



**article**

**Article from  
The Firefighters Health Commission**

# **SLEEP HEALTHY**

**Optimizing Sleep for Firefighters**

**Enhancing Performance, safety, and well-being**



All articles from CTIF firefighters health commission has been processed, worked and agreed on by a united health commission.

# Sleep healthy in the emergency service

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Health commission visiting a fire station in Vienna doing field work and working on this article.

From the left: Clemens Novak, Tommy Kjaer, Anders Geertsen, Martin zur Nieden, Dorothee Knauf-Hübel

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## **Introduction:**

Firefighters operate in a high-stakes environment that requires peak performance and quick decision-making. However, the demanding and unpredictable nature of their work schedules often disrupts their sleep patterns, leading to sleep deprivation and impaired cognitive and physical abilities. Optimizing sleep for firefighters is crucial to ensure their well-being, performance, and safety. By understanding the challenges, they face and implementing evidence-based strategies, firefighters can enhance their sleep quality and duration, leading to improved job performance and overall quality of life.

The World Health Organization's (WHO) International Agency for Research on Cancer (IARC) revealed a new classification, Monograph 132, on June 30th, 2022. In the new classification occupational exposure suffered by firefighters was classified as "carcinogenic to humans" (Group 1) based on "sufficient" evidence for cancer in humans. These exposures of firefighters commonly come from combustion products, diesel exhaust, building materials such as asbestos, ultraviolet radiation, and shift work (interrupted sleep).

In this article, CTIF Health Commission will describe some of the sleep-related challenges that firefighters face, to give the reader a better understanding of the importance of a good healthy sleep pattern, and to help optimize sleep during both shift and personal time.

## **Understanding the Importance of Sleep:**

Sleep is a fundamental physiological process that plays a vital role in cognitive functioning, memory consolidation, and physical recovery. It consists of different stages, including rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep, each serving specific functions. Adequate sleep quantity and quality are essential for firefighters to maintain optimal attention, reaction time, decision-making, and emotional regulation.

## **Sleep Challenges for Firefighters:**

Firefighters face unique challenges in achieving adequate sleep due to their shift work schedules. Shift work, including night shifts and rotating shifts, disrupts the body's natural circadian rhythm and can lead to difficulties in falling asleep, staying asleep, and obtaining restorative sleep. Furthermore, the nature of their work, which involves responding to emergencies and exposure to traumatic events, can contribute to increased stress and post-traumatic stress disorder (PTSD), further impacting sleep quality.

### **Promoting Healthy Sleep Habits:**

Establishing a consistent sleep schedule is crucial for regulating the body's internal clock. Firefighters should prioritize regular sleep times, even on days off, to promote better sleep continuity. Creating a sleep-friendly environment involves ensuring a dark, quiet, and comfortable sleep environment, optimizing room temperature, and using relaxation techniques, such as deep breathing or progressive muscle relaxation, to facilitate sleep induction, falling asleep, and staying asleep.

### **Strategies for Managing Shift Work Sleep Disorder:**

Shift work sleep disorder (SWSD) is a common challenge for firefighters. Napping strategically during breaks can help mitigate fatigue and promote alertness. During night shifts, firefighters can optimize their alertness by ensuring exposure to bright light during work and minimizing exposure to bright light during the commute home. Transitioning between day and night shifts can be challenging, but gradually adjusting sleep schedules and using strategies such as melatonin supplementation can aid in the transition process.

### **Sleep Disorders and Seeking Professional Help:**

Identifying and addressing sleep disorders is crucial for firefighters' overall well-being. Common sleep disorders, such as insomnia, sleep apnea, and restless leg syndrome, can significantly impact sleep quality and quantity. Firefighters should seek professional help from sleep specialists who can diagnose and develop tailored treatment plans to manage these disorders effectively.

### **Promoting Mental and Emotional Well-being:**

Firefighters often face traumatic events and high levels of stress, which can negatively impact their sleep. Proper coping mechanisms for trauma and PTSD, such as counseling or therapy, are essential for promoting mental and emotional well-being, reducing anxiety, and improving sleep outcomes. Encouraging a supportive work environment and fostering peer support can also contribute to better mental health and sleep quality.

### **Lifestyle Factors Impacting Sleep:**

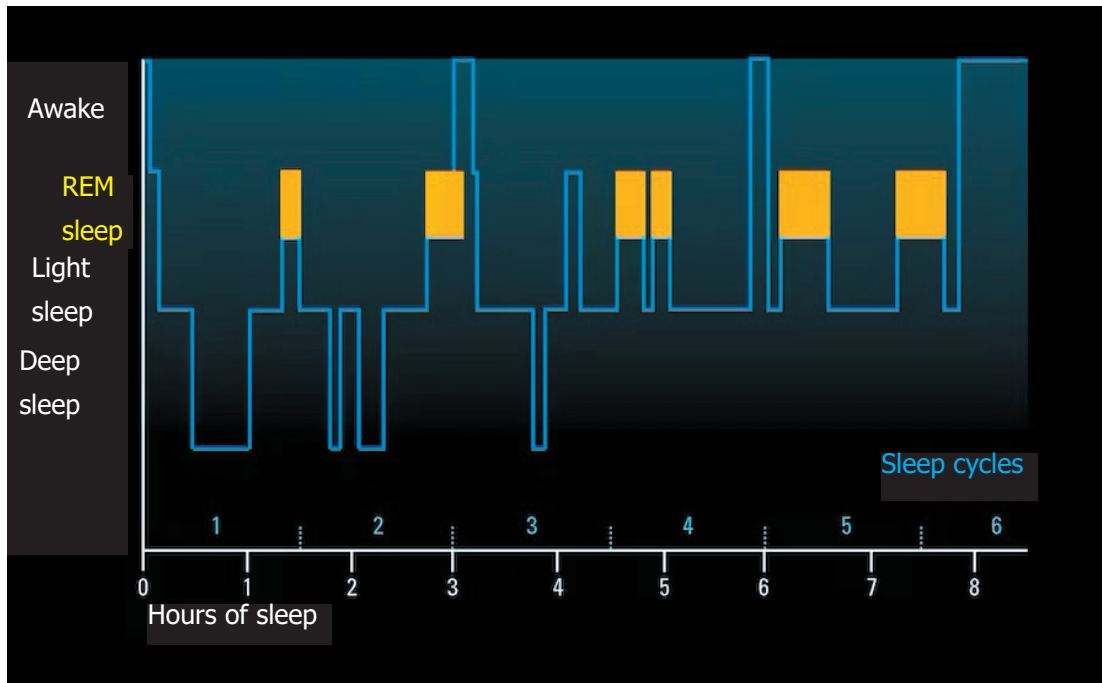
Engaging in regular physical activity has numerous benefits for sleep, including improving sleep quality and reducing sleep disturbances. Adopting a balanced diet, avoiding heavy meals close to bedtime, and managing caffeine and alcohol consumption can positively influence sleep. Caffeine should be consumed in moderation and avoided in the evening, while alcohol should be limited as it can disrupt sleep architecture and lead to fragmented sleep.



Firefighters in "Hauptfeuerwehrwache Leopoldstadt" fire station have their private sleeping quarters with optimized possibilities to make the room dark, and to regulate the air and room temperature.

## How long is one night of sleep:

According to the Danish National Working Environment Research Center (NFA), adults need between 7 and 9 hours of sleep every night to avoid negatively affecting their health; however, one interrupted sleep cycle per week will probably not have any negative effect on an individual's health. One night's sleep contains several cycles ranging from being awake to REM sleep, light sleep, and deep sleep. Most people can awaken between cycles without any negative effect and have no memory about it the day after.



Our sleep cycle consists of several phases. Above you can see the three phases in which you are in light, deep and REM sleep. In the first phase, you are as if not sleeping, but in a daze. Together, the phases form a sleep cycle. A normal night contains between 4 and 6 sleep cycles.

Phase 1: Awake/doze. You're not quite asleep yet, but you're not awake either.

Phase 2: Light sleep. You are no longer conscious, but you are easily awakened.

Stage 3: Deep sleep. Your body complete relaxes, and it's not easy to wake you up.

Stage 4: REM sleep. You typically dream and find it very easy to wake up.

## About night work and pregnancy:

- Pregnant women with more than one-night shift per week have an increased risk of a miscarriage the following week.
- Pregnant women with more than three-night shifts per week have an increased risk of elevated blood pressure and preeclampsia; the risk increases for severely obese women.
- One weekly night shift seems to be without risk for a miscarriage.

Nightshift work can be a cause cancer of breast cancer in women, prostate and colon and rectum cancers.

(WHO 2019)

## Educating and Supporting Firefighters:

Providing education on sleep hygiene and the importance of sleep is crucial for raising awareness among firefighters. Training programs can focus on managing the challenges associated with shift work, optimizing sleep schedules, and implementing effective coping strategies for stress and traumatic events. Encouraging peer support and establishing resources, such as sleep support groups or online platforms, can provide a valuable network for firefighters to share experiences, seek advice, and support each other in prioritizing sleep.

## Conclusion:

Optimizing sleep for firefighters is a multifaceted endeavor that requires attention to their unique challenges and the implementation of evidence-based strategies. By prioritizing healthy sleep habits, managing shift work challenges, addressing sleep disorders, promoting mental well-being, and adopting a holistic approach to lifestyle factors, firefighters can enhance their sleep quality and duration. Continued research, education, and support are crucial for developing tailored approaches to address the specific sleep needs of firefighters and ensuring their optimal performance, safety, and well-being.

## Links, studies, and reports:

<https://www.firstrespondersleeprecovery.com/sleep-loss-is-killing-firefighters>  
<https://www.fireengineering.com/health-safety/addicted-to-awake/>  
<https://www.cordico.com/2023/03/28/first-responders-and-sleep-disorders/>  
<https://www.firerescue1.com/fire-chief/articles/firefighter-sleep-7-ways-to-improve-your-crews-sleep-and-safety-qlFkNemP5Rce58N5/>  
<https://pubmed.ncbi.nlm.nih.gov/28914325/>

Garry Huang. Prevalence of sleep disorders among first responders for medical emergencies: A meta-analysis

Eun Hee Jang. The Development of a Sleep Intervention for Firefighters: The FIT-IN (Firefighter's Therapy for Insomnia and Nightmares) Study

Diane L. Elliot. (IAFC) Effects of Sleep Deprivation on Fire Fighters and EMS Responders

Risikofaktor Schichtsystem Zur Schlafqualität im Rettungsdienst

Damien Leger. Le travail posté et de nuit et ses conséquences sur la santé: état des lieux et recommandations

IARC monograph 132

IARC. Carcinogenicity of night shift work

Sirpa Luca. Sleep disturbances predict long-term changes in low back pain among Finnish firefighters: 13-year follow-up study.