



Washington Firefighter Survey 2018

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Executive Summary

The Safety and Health Assessment and Research for Prevention (SHARP) program conducted a survey of Washington firefighters in 2018 to better understand their overall health status, work demands, health and safety behaviors, and the impact of traumatic events on their lives. All active career firefighters in the Law Enforcement Officers' and Fire Fighters' Retirement System (LEOFF) were invited to participate in the online survey. The overall response rate for the survey was 9% (n=722).

Key findings

Description of participants

- The majority of firefighters were male (95%), over 35 years of age (79%) and Non-Hispanic white (89%).

Shift work and sleep

- The majority of firefighters reported working 24-hour shifts (94%).
- Over half (57%) reported feeling excessively tired during the day.
- While on duty, 88% reported inadequate sleep (Inadequate sleep: less than 7 hours in 24-hour period).

General and mental health

- More than half of the firefighters reported that, in general, their health was excellent or very good.
- Most reported weekly physical exercise (95%) and strength training (72%).
- 42% reported binge drinking in the past month.
- 7% of the firefighters screened positive for current PTSD.
- 16% screened positive for current depression.
- 39% with likely PTSD or depression reported never having seen a mental health professional.

Hazard exposure and safety

- 66% of the firefighters reported *not always* reporting hazards on the job.
- About one-third of firefighters reported experiencing coughing, wheezing, shortness of breath, and/or chest tightness shortly after fire suppression, overhaul, or live fire training.
- Firefighters reported *not always* using SCBA when exposed— 12% during fire suppression, 25% during live fire training, and 38% during overhaul.
- 19% reported *not always* following the Incident Chain of Command (ICC) during emergency response.

Injuries

- One-third of respondents (33%) reported a work-related injury or illness in the past year, over 5 times higher than expected among other workers.
- 42% of the injuries involved the back or spine.
- Musculoskeletal symptoms were very high among respondents. Most firefighters reported problems in the low back (84%), shoulders (75%), and neck (69%).

Introduction

Firefighters are known to be at high risk for certain injuries and illnesses while on the job. In Washington State (WA), firefighters have a workers' compensation claim rate double that of other workers in the State Fund. Rates of Work-related Musculoskeletal Disorders, such as back sprains and strains, are especially high among firefighters (1). Firefighting has also been more recently recognized for increased risk of Post-Traumatic Stress Disorder (PTSD).

On June 7, 2018, Washington's SB 6214 went into effect allowing industrial insurance coverage for PTSD of law enforcement officers and firefighters. In an effort to understand how this legislation may affect WA's career firefighters, researchers in the Safety and Health Assessment Research for Prevention (SHARP) program reviewed scientific literature on PTSD among firefighters and identified gaps in the research. Much of the research on this topic occurs after a natural disaster or other large events, such as the 9/11 attack in New York City. However, less is known about how many firefighters may have PTSD in response to repeated exposures to traumatic experiences during their more routine duties.

Therefore, the SHARP program developed and administered a survey to all active firefighters in the Law Enforcement Officers' and Fire Fighters' (LEOFF) retirement system to better understand their current overall health status, work demands, health and safety behaviors, and the impact of traumatic events on their lives.

Methods

Data collection

All active WA firefighters in the Law Enforcement Officers' and Fire Fighters' (LEOFF) retirement system, who were still working as of March, 2018 were invited to participate in this survey (n=8,384). Invitations were first sent via email with a link to the online survey. Invitations were also sent to home mailing addresses with the information on how to take the online survey. Finally, firefighters were screened for eligibility (active firefighter in LEOFF) and recruited through a targeted ad placed on Facebook for one week. The online survey collected responses for approximately five months—March 29, 2018 through September 19, 2018. The overall response rate was 9% (n= 722). See Appendix A for the response rate flow chart.

Survey questionnaire

When possible, survey questions from previously tested and validated tools were used. The Washington Behavioral Risk Factor Surveillance System (WA BRFSS) served as a source for questions that collected information on demographics, general health, and work-related injury or illness (2). Musculoskeletal symptoms were assessed using the Standardized Nordic questionnaires (3). The PHQ-9 (patient health questionnaire) was included in the survey to estimate depression prevalence and severity (4,5). The PTSD checklist for DSM-5 (Diagnostic and Statistical Manual of Mental Disorders), the PCL-5, was used to assess

presence of PTSD symptoms (6). The PCL-5 is a self-report measure that includes 20 items and is used to screen for PTSD, but is not to be used as a stand-alone diagnostic tool. The Department of Veterans Affairs (VA) recommended cut-point score of 33 for provisional PTSD diagnosis was used in this study to estimate prevalence. Other questions we developed with safety and health professionals, and reviewed by current and former firefighters for validity.

Analysis

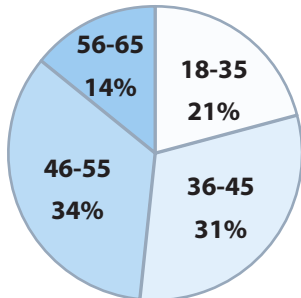
Of the 722 received responses, 184 were excluded from the final analysis because they did not meet eligibility criteria (active firefighter, member of LEOFF) or due to missing age and sex information. Information on age and sex was available for all active firefighters in LEOFF (i.e., the population). The sample that responded to the survey had a similar distribution of males and females compared to entire WA firefighter population (population: 94% male, sample: 95% male). However, younger firefighters were underrepresented in the survey sample (population: 52% were 18-45 years, sample: 42% were 18-45). A weighting factor was applied to survey responses so they would be representative of the firefighter population, see Appendix B.

Comparison group "All Washington Workers"

When possible, comparison data are presented along with the firefighter responses to certain items on the survey. Comparison information on "all Washington workers" was obtained from the WA BRFSS for questions that were in both surveys (i.e., the firefighter survey and WA BRFSS). The BRFSS is a statewide telephone survey conducted annually to collect information on health outcomes and behaviors from noninstitutionalized adults 18 years and older (2). "All Washington workers" were defined as those currently reported being "employed for wages", "self-employed", or "out of work for <1 year"; those who reported being "out of work for 1 year or more", "a homemaker", "a student", "retired", or "unable to work" were excluded.

Participants

Age in Years



Gender

Male **95%** Female **5%**

The majority of firefighters were between 36-55 years old, male, and non-Hispanic white.

Race and Ethnicity

- 89%** White, Non-Hispanic
- 7%** Non-White, Non-Hispanic
- 4%** Hispanic

Rank

- 57%** Firefighter-paramedic, Firefighter-EMT, or Firefighter
- 30%** First Line Supervisor, Captain, or Lieutenant
- 5%** Battalion Chief
- 4%** Deputy or Assistant Chief
- 4%** Other

Tenure

25 years or more	24%
10-24 years	55%
Less than 10 years	21%

21% of firefighters had been on the job for **less than 10 years**.

Education

College 4 years or more (college graduate)	41%
College 1 year to 3 years (some college or technical school)	55%
Grade 12 or GED (high school graduate)	4%

96% of firefighters had attended college or technical school.

Work and Sleep

Firefighters work long shifts.



94% of firefighters reported working 24-hour shifts.

Firefighters reported being **on duty** an average of **51 hours per week**.

19% also reported **working another job**.

Firefighters get too little sleep.

They reported inadequate sleep both on and off duty— less than 7 hours of sleep in a 24-hour period (7).



25% reported too little sleep while **off duty**.

91% reported too little sleep while **on duty**.

“Sleep deprivation is my major issue in regards to negative impacts on health & life.”

Firefighters are often tired during the day.

They frequently reported feeling excessively or overly sleepy during the day in the past month.

Almost always tired (16-30 times)	17%
Often tired (5-15 times)	40%
Sometimes tired (2-4 times)	33%
Never or rarely tired (0 or 1 times)	10%

“I would say the hardest part of the job is sleep interruption...”

“I do think lack of sleep negatively impact safety on & off the job, energy and motivation to exercise..., nutrition quality, and my social/ emotional life in addition to interactions with my family”

General Health and Exercise

General Health

Excellent health	15%
Very good health	46%
Good health	33%
Fair or poor health	6%

61% of firefighters reported that, in general, their health is **very good or excellent**— similar to all Washington workers (59%).



79% of firefighters said they had a **routine checkup** in the last year— more than all Washington workers (57%).



82% of firefighters were in the **overweight or obese BMI*** category— versus 62% of all Washington workers.

* BMI = Body Mass Index. BMI can't distinguish between muscle and fat and may misclassify those with high muscle content.

Exercise

Firefighters reported more physical exercise and strength training than all Washington workers.

	Exercise	Strength Training
5 or more times per week	19%	8%
3-4 times per week	43%	29%
1-2 times per week	27%	34%
1-3 times per month	6%	15%
None or Don't know	5%	14%

95% of firefighters reported some **physical exercise** in the past month vs. 83% of all Washington workers.

86% reported some **strength training** in the past month vs. 49% of all Washington workers.

Behavioral Health



7% of firefighters screened positive for **work-related PTSD**.

4x more firefighters screened positive for **depression** than all Washington workers.

Firefighters: 20%

All Washington Workers: 5%

PTSD and depression often co-occur: 81% of firefighters who screened positive for PTSD also screened positive for depression.

39% of firefighters with likely PTSD or depression have **never seen a mental health professional**.

Firefighters report binge drinking* more often than workers in the general population.



42% of firefighters reported **binge drinking** in the past month, compared to 26% of all Washington workers.

Firefighters reported binge drinking an average of **4x a month**.

*Having five or more drinks for men, or four or more drinks for women, on an occasion is considered binge drinking. One drink= a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor.

Firefighters were less likely to report smoking of vaping, but use chewing tobacco more.

	Firefighters	All Washington Workers
Smoke cigarettes	1%	16%
Use chewing tobacco, snuff or snus	11%	5%
Use e-cigarettes or other electronic vaping products	1%	21%



Hazardous Exposure and Safety

Exposures to hazards on the job should always be reported to the department or safety officer, but **66%** of firefighters said that they **do not always report exposures to hazards**, and **9%** **never do**.



96% of firefighters reported being **exposed to vehicle exhaust** for more than a few minutes during at least some incident responses or trainings.



Some firefighters reported that they **did not always use SCBA** when exposed during:

Fire suppression	12%
Live fire training	25%
Overhaul	38%



Less than half of firefighters said that they always wore hearing protection **en route to fires**.

Only 35% always wore hearing protection when **en route to rescue or EMS incidents**.

Firefighters reported having **soot or ash beneath clothing** at least sometimes:

- 62%** After fire incident response
- 48%** After a live fire training evolution/event

Only about half of firefighters reported **always decontaminating** “yourself” and “gear” after fire incident responses or training evolutions/events.



About **one-third** of firefighters reported experiencing **coughing, wheezing, shortness of breath, and/or chest tightness** shortly after fire suppression, overhaul, or live fire training.

19% of firefighters reported **not always following the Incident Chain of Command (ICC) during emergency response**.

Inability to communicate with incident commanders, **lack of confidence** in incident commanders, and **no time** were common reasons for not following the ICC during emergency response.

“overall crew safety take priority”

“immediate need to get something done”

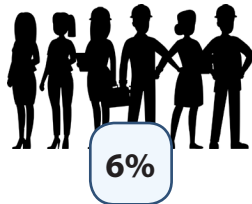
“unable to find or reach [the incident commander] on the radio”

Injuries

Firefighters reported being injured at work in the previous year more than all Washington workers.

Firefighters

All Washington Workers



Close to half (42%) of the firefighters' injuries involved the **back or spine**.

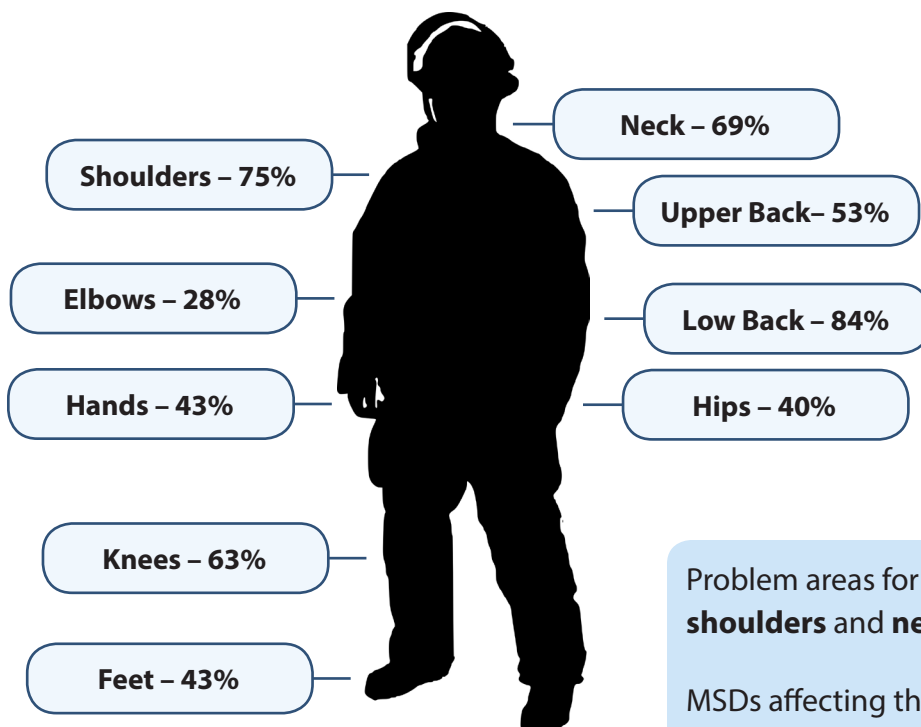
Firefighters who were injured on the job missed an average of **15 days** of work due to the injury.

Musculoskeletal Disorders (MSDs)

Musculoskeletal disorders affect the soft tissue of the body, such as muscles, tendons, ligaments, and nerves. MSDs can be painful and debilitating.

Some MSDs are caused by work. All MSDs can be made worse by certain tasks at work and can affect how someone does his or her job.

Firefighters reported MSD symptoms such as **pain, discomfort, or numbness** in many parts of the body.



"I love what I do...but my body can't handle 25 more years of this work."

Problem areas for firefighters include the **low back, shoulders** and **neck**.

MSDs affecting these body areas are commonly caused by **overexertion in lifting** (e.g., lifting patients).

What Participants Said about Firefighting

Participants in the survey shared additional thoughts about firefighting on topics that were not included on the survey.

Love their work:

"I love what I do, where I do it, and who I do it with..."

"I love what I do... I want to thrive and live to enjoy my pension and watch my future grand-kids grow."

"There are a lot of things about being a firefighter that are really great."

"I love what I do...I want to survive it."

Workplace discrimination:

"Discrimination and threats of retaliation for trying to stop discrimination...contributes to stress at work. I believe that the employee has a responsibility to maintain their health (mental and physical) but I also believe that the employer should provide a safe workplace to include one that is free from harassment, bullying, discrimination, and retaliation."

Understaffing:

"In my career, the number of calls and training events have increased by approximately 50%. The fire department has had an increase in calls but has not increased staffing."

"My Fire Department, compared to comparable sized fire departments is understaffed... This causes additional stress and fatigue for personnel."

Unhealthy eating:

"...job stress causes me to over eat which has made me gain weight causing my diabetes and sleep apnea and makes it difficult to perform my job duties."

"Ask questions about healthy dietary habits..."

Recommendations

This survey was conducted to identify safety and health risks to Washington career firefighters. It could be performed annually to track changes over time or potentially identify new risks. Encouraging increased participation would be necessary for success of future surveys.

The information provided by this survey highlights areas of focus for future safety and health efforts among firefighters. Washington State passed SB 5175 in 2019, in which the Department of Labor and Industries must establish best practices to improve safety and health outcomes for firefighters. The results from this survey highlight areas of concern and can be used to inform those developing the best practices.

Firefighters do not get adequate sleep.

- Departments should educate firefighters on the symptoms of sleep disorders, such as:
 - Feeling tired or exhausted most of the time, even during the day.
 - Trouble falling asleep at night, or waking often during the night.
- Encourage those with symptoms to seek medical treatment.
- Free sleep resources for first responders:
 - NIOSH training for emergency responders on reducing risk associated with long work hours. <https://www.cdc.gov/niosh/emres/longhourstraining/>
 - International Association of Fire Chiefs sleep deprivation resources: <https://www.iafc.org/topics-and-tools/resources/resource/sleep-deprivation>

Firefighters are at risk for mental health illnesses and binge drinking.

- Departments should train firefighters on recognizing the symptoms of mental health illness. See the following IAFF (International Association of Fire Fighters) resources to learn more about symptoms:
 - Depression: <https://www.iaffrecoverycenter.com/behavioral-health/depression/>
 - PTSD: <https://www.iaffrecoverycenter.com/behavioral-health/ptsd/>
 - Substance abuse: <https://www.iaffrecoverycenter.com/substance-abuse/signs/>
- Don't wait. Encourage those with symptoms to get treatment from mental health professionals. For information on how to get help now:
 - <https://www.iaffrecoverycenter.com/get-help-now/>
 - Safe Call Now provides a simple and confidential way to ask for help: **206-459-3020** (<https://www.wscff.org/health-wellness/safe-call-now/>)

Recommendations

Reduce hazardous exposures.

- Departments should implement policies that enable and encourage firefighters to understand and follow the industry standards developed to keep them safe. See the NFPA (National Fire Protection Association) codes and standards:
<https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/List-of-Codes-and-Standards>
 - Firefighters should report *all* hazardous exposures to their health and safety officer according to exposure reporting requirements. Everyone will be safer if hazardous exposures are reported. (NFPA 1500-35 exposure reporting requirements).
 - Following *every* live fire incident or training event, all incident personnel and their gear should be decontaminated (NFPA 1851-18 standard on selection, care, and maintenance of protective ensembles for structural firefighting and proximity fire fighting).
 - Firefighters should *always* wear SCBA in hazardous atmospheres (NFPA 1500-24 respiratory protection program). Exposure from fires and post-fire overhaul is hazardous.
 - Firefighters should *always* wear hearing protection when subject to noise in excess of 90 dBA (NFPA 1500-26 hearing protection). Typical noise levels for fire apparatus and ambulance sirens are 120-130 dBA.

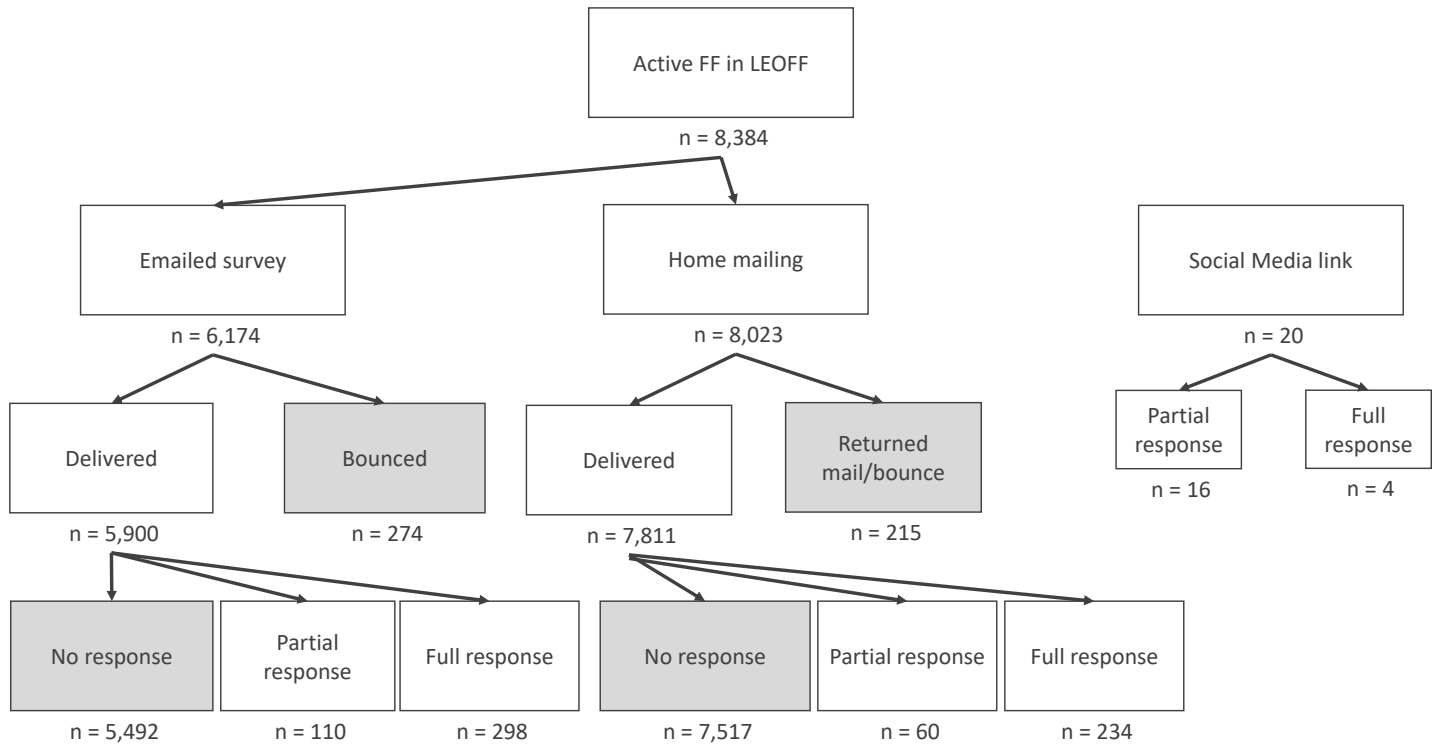
Firefighters are at high risk for work-related injuries and illnesses.

- Every fire department should have an occupational safety and health program. The NFPA 1500 describes the industry standard minimum requirements on an occupational safety, health and wellness program.
- Departments should consider implementing a risk management approach for prevention, it has been shown to be effective in reducing injuries and workers' compensation claims. To learn more:
https://www.usfa.fema.gov/current_events/112817.html
- Musculoskeletal problems were commonly reported. Ergonomics, including proper lifting techniques and providing specially designed lifting equipment, should be a focus of injury prevention efforts.
- The Division of Occupational Safety Health (DOSH) of the Washington State Department of Labor and Industries (L&I) offers free ergonomic consultations: <https://www.lni.wa.gov/Safety/Consultation/>

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Appendix A: Response rate flow chart



Shaded boxes represent survey non-response.

Response rate= partial and full responses from: email (408) + home mailing (294) + social medial link (20) / 8,384 = 9%

Appendix B: Survey weighting factors

	Population	Sample	Weighting Factor
Age (years)	n=8,384	n=538	
18-25	1.53%	0.56%	2.7321
26-35	19.44%	15.80%	1.2304
36-45	30.86%	25.65%	1.2031
46-55	34.23%	41.08%	0.8333
56+	13.94%	16.91%	0.8244