

Twelve Hours and Counting

In a world that never sleeps, shift workers play a crucial role in maintaining our world's infrastructure, keeping it churning. From nurses and paramedics to pilots and pipeliners, millions of people work hours that do not align with the natural rising and setting of the sun. While essential, the lifestyle of shift workers creates a continuous conflict between professional responsibilities and the body's need for rest and recovery. The day-to-day challenges of shift work go far beyond simple tiredness; they create a perfect storm of physiological and psychological stressors that significantly increase the risk of errors and accidents.

The primary culprit behind shift work challenges is the disruption of their circadian rhythm, which is the body's internal clock. Shift workers are prone to disruptions in their circadian rhythms because their work schedules demand alertness during times when the body is naturally programmed to sleep.

Shift workers must be vigilant in managing fatigue in all aspects of their lives. Even with a daily adjustment of the body's circadian rhythm, fatigue can occur at any time and disrupt normal functioning. This can lead to impaired motor skills, mood swings, and poor decision-making. Additionally, fatigue can lead to microsleep, which are involuntary episodes of sleep lasting only a few seconds. In a safety-critical environment like pipeline operations, a fifteen-second microsleep can be the difference between safety and disaster.

The psychological effects of shift work are well-documented. Research indicates that a worker who has been awake for 17 hours performs cognitively at a level similar to someone with a blood alcohol concentration (BAC) of 0.05%. After 24 hours of wakefulness, that cognitive impairment jumps to the equivalent of a 0.10% BAC, which is above the legal driving limit in many states and countries. A sober but sleep-deprived pipeline controller may be making critical operating decisions with the same cognitive impairment as someone who is legally intoxicated.

In everyday life, fatigue from shift work can lead to negative incidents, such as an outburst with your spouse over family plans, or even "lane drifting" during

the commute home. However, the consequences of shift work extend beyond personal issues; they can have societal and environmental consequences as well. Some of the world's most notorious industrial accidents have occurred during early morning hours and involved crews who were struggling with extended shifts and circadian disruption.

The Chernobyl nuclear disaster, in 1986, was one such incident. The operators involved had been on duty for many hours, and the critical test that led to the explosion was conducted by a night shift crew that had not been properly briefed on the previous day's events. The crew was operating in a state of decreased vigilance and heightened irritability which led to a series of panicked, non-standard decisions and the bypassing of safety protocols. Research into the disaster, which occurred at 1:24 am, suggests that the operators' ability to process rapidly changing data on their consoles had significantly slowed. This slowdown transformed conflicting priorities and a technical glitch into an overwhelming situation and a global catastrophe.

The pipeline industry, along with everyone it serves and supports, relies on your hard work and dedication to self-care. Stay rested, stay vigilant, and know that your rest and recovery are essential for your well-being and the safe operation of the pipelines.

