**TSP Phase 3 (weeks 8-16) - 3 RM Deadlifting Training Protocol.** There are non-negotiable competency criteria for safely progressing participants to the 'deadlift' training protocol.

Evaluation across the 3 phases also assists the study of (a) the effectiveness of different training delivery methods, e.g. face to face, skype, phone or a combination, b) the integration of TSP into existing and future programs, c) education on the purpose of the program and d) minimising the risk of musculoskeletal injuries.



### the journey to change

An overview of the TSP was circulated to Zone Commanders, allowing the Health & Fitness team to convey key benefits and features of the project. After a thorough review of research that aligned with other international high-performance, tactical strength training models, a program was developed, aimed at reducing injury risk and improving the operational capability of firefighters. The TSP was endorsed by FRNSW Executive Director People & Culture and rolled out in identified high-risk stations.

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Implementation of the project was challenging, with firefighters regularly transferring between stations, as well as the need to remain 'on-line' and on 'stand by' for other stations presenting the biggest hurdles.

Regular updates were provided to project stakeholders, resulting in continued development of



working relationships as well as increased word-of-mouth interest across the commands.

## **results**

The results of the TSP demonstrate a significant contribution to improving organisational performance and engagement of staff. The key results from the TSP show that firefighters increased movement competency by 23.7%, the average 3RM deadlift of firefighters increased by 12.2% and painful and dysfunctional movements were halved in the FMS.

The project was completed early-May 2017, just prior to TMF Award submission. The most important follow-up item required to ensure quality assessment is a longitudinal analysis of injuries/claims of program participants.

## **challenges**

This project had several challenges to implementation, such as gaining and keeping the engagement of multiple stakeholders, a highly mobile workforce that was required to remain operational, and a resistance to change relating to IT tools. These challenges resulted in the utilisation of a combination of delivery mediums, reducing the burden on face to face resources.

## **future strategies**

The models and results of the TSP indicate there is a benefit in training firefighters' agency-wide. Moving forward this approach can be expressed as 2 broad objectives: 1) Establish a higher level of movement competency across the organisation, and 2) Continue to increase the maximal strength of firefighters.