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A call to rest: Mitigating the impacts of the extended firefighter workweek

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ABSTRACT

Firefighting is a physically and mentally demanding profession often requiring extended workweeks exceeding the national average for full-time workers. While operationally beneficial, these schedules pose substantial risks to firefighter health, safety, and performance due to chronic sleep disruption and related challenges. This article explores the implications of extended firefighter workweeks on physical health, mental resilience, and occupational safety, with a particular focus on sleep disruption. Through a synthesis of existing research, it examines the associated risks, including cardiovascular disease, metabolic disorders, burnout, and post-traumatic stress disorder, as well as impacts on family life and organizational efficiency. In response to these challenges, this article provides recommendations for shift adjustments, such as transitioning to alternative schedules, aligning shift start times with natural sleep cycles, and normalizing on-duty rest and recovery breaks. It also highlights the importance of educating firefighters on sleep hygiene and addressing external factors that may impair off-duty recovery. While there is a lack of comprehensive research on the long-term effects of these interventions, early investigations indicate their potential to mitigate health risks and improve workforce sustainability. By prioritizing firefighter well-being through structural and cultural reforms, this article aims to guide fire departments, policymakers, and researchers in fostering a healthier, more effective firefighting workforce.

Key Words Firefighter health; sleep disruption; extended workweeks; occupational safety; mental health challenges; scheduling solutions; work–life balance.

INTRODUCTION

Firefighting is a profession defined by its inherent physical and psychological demands, where individuals commit to safeguarding communities often at significant personal cost. Unlike most full-time workers in the United States, who average a 41.9-hour workweek, firefighters routinely endure extended shifts that result in 56-hour weeks or more, excluding mandatory or voluntary overtime (U.S. Bureau of Labor Statistics, 2024).

While desirable for operational needs, these demanding schedules may have far-reaching consequences for firefighter health, mental well-being, and job performance. Central to these challenges is sleep disruption – a pervasive issue exacerbated by long shifts and unpredictable emergency calls (Billings & Focht, 2016). Firefighters may develop shift work disorder, a condition characterized by insomnia and excessive sleepiness due to the misalignment of work hours with natural biological rhythms (Wickwire et al., 2017). The detrimental effects of chronic sleep deprivation and shift work disorder can ripple across firefighters' physical health, mental resilience, personal lives, and job safety, creating a critical need for systemic change to the extended workweek schedule.

In certain instances, fire departments may require firefighters to work more than the already demanding 56-hour workweeks. This intensification of workload would logically exaggerate the already significant challenges associated with sleep disruption, chronic health conditions, and mental health struggles. Such extended schedules could likely result in even greater rates of burnout, workplace injuries, and recruitment and retention challenges, undermining workforce sustainability and operational effectiveness. Instead of alleviating staffing or operational shortfalls, this approach risks creating a detrimental cycle of overwork, illness, and attrition, making it a short-sighted and counterproductive strategy for addressing the complex needs of fire departments and their personnel.

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SLEEP AND THE WORKWEEK

One common justification for the extended workweek is that firefighters have opportunities to sleep while on duty. However, this argument is flawed for several reasons. First, any sleep that firefighters may get during their shift is frequently interrupted by emergency calls, radio dispatch noise, or poor sleeping environments, preventing them from achieving the deep, restorative stages of sleep necessary for physical recovery and cognitive functioning. Research shows that fragmented sleep can be as detrimental as not sleeping at all, leaving individuals just as fatigued and impaired (Benkirane et al., 2022). Second, the unpredictability of the job means that firefighters often do not have the opportunity to sleep at all during their shifts, particularly in busy departments or urban areas with high call volumes. Even in quieter stations, the stress and hypervigilance associated with being on duty can make it difficult to fall and stay asleep, further reducing the quality of rest (Lewis-Schroeder et al., 2018). If some sleep is obtained during shifts, it does not replace the need for consistent, high-quality sleep in an environment conducive to rest. Finally, relying on this argument ignores the cumulative effects of sleep disruption over time and the impact of inadequate off-duty sleep on firefighters. Extended workweeks and mandatory/forced overtime work may compound the problem by leaving insufficient time between shifts for firefighters to fully recover, perpetuating a state of chronic sleep debt. Even when firefighters have the opportunity to sleep off duty, the quality of their rest is often compromised by lingering physiological and psychological stress from their shifts (Watkins et al., 2021).

Sleep is a cornerstone of overall health and well-being, as it plays a critical role in physical recovery, cognitive function, and emotional regulation. Sleep also plays a crucial role in trauma processing, memory integration, and learning (Rasch & Born, 2013). During sleep, particularly during rapid eye movement (REM) sleep, the brain processes emotional experiences, aiding in the regulation of stress responses and facilitating emotional healing (Vandekerckhove & Wang, 2017). Memory consolidation during sleep strengthens neural connections, integrating new information with existing knowledge, which is essential for learning and cognitive development (Hoedlmoser et al., 2022). Quality sleep enhances problem-solving abilities, creativity, and retention, making it indispensable for both psychological resilience and intellectual growth (Lewis et al., 2018). Chronic sleep deprivation is strongly correlated with nearly every major adverse health outcome, including cardiovascular disease, obesity, diabetes, cancer, weakened immune function, mental health disorders, and an increased risk of premature death (Ramos et al., 2023). Without adequate sleep, the body and mind cannot repair and restore themselves, leading to a cascade of negative health effects that affect both quality of life and long-term survival.

PHYSICAL HEALTH CHALLENGES ASSOCIATED WITH SLEEP DISRUPTION

Cardiovascular Health

Chronic sleep deprivation poses a significant risk to cardiovascular health. Sudden cardiac deaths account for nearly half of firefighter line-of-duty fatalities, and insufficient sleep significantly heightens this risk (Smith, 2016). Studies have shown that firefighters with sleep disorders are more likely to develop cardiovascular conditions such as high blood pressure, hypertension, and heart disease (Romero Cabrera et al., 2021).

Metabolic Disorders

Sleep disruption also interferes with metabolic and hormonal processes, elevating the risk of obesity, diabetes, and other metabolic disorders. Circadian rhythm disruptions caused by shift work impair glucose metabolism and hormonal balance, which are critical for maintaining healthy body weight and energy levels (Khoshakhlagh et al., 2023). Intense physical activity and high-stress environment of firefighting can also elevate cortisol levels, interfering with the ability to fall and stay asleep (Wolkow et al., 2016).

Cancer

Chronic sleep disruption in firefighters is linked to an elevated risk of cancer. Disrupted circadian rhythms, the most marked effect of night shift work, impairs the body's ability to regulate cell growth and repair DNA damage, increasing susceptibility to cancers (IARC, 2020). Firefighters' exposure to carcinogens during emergencies further compounds this risk, making adequate and consistent sleep essential for mitigating long-term cancer risks (Sidossis et al., 2023).

Musculoskeletal Injuries

Poor sleep quality undermines physical recovery after the intense physical demands of firefighting. Sleep disruption negatively impacts heart rate variability (HRV), a key indicator of the body's ability to recover and adapt after high-stress situations. Reduced HRV reflects impaired recovery and heightened physiological stress, which, when combined with chronic fatigue and insufficient recovery time, worsens musculoskeletal injuries and hinders healing processes, leaving firefighters more susceptible to long-term physical ailments (Frost et al., 2021).

MENTAL HEALTH CHALLENGES ASSOCIATED WITH SLEEP DISRUPTION

Stress and Burnout

Firefighters working irregular and extended shifts are particularly vulnerable to burnout, a state characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. Studies reveal that disrupted sleep patterns leave firefighters less equipped to handle occupational stress. Sleep loss also reduces resilience to stress by impairing problem-solving abilities and decision-making, making it harder for firefighters to adapt to their dynamic work environments (Cramm et al., 2021; Wolkow et al., 2019).

PTSD and Anxiety

Sleep disruption significantly increases the risk of post-traumatic stress disorder (PTSD), a condition already highly prevalent among firefighters due to their frequent exposure to traumatic events. Quality sleep is essential for the brain's ability to process and integrate traumatic memories, a critical

function of the REM sleep phase. When sleep is fragmented or insufficient, this processing is disrupted, potentially leaving traumatic experiences unresolved and increasing emotional reactivity to reminders of the event. Chronic sleep disruption also impairs the brain's ability to regulate stress responses, leading to heightened levels of anxiety and hypervigilance, which are hallmarks of PTSD (Healy & Vujanovic, 2021; Testoff et al., 2022).

Depression

The high prevalence of depression in firefighters has been linked to persistent sleep disturbances, which amplify feelings of hopelessness and emotional exhaustion (Carey et al., 2011). Sleep problems also may contribute to social withdrawal and difficulties in forming and maintaining supportive relationships, further isolating individuals and compounding depressive symptoms and increasing suicide risk. The combination of occupational trauma and disrupted sleep creates a cycle where emotional distress leads to poorer sleep quality, which in turn may intensify depression, increasing the overall mental health burden within the firefighting profession (Serrano et al., 2020).

OCCUPATIONAL SAFETY AND PERFORMANCE IMPACTS

Prolonged sleep disruption not only affects the well-being of firefighters but may also jeopardize their safety and performance on the job.

Cognitive Function

The impact of sleep disruption likely extends to occupational safety and job performance. Sleep loss significantly impairs cognitive functions, including attention, decision-making, and memory. These deficits increase the likelihood of errors and accidents during emergency responses (Stout et al., 2021).

Workplace Accidents

Firefighters with chronic sleep disruption are also at a higher risk of motor vehicle crashes and workplace accidents. Research finds that firefighters with sleep disorders reported significantly more near-miss incidents, highlighting the safety risks associated with insufficient sleep (Barger et al., 2015).

Reaction Time

Moreover, reduced sleep diminishes reaction time and physical performance, both critical factors in emergency situations (Frost et al., 2021). These impairments not only endanger the firefighter but also pose risks to their colleagues and the public, further emphasizing the importance of addressing sleep disruption.

All of these sleep problems are further compounded by extended time at work and reduced time at home to recover, potentially leaving firefighters in a chronic state of sleep deficit. Additionally, many firefighters experience difficulties sleeping off shift due to the lasting effects of disrupted circadian rhythms caused by irregular work schedules. Research indicates it takes 3 nights of good sleep to fully recover from just 1 night of poor sleep (Akerstedt et al., 2009), making consistent recovery nearly impossible for those in demanding shift-based professions like firefighting. Consequently, firefighters working the traditional shift schedules may never achieve three consecutive nights of sleep between shifts to fully recover. To address this, some departments are transitioning to alternative schedules, which may provide additional recovery time between shifts and may help mitigate the cumulative effects of sleep disruption.

FIREFIGHTER WORK–LIFE BALANCE AND THE WORKWEEK

The impacts of extended workweeks also extend deeply into firefighters' personal lives, especially their work–life balance and family relationships. The long hours and irregular schedules often lead to significant sacrifices in personal and family time, including missed birthdays, holidays, and other important life events (Garmezy, 2023). This absence can strain marriages and partnerships, creating emotional distance and communication challenges that may lead to marital conflicts or even divorce (Porter & Henriksen, 2016). Firefighters may have a spouse or partner who also works shift work, which can further exacerbate challenges related to sleep disturbances, family dynamics, and overall well-being (Wöhrmann et al., 2020). The combination of both partners navigating irregular schedules and disrupted sleep patterns can compound stress, fatigue, and difficulties in maintaining a work–life balance. The lack of time for personal relaxation or hobbies further compounds stress, leaving firefighters feeling emotionally and physically depleted. Children of firefighters are particularly affected by the irregular schedules and extended absences, often experiencing feelings of neglect or anxiety due to their parents' demanding job and the inherent risks they face (Duarte et al., 2006). These factors can create long-term emotional strain within families, as well as feelings of guilt for the firefighter who must continually choose between their duty to the public and their loved ones (Sharp et al., 2022).

ORGANIZATIONAL CHALLENGES AND THE WORKWEEK

Extended workweeks may also present significant organizational challenges for fire departments. The demanding schedules contribute to burnout, making it increasingly difficult to recruit and retain qualified firefighters. Prospective candidates may be deterred by the physically and emotionally taxing nature of the job, compounded by long hours that limit personal and family time (Neal, 2017). For current staff, these schedules often lead to exhaustion and dissatisfaction, prompting many to leave the profession in search of jobs that offer better work–life balance (Smith et al., 2018). These challenges with recruitment and retention may force departments to invest significant time and resources into training replacements, further straining their budgets (Patterson et al., 2010). The loss of institutional knowledge and experience resulting from retention challenges can also be significant, as it is often difficult to replace or replicate. Additionally, overworked firefighters are more prone to illness and injury, resulting in elevated rates of sick leave and workers' compensation claims (Orr et al., 2019; Walton et al., 2003). These claims not only create financial burdens but also reduce the

number of available personnel, forcing departments to rely heavily on overtime. This reliance may perpetuate a cycle of overwork, increasing stress and increasing the very issues the department is trying to address, while also compromising the effectiveness of the workforce (Portillo et al., 2024).

DISCUSSION

Shift adjustments, such as transitioning to a 24/72 schedule or adjusting shift start times to align with normal sleep cycles, present promising opportunities to address the health and performance challenges associated with extended firefighter workweeks. A 24/72 schedule provides firefighters with three days off between shifts, potentially allowing more time for physical and mental recovery. This extended recovery period may help mitigate the cumulative effects of sleep debt, prevent chronic fatigue, and reduce the risk of associated health issues. Furthermore, longer intervals between shifts may improve work–life balance by providing firefighters with more opportunities to spend time with their families, engage in personal activities, and practice self-care. These benefits could translate into enhanced job performance, with firefighters returning to duty more alert, focused, and prepared for emergency situations.

However, implementing a 24/72 schedule is not without challenges. Organizations adopting this model would likely need to increase staffing levels to maintain operational coverage, which could strain budgets, particularly in smaller or resource-constrained departments. Additionally, transitioning to a new schedule may encounter resistance from those accustomed to traditional models, necessitating education and negotiation to ensure buy-in.

Adjusting shift start times to better align with more typical sleep cycles is another potential solution. Starting shifts later in the morning or evening could allow firefighters to achieve uninterrupted sleep during optimal nighttime hours, improving sleep quality and reducing fatigue. However, operational complexities such as reconfiguring shift overlaps or handovers could pose logistical challenges. The effectiveness of later start times may also vary depending on individual sleep patterns and station activity levels, requiring personalized approaches.

Allowing firefighters to sleep later in the mornings while on duty, particularly after busy nights responding to emergency calls, represents another potential critical shift adjustment to support health, safety, and performance. Extending morning rest periods enables firefighters to recover from the demands of nighttime work, reducing the effects of cumulative sleep debt and enhancing their readiness for the next shift. This recommendation aligns with research on the importance of sleep recovery in mitigating fatigue-related cognitive impairments and physical exhaustion. By providing additional recovery time, fire departments could promote improved decision-making, emotional regulation, and overall resilience among their workforce. Additionally, allowing later morning sleep aligns with the natural biological drive for rest following intense physical or mental exertion, further enhancing recovery outcomes.

Another critical consideration is allowing firefighters to take rest or recovery breaks or sleep during shifts. Historically, this practice has been viewed as a sign of laziness or inefficiency; however, it is increasingly recognized as a necessary component of maintaining health, safety, and performance. Strategic rest and recovery breaks can help firefighters mitigate the effects of sleep deprivation. Short naps of 20–30 minutes can restore alertness and improve cognitive performance, while longer naps may provide deeper restorative benefits. Overcoming cultural stigmas associated with sleeping on duty will require leadership support and education about the critical role of sleep in sustaining firefighter readiness and effectiveness.

In addition to structural changes, it is essential to educate firefighters on the importance of sleep when they are off duty. Sleep hygiene practices, such as creating a conducive sleep environment, adhering to consistent sleep schedules, and avoiding stimulants before bedtime, should be emphasized. Moreover, firefighters should be encouraged to evaluate and address external factors affecting their ability to rest, such as major life events, household dynamics, or underlying physiological or psychological issues, or other barriers to sleep quality.

The Fatigue Risk Assessment Toolbox Guide provides a comprehensive set of tools to help organizations identify, assess, and mitigate fatigue-related risks in the workplace. This resource can be particularly valuable for fire departments seeking to enhance firefighter health, safety, and performance by implementing structured fatigue management strategies. By using this guide, departments can develop evidence-based policies, conduct fatigue risk assessments, and implement practical interventions to address sleep deprivation and shift work challenges (CSA Group, 2023).

To ensure successful implementation of shift adjustments, fire departments could consider conducting pilot programs to test new schedules and collect data on health and performance outcomes. While these adjustments offer promising benefits, there is currently a significant lack of comprehensive research examining their long-term effects on firefighter health, safety, and operational efficiency. This gap underscores the need for more robust studies to guide evidence-based decision-making. Encouragingly, some researchers are beginning to investigate these issues, laying the groundwork for critical advancements in this area.

CONCLUSION

The 56-hour workweek in the fire service impacts firefighters' physical and mental health, increasing the risk of chronic illnesses, injuries, and mental health challenges. Chronic sleep deprivation, linked to the irregular schedules of the profession, heightens risks of significant physical and mental health issues, compromises safety, and diminishes quality of life for firefighters and their families. The traditional scheduling models worsen these issues by failing to provide adequate recovery time, perpetuating a cycle of burnout and attrition.

To address these challenges, fire departments must consider innovative scheduling solutions, such as transitioning to schedules that allow for more recovery time between shifts. Additionally, broader systemic changes, including increased attention to firefighter wellness programs, are essential. By prioritizing firefighter health and well-being, departments can foster a sustainable workforce that is better equipped to serve communities effectively and safely.

CONFLICT OF INTEREST DISCLOSURE

The author has no conflicts of interest to declare.

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