

Strategies to Prevent Injuries among Firefighters (SPIFi): Updates to Physical Exercise

I. Physical Exercise Injuries

Exercise has been the most frequent activity associated with work-related injury at TFD, accounting for 33% of all injuries. As part of the SPIFi risk management process, activities and corresponding hazards encountered during physical exercise were assessed, leading to the identification of control strategies.

The risk management team members defined Physical Exercise (PE) in the fire service as follows:

“The purpose of physical exercise is to prepare one for their job and to condition a person to perform those job tasks with the utmost amount of efficiency, so that injuries are prevented.”

In a previous study, we found that over a five year span, “fit” and “less fit” commissioned TFD employees were found to have an increased likelihood for injury than their “most fit” peers. However, PE, if done in an unsafe manner, frequently results in injury.

The primary aspects of PE identified as needing improvement (Figure 1) generally fell under one of two categories: (1) the structure of PE, and (2) its management. Despite the existence of a standard operating procedure (SOP) describing the requirements for physical fitness, the level of awareness, enforcement and thus, adherence have previously been inconsistent throughout the department.

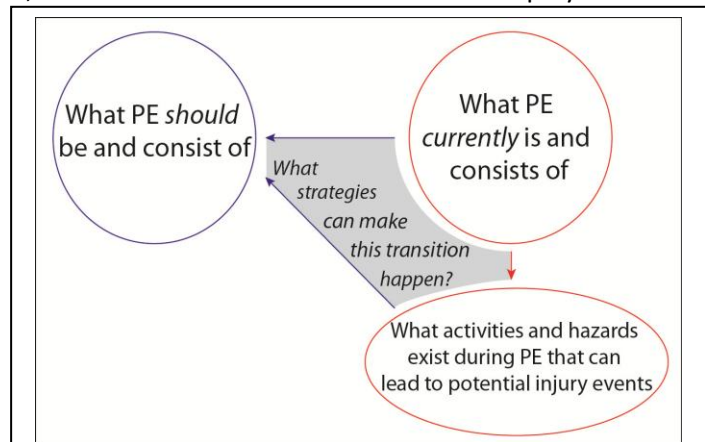


Figure 1. Approach to managing physical exercise risks

II. PE Intervention Strategies

The top priority for PE control measures was to revise and update the current manual of operations (MOP) directed at physical exercise and fitness. In particular, it is still agreed that *each workday should include a mandatory workout*; however, the timing of each station’s workout should be left to the discretion of the shift captain and crew’s consensus. Thus, *the current two 90 minute time slots for exercise (0800-0930 and 1530-1700 hours) was eliminated*. There should be enough latitude for the individual captain to structure the workday most efficiently for the day’s obligations and crew’s working capacity, both of which can vary on a daily basis.

The basic structure of every exercise period should begin with a 5-10 minute warm-up phase and end with a cool-down. The warm-up should *emphasize movement preparation*. The end of a workout period should encompass a cool-down progression, breathing exercises and static stretches. Daily warm-up and cool-down routines should be completed as a group, rotating the leader of drills. The actual workout between warm-up and cool-down can be carried out as an individual or group, at the discretion of the captain and each individual.

Exercise participation ultimately comes down to the individual; however, it is the responsibility of supervisors to assure everyone is fit for duty and can perform all job functions without risking their own safety or that of their peers. To help ensure that each station was well equipped with proper exercise equipment, *the department provided updated equipment (machines, weights, etc.)* at the very beginning of this intervention process.

The main objective is that all employees complete some form of exercise that maintains one or more of the areas of being “fit for duty.” These areas include: (1) muscular strength, (2) flexibility, (3) cardiovascular

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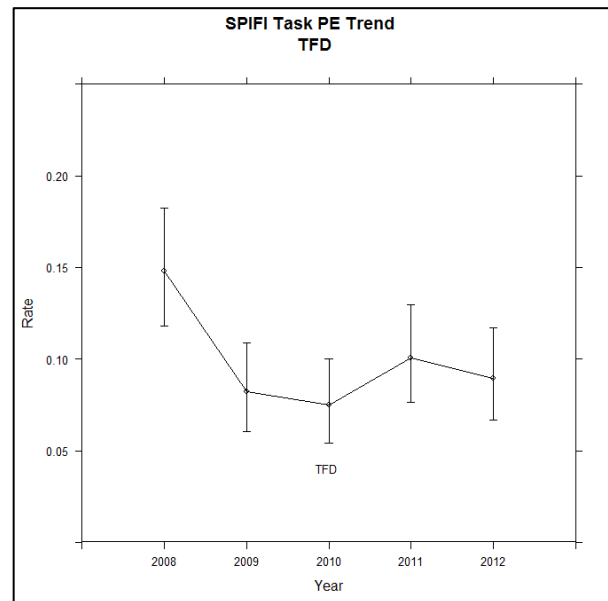
endurance, (4) muscular endurance, and (5) core strength, balance and coordination. Some of the suggested support mechanisms identified include:

Increasing the role of Peer Fitness Trainers (PFTs) to assist probationary officers and those with identified needs was a primary focus. PFTs are a unique resource to the fire service that were greatly underutilized for a variety of reasons. PFTs are inherently invested in physical fitness and wellness; thus employing their self-motivation is easily achieved and will benefit the health/wellness of all employees. PFTs are an excellent resource to aid the probationary firefighter in transitioning from academy to station life. In addition to restructuring the daily workout routines during fire academy, a probationary firefighter was assigned a PFT to assist in this capacity.

Improvements to PFTs involvement, coordination and certifications were made to better prepare them for serving as a resource for all commissioned employees of the fire department.

III. PE Results...

- Less fit commissioned employees are more likely to be injured than their most fit peers.
- Compared to the pre-intervention period (2008-2010), PE injury rates decreased by 40%, but there is too much variation year-to-year to indicate a significant trend.
- While the PFF-Fit program has largely received positive reviews for preparing recruits to perform firefighter duties, it is not yet understood if injuries occurring during academy training were significantly reduced in terms of their incidence or severity.
- TFD commissioned employees thought the risk management process for physical exercise was initially challenging, because it also include drilling. As such, participants felt that the process included multiple components and was too broad to identify specific risks. Once the risk management process was narrowed to focus only on physical exercise, participants felt that it was somewhat useful. The process resulted in a greater appreciation for warming-up and dynamic stretching to reduce overall injury risk, but the participants did not feel that they were able to identify a specific activity that resulted in injury.



IV. More evaluation and results to come

Additional details and contact information can also be found on the project website:
<http://www.spifi.publichealth.arizona.edu/>

KEY POINTS

- A systematic risk management approach was used to identify, design and implement strategies to reduce workforce injuries.
- Three interventions were implemented in the area of physical exercise.
- Since implementation of the risk management interventions, injuries have shown beneficial improvements.
- The interventions are also being evaluated using surveys, focus groups, and interviews.